



**STANDARD TENDER DOCUMENT ELECTRICAL (G) DEPARTMENT NORTHERN RAILWAY
2022**

Website: www.nr.indianrailways.gov.in

I N D E X

S. No.	SUBJECT
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NOTE

Standard General Conditions of Contract Of GCC 2022 will be applicable on the STD.
Content of the same may be downloaded from Railway Board's
website www.indianrailways.gov.in/railwayboard

DISCLAIMER

The information contained in this tender document or subsequently provided to the Tenderers, whether verbally or in documentary form by or on behalf of the Northern Railway, their employees, is provided to the Tenderers on the terms and conditions set out in the tender document and all other terms and conditions subjected to which such information is provided.

The purpose of the tender document is to provide the Tenderers with information to assist in the formulation of their Proposal. The tender document does not purport to contain all the information for all the persons, and it is not possible for Northern Railway, their employees to consider the business/investment objectives, financial situation and particular needs of each tenderer who reads or uses this tender document. Each tenderer should conduct its own investigations, inspection and analysis, and should check the accuracy, reliability and completeness of the information in the tender document and wherever necessary obtain independent advice from appropriate sources. Northern Railway, their employees make no representation or warranty and shall incur no liability under any law, statute, rule or regulation as to the accuracy, reliability or completeness of the tender document.

PART-I
REGULATIONS FOR TENDERS AND CONTRACTS
FOR THE GUIDANCE OF ENGINEERS & CONTRACTORS FOR WORKS
CONTRACTS

1 MEANING OF TERMS

1.01 Applicability: These Conditions of Contract shall be applicable for all the tenders and Contracts of Railways for execution of Works as defined in GFR 2017.

1.02 Order of Precedence of Documents: In a tender/contract, in case of any difference, contradiction, discrepancy, with regard to Conditions of tender/contract, Specifications, Drawings, Bill of quantities etc., forming part of the tender/contract, the following shall be the order of precedence:

- i. Letter of Award
- ii. Schedule of Items, Rates & Quantities
- iii. Special Conditions of Contract
- iv. Technical Specifications as given in tender documents
- v. Drawings
- vi. Indian Railways Standard General Conditions of Contract updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.
- vii. CPWD Specifications 2019 Vol I & II updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents, if applicable in the contract.
- viii. Indian Railways Unified Standard Specification (IRUSS-2019) updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents, if applicable in the contract.
- ix. Indian Railways Unified Standard Specifications (Works and Material) 2010 updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents, if applicable in the contract.
- x. IR Specifications/Guidelines updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.
- xi. Relevant B.I.S. Codes updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.

1.1 Interpretation: These Regulations for Tenders and Contracts shall be read in conjunction with the Standard General Conditions of Contract which are referred to herein and shall be subject to modifications additions or suppression by special conditions of contract and/or special specifications, if any, annexed to the Tender Forms.

1.2 Definition: In these Regulations for Tenders and Contracts the following terms shall have the meanings assigned hereunder except where the context otherwise requires:

- (a) **"Railway"** shall mean the President of the Republic of India or the Administrative Officers of the Railway or Successor Railway authorized to deal with any matters, which these presents are concerned on his behalf.
- (b) **"General Manager"** shall mean the Officer-in-Charge of the general superintendence and control of the Zonal Railway/Production Units and shall also include Addl. General Manager, the General Manager (Construction) and shall mean and include their successors, of the Successor Railway.
- (c) **"Chief Engineer"** shall mean the Officer in charge of the Engineering Department of Railway and shall also include the Chief Engineer (Construction), Chief Electrical Engineer, Chief Electrical Engineer (Construction), Chief Signal & Telecom Engineer, Chief Signal & Telecom Engineer (Construction), Chief Mechanical Engineer and shall mean and include their successors of the Successor Railway.
- (d) **"Divisional Railway Manager"** shall mean the Officer in charge of a Division of the Zonal Railway and shall mean and include the Divisional Railway Manager of the Successor Railway.
- (e) **"Engineer"** shall mean the Divisional Engineer or the Executive Engineer, Divisional Signal & Telecom Engineer, Divisional Electrical Engineer, Divisional Mechanical Engineer in executive charge of the works and shall include the superior officers of Open Line and Construction organizations on the Railway of the Engineering, Signal & Telecom, Mechanical and Electrical Departments, i.e. the Senior Divisional Engineer/Deputy Chief Engineer/Chief Engineer, Senior Divisional Signal & Telecom Engineer / Dy. Chief Signal & Telecom Engineer, Senior Divisional Electrical Engineer / Deputy Chief Electrical Engineer, Senior Divisional Mechanical Engineer and shall mean & include the Engineers of the Successors Railway.
- (f) **"Tenderer"** shall mean the person / the firm / co-operative or company whether incorporated or not who tenders for the works with a view to execute the works on contract with the Railway and shall include their personal representatives, successors and permitted assigns.
- (g) **"Limited Tenders"** shall mean tenders invited from all or some Contractors on the approved or select list of Contractors with the Railway.
- (h) **"Open Tenders"** shall mean the tenders invited in open and public manner and with adequate notice.
- (i) **"Works"** shall mean the works contemplated in the drawings and schedules set forth in the tender forms and required to be executed according to the specifications.

- (j) **"Specifications"** shall mean the Specifications for Materials and Works of the Railway as specified under the authority of the Ministry of Railways or Chief Engineer or as amplified, added to or superseded by special specifications if any, appended to the Tender Forms.
- (k) **"Schedule of Rates of the Railway"** shall mean the Schedule of Rates issued under the authority of the Chief Engineer from time to time.
- (l) **"Drawings"** shall mean the maps, drawings, plans and tracings or prints thereof annexed to the Tender Forms
- (m) **'Contractor's authorized Engineer'** shall mean a graduate Engineer having more than 3 years experience in the relevant field of construction work involved in the contract, duly approved by the Engineer.
- (n) Date of inviting tender shall be the date of publishing tender notice on IREPS website if tender is published on website or the date of publication in newspaper in case tender is not published on website.

1.3 Singular and Plural: Words importing the singular number shall also include the plural and vice versa where the context requires.

2.0 Tender for Works : Tender form will consist document as per annexure-1

2.1 e-Publishing: Tender notice and Tender Documents for open Tenders are being published on Northern Railway website :www.nr.indianrailways.gov.in for general information purpose in terms of **Railway Board letter no: 2014/CE-I/WP/5 Dated: 05.02.2016 & 18.10.2016.**

2.2 Validity of Tender: Tender must be open for the period as mentioned in cover letter of Tender Document. Validity of tender for single packet=60 days & for two packet system =90 days. (**Rly.Bd. Letter no. 2017/Trans/01/Policy dated 08.02.2018 & HQ letter no.74/-W/0/Pt.II/Revised Standard Tender Document/2022/WA dated 08.07.2022 Correction Slip No.1**). Further extension to the validity of tender shall be decided mutually.

2.3 Amendment of Tender Document: Before the deadlines for the submission of Tender Document, Railway may modify the Tender Document by issuing Addendum/Corrigendum. Tenderers are advised to down load Tender Documents well in advance to submit the Tender before the stipulated time. However it is the responsibility of the Tenderer to check any correction or any modifications (Addendum/Corrigendum) published subsequently in newspapers as well as on web site and same shall be taken in to account while submitting the Tender. Tenderer shall down load corrigendum (if any) print it out, sign and attach it with main Tender Document. **Railway will not be responsible for any network error or internet connection as there would be sufficient time to submit the tender through e-Tendering.**

3.0 Care in Submission of Tenders:

- (a) (i) Before submitting a tender, the tenderer will be deemed to have satisfied himself by actual inspection of the site and locality of the works, that all conditions liable to be encountered during the execution of the works are taken into account and that the rates he enters in the tender forms are adequate and all inclusive to accord with the provisions in Clause-37 of the Standard General Conditions of Contract for the completion of works to the entire satisfaction of the Engineer.
- (a)(ii) Tenderers will examine the various provisions of The Central Goods and Services Tax Act, 2017(CGST)/ Integrated Goods and Services Tax Act, 2017(IGST)/ Union Territory Goods and Services Tax Act, 2017(UTGST)/ respective state's State Goods and Services Tax Act (SGST) also, as notified by Central/State Govt. & as amended from time to time and applicable taxes before bidding. Tenderers will ensure that full benefit of Input Tax Credit (ITC) likely to be availed by them is duly considered while quoting rates.
- (a)(iii) The successful tenderer who is liable to be registered under CGST/IGST/UTGST/SGST Act shall submit GSTIN along with other details required under CGST/IGST/UTGST/SGST Act to railway immediately after the award of contract, without which no payment shall be released to the Contractor. The Contractor shall be responsible for deposition of applicable GST to the concerned authority.
- (a)(iv) Incase the successful tenderer is not liable to be registered under CGST/IGST/UTGST/ SGST Act, the railway shall deduct the applicable GST from his/their bills under reverse charge mechanism (RCM) and deposit the same to the concerned authority.
- (b) When work is tendered for by a firm or company, the tender shall be signed by the individual legally authorized to enter into commitments on their behalf.
- (c) The Railway will not be bound by any power of attorney granted by the tenderer or by changes in the composition of the firm made subsequent to the execution of the contract. It may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the Contractor.

3.01 The tenderers shall submit a copy of certificate stating that all their statements/documents submitted along with bid are true and factual. Standard format of certificate to be submitted by the bidder is enclosed as **Annexure-XXIV.In addition to Annexure-XXIV, in case of other than Company/Proprietary firm, Annexure-XXIV(A) shall also be submitted by the each member of a partnership firm/Joint Venture(JV)/Hindu Undivided Family(HUF)/Limited Liability Partnership(LLP)etc.as the case may be.** Non submission of above certificate

by the bidder shall result in **summarily** rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self-attested/digitally signed by which they / he is qualifying the Qualifying Criteria mentioned in the Tender Document.

NOTE: 1. Submission of copy of certificate as per Annexure-XXIV is not mandatory if the bidder has confirmed and certified the same online at the time of submission of bids. 2. Submission of copy of certificate as per Annexure-XXIV(A) is mandatory for each member of a Partnership Firm/ Joint Venture (JV)/ Hindu Undivided Family (HUF)/ Limited Liability Partnership (LLP) etc., as the case may be.

- 3.1 Tenderer Constitution and requirement of Authorize Signatory:** The tenderer/s who are constituents of firm, company, Joint Venture (JV) association or society must forward attested copies of the constitution of their concern, partnership deed and power of attorney with their tender as per Tender form 3 of Tender Document. Tender documents in such cases are to be signed by such persons (as may be legally competent to sign them on behalf of the firm, company, JV association or society as the case may be). The Railway will not be bound by any power of attorney granted by the tenderer/s or by changes in the composition of the firm made subsequent to the award of the contract. **Para 4 of Annexure VIII** specifies the action to be taken in such matters. The cost of such action, including legal advice will be chargeable to the Tenderer/ contractor. The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executants(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure. **(Please refer Para 3.7 and Annexure VIII also).**

- 3.2 Cost of Tender Document:** The cost of Tender Document (TDC) is not refundable. Failure to deposit cost of tender will lead to summarily rejection of tender **The cost of Tender documents will be as per Railway Board's guidelines.** However, e-Tender Forms shall be issued free of cost to all tenderers.

3.3 Earnest Money/ Bid security:

3.3.1 The tenderer shall be required to submit the bid security with the tender for the due performance with the stipulation to keep the offer open till such date as specified in the tender, under the conditions of tender. The Bid Security shall be as under

Value of the Work	Earnest Money Deposit (EMD)
For All works	2% of the estimated cost of the work
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- (i) The Bid Security shall be rounded off to the nearest Rs. 100. This Bid Security shall be applicable for all modes of tendering.
- (ii) Any firm recognized by Department of Industrial Policy and Promotion (DIPP) as 'Startups' shall be exempted from payment of Bid Security deposit detailed above.
- (iii) Labour Cooperative Societies shall submit only 50% of above Bid Security deposit detailed above.
- Note:** - 1. Bid Security will be acceptable online through net banking or gateway payment only in favour of Sr.DFM/NR/Ambala Division. The cost of tender document is not refundable and should not be included with Bid Security.
- 3.3.2** It shall be understood that the tender documents have been issued to the tenderer and the tenderer is permitted to tender in consideration of stipulation on his part, that after submitting his tender he will not resile from his offer or modify the terms and conditions thereof in a manner not acceptable to the Engineer. Should the tenderer fail to observe or comply with the said stipulation, the aforesaid amount shall be forfeited to the Railway.
- 3.3.3 If his tender is accepted, this Bid Security mentioned in sub clause 3.3.1(a) above will be retained as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract 2022 Part-II. The Bid Security of other Tenderers shall, save as herein before provided, be returned to them, but the Railway shall not be responsible for any loss or depreciation that may happen thereto while in their possession, nor be liable to pay interest thereon.**

3.3.4 In case, contractor submits the term deposit receipt/bank guarantee bond Towards full security deposit, the railway shall return the Bid Security so retained to the contractor.

3.3.5 The Bid Security shall be deposited either in cash through e-payment gateway or submitted as Bank Guarantee bond from a scheduled commercial bank of India or as mentioned in tender documents. The Bank Guarantee bond shall be as per Annexure-VIIA and shall be valid for a period of 90 days beyond the bid validity period.

3.3.6 In case, submission of Bid Security in the form of Bank Guarantee, following shall be ensured:

- A scanned copy of the Bank Guarantee shall be uploaded on e-Procurement Portal (IREPS) while applying to the tender.
- The original Bank Guarantee should be delivered in person to Sh. Gaurav Joshi COS/Works/UMB Mob. No.9729530311 or Sh.Ram Munesh Meena SSE/Works/UMB Mobile no.9729539337 within 5 working days before closing date for submission of bids(i.e. excluding the last date of submission of bids)..
- Non submission of scanned copy of Bank Guarantee with the bid on e-tendering portal (IREPS) and/or non submission of original Bank Guarantee within the specified period shall lead to summary rejection of bid.
- The Tender Security shall remain valid for a period of 90 days beyond the validity period for the Tender.
- The details of the BG, physically submitted should match with the details available in the scanned copy and the data entered during bid submission time, failing which the bid will be rejected.

- vi. The Bank Guarantee shall be placed in an envelope, which shall be sealed. The envelope shall clearly bear the identification "Bid for the ***** Project" and shall clearly indicate the name and address of the Bidder. In addition, the Bid Due Date should be indicated on the right hand top corner of the Envelope.
The envelope shall be addressed to the officer and address as mentioned in the tender document.
- vii. If the envelope is not sealed and marked as instructed above, the Authority assumes no responsibility for the misplacement or premature opening of the Contents of the Bid submitted and consequent losses, if any, suffered by the Bidder.

Similar Nature of Work

The Similar nature of work should be defined in tender notice & Section 3 of Tender Document in accordance with the **Pr. CEE Circular no: 181-Elect./Plg./W/Similar Nature of work, Dated.16.03.2022 with all updation list or as amended from time to time.**

- 3.5 Eligibility Criteria:** The Tenderer will be required to meet the following eligibility criteria for which credentials to be submitted by Tenderer, along with Tender Documents (Applicable only for Works Costing more than Rs. 50.0 Lacs or as amended time to time)

Minimum Eligibility Criteria: The tenderers should possess a valid Electrical contractor license in the name of participating firm/company as per IE rules 1956, Clause 45 otherwise offer shall be SUMMARILY REJECTED. Necessary documents to be submitted in this regard.

- a. The successful tenderer shall furnish the names and particulars of supervisor and workmen to be engaged for carrying out this work.
 - b. By a Gazette notification, Govt. of India has appointed Chief Electrical Engineer ,Northern Railway to be the Electrical Inspector and has directed that he shall exercise the powers and perform the functions of an Electrical Inspector under the Indian Electricity Act 1910. The inspecting officers for this contract shall be nominated by the Railways as indicated in the technical specification.

3.5.2 Technical Eligibility Criteria:

- (a) The tenderer must have successfully completed or substantially completed any of the following during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:
Three similar works costing not less than the amount equal to 30% of advertised value of the tender, or
Two similar works costing not less than the amount equal to 40% of advertised value of the tender, or
One similar work costing not less than the amount equal to 60% of advertised value of the tender.
- (b) (i) In case of tender for composite works (e.g. works involving more than one distinct component, such as Civil Engineering works, S&T works, Electrical works, OHE works etc. and in the case of major bridges – substructure, superstructure etc.), tenderer must have successfully completed any of the following during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:
Three similar works costing not less than the amount equal to 30% of advertised value of each component of tender, or
Two similar works costing not less than the amount equal to 40% of advertised value of each component of tender, or
One similar work costing not less than the amount equal to 60% of advertised value of each component of tender.
Note for b(i): Separate completed works of minimum required values for each component can also be considered for fulfillment of technical eligibility criteria.
- (b) (ii) In such cases, what constitutes a component in a composite work shall be clearly pre-defined with estimated tender cost of it, as part of the tender documents without any ambiguity.
- (b) (iii) To evaluate the technical eligibility of tenderer, only components of work as stipulated in tender documents for evaluation of technical eligibility, shall be considered. The scope of work covered in other remaining components shall be either executed by tenderer himself if he has work experience as mentioned in clause 7 (a) (ii) of Part-II of GCC or through subcontractor fulfilling the requirements as per clause 7 of Part-II of GCC or jointly i.e., partly himself and remaining through subcontractor, with prior approval of Chief Engineer in writing.
However, if required in tender documents by way of Special Conditions, a formal agreement duly notarised, legally enforceable in the court of law, shall be executed by the main contractor with the subcontractor for the component(s) of work proposed to be executed by the subcontractor(s), and shall be submitted along with the offer for considering subletting of that scope of work towards fulfilment of technical eligibility.
In case after award of contract or during execution of work it becomes necessary for contractor to change subcontractor, the same shall be done with subcontractor(s) fulfilling the requirements as per clause 7 of Part-II of GCC, with prior approval of Chief Engineer in writing.

Note for 3.5.2:-

Work experience certificate from private individual shall not be considered. However, in addition to work experience certificate issued by any Govt. Organization, work experience certificate issue by Public listed company having average annual turnover of Rs. 500 crore and above in last 3 financial years excluding the current financial year, listed on National Stock Exchange or Bombay Stock Exchange, incorporated /registered at least 5 years prior to the date of opening of tender, shall also be considered provided the work experience certificate has been issued by a person authorized by the Public listed company to issue such certificates.

In case tenderer submits work experience certificate issued by public listed company, the tenderer shall also submit along with work experience certificate, the relevant copy of work order, bill of quantities, bill wise details of payment received duly certified by Chartered Accountant, TDS certificates for all payments received and copy of final/last bill paid by company in support of above work experience certificate.

3.5.3. Financial Eligibility Criteria: Financial Eligibility Criteria: The tenderer must have minimum average annual contractual turnover of V/N or V whichever is less; where

V= Advertised value of the tender in crores of rupees.

N= Number of years prescribed for completion of the work for which bids have been invited.

The average annual contractual turnover shall be calculated as an average of "total contractual payments" in the previous three financial years, as per the audited balance sheet. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover. The tenderers shall submit requisite information as per Annexure-VIIB, along with copies of Audited Balance Sheets duly certified by the Chartered Accountant/Certificate from Chartered Accountant duly supported by Audited Balance Sheet.

3.5.3. No Technical and Financial credentials are required for tenders having advertised value up to Rs 50 lakh.

3.5.4 Credentials if submitted in foreign currency shall be converted into Indian Currency i.e., Indian Rupee as under:

The conversion rate of US Dollars into Rupees shall be the daily representative exchange rates published by the Reserve Bank of India or entity authorized by RBI to do so for the relevant date or immediately previous date for which rates have been published. Where, relevant date shall be as on the last day of month previous to the one in which tender is invited. In case of any other currency, the same shall first be converted to US Dollars as on the last day of month previous to the one in which tender is invited, and the amount so derived in US Dollars shall be converted into Rupees at the aforesaid rate. The conversion rate of such currencies shall be the daily representative exchange rates published by the International Monetary Fund for the relevant date or immediately previous date for which rates have been published.

3.5.5 Explanation for clause 3.5.1 to 3.5.4- Eligibility Criteria: -

1. Substantially Completed Work means an ongoing work in which payment equal to or more than 90% of the present contract value (excluding the payment made for adjustment of Price variation (PVC), if any) has been made to the contractor in that ongoing contract and no proceedings of termination of contract on Contractor's default has been initiated. The credential certificate in this regard should have been issued not prior to 60 days of date of invitation of present tender.

2. In case a work is started prior to 07 (seven) years, ending last day of month previous to the one in which tender is invited, but completed in last 07 (seven) years, ending last day of month previous to the one in which tender is invited, the completed work shall be considered for fulfillment of credentials.

3. If a work is physically completed and completion certificate to this extent is issued by the concerned organization but final bill is pending, such work shall be considered for fulfillment of credentials.

4. In case of completed work, the value of final bill (gross amount) including the PVC amount (if paid) shall be considered as the completion cost of work. In case final bill is pending, only the total gross amount already paid including the PVC amount (if paid) shall be considered as the completion cost of work. In case of substantially completed work, the total gross amount already paid including the PVC amount (if paid), as mentioned in the certificate, shall be considered as the cost of substantially completed work.

5. If a bidder has successfully completed a work as subcontractor and the work experience certificate has been issued for such work to the subcontractor by a Govt. Organization or public listed company as defined in Note for Item 10.1 Para 10 of the Tender Form (Second Sheet), the same shall be considered for the purpose of fulfillment of credentials.

6. In case a work is considered similar in nature for fulfillment of technical Credentials, the overall cost including the PVC amount (if paid) of that Completed work or substantially completed work shall be considered and no separate evaluation for each component of that work shall be made to decide eligibility.

7. In case of newly formed partnership firm, the credentials of individual partners from previous propriety firm(s) or dissolved previous partnership firm(s) or split previous partnership firm(s), shall be considered only to the extent of their share in previous entity on the date of dissolution / split and their share in newly formed partnership firm. For example, a partner A had 30% share in previous entity and his share in present partnership firm is 20%. In the present tender under consideration, the credentials of partner A will be considered to the extent of 0.3×0.2 * value of the work done in the previous entity. For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deed(s), dissolution deed(s) and proof of surrender of PAN No.(s) in case of dissolution of partnership firm(s) etc.

8. In case of existing partnership firm, if any one or more partners quit the Partnership firm, the credentials of remaining partnership firm shall be worked out i.e., the quitting partner(s) shall take away his credentials to the extent of his share on the date of quitting the partnership firm (e.g. in a partnership firm of partners A, B & C having share 30%, 30% & 40% respectively and credentials of Rs 10 crore; in case partner C quits the firm, the credentials of this partnership firm shall remain as Rs 6 crore). For this purpose, the tenderer shall submit along with his bid all the relevant documents which

include copy of previous partnership deed(s), dissolution deed(s) and proof of surrender of PAN No.(s) in case of dissolution of partnership firm(s) etc

9. . In case of existing partnership firm if any new partner(s) joins the firm without any modification in the name and PAN/TAN no. of the firm,, the credentials of partnership firm shall get enhanced to the extent of credentials of newly added partner(s) GCC April 2022 on the same principles as mentioned in item 6 above. For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deeds, dissolution/splitting deeds and proof of surrender of PAN No.(s) in case of dissolution of partnership firm etc.
10. . Any partner in a partnership firm cannot use or claim his credentials in any other firm without leaving the partnership firm i.e., In a partnership firm of A&B partners, A or B partner cannot use credentials of partnership firm of A&B partners in any other partnership firm or propriety firm without leaving partnership firm of A&B partners.
11. In case a partner in a partnership firm is replaced due to succession as per succession law, the proportion of credentials of the previous partner will be passed on to the successor.
12. . If the percentage share among partners of a partnership firm is changed, but the partners remain the same, the credentials of the firm before such modification in the share will continue to be considered for the firm as it is without any change in their value. Further, in case a partner of partnership firm retires without taking away any credentials from the firm, the credentials of partnership firm shall remain the same as it is without any change in their value.
13. . In a partnership firm "AB" of A&B partners, in case A also works as propriety firm "P" or partner in some other partnership firm "AX", credentials of A in propriety firm "P" or in other partnership firm "AX" earned after the date of becoming a partner of the firm AB shall not be added in partnership firm AB.
14. In case a tenderer is LLP, the credentials of tenderer shall be worked out on above lines similar to a partnership firm.
15. . In case company A is merged with company B, then company B would get the credentials of company A also.

3.5.6 Relaxation of Eligibility Criteria for 'Start-up' firms: Technical and financial eligibility criteria mentioned in GCC 2022 shall normally apply to all firms including 'Start-up' firms (recognized by Department of Industrial Policy and Promotion, Ministry of Commerce and Industry). However, before inviting tender, General Manager, on the recommendation of PHOD/CHOD of the department inviting tender and associate finance, can relax the applicability of eligibility criteria to 'Start-up' firms (recognized by Department of Industrial Policy and Promotion, Ministry of Commerce and Industry) on case to case basis.

3.5.7 Eligibility criteria for bidder from a country sharing land border with India:

I. Any bidder from a country which shares a land border with Indian will be eligible to bid in any tender only if the bidder is registered with the Competent Authority.

II. "Bidder" (including the term 'tenderer', 'consultant'; or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated herein before, including any agency branch or office controlled by such person, participating in a procurement process.

III. "Bidder from a country which shares a land border with Indian" for the purpose of this Order means:-

- a. An entity incorporated, established or registered in such a country, or
- b. A subsidiary of an entity incorporated, established or registered in a such a country; or
- c. An entity substantially controlled through entities incorporated, established or registered in such a country ; or
- d. An entity whose beneficial owner is situated in such a country; or
- e. An Indian (or other) agent of such an entity; or
- f. A natural person who is a citizen of such a country; or
- g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above.

IV. The beneficial owner of the purpose of (iii) above will be as under:

1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting along or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means. Explanation.
 - a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five percent of share or capital or profits of the company,
 - b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements.

2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership.

3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

VI. The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

3.5.8 A certificate shall be taken from bidders in the tender documents regarding their compliance with this order (Annexure-XXVIII). If such certificate given by a bidder whose bid is accepted is found to be false, this would be a ground for immediate termination and further legal action in accordance with law.

3.5.9 In respect of tenders, registration should be valid at the time of submission of bids and at the time of acceptance of bids. In respect of supply otherwise than by tender, registration should be valid at the time of placement of order. If the bidder was validly registered at the time of acceptance/ placement of order, registration shall not be a relevant consideration during contract execution.

3.6 Bid Capacity: The tender/technical bid will be evaluated based on bid capacity formula detailed as Annexure-VII.

NOTE (A): For judging the technical eligibility, financial capability and available bid capacity only those works which had been executed for the under Government/Semi Government/PSU shall be considered and the tenderer(s) will submit the certificate to this effect from the Officer concerned duly signed under the official seal. **It should be noted that credentials for the works executed for Private Individual/Private Organization except as mentioned in note for 3.5.1 shall not be considered.**

3.7 Documents to be submitted along with Tender.

3.7.1 Partnership Deeds, Power Of Attorney etc.:

(i) The tenderer shall clearly specify whether the tender is submitted on his own (Proprietary firm) or on behalf of a partnership firm/Company/Joint Venture (JV) /Registered Society/ Registered Trust/Hindu Undivided Family (HUF)/ Limited Liability Partnership (LLP) etc. The Tenderer (s) shall enclose self-attested copies of the constitution of their concern, Partnership Deed, copy of PAN Card along with their tender. Tender Documents in such cases are to be signed by such persons as may be legally competent to sign them on behalf of the firm, Company, Association, **Trust** or Society, as the case may be.

(ii) Following documents shall be submitted by the tenderer.

3.7.2 (a) Sole proprietor Firm:

All documents in terms of explanatory notes in clause 3.5 above.

(b) HUF:

(i) A copy of notarized affidavit on Stamp Paper declaring that he who is submitting the tender on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.

(ii) All other documents in terms of explanatory notes in clause 3.5 above.

3.7.3 Partnership Firm:

3.7.3.1 The Tenderer shall submit self-attested copies of (i) registered/ notarized partnership deed and (ii) Power of attorney (duly registered as per prevailing law) duly authorizing one or more of the partners of the firm or any other person (s), authorized by all the partners to act on behalf of the firm and to submit & sign the tender, sign the Agreement, witness measurements, sign measurement books, receive payment, make correspondences, compromise, settle/ relinquish any claim (s) preferred by the firm, sign "No Claim" certificate, refer all or any dispute to arbitration and to take similar action in respect of all tender/ Contract. **Guidelines regarding tenders by Partnership Firms and their Eligibility Criteria reproduce as Annexure-VIII.**

3.7.3.2 "Any tender submitted by a partnership firm without enclosing self attested copy of registered/ notarized partnership deed or power of attorney duly authorizing the signatory as noted above shall be treated as having been submitted by individual signing the tender documents. The railway will not be bound by any power of attorney granted by the tenderer or by changes in the composition of the firm made subsequent to the execution of the contract. It may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the contractor."

3.7.3.3 The Partnership Firms participating in the tender should be legally valid under the provisions of the Indian Partnership Act.

3.7.3.4 The partnership firm should have been in existence or should have been formed prior to submission of tender. Partnership firm should have either been registered with the Registrar or the partnership deed should have been notarized as per the Indian Partnership Act, prior to submission of tender.

3.7.3.5 Separate identity / name should be given to the partnership firm. The partnership firm should have PAN / TAN number in its own name and PAN / TAN number in the name of any of the constituent partners shall not be considered. The valid constituents of the firm shall be called partners.

3.7.3.6 Once the tender has been submitted, the constitution of the firm shall not normally be allowed to be modified / altered / terminated during the validity of the tender as well as the currency of the contract except when modification becomes inevitable due to succession laws etc., in which case prior permission should be taken from Railway and in any case the minimum eligibility criteria should not get vitiated. The re-constitution of firm in such cases should be followed by a notary certified Supplementary Deed. The approval for change of constitution of the firm, in any case, shall be at the sole discretion of the Railways and the tenderer shall have no claims what-so-ever. Any change in the constitution of Partnership firm after submission of tender shall be with the consent of all partners and with the signatures of all partners as that in the Partnership Deed. Failure to observe this requirement shall render the offer invalid and full Bid Security shall be forfeited. If any Partner/s withdraws from the firm after submission of the tender and before the award of the contract, the offer shall be rejected and Bid Security of the tenderer will be forfeited. If any new partner joins the firm after submission of tender but prior to award of contract, his / her credentials shall not qualify for consideration towards eligibility criteria either individually or in proportion to his share in the previous firm. In case the tenderer fails to inform Railway beforehand about any such changes / modification in the constitution which is inevitable due to succession laws etc. and the contract is awarded to such firm, then it will be considered a breach of the contract conditions liable for determination of the contract under Clause 62 of the Standard General Conditions of Contract.

3.7.3.7A A partner of the firm shall not be permitted to participate either in his individual capacity or as a partner of any other firm in the same tender.

3.7.3.8 The tender form shall be submitted only in the name of partnership firm. The Bid Security shall be submitted by partnership firm. The Bid Security submitted in the name of any individual partner or in the name of authorized partner (s) shall not be considered.

3.7.3.9 On issue of Letter of Acceptance (LOA) to the partnership firm, all the guarantees like Performance Guarantee, Guarantee for various Advances to the Contractor shall be submitted only in the name of the partnership firm and no splitting of guarantees among the partners shall be acceptable.

3.7.3.10 On issue of Letter of Acceptance (LOA), contract agreement with partnership firm shall be executed in the name of the firm only and not in the name of any individual partner.

3.7.3.11 In case the Letter of Acceptance (LOA) is issued to a partnership firm, the following undertakings shall be furnished by all the partners through a notarized affidavit, before signing of contract agreement. (a) Joint and several liabilities: The partners of the firm to which the Letter of Acceptance (LOA) is issued, shall be jointly and severally liable to the Railway for execution of the contract in accordance with General and Special Conditions of the Contract. The partners shall also be liable jointly and severally for the loss, damages caused to the Railway during the course of execution of the contract or due to non-execution of the contract or part thereof. (b) Duration of the partnership deed and partnership firm agreement:

The partnership deed/partnership firm agreement shall normally not be modified/altered/ terminated during the currency of contract and the maintenance period after the work is completed as contemplated in the conditions of the contract. Any change carried out by partners in the constitution of the firm without permission of Railway, shall constitute a breach of the contract, liable for determination of the contract under Clause 62 of the Standard General Conditions of Contract. (c) Governing laws: The partnership firm agreement shall in all respect be governed by and interpreted in accordance with the Indian laws. (d) No partner of the firm shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other partner/s and that of the Railway.

3.7.3.12 The tenderer shall clearly specify that the tender is submitted on behalf of a partnership firm. The following documents shall be submitted by the partnership firm, with the tender:

- (i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.
- (ii) A notarized or registered copy of Power of Attorney in favour of the individual to tender for the work, sign the agreement etc. and create liability against the firm.
- (iii) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.

(iv) All other documents in terms of Para 3.5 above.

3.7.3.13 Evaluation of eligibility of a partnership firm:

Technical and financial eligibility of the firm shall be adjudged based on satisfactory fulfillment of the eligibility criteria laid down in Para 3.5 above.

3.7.4 Company registered under Companies Act 2013:

- (i) The copies of MOA (Memorandum of Association)/AOA (Articles of Association) of the company.
- (ii) A copy of Certificate of Incorporation.
- (iii) A copy of Authorization/Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender on behalf of the company and create liability against the company.
- (iv) All other documents in terms of explanatory notes in clause 3.5 above.

3.7.5. LLP (Limited Liability Partnership) Firm:

If the tender is submitted on behalf of a LLP registered under LLP Act-2008, the tenderer shall submit along with the tender:

- (i) A copy of LLP Agreement
- (ii) A copy of Certificate of Incorporation of LLP.
- (iii) A copy of Power of Attorney/Authorization issued by the LLP in favour of the individual to sign the tender/MoU/JV on behalf of the LLP and create liability against the LLP.
- (iv) An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were / are partners/members. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract.
- (v) All other documents in terms of explanatory notes in clause 3.5 above.

3.7.6 Registered Society& Registered Trust:

The tenderer shall submit:

- (i) A copy of the Certificate of Registration
- (ii) A copy of Memorandum of Association of Society/Trust Deed
- (iii) A copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the society/Trust.
- (iv) A copy of Rules & Regulations of the Society.
- (v) All other documents in terms of explanatory notes in clause 3.5 above.

3.7.7 Joint Venture (JV): Guidelines regarding for Participation of Joint Venture

Firms in Works Tender are as detailed below and as amended from time to time.

This Clause shall be applicable for works tenders of value as approved and communicated by Railway Board from time to time.

(The JV firms are allowed to participate only in the tenders of value more than Rs.10 crores).

3.7.7.1 Separate identity/name shall be given to the Joint Venture.

3.7.7.2 Number of members in a JV shall not be more than three, if the work involves only one department (say Civil or S&T or Electrical or Mechanical) and shall not be more than five, if the work involves more than one Department. One of the members of the JV shall be its Lead Member who shall have a majority (at least 51%) share of interest in the JV. The other members shall have a share of not less than 20% each in case of JV with upto three members and not less than 10% each in case of JV with more than three members. In case of JV with foreign member(s), the Lead Member has to be an Indian firm/company with a minimum share of 51%.

3.7.7.3 A member of JV shall not be permitted to participate either in individual capacity or as a member of another JV in the same tender.

3.7.7.4 The tender form shall be purchased and submitted only in the name of the JV and not in the name of any constituent member. The tender form can however be submitted by JV or any of its constituent member or any person authorized by JV through Power of Attorney to submit tender.

3.7.7.5 Bid Security shall be deposited by JV or authorized person of JV either as:

- (i) **Cash** through e-payment gateway or as mentioned in tender document, or
- (ii) **Bank Guarantee bond either in the name of JV, or in the name of all members of JV as per MOU irrespective of their share in the JV if the JV has not been constituted legally till the date of submission of tender.**

3.7.7.6 A copy of Memorandum of Understanding (MoU) duly executed by the JV Members on a stamp paper, shall be submitted by the JV along with the tender.

The complete details of the members of the JV, their share and responsibility in the JV etc. particularly with reference to financial, technical and other obligations shall be furnished in the MoU.

3.7.7.7 Once the tender is submitted, the MoU shall not normally be modified / altered / terminated during the validity of the tender. In case the tenderer fails to observe/comply with this stipulation, the full Bid Security shall be liable to be forfeited.

3.7.7.8 Approval for change of constitution of JV shall be at the sole discretion of the Railway. The constitution of the JV shall not normally be allowed to be modified after submission of the tender bid by the JV, except when modification becomes inevitable due to succession laws etc., provided further that there is no change in qualification of minimum eligibility criteria by JV after change of composition. However, the Lead Member shall continue to be the Lead Member of the JV. Failure to observe this requirement would render the offer invalid.

3.7.7.9 Similarly, after the contract is awarded, the constitution of JV shall not normally be allowed to be altered during the currency of contract except when modification become inevitable due to succession laws etc. and minimum eligibility criteria should not get vitiated. Failure to observe this stipulation shall be deemed to be breach of contract with all consequential penal action as per contract conditions.

3.7.7.10 On award of contract to a JV, a single Performance Guarantee shall be submitted by the JV as per tender conditions. All the Guarantees like Performance Guarantee, Bank Guarantee for Mobilization Advance, Machinery Advance etc. shall be accepted only in the name of the JV and no splitting of guarantees amongst the members of the JV shall be permitted.

3.7.7.11 On issue of LOA (Letter of Acceptance), the JV entity to whom the work has been awarded, with the same shareholding pattern as was declared in the MOU/JV Agreement submitted along with the tender, shall be got registered before the Registrar of the Companies under 'The Companies Act -2013' (in case of JV entity is to be registered as Company) or before the Registrar/Sub-Registrar under the 'The Indian Partnership Act, 1932' (in case JV entity is to be registered as Partnership Firm) or under 'The LLP Act 2008' (in case JV entity is to be registered as LLP). A separate PAN shall be obtained for this entity. The documents pertaining to this entity including its PAN shall be furnished to the Railways before signing the contract agreement for the work. In case the tenderer fails to observe/comply with this stipulation within 60 days of issue of LOA, contract is liable to be terminated. In case contract is terminated railway shall be entitled to forfeit the full amount of the Bid Security and other dues payable to the contractor under this contract. The entity so registered, in the registered documents, shall have, inter-alia, following Clauses:

3.7.7.11.1 Joint And Several Liability - Members of the entity to which the contract is awarded, shall be jointly and severally liable to the Railway for execution of the project in accordance with General and Special Conditions of Contract. The members of the entity shall also be liable jointly and severally for the loss, damages caused to the Railways during the course of execution of the contract or due to non-execution of the contract or part thereof.

3.7.7.11.2 Duration of the Registered Entity - It shall be valid during the entire currency of the contract including the period of extension, if any and the maintenance period after the work is completed.

3.7.7.11.3 Governing Laws - The Registered Entity shall in all respect be governed by and interpreted in accordance with Indian Laws.

3.7.7.12 Authorized Member - Joint Venture members in the JV MoU shall authorize one of the members on behalf of the Joint Venture to deal with the tender, sign the agreement or enter into contract in respect of the said tender, to receive payment, to witness joint measurement of work done, to sign measurement books and similar such action in respect of the said tender/contract. All notices/correspondences with respect to the contract would be sent only to this authorized member of the JV.

3.7.7.13 No member of the Joint Venture shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other members and that of the Railway in respect of the said tender/contract.

3.7.7.14 Documents to be enclosed by the JV along with the tender:

3.7.7.14.1 In case one or more of the members of the JV is/are partnership firm(s), following documents shall be submitted:

- (i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with Registrar.
- (ii) A copy of consent of all the partners or individual authorized by partnership firm, to enter into the Joint Venture Agreement on a stamp paper,
- (iii) A notarized or registered copy of Power of Attorney in favour of the individual to sign the MOU/JV Agreement on behalf of the partnership firm and create liability against the firm.
- (iv) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.

3.7.7.14.2 In case one or more members is/are Proprietary Firm or HUF, the following documents shall be enclosed:

- (i) A copy of notarized affidavit on Stamp Paper declaring that his concern is a proprietary Concern and he is sole proprietor of the Concern OR he who is signing the affidavit on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.

3.7.7.14.3 In case one or more members of the JV is/are companies, the following documents shall be submitted:

- (i) A copy of resolutions of Directors of the Company, permitting the company to enter into a JV agreement.
- (ii) The copies of **MOA (Memorandum of Association) / AOA (Articles of Association) of the company**
- (iii) A copy of Certificate of Incorporation
- (iv) A copy of Authorization/copy of Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual, to sign the tender, sign MOU/JV Agreement on behalf of the company and create liability against the company.

3.7.7.14.4 In case one or more members of the JV is/are LLP firm/s, the following documents shall be submitted:

- (i) A copy of LLP Agreement
- (ii) A copy of Certificate of Incorporation of LLP
- (iii) A copy of resolution passed by partners of LLP firm, permitting the Firm to enter into a JV agreement
- (iv) A copy of Authorization /copy of Power of Attorney issued by the LLP firm (backed by resolution passed by the Partners) in favour of the individual, to sign the tender and/or sign the MOU/ JV agreement on behalf of the LLP and create liability against the LLP.
- (v) An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract.

3.7.7.14.5 In case one or more members of the JV is/are Society/s or Trust/s, the following documents shall be submitted:

- (i) A copy of Certificate of Registration
- (ii) A copy of Memorandum of Association of Society/Trust Deed
- (iii) A copy of Rules & Regulations of the Society
- (iv) A copy of Power of Attorney, in favour of the individual to sign the tender documents and create liability against the Society/Trust.

All other documents in terms of explanatory notes in clause 3.5 above.

3.7.7.15 Credentials & Qualifying Criteria: Technical, financial eligibility and Bid capacity of the JV shall be adjudged based on satisfactory fulfillment of the following criteria:

3.7.7.15.1 Technical Eligibility Criteria ('a' or 'b' mentioned hereunder):

(a) For Works without composite components The technical eligibility for the work as per para 3.5.1 above, shall be satisfied by either the 'JV in its own name & style' or 'Lead member of the JV. Each other (non-lead) member(s) of JV, who is/ are not satisfying the technical eligibility for the work as per para 10.1 above, shall have technical capacity of minimum 25% of the cost of work i.e., each non-lead member of JV member must have satisfactorily completed or substantially completed during the last 07 (seven) years, ending last day of month previous to the one in which tender is invited, one similar single work for a minimum of 25% of advertised value of the tender.

(b) For works with composite components The technical eligibility for major component of work as per para 3.5.1 above, shall be satisfied by either the 'JV in its own name & style' or 'Lead member of the JV' and technical eligibility for other component(s) of work as per para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'any member of the JV'. Each other (non-lead)member(s) of JV, who is/ are not satisfying the technical eligibility for any component of the work as per para 10.1 above, shall have technical capacity of minimum 25% of the cost of any component of work mentioned in technical eligibility criteria. i.e., each other (non-lead) member of must have satisfactorily completed or substantially completed during the last 07 (seven) years, ending last day of month previous to the one in which tender is invited, one similar single work for a minimum of 25% of cost of any component of work mentioned in technical eligibility criteria. Note for Clause 3.7.4.15.1:

(a) The Major component of the work for this purpose shall be the component of work having highest value. In cases where value of two or more component of work is same, any one work can be classified as Major component of work.

(b) Value of a completed work done by a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for purpose of satisfying his/her compliance to the above mentioned technical eligibility criteria in the tender under consideration.

3.7.7.15.2 Financial Eligibility Criteria

The JV shall satisfy the requirement of "Financial Eligibility" mentioned at para 3.5.2 above. The "financial capacity" of the lead partner of JV shall not be less than 51% of the financial eligibility criteria mentioned at para 3.5.2 above. The arithmetic sum of individual "financial capacity" of all the members shall be taken as JV's "financial capacity" to satisfy this requirement. Note: Contractual payment received by a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying compliance of the above mentioned financial eligibility criteria in the tender under consideration.

3.7.7.15.3 Bid Capacity

The JV shall satisfy the requirement of "Bid Capacity" requirement mentioned at para 3.6 above. The arithmetic sum of individual "Bid capacity" of all the members shall be taken as JV's "Bid capacity" to satisfy this requirement.

(i) If it is NOT mentioned in the submitted tender that tender is being submitted on behalf of / by a Sole Proprietorship Firm/ Joint Venture/ Registered Company etc. then tender shall be treated as having been submitted by the individual who has signed the tender.

(ii) After opening of the tender, any document pertaining to the constitution of Sole Proprietorship Firm / Partnership Firm / Registered Company/ Registered Trust / Registered Society / HUF/LLP etc. shall be neither asked nor considered, if submitted. Further, no suo moto cognizance of any document available in public domain (i.e., on internet etc.) or in Railway's record/office files etc. will be taken for consideration of the tender, if no such mention is available in tender offer submitted. **(iii)** A tender from JV/ Consortium/ Partnership Firm etc. shall be considered only where permissible as per tender conditions.

(iv) The Railway will not be bound by any Power of Attorney granted by the tenderer or by change in the composition of the firm made subsequent to the submission of tender. Railway may, however, recognize such Power of Attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the tenderer/contractor.

(v) The tenderer whether sole proprietor / a company or a partnership firm / joint venture (JV) / registered society / registered trust / HUF/LLP etc if they want to act through agent or individual partner(s), should submit along with the tender, a copy of power of attorney duly GCC April 2022 stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person specifically authorizing him/them to sign the tender, and further to deal with the Tender/ Contract up to the stage of signing the agreement except in case where such specific person is authorized for above purposes through a provision made in the partnership deed / Memorandum of Understanding / Article of Association /Board resolution, failing which tender shall

be summarily rejected. A separate power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, shall be submitted after award of work, specifically authorizing him/them to deal with all other contractual activities subsequent to signing of agreement, if required.

Note: A Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from

countries that have signed the Hague Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Apostille certificate.

3.8.0 Test of Responsiveness: Railway will determine whether each such proposal is 'responsive to the requirement of the Tender Documents. A Tender/Proposal shall be considered 'responsive' if only:

- 3.8.1** (i) Tender Document accompanied with required Earnest Money.
(ii) Tender Document accompanied with cost of Tender Document, if applicable.
(iii) Tender Document accompanied with Power (s) of Attorney (ies).
(iv) Cover Letter (Tender Form-1) been signed by Authorized Signatory.
(v) Tender Documents shall be submitted in bound and sealed condition (in exceptional cases where manual tendering is being adopted)

Tenderer may please note that tender not accompanying Item (i) & (ii) above shall be summarily rejected. Any of the above criteria is not fulfilled, in any manner whatsoever; the Tender shall be treated as non-responsive. The Decision of Railway Administration on the responsiveness of Tender shall be final, conclusive and binding on the Tenderer and shall not be called into question by any Tenderer on any ground whatsoever. Any Tender which is not responsive shall be rejected.

3.9 Conflict of Interest:

(1) Railway Administration considers "**Conflict of Interest**"; to be a situation in which party has interests that could improperly influence the Tendering process or that party's Performance of official duties or Responsibilities, Contractual Obligations or Compliance of applicable laws and regulations. Any Tenderer(s), which in the opinion of Railway Administration has or may have the likelihood of a conflict of interest, **shall be disqualified**. Without limiting the generality of the above, a Tenderer shall be considered to have a conflict of interest that affects the Tendering process, if;

- (a) Such Tenderer, its Member (In case of Partnership firm) or any of its Constituents and any other Tenderer for the same work, its Member or any of its constituents have cross ownership interest; provided that this disqualification shall not apply in case the direct or indirect ownership/Shareholding (of paid up and subscribed shares) of a Tenderer, its Member or any of its constituent in the other Tenderer, its Member or any of its constituent is less than 10% (Ten percent); or
- (b) Such Tenderer or a Member of such Tenderer is also a member of another Tenderer for the same work; or
- (c) Such Tenderer has the same authorized Signatory/ representative for a tender as any other Tenderer for the same work; or
- (d) Such Tenderer, its Member or any of its Constituent has participated as consultant to Railway in the preparation of any document, design or technical specifications for the same work; or
- (e) If legal, financial or technical advisor of Railway for the same work is or has been engaged by Tenderer, its Member or any of its Constituent in any manner for matters related to or incidental to the same work during or prior to the Tendering process up to the signing of Agreement; or
- (f) Such Tenderer, its Member or any of its Constituent and the consultant of Railway for the same work, its Member or any of its Constituent have cross ownership interest; provided that this disqualification shall not apply in cases the direct or indirect ownership/ shareholding (of its paid up and subscribed shares) of a tenderer, its Member or any of its Constituents in the consultant of Railway for this work, its Member or any of its Constituent, or vice versa, is less than 10% (ten percent); or
- (g) Such Tenderer, its Member or any Constituent thereof received or has received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Tenderer for the same work, its Member or Constituent, or has provided any such subsidy, grant concessional loan or subordinated debt to any other Tenderer for the same work, its Member or any Constituent thereof; or
- (h) Such Tenderer, or any Constituent thereof, has a relationship with any other Tenderer for the same work, or any Constituent thereof, directly or through common third party/parties, that puts either or both of them in a position to have access to each other's' information about, or to influence the Tender of either or each other for the same work.

(2) Disqualification specified under sub clause **3.9.1 (a) to (h)** shall not apply to the Tenderer or its Member of both Public and Private unless and until such Tenderer or its Member is a Constituent of another Tenderer or its Member or Railway Consultant for the same work.

- i. Tenderer/ Each Member of the firm shall submit the following documents on the basis of which it has arrived at the conclusion that it does not have any Conflict of interest:
- ii. List of Constituents along with their shareholding and registered office address;
- iii. The details of each of shareholders holding more than 10% in the firm, each of its members and their Constituents;
- iv. A chart showing the relationship of the Tenderer/Members of the firm with their respective constituents.
- v. Notwithstanding anything contained herein above, Railway may, after opening of Tender, seek a reconfirmation that there is no conflict of interest among the Tenderer, Members and / or Constituents of the Tenderer/ Members of the firm, within a period to be stipulated by Railway. Railway will also seek reconfirmation from its legal, financial or technical advisors that there is no conflict of interest with Tenderers.

3.10 Fraud & Corrupt Practice:

3.10.1 The Tenderer and their representative officers, employee, agents and advisors shall observe the highest standard of ethics during the Tendering process and subsequent to the issue of the LOA during the substance of the Agreement. Notwithstanding anything to contrary contained herein or in the LOA or the Agreement, Railway shall reject the Tender, Withdraw the LOA, or

Terminate the Agreement, as the case may be, without being liable in any manner whatsoever to the selected Tenderer, if it determines that the selected Tenderer, as the case may be has directly or indirectly or through agent, engaged in corrupt practice, fraudulent practice, Coercive practice, undesirable practice or restrictive practice in the Tendering process. In such an event, in addition to exercise of its right of Termination, Railway shall forfeit and appropriate the contract security or Performance Guarantee as the case may be, as mutually agreed genuine predestination compensation and damage payable to Railway towards, inter alia, time, cost and effort of Railway, without prejudice to any other right or remedy that may be available to Railway hereunder or otherwise.

3.10.2 Without prejudice to the right of Railway hereinabove and the rights and remedies which Railway may have under the LOA or the Agreement, if the Tenderer/Contractor, as the case may be, is found by Railway to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Tendering process, or after the issue of LOA or the execution of Agreement, **such Tenderer, Members and Contractor shall not be eligible to participate in any Tender issued by Northern Railway during a period of 02 (Two) years from the date such** Tenderer, Member or Contractor, as the case may be, is found by Railway to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as the case may be.

3.10.3 For the purposes of this clause, the following terms shall have the meanings hereinafter respectively assigned to them;

(i) **"Corrupt Practice"** means the offering, giving, receiving or soliciting, directly or indirectly of anything of value to influence the action of any person connecting with the Tendering process (for avoidance of doubt, offering employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of Railway who is or has been associated in any manner, directly or indirectly with the Tendering process or the LOA or has dealt with matters concerning the Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from date such official resigns or retires from or otherwise ceases to be in the service of Railway, shall be deemed to constitute influencing the actions of a person connected with the Tendering process), or

r Engaging in any manner whatsoever, whether during Tendering process or after the issue of the LOA or after execution of Agreement, as the case may be, any person in respect of in respect of any matters relating to the work or the LOA or the Agreement, who at any time has been or is a legal, financial or technical advisor of Railway in relation to any matter concerning to work.

(ii) **"Fraudulent practice"** means a misrepresentation or Omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Tendering process;

(iii) **"Coercive Practice"** means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Tendering process;

(iv) **"Undesirable Practice"** means establishing contract with any person connected with or employed or engaged by Railway and/ or the Ministry of Railways and / or any Ministry or Department, Authority or body whether statutory or non-statutory that may be concerned or connected, in any manner whatsoever, with this work, with the objective of canvassing, lobbying, seeking intervention in or in any manner influencing or attempting to influence the Tendering process; or having a conflicted of interest; and

(v) **"Restrictive Practice"** means forming a cartel or arriving at any understanding or arrangement among Tenderers with the objective of restricting or manipulating a full and fair competition in the Tendering process.

3.11 Confidentiality: Information relating to the examination, clarification, evolution and recommendation for the Tenderer shall not be disclosed to any person, who is not officially concerned with the process or is not retained professional advisor Advising Railway, in relation to, or matter arising out of, or concerning the Tendering process. Railway will treat all information submitted as part of the Tender, in confidence and will require all those who have access to such material to treat the same in confidence. Railway may not divulge any such information unless it is directed to do so by a Court of Law and/ or any statutory entity that has the power under Law to require its disclosure.

3.12 Employment/ Partnership etc. of Retired Railway Employee:

(a) Should a tenderer

(i) be a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement, whether in the executive or administrative capacity or whether holding a pensionable post or not, in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, OR

(ii) being partnership firm / joint venture (JV) / registered society / registered trust etc have as one of its partners/members a retired Engineer of the gazetted rank or another gazetted officer working before his retirement, OR

(iii) being an incorporated company have any such retired Engineer of the gazetted rank or any other gazetted officer working before his retirement as one of its directors AND

in case where such Engineer or officer had not retired from government service at least 1 year prior to the date of submission of the tender THEN the tenderer will give full information as to the date of retirement of such Engineer or gazetted officer from the

said service and as to whether permission for taking such contract, or if the Contractor be a partnership firm or an incorporated company, to become a partner or director as the case may be, has been obtained by the tenderer or the Engineer or officer, as the case may be from the President of India or any officer, duly authorized by him in this behalf, shall be clearly stated in writing at the time of submitting the tender.

(b) In case, upon successful award of contract, should a tenderer depute for execution of the works under or to deal matters related with this contract, any retired Engineer of gazette rank or retired gazetted officer working before his retirement in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, and now in his employment, then the tenderer will ensure that retired Engineer or retired gazette officer had retired from government service at least 1 year prior to the date of his employment with tenderer and in case he had retired from service within a year then he possesses the requisite permission from the President of India or any officer, duly authorized by him in this behalf, to get associated with the tenderer.

c) Should a tenderer or Contractor being an individual, have member(s) of his family or in the case of partnership firm/ company / joint venture (JV) / registered society /registered trust etc. one or more of his partner(s)/shareholder(s) or member(s) of the family of partner(s)/shareholder(s) having share of more than 1% in the tendering entity employed in gazetted capacity in the Engineering or any other department of the railway, then the tenderer at the time of submission of tender, will inform the authority inviting tenders the details of such persons.

Note:-If information as required as per 3.12.a), b), c) above has not been furnished,
Contract is liable to be dealt in accordance with provision of clause 62 of Standard General Condition of contract.

3.13 Miscellaneous: The Tendering process shall be governed by and construed in accordance with the Laws of India and the Courts at..... Shall have exclusive jurisdiction over all disputes arising under pursuant to and/ or in connection with the Tendering process.

Railway in its sole discretion and without incurring any obligation or liability reserves the right at any time to;

(i) Suspend or cancel the Tendering process and /or amend and/ or Supplement the Tendering process or modify the dates or other terms & condition relating thereto;

(ii) Consult with any Tenderer in order to receive clarifications or further information;

(iii) Retain any information and /or evidence submitted to Railway by, on behalf of, and/or in relation to any Tenderer, and / or.

(iv) Independently verify, disqualify, reject and/ or accept any and all submission or other information and/ or evidence submitted by or on behalf of any Tenderer.

3.13.1 No Tenderer should tender for the work for speculative purposes. Once the Tender Documents is submitted, no change shall be permitted in the equity participation in the work of the Tenderer or Member of the firm except as expressly otherwise Provided in the Tender Documents. Any breach of this condition shall lead to rejection of the Tender and /or termination of Agreement.

3.13.2 No assignment, Sale, Transfer, Conveyance of the work shall be permitted except as otherwise expressly provided in the Tender Documents. Any breach of this condition shall lead to rejection of the Tender and /or termination of Agreement.

3.13.3 For the sake of clarity, the Tenderer (s) may note that in case there are any obligation (s) or condition (s) imposed on them under a particular clause of any part of the Tender Documents, which includes the forms, and on a similar issue some additional conditions are mentioned under another clause of any other part of the Tender Documents, which includes the forms, then all the conditions and/ or obligations should be read in conjunction with each other and all of them have to be fulfilled.

3.13.4 It shall be deemed that by submitting the Tender, the Tenderer agrees and releases Railway, its employees, agents, consultants and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/ or performance of any obligations hereunder, pursuant hereto and/ or in connection herewith and waives any and all right and/ or claims it may have in their respect, whether actual or contingent, whether present or future. No claim of any nature and to any extent whatsoever shall be made by any Tenderer against Railway, its employees, agents, consultants and advisers.

3.13.5 The Tender Documents including all attached documents are and shall remain the property of Railway and are transmitted to the Tenderer solely for the purpose of preparation and submission of the Tender in accordance herewith. Tenderer are to treat all information as strictly confidential and shall not use it for any purpose other than for the preparation and submission of their Tenders. Railway will not return any Tender or any information provided to it by the Tenderers.

3.14 Preparation & Submission of Document: The Tenderer will be deemed to visit the site and inspected the same to acquaint itself about all the existing site conditions, Laws and regulations before submitting his/their Tender. Once the Tender is submitted no Tenderer will be permitted to withdraw his/their Tender on the ground of any alleged defect in the site or its conditions. All the contents of the Tender should be typed or hand written in indelible blue ink and signed by Tenderer/autho rized signatory of the Tenderer who shall also initial each page in Blue ink. The Tenderer requirement in the Tender, for authorizing the signatory to commit the Tenderer. The power of attorney must include the specimen signature of the authorized signatory duly attested by authorized person under applicable laws.

3.15 Credential/ Approved list of contractors:

3.15.1 Works of construction and of supply of material shall be entrusted for execution to contractors whose capabilities and financial status have been investigated and approved to the satisfaction of the Railway. For this purpose, list of approved contractors shall be maintained in the Railway. The said list be revised periodically once in a year or so by giving wide publicity through advertisements etc. A Contractor including a contractor who is already on the approved list shall apply to the **concerned** General Manager (Construction)/ Chief Administrative Officer (Construction)/ **Principal** Chief Engineer/**Principal** Chief Signal & Telecommunication Engineer / **Principal Chief Mechanical Engineer** and **Principal** Chief Electrical Engineer, Divisional Railway Manager, furnishing particulars regarding :

- (a) his position as an independent contractor specifying Engineering organization available with details or Partners / Staff / Engineers employed with qualifications and experience;
- (b) his capacity to undertake and carry out works satisfactorily as vouched for by a responsible official or firm, with details about the transport equipment's, construction tools and plants etc., required for the work maintained by him;
- (c) his previous experience of works similar to that to be contracted for, in proof of which original certificates or testimonials may be called for and their genuineness verified, if needs be, by reference to the signatories thereof; (d) his knowledge from actual personal investigation of the resources of the area/zone or zones in which he offers to work;
- (d) his ability to supervise the work personally or by competent and duly authorized agent;
- (e) his financial position;

3.15.2 An applicant shall clearly state the categories of works and the Area / Zone / Division(s) / District(s) in which he desires registration in the list of approved contractors.

3.15.3 The selection of contractors for enlistment in the approved list would be done by a committee for different value slabs as notified by Railway.

3.15.4 An annual fee as prescribed by the Railway from time to time would be charged from such approved contractors to cover the cost of sending notices to them and clerkage for tenders etc. Notices shall be send to them on registered e-mail Address and registered postal address.

3.15.5 The list of approved contractors would be treated as confidential office record.

3.16 Tenderer's Credentials:

Documents testifying tenderer's previous experience and financial status should be produced along with the tender.

Tenderer (s) who is/are not borne on the approved list of the Contractors of Northern Railway shall submit along with his/their tender.

- i. Certificates and testimonials regarding contracting experience for the type of job for which tender is invited with list of works carried out in the past.
2. Certificates which may be an attested Certificate from the client, Audited Balance Sheet duly certified by the Chartered Account et regarding contractual payments received in the past.
3. The list of personnel / organization on hand and proposed to be engaged for the tendered work (Annexure – X). Similarly list of Plant & Machinery available on hand and proposed to be inducted and hired for the tendered work (Annexure-IX). (iv) A copy of certificate notarized affidavit on a non-judicial stamp paper stating that they are not liable to be disqualified and all their statements/documents submitted along with bid are true and factual. Standard format of the certificate to be submitted by the bidder is enclosed as Annexure-XXIV. **In addition to Annexure-XXIV, in case of other than Company/Proprietary firm, Annexure-XXIV(A) shall also be submitted by the each member of a partnership firm/Joint Venture(JV)/Hindu Undivided Family(HUF)/Limited Liability Partnership(LLP)etc.as the case may be** Non submission of a copy of certificate by the bidder shall result in summary rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to indentify, state and submit the supporting documents duly self attested/digitally signed by which they/he are/is qualifying the Qualifying Criteria mentioned in the Tender Document.
4. Railway reserved the right to verify all statements, information and documents submitted by bidder in each tender offer and the bidder shall when so required by the railway make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the railway shall not relieve the bidder of its obligation and liabilities hereunder nor will it affect any rights of the railway there under.

5. (a) In case of any information submitted by tenderer is found to be false forged or incorrect at any time during process of evaluation of tenders, it shall lead to forfeiture of the tender Bid Security besides banning of business for a period of upto two years.
- (b) In case of any information submitted by tenderer is found to be false forged or incorrect after the award of contract, the contract shall be terminated. Bid Security, Performance Guarantee and Security Deposit available with railway shall be forfeited. In addition, other dues of contractor, if any under this contract shall be forfeited and agency shall be banned for doing business for a period of upto two years.

Note: Non-compliance any of the conditions set forth therein above is liable to result in the tender being reject.

4.0 Consideration of Tenders:

4.1 Right of Railway to Deal with Tenders:

The Railway reserves the right of not to invite tenders for any of Railway work or works or to invite open or limited tenders and when tenders are called to accept a tender in whole or in part or reject any tender or all tenders without assigning reasons for any such action. In case if tender is accepted in part by Railway administration, Letter of Acceptance shall be issued as counter offer to the Tenderer, which shall be subject to acceptance by the Tenderer.

4.1.1 The authority for the acceptance of the tender will rest with the Railway. It shall not be obligatory on the said authority to accept the lowest tender or any other tender, and tenderer(s) shall neither demand any explanation for the cause of rejection of his/ their tender nor the Railway to assign reasons for declining to consider or reject any particular tender or tenders.

4.1.2 If the tenderer(s) deliberately gives / give wrong information in his / their tender or creates / create circumstances for the acceptance of his / their tender, the Railway reserves the right to reject such tender at any stage.

4.1.3 If the tenderer(s) expire(s) after the submission of his / their tender or after the acceptance of his / their offer, the Railway shall deem such tender cancelled. If a partner of a firm expires after the submission of their tender or after the acceptance of their tender, the Railway shall deem such tender as cancelled, unless the firm retains its character.

4.1A Two Packets System of Tendering: With a view to assess the tenders technically without being influenced by the financial bids, 'Two Packets System of tendering' shall be adopted wherein tender documents provide for the same.

4.1B Pre Bid Conference: Intenders having advertised value more than Rs 50 Crore or as mentioned in the tender document, Railway shall conduct Pre Bid Conference(s) with the prospective bidders.

4.1C Make in India Policy: Provisions of Make in India Policy 2017 issued by Govt. of India, as amended from time to time, shall be followed for consideration of tenders.

4.1D Permission to Bid for a bidder from a country which shares Land boundary with India: Any bidder from the countries sharing a land border with India will be eligible to bid in any procurement of works (including turnkey projects) only if the bidder is registered with the Competent Authority. The Competent Authority for registration will be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT), Government of India. For interpretation of this para, Department of Expenditure, Ministry of Finance, Government of India letter F.No.6/18/2019-PPD dated 23/07/2020 shall be referred.

4.1E Clarification of Bids: To assist in the examination, evaluation & comparison and pre-qualification of the Tender, the Railway may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder that is not in response to a request by the Railway shall not be entertained or considered. The Railway request for clarification and the response of the bidder in this regard shall be in writing. However, if a Bidder does not provide clarification of its bid by the date and time communicated in the Railway request for clarification, the bid shall be evaluated as per the documents submitted along with the bid.

4.1F However, in case of tender more than Rs.10 crore two packet system of tender is to be adopted.

4.1 G Tenderer(s) shall upload two files/packets. File-I/Packet-I and File-II/Packet-II. File-I/packet-I shall contain Technical Cum Commercial bid and all necessary documents regarding constitution of the firm and other requisite documents/credentials.

4.2 Opening of Tender: E- tenders are opened after closing date and time of submission online bids on website www.ireps.gov.in through Digital Signature Certificate/Encryption Certificate of concern Authorized Officer of Railways on specified date and time. However, if date of tender opening is declared as Holiday, the tender will be opened at the same time on next working day.

4.2 A ELECTRONIC REVERSE AUCTION (E-RA)

(Ref: RBL No. 2017/Trans/01/Policy/Pt-S dated 28.03.2018)

Process of Electronic Reverse Auction (e-RA) shall be adopted for Works tenders on mentioned below:-

A. Tender for Works, Services and Stores Contracts
1.0 Selection criteria for tender cases for Works, Stores and Services proposed through Reverse Auction (e-RA) route:-

a) In the first phase, following method of purchase through Reverse Auction shall be the preferred method for procurement for Stores tenders valued more than Rs. 5 Cr. in each case and for Works and Services for tenders valued more than Rs. 50 Cr, in each case.(RB Letter No. 2019/RS(G)/779/2 Dated 08.08.2019) b) The process of procurement through Reverse Auction shall be followed only in case of tenders where there are at least three approved vendors (where work to be executed/service to be provided/bulk procurement is to be from vendors approved by RDSO/CORE/Pus etc.) or at least three proven/likely competitive sources, prima facie competent for execution of work/provision of service/bulk ordering. c) Financial Bids in single currency/ parameter only shall be allowed.

2.0 Procedure for award of contracts through Reverse Auction:

a) The procedure discussed herein shall be fully implemented through IREPS. Any reference to Reverse Auction in these instructions shall imply e- RA.

b) Conduct and reporting of Reverse Auction shall be as per Annexure I detailed below.

c) Each tender should clearly specify essential technical and commercial parameters in a transparent manner. No deviation to such essential Technical & Commercial conditions shall be permitted to the vendors in the electronic bid form.

2.1 Technical Bid and Initial Price Offer:-

a) (i) In Works and Services related tenders E-RA shall be adopted only for those cases where evaluation is on the bases of single parameter/currency.

(ii) In case of Stores Tenders procuring authority shall decide the bid evaluation criteria in the tender itself, i.e. whether evaluation shall be item wise, or overall tender value wise.

b) Bidder shall be simultaneously required to electronically submit a Technical & Commercial Bid and Initial Price Offer.

(i) In case of Works and Services tenders, offers found eligible for award of contract/meeting eligibility criteria shall be categorized as Qualified for Award of Contract for the purpose of e-RA

(ii) In case of Stores tenders, offers found eligible for bulk order shall be categorized as Qualified for Bulk Order for the purpose of RA and offers found eligible for Developmental order shall be categorized as Qualified for Developmental Order for the purpose of RA.

c) Offers not complying with essential technical & commercial requirements of the tender shall be declared as Ineligible for award of contract.

d) Technical & Commercial evaluation of bids shall be done by a Tender Committee, as per extant guidelines, delegation and the estimated value of tender. Recommendations of Tender committee shall be considered by Tender Accepting Authority, as per existing guidelines.

e) Initial Price Offer of only those bidders categorized as Qualified for Award of contract in case of Works and Services Tenders shall be opened and tabulated by system separately. Extant instructions for electronic tabulation shall apply for tabulation of Initial Price Offers.

2.2 Financial Bid:

Financial Bid shall comprise of Final Price Offer obtained through Reverse Auction. Following conditions and procedure shall be followed in selection of bidders for conduct of Reverse Auction:

a) Selection of vendors for Reverse Auction for award of Contract in Works and Services tenders and bulk ordering in Stores tenders:

Number of tenderers Qualified for Award of contract/Bulk Order
Number of tenderers to be selected for Reverse Auction
Remarks

Number of tenderers Qualified for Award of contract/Bulk Order	Number of tenderers to be selected for Reverse Auction	Remarks
<3	Nil	The bids disallowed from participating in the Reverse Auction shall be the highest bidder(s) in the tabulation of Initial Price Offer. In case the highest bidders quote the
3 to 6		
More than 6	50% of Vendors Qualified for Bulk Order/award of contract (rounded off to next	

	higher integer).	same rate, the Initial Price of IREPS, shall be removed first, on the principle of last in first out, by IREPS system itself.
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Note:

- i. * If the number of tenderers qualified for Bulk Order/Award of Contract is less than 3, RA shall not be done and tender may be decided on the bases of Initial Price Offer(s).
- ii. In case of Stores tenders, selection of vendors for Reverse Auction for developmental ordering: Offers Qualified for Development Order, with initial price offer lower than the highest initial price offer of a vendor Qualified for Bulk Order and selected for Reverse Auction after elimination, shall be allowed to participate in RA. (RB Letter No. RS(M)/2011/EPS/01 Pt. Dated. 18.10.2019)
- iii. MSE Criteria (Not applicable for Works): All MSEs (Micro & Small Enterprises) found Qualified for Bulk/Development Orders/Award of Contract but could not be selected for Reverse Auction as per criteria stipulated in para 2.2 (a) and 2.2 (a) Note (ii) above, but are within the range of 15% of lowest Initial Price Offer of the bidder qualified for bulk order shall be permitted to participate in the Reverse Auction, irrespective of their inter-se ranking on the basis of initial Price Offer. Such MSEs shall be over and above the number of vendors selected for Reverse Auction, as per para 2.2 (a) and 2.2 (a) Note (ii) above. In case of Stores tenders, lowest initial price bid shall mean lowest initial price bid of vendor qualified for bulk order. However, in case all the bidders qualifying for bulk as well as for developmental order before applying elimination criteria) are within MSE category, this clause shall not apply. (RB Letter No. RS(M)/2011/EPS/01 Pt. Dt. 18.10.2019)
- iv. **Make in India criteria:** All bidders eligible for benefits under Public Procurement (Preference to make in India) Order-2017, found qualified for Bulk/Developmental Order/Award of Contract and are within the specified range of price preference, under the Make in India Policy, of lowest Initial Price offer of the vendor qualified for bulk order shall be permitted to participate in the Reverse Auction, irrespective of their inter-se ranking on the basis of Initial Price Offer. Such bidders shall be over and above the number of vendors selected for Reverse Auction, as per para 2.2 (a) and 2.2 (a) Note (ii) above. However, if all the bids qualified for bulk order as well as for developmental order (before applying elimination criteria) also qualify under "Make in India Order, 2017" criteria, this clause shall not apply. (RB Letter No. RS(M)/2011/EPS/01 Pt. Dated. 18.10.2019) **b)** During Reverse Auction process, bidders shall not be allowed to bid a rate higher than the lowest Initial Price offer. 2.3 (i) Reverse Auction among bids categorized as Qualified for award of contract in case of Works and service tenders shall be conducted on IREPS/Suitable Platform. Bidders shall be able to see the auction screens. (ii) Reverse Auction among bidders categorized as Qualified for Developmental Order and Qualified for Bulk Order shall be conducted concurrently on IREPS/Suitable Platform in Stores tenders. Qualified bidders shall be able to see both the auction screens i.e. auction screen of Reverse Auction amongst bidders qualified for bulk order and auction screen of Reverse Auction amongst bidders qualified for developmental order. However, bidders shall only be permitted to bid on the respective screens relevant to them as per their qualification. Purchaser shall not be permitted to see any of the auction screens. Purchaser should only be intimated on website about the status of Reverse Auction, i.e. when the auction will start/ had started, whether the auction is live or whether the auction has closed. (RB Letter No. RS(M)/2011/EPS/01 Pt. Dated. 18.10.2019) 2.4 In case of Stores Tenders, quantity to be covered on developmental orders shall be limited to 20% of the net procurable quantity. Developmental orders shall be placed in terms of Railway Board letter No. 99/RS(G)/709/1/Pt. Dated 13/01/2015. The quantity covered on developmental orders may be within or outside NPQ, which may be decided by TC/TAA, before conduct of Reverse Auction. 2.5 After obtaining the final price offers through Reverse Auction, the lowest bid of only those bidders who had participated in the Reverse Auction shall be tabulated and considered for ordering. The offers of bidders which were eliminated from Reverse Auction in terms of Para 2.2 shall be tabulated separately and shall not be considered for any ordering. All the relevant policies of Government of India at the relevant time shall be applicable. (RB Letter No. RS(M)/2011/EPS/01 Pt. Dated. 18.10.2019) 2.6 The level of Tender Committee to consider the Final Price Offers shall be determined on the basis of lowest Initial Price Offer of bid Qualified for award of contract in case of Works and services tenders and qualified for Bulk Order in case of Stores tenders, as opened prior to Reverse Auction. In case the level of Tender Committee which evaluated technical & commercial bids as per para 2.1(d) was higher than the level of TC competent to consider lowest Initial Price Offer of bid Qualified for award of contract/Bulk Order, the higher level TC shall continue to finalize such tender cases. 2.7 For specific high value cases centralized at Railway Board such as procurement of Wagons, HSD oil, Track Machines, Steel, Rail and such other works/services/procurement, specific e-RA conditions, may be formulated and incorporated in the tender conditions duly vetted by Associate Finance and approved by competent authority. Annexure

Procedure for Conduct and Reporting of R.A

(Annexure of RBL No. 2017/Trans/01/Policy/Pt-S dated 28.03.2018) 1.

1. The tendering authority shall solicit bids through an invitation to the electronic Reverse Auction to be published or communicated in accordance with the provisions similar to e-procurement.
2. Convener of the tender committee shall fix the following, on case to case basis, depending upon the nature of item/work/service and complexity of case on hand. **These shall be indicated in the tender for e-RA itself.**

a. Initial e-RA period: This shall be the initial time interval for e-RA. e-RA shall be open for this duration.

- b. Auto extension period: In case any offer is received in the time period equal to auto extension period before close of initial e-RA period, the e-RA shall be extended for time equal to auto extension period from the time of last bid. There shall be no upper limit on number of auto extension. When no offers is received in the last auto extension period, e-RA shall close.
- c. Minimum decrement in percentage of value of the last successful bid.

3. Date and time for start of e-RA shall be communicated to qualified tenders by the convener after evaluation of the Technical Bids.
4. After submission of Initial Price Bid, tenderers will not be allowed to revise the taxes and other levies.
5. During auction period, identities of the participating tenderers will be kept hidden.
6. Minimum admissible bid value will be last bid value minus minimum decrement as specified by the tendering authority before starting of reverse auction. Starting point for reverse auction shall be the lowest Initial Prices Bid of the tenderer eligible for award of contract.
7. After close of the RA, tabulation of last (minimum) bids received from all the tenderers will be generated and made visible to Railways and participating tenderers.
8. Railway users can also view the bidding history in chronological order.
9. Bidder shall not be allowed to withdraw their last offer.
10. L-1 will be defined as the lowest bid obtained after the closure of R.A. session for Goods, work and services tenders.

4.3 Conditional offer and Alternative proposal by Tenderer: Tenderers shall submit offers that fully comply with the requirements of the Tender documents including the conditions of contract, design and specification requirements if any.

Conditional offer or alternative offers will not be considered in tender evaluation and will be summarily rejected.

The Tenderer shall have no claims in this regard whatsoever.

"Any unconditional rebate offered by the tenderer should be mentioned on of 'Schedule of Quantities' specifically. To attract the rebate mentioned each page of schedule may refer the note for the conditional rebate mentioned in the end. Any rebate mentioned at any other place in tender document shall not be considered. The unconditional rebate mentioned in "Scheduled of Quantities" shall be considered while evaluation of bid."

4.4.1 Provisions of Make in India Policy 2017 issued by Govt. of India, as amended from time to time, shall be followed for consideration of tenders.

4.4 Withdrawal of Offer: No Tender offer can be withdrawn in the interval between the after due date & time of submission and expiration of the Tender validity period. Withdrawal of offer during this period shall result in forfeiture of Tenderer Earnest money in terms of Para 1242 of Engineering code Reprint 2012.

4.5 Omission, Discrepancies & Clarification: Should a tenderer find discrepancies in or omissions from the drawings or any of the Tender Forms or should he be in doubt as to their meaning, he should at once notify the authority inviting tenders. The tender inviting authority may, if deemed necessary, clarify the same to all tenderers. It shall be understood that every endeavour has been made to avoid any error which can materially affect the basis of tender and successful tenderer shall take upon himself and provide for the risk of any error which may subsequently be discovered and shall make no subsequent claim on account thereof.

4.6 Evaluation of Tender/ Bids: Eligibility proposals that are found to be responsive will be evaluated by Railway to check whether he/they meet the Eligibility Criteria as laid down in section 4.5 (Tender form 4) of tender document. Thereafter declaration about not having conflict of interest, that Tender does not contain any condition and other relevant documents attached with Tender Document may be verified by Railway. To facilitate evaluation Railway may at its sole discretion, seek clarifications in writing from any Tenderer on the attached documents in the format as considered appropriate by Railway. Notwithstanding anything to the contrary contained in the Tender Documents. Railway may, at its sole discretion, waive any minor infirmity, non-conformity or irregularity in a Tender Document that does not constitute a material deviation and that does not prejudice or affect the relative position of any Tenderer, provided it confirms to all the terms, condition of Tender Documents without any material deviation, objection, conditionality or reservations.

"No post tender correspondence for submission of additional documents shall be entertained after opening of the Technical & Commercial offers. Even suo-moto post tender letters of the tenders shall be treated as NULL & Void."

5.0 Contract Document:

5.1 Execution of Contract Document: The Tenderer whose tender is accepted shall be required to appear in person at the office of General Manager/General Manager (Construction), Chief Administrative Officer (Construction), Divisional Railway Manager or concerned Engineer, as the case may be, or if tenderer is a firm or corporation, a duly authorized representative shall appear (there would be no need for appear in person if agreement is signed digitally) and execute the contract agreement within seven days of notice from Railways that the Contract Agreement is ready. The Contract Agreement shall be entered into by Railway only after submission of valid Performance Guarantee by the Contractor. Failure to do so shall constitute a breach of the agreement affected by the acceptance of the tender. In such cases the Railway may determine that such tenderer has abandoned the contract and there upon his tender and acceptance thereof shall be treated as cancelled and the Railway shall be entitled to forfeit the full amount of the Bid Security and other dues payable to the Contractor under this contract. The failed Contractor shall be debarred from participating in the re-tender for that work.

5.1 (A) Performance Guarantee

The procedure for obtaining Performance Guarantee is outlined below:-

a) The successful bidder shall have to submit a Performance Guarantee (PG) within 21 (Twenty one) days from the date of issue of Letter of Acceptance (LOA). Extension of time for submission of PG beyond 21 (Twenty one) days and upto 60 days from the date of issue of LOA may be given by the Authority who is competent to sign the contract agreement. However, a penal interest of 12% per annum shall be charged for the delay beyond 21 (Twenty one) days, i.e. from 22nd day after the date of issue of LOA. Further, if the 60th day happens to be a declared holiday in the concerned office of the Railway, submission of PG can be accepted on the next working day.

In all other cases, if the Contractor fails to submit the requisite PG even after 60 days from the date of issue of LOA, the contract is liable to be terminated. In case contract is terminated railway shall be entitled to forfeit Bid Security and other dues payable against that particular contract, subject to maximum of PG amount. In case a tenderer has not submitted Bid Security on the strength of their registration as a Startup recognized by Department of Industrial Policy and Promotion (DIPP) under Ministry of Commerce and Industry, DIPP shall be informed to this effect. The failed Contractor shall be debarred from participating in re-tender for that work.

b) The successful bidder shall submit the Performance Guarantee (PG) in any of the following forms, amounting to **5%** of the original contract value and Additional Performance Guarantee as per clause 16(4)(h) of GCC in any of the following forms:-

(i) A deposit of Cash;

(ii) Irrevocable Bank Guarantee;

(iii) Insurance Surety Bond as per Annexure-XVII

Note:- In case of extension of Date of Completion, selected bidder needs to submit extended Insurance Surety Bond Fresh Insurance Surety Bond/fresh Performance Security, in any form as given above, before expiry of existing Insurance Surety Bond.

(iv) Government Securities including State Loan Bonds at 5 % below the market value;

(v) Pay Orders and Demand Drafts tendered by any Scheduled Commercial Bank of India;

(vi) Guarantee Bonds executed or Deposits Receipts tendered by any Scheduled Commercial Bank of India;

(vii) Deposit in the Post Office Saving Bank;

(viii) Deposit in the National Savings Certificates;

(ix) Twelve years National Defence Certificates;

(x) Ten years Defence Deposits;

(xi) National Defence Bonds and

(xii) Unit Trust Certificates at 5 % below market value or at the face value whichever is less. Also, FDR in favour of FA&CAO (free from any encumbrance) may be accepted.

c) The Performance Guarantee shall be submitted by the successful bidder after the Letter of Acceptance (LOA) has been issued, but before signing of the contract agreement. This P.G. shall be initially valid upto the stipulated date of completion plus 60 days beyond that. In case, the time for completion of work gets extended, the Contractor shall get the validity of P.G. extended to cover such extended time for completion of work plus 60 days.

(d) The value of PG to be submitted by the Contractor is based on original contract value and shall not change due to subsequent variation(s) in the original contract value.

(e) The Performance Guarantee (PG) shall be released after physical completion of the work based on 'Completion Certificate' issued by the competent authority stating that the Contractor has completed the work in all respects satisfactorily.

(f) Whenever the contract is rescinded, the Performance Guarantee already submitted for the contract shall be encashed in addition to forfeiture of Security Deposit available with railway.

(g) The Engineer shall not make a claim under the Performance Guarantee except for amounts to which the President of India is entitled under the contract (not withstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:

(i) Failure by the Contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer may claim the full amount of the Performance Guarantee.

(ii) Failure by the Contractor to pay President of India any amount due, either as agreed by the Contractor or determined under any of the Clauses/Conditions of the Agreement, within 30 days of the service of notice to this effect by Engineer.

(iii) The Contract being determined or rescinded under clause 62 of these conditions.

(iv) The format of Performance Guarantee is at Annexure – XXVI.

(h) **If a tender is accepted on the quoted rates of bidder which is below the advertised tender value, an additional performance security shall be submitted by the bidder as below:-**

Bid quoted in % of advertised cost	Additional Performance Guarantee (%)
Below 0 - 5% inclusive)	Nil
Below 5%	5%

5.2 Form of Contract Document: Every contract shall be complete in respect of the document it shall so constitute. Not less than 2 copies of the contract document shall be signed by the competent authority and the Contractor and one copy given to the Contractor (there would be no need of signing two copies if agreement is signed digitally).

(a) For Zone contracts, awarded on the basis of the percentage above or below the applicable chapter(s) of Standard Schedule of Rates (SSOR) for the whole or part of financial year, the contract agreement required to be executed by the tenderer whose tender is accepted shall be as per specimen form, **Annexure-II**. During the currency of the Zone Contract, work orders as per specimen form **Annexure-III**, for works not exceeding ₹ 5,00,000 each, shall be issued by the Divisional Railway Manager / Executive Engineer under the agreement for Zone Contract.

(b) For contracts for specific works, the contract document required to be executed by the tenderer whose tender is accepted shall be an agreement as per specimen form **Annexure- IV**.

5.3 Applicable charges/recoveries/Advance etc: Please refer to Annexure-XIII of Tender Document.

5.4 Special Conditions of Contract for mandatory updation of Labour data on Railway's shramik kalyan portal by

Contractor.

The special conditions are as under:

A. Contractor is to abide by the provisions of Payment of Wages act & Minimum Wages Act in terms of clause 54 and 55 of Indian Railways General Conditions of Contract. In order to ensure the same, an application has been developed and hosted on website www.shramikkalyan.indianrailways.gov.in. Contractor shall register shall his firm/company etc. and upload requisite details of labour and their payment in this portal. These details shall be available in public domain. The Registration/updation of Portal shall be done as under:

(a) Contractor shall apply onetime registration of his company/firm etc. in the Shramikkalyan portal with requisite details subsequent to issue of Letter of Acceptance. Engineer shall approve the contractor's registration on the portal within 7 days of receipt of such request.

(b) Contractor once approved by any Engineer, can create password with login ID (PAN No.) for subsequent use of portal for all LOAs issued in his favour.

(c) The contractor once registered on the portal, shall provide details of his Letter of Acceptances (LoA)/Contract Agreements on shramikkalyan portal within 15 days of issue of any LoA for approval of concerned engineer. Engineer shall update (if required) and approve the details of LoA filled by contractor within 7 days of receipt of such request.

(d) After approval of LoA by Engineer, contractor shall fill the salient details of contract labours engaged in the contract and ensure updating of each wage payment them on shramik kalyan portal on monthly basis. (e) It shall be mandatory upon the contractor to ensure correct and prompt uploading of all salient details of engaged contractual labour & payments made thereof after each wage period.

B. While processing payment of any 'On Account bill' or 'Final bill' or release of 'Advances or Performance Guarantee/Security deposit', contractor shall submit a certificate to the Engineer or Engineer's representatives that I have uploaded the correct details of contract labours engaged in connection with this contract and payments made to them during the wage period in Railway's Shramik kalyan portal at 'www.shramikkalyan.indianrailways.gov.in' till _____Month_____Year." (Rly. Board letter No. 2018/CE-I/CT/4 Dt. 17.10.2018).

6.0 Applicability of part-II of GCC-2022: "All Standard general Condition of Contract for use in connection with works contract will strictly be applied as per Part-II of Indian Railway Standard Conditions of contract(GCC-2022 i.e. Para 1 to 64(8) along with Annexures)"

Table of Contents of Tender Document

Section	Subject	Page No.
	Work Specific Tender Document Part-I	
	Mode of Tender (E-tender – One packet / two packet)	
1	Start of Tender Document (Tender Details)	
2	Copy of Tender Notice	
3	Scope of Work and Drawings	
4.1	Check List	
4.2	Tender Form-1 (Cover Letter)	
4.3	Tender Form-2 (General information of the Tenderer)	
4.4	Tender Form-3 (Power of Attorney)	
4.5	Tender Form-4(A)-Technical Eligibility&4(B)-Financial Eligibility)	
4.6	Tender Form-5 (Schedule of Rates and Quantities)	
	Work Specific Tender Document Part-II	
1	Special Specifications for Non schedule items	
2	Special Conditions of Contract	
	Standard Documents applicable to all Tenders and Contracts	
1	General Conditions of Contract Part-I (GCC-Pt I) Instructions to Tenderer & Regulations	Note-I
2	General Conditions of Contract Part-II (GCC-Pt II)	

Note - I: - GCC Pt-I and Pt –II along with latest correction slips are standard documents applicable to all contracts on Northern Railway. It is available on Northern Railway website: www.nr.indianrailways.gov.in for general information purpose.

Signature of Tenderer

Signature of Tender inviting Authority

NORTHERN RAILWAY
START OF DOCUMENT

**SECTION 1: TENDER DETAILS
(TOP SHEET)**

(A) Details to be filled in by Railway

1.	Mode of Tender	e-Tendering (one packet / two packet)
2.	Tender Notice No.& date	30-Elect/T/Notice/04/2026-27
3.	Tender No.	30-Elect/T-04/2026-27
4.	Name of the Work	Raising of Passenger Platform from medium level to High level along with platform shelter of ABS (Abhor) station, Raising of Passenger Platform from medium level to High level along with platform shelter of SAG(Sangrur) station, Raising of Passenger Platform from medium level to High level along with shelter of NLDM (Nangal Dam) station, Provision of Ramps to existing FOB for improving divyangjan accessibility at Tapa & Bhuchchu Railway station, Power supply arrangement in connection with installation of HABD(Hot Axle Box Detector) as per Annexure, Replacement of existing electro mechanical inter locking with panel interlocking at RTP (Ropar Thermal Power Plant) in SIR-NLDM section of Ambala division, New Running Room at PKYN station, Repair of Transformers & allied works and Provision of Bio-toilet testing lab at C&W Depot, Chandigarh over Ambala Division.
5.	Approximate Cost of Work	Rs. 14382648.69
6.	Period of Completion	6 Months
7.	Amount of Earnest Money	Rs. 287700/-
8.	Tender Document can be obtained from website / office at	www.nr.indianrailways.gov.in / www.ireps.gov.in
9.	Last date and time of sale / downloading of Tender Document.	07.07.2026 upto 15:00 hrs
10.	Due date & time of submission of Tender Document	07.07.2026 upto 15:00 hrs
11.	Due date & time of opening of Tender*	07.07.2026 upto 15:00 hrs
12.	Place of Opening of Tender Document.	Sr.DEE(G)/UMB office, Ambala cantt.(Through e-tendering)

NOTE: * If date of tender opening is declared as Holiday, the Tender will be opened at the same time on next working day.

Signature of Tenderer

Signature of Tender inviting Authority

(B) Details to be filled in by tenderer while uploading their offer:

1	Constitution of the firm/ Concern (Tick as applicable)	Sole Proprietorship/ Partnership Firm / Company/ JV/ Society
2	Full name of Sole Proprietorship/ Partnership firm/ Company/ JV/ Society (as the case may be)	
3	Year of formation/ incorporation	
4	PAN NO.	
5	Registered Office Address	
6	Address on which correspondence regarding this tender should be done	
7	Names of the Proprietor/ Partners/ JV members etc	

Signature of Tenderer

Signature of Tender inviting Authority



NORTHERN RAILWAY

Website: www.nr.indianrailways.gov.in

SECTION -2 TENDER NOTICE

Divisional Railway Manager (Works), Electrical Department, Ambala Division, Northern Railway, Ambala cantt, Haryana for and on behalf of President of India invites open e-Tenders for the following works

Tender No. **30-Elect/T-04/2026-27**

Name of the Work:- Raising of Passenger Platform from medium level to High level along with platform shelter of ABS (Abhor) station, Raising of Passenger Platform from medium level to High level along with platform shelter of SAG(Sangrur) station, Raising of Passenger Platform from medium level to High level along with shelter of NLDM (Nangal Dam) station, Provision of Ramps to existing FOB for improving divyangjan accessibility at Tapa & Bhuchchu Railway station, Power supply arrangement in connection with installation of HABD(Hot Axle Box Detector) as per Annexure, Replacement of existing electro mechanical inter locking with panel interlocking at RTP (Ropar Thermal Power Plant) in SIR-NLDM section of Ambala division, New Running Room at PKYN station, Repair of Transformers & allied works and Provision of Bio-toilet testing lab at C&W Depot, Chandigarh over Ambala Division..

Open Tender Notice No. 04/2026-27

Open tenders through E-tendering are invited by Sr.Divisional Electrical Engineer/G, Northern Railway, Ambala from the willing contractors for following work upto 15:00 hrs on the date of closing shown against the work and will be opened thereafter:

S. N.	Open Tender No.	Name of work	Date Closing	Approx. Cost.	Completion period	Validity period
1	30-Elect / T-04/ 2026-27 (open Tender)	Raising of Passenger Platform from medium level to High level along with platform shelter of ABS (Abhor) station, Raising of Passenger Platform from medium level to High level along with platform shelter of SAG(Sangrur) station, Raising of Passenger Platform from medium level to High level along with shelter of NLDM (Nangal Dam) station, Provision of Ramps to existing FOB for improving divyangjan accessibility at Tapa & Bhuchchu Railway station, Power supply arrangement in connection with installation of HABD(Hot Axle Box Detector) as per Annexure, Replacement of existing electro mechanical inter locking with panel interlocking at RTP (Ropar Thermal Power Plant) in SIR-NLDM section of Ambala division, New Running Room at PKYN station, Repair of Transformers & allied works and Provision of Bio-toilet testing lab at C&W Depot, Chandigarh over Ambala Division.	07.07.2026 upto 15:00 hrs	14382648.69	6 Months	60Days

1. Tenderer (s) are required to upload scanned copies of all related eligibility documents including PAN/TIN as per conditions. The required Earnest Money & Tender Document Cost will be acceptable On-Line payment through Net Banking/or Payment Gateway payment only well before & upto 1500 Hrs of closing date & time of tender.
2. Tenderer(s) should have Class-III Digital Signature Certificate to participate in E-Tendering of Works Tenders.
3. For details, please log on IREPS website www.ireps.gov.in
No. 30-Elect/T/Notice/20/2025-26

Critical Dates		
Code	Activity	Date
D0	Date of availability of tender document on www.ireps.gov.in .	
D1 = D0 + 6 days	Start of submission of offer on www.ireps.gov.in	
D2 = D0 + 21 days	<ul style="list-style-type: none"> End of Availability of Tender Documents at www.ireps.gov.in. Opening of tender/offer. 	

The reference time for all the above activities is **07.07.2026 upto 15:00 hrs.**

NOTE: In case the intended date for opening of tenders is declared a holiday, the tenders will be opened on the next working day at the same time.

(Tenderer should keep himself updated about the Tender amendments, Corrigendum, etc. by remaining in touch with the website. Further, NO changes should be made in the final amended Tender Document by the Tenderer)

Signature of Tenderer

Signature of Tender inviting Authority

SECTION 3: SCOPE OF WORK AND TENDER DRAWINGS

1.	Scope of Work	Raising of Passenger Platform from medium level to High level along with platform shelter of ABS (Abhor) station, Raising of Passenger Platform from medium level to High level along with platform shelter of SAG(Sangrur) station,Raising of Passenger Platform from medium level to High level along with shelter of NLDM (Nangal Dam) station, Provision of Ramps to existing FOB for improving divyangjan accessibility at Tapa & Bhuchchu Railway station,Power supply arrangement in connection with installation of HABD(Hot Axle Box Detector) as per Annexure, Replacement of existing electro mechanical inter locking with panel interlocking at RTP (Ropar Thermal Power Plant) in SIR-NLDM section of Ambala division, New Running Room at PKYN station,Repair of Transformers & allied works and Provision of Bio-toilet testing lab at C&W Depot, Chandigarh over Ambala Division.
2.	Location of Work	over Ambala Division .However site can be changedanywhere over Ambala division as & when required
3.	Approximate Cost	Rs. 14382648.69
4.	Estimate No	
5.	Allocation	Capital
6.	Period of completion	06 Months
7.	Definition of Similar Nature of Work to be considered for the above work	As per NIT
8.	Cost of work similar in nature to be considered for this Tender	As per NIT
9.	Drawings and sketches duly approved by CA for the Tender	As per plan available with Divisional Office and with site Engineer.

Signature of Tenderer

Signature of Tender inviting Authority

SECTION 4.2: COVER LETTER

TENDER FORM - 1

(To be submitted by Tenderer on its letter head)

Tender No. -----

Name of Work -----

To

The President of India

Acting through the _____ Railway

I/We _____ have read the various conditions to tender attached hereto and agree to abide by the said conditions. I/We also agree to keep this offer open for acceptance for a period of ____ days from the date fixed for closing of the tender and in default thereof, I/We will be liable for forfeiture of my/our "Bid Security". I/We offer to do the work for _____ Railway, at the rates quoted in the attached bill(s) of quantities and hereby bind myself/ourselves to complete the work in all respects within _____ months from the date of issue of letter of acceptance of the tender.

2. I/We also hereby agree to abide by the Indian Railways Standard General Conditions of Contract, with all correction slips up-to-date and to carry out the work according to the Special Conditions of Contract and Specifications of materials and works as laid down by Railway in the annexed Special Conditions/Specifications, Standard Schedule of Rates (SSOR) with all correction slips up-to-date for the present contract.

3. A Bid Security of _____ has already been deposited online/ submitted as Bank Guarantee bond. Full value of the Bid Security shall stand forfeited without prejudice to any other right or remedies in case my/our Tender is accepted and if:

(a) I/We do not submit the Performance Guarantee within the time specified in the Tender document;

(b) I/We do not execute the contract documents within seven days after receipt of notice issued by the Railway that such documents are ready; and

(c) I/We do not commence the work within fifteen days after receipt of orders to that effect.

4. (a) I/We am/are a Startup firm registered by _____ Department of Industrial Policy and Promotion (DIPP) and my registration number is _____ valid upto (Copy enclosed) and hence exempted from submission of Bid Security.

5. We are a Labour Cooperative Society and our Registration No. is _____ with and hence required to deposit only 50% of Bid Security.

6. Until a formal agreement is prepared and executed, acceptance of this tender shall constitute a binding contract between us subject to modifications, as may be mutually agreed to between us and indicated in the letter of acceptance of my/our offer for this work.

Signature of Tenderer(s)

Date -----

Address of the Tenderer(s)

ANNEXURE-I (Contd.....)

1. Instructions to Tenderers and Conditions of Tender: The following documents form part of Tender / Contract:

- (a) Tender Forms – First Sheet and Second Sheet
- (b) Special Conditions/Specifications (enclosed)
- (c) Bill(s) of quantities (enclosed)
- (d) Standard General Conditions of Contract and Standard Specifications (Works and Materials) of Indian Railways as amended/corrected upto latest correction slips, copies of which can be seen in the office of _____ or obtained from the office of the Chief Engineer, _____ Railway on payment of prescribed charges.
- (e) Standard Schedule of Rates (SSOR) as amended / corrected upto latest correction slips, copies of which can be seen in the office of _____ or obtained from the office of the Chief Engineer, _____ Railway on payment of prescribed charges.
- (f) All general and detailed drawings pertaining to this work which will be issued by the Engineer or his representatives (from time to time) with all changes and modifications.

2. Drawings for the Work: The Drawing for the work can be seen in the office of the _____ and / or Chief Engineer, _____ Railway at any time during the office hours. The drawings are only for the guidance of Tenderer(s). Detailed working drawings (if required) based generally on the drawing mentioned above, will be given by the Engineer or his representative from time to time. 3. The Tenderer(s) shall quote his / their rates as a percentage above or below the Standard Schedule of Rates (SSOR) of _____ Railway as applicable to _____ Division except where he/they are required to quote item rates and must tender for all the items shown in the Bill(s) of Quantities attached. The quantities shown in the attached Bill(s) of Quantities are given as a guide and are approximate only and are subject to variation according to the needs of the Railway. The Railway does not guarantee work under each item of the Bill(s) of Quantities. The tenderer(s) shall quote rates / rebates only at specified place in Tender Form supplied by Railway. Any revision of rates / rebates submitted (quoted) through a separate letter whether enclosed with the bid (Tender Form) or submitted separately or mentioned elsewhere in the document other than specified place shall be summarily ignored and will not be considered.

- 4. Tenders containing erasures and / or alterations of tender documents are liable to be rejected. Any correction made by tender(s) in his/their entries must be attested by him / them.

5. The works are required to be completed within a period of _____ months from the date of issue of acceptance letter.

6. Bid Security:

(a) Subject to exemptions provided under para 5(1) (a) of Part-1 (ITT) of this document, the tender must be accompanied by a Bid Security as mentioned in tender documents, failing which the tender shall be summarily rejected.

(b) The Tenderer(s) shall keep the offer open for a minimum period of 60 days (in case of two packet system of tendering 90days) from the date of closing of the Tender. It is understood that the tender documents have been issued to the Tenderer(s) and the Tenderer(s), is / are permitted to tender in consideration of the stipulation on his / their part that after submitting his / their tender subject to the period being extended further, if required by mutual agreement from time to time, he will not resile from his offer or modify the terms and conditions thereof in a manner not acceptable to _____ Railway. Should the tenderer fail to observe or comply with the foregoing stipulation, the amount deposited or Bank guarantee bond submitted as Bid Security for the due performance of the above stipulation, shall be forfeited to the Railway.

(c) If his tender is accepted,

(i) the Bid Security mentioned in sub para(a) above deposited in cash through e-payment gateway will be retained as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract;

(ii) the Bid Security mentioned in sub para(a) above submitted as Bank guarantee bond, will be encashed as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract. The Bid Security of other Tenderers shall, save as herein before provided, be returned to them, but the Railway shall not be responsible for any loss or depreciation to the Bid Security that may happen thereto while in their possession, nor be liable to pay interest thereon. (d) In case Contractor submits the Term Deposit Receipt/Bank Guarantee Bond towards either the Full Security Depositor the Part Security Deposit equal to or more than Bid Security, the Railway shall return the Bid Security so retained as per sub para(c) above, to the Contractor.

7. Rights of the Railway to deal with Tender: The authority for the acceptance of the tender will rest with the Railway. It shall not be obligatory on the said authority to accept the lowest tender or any other tender, and tenderer(s) shall neither demand any explanation for the cause of rejection of his/ their tender nor the Railway to assign reasons for declining to consider or reject any particular tender or tenders.

8. If the tenderer(s) deliberately gives / give wrong information in his / their tender or creates / create circumstances for the acceptance of his / their tender, the Railway reserves the right to reject such tender at any stage.

9. If any partner(s) of a partnership firm expires after the submission of its tender or after the acceptance of its tender, the Railway shall deem such tender as cancelled/contract as terminated under clause 61 of the Standard General Conditions of Contract, unless the firm retains its character as per partnership agreement. If a sole proprietor expires after the submission of tender or after the acceptance of tender, the Railway shall deem such tender as cancelled / contract as terminated under clause 61 of the Standard General Conditions of Contract.

10. Eligibility Criteria:

10.1 Technical Eligibility Criteria:

(a) The tenderer must have successfully completed or substantially completed any one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

- (i) Three similar works each costing not less than the amount equal to 30% of advertised value of the tender, or
- (ii) Two similar works each costing not less than the amount equal to 40% of advertised value of the tender, or
- (iii) One similar work costing not less than the amount equal to 60% of advertised value of the tender.

(b) (1) In case of tenders for composite works (e.g. works involving more than one distinct component, such as Civil Engineering works, S&T works, Electrical works, OHE works etc. and in the case of major bridges – substructure, superstructure etc.), tenderer must have successfully completed or substantially completed any one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

- (i) Three similar works each costing not less than the amount equal to 30% of advertised value of each component of tender, or
- (ii) Two similar works each costing not less than the amount equal to 40% of advertised value of each component of tender, or
- (iii) One similar work each costing not less than the amount equal to 60% of advertised value of each component of tender.

Note for b(1): Separate completed works of minimum required values shall also be considered for fulfillment of technical eligibility criteria for different components.

(b)(2) In such cases, what constitutes a component in a composite work shall be clearly pre-defined with estimated tender cost of it, as part of the tender documents without any ambiguity.

(b)(3) To evaluate the technical eligibility of tenderer, only components of work as stipulated in tender documents for evaluation of technical eligibility, shall be considered. The scope of work covered in other remaining components shall be either executed by tenderer himself if he has work experience as mentioned in clause 7 of the Standard General Conditions of Contractor through subcontractor fulfilling the requirements as per clause 7 of the Standard General Conditions of Contract or jointly i.e., partly himself and remaining through subcontractor, with prior approval of Chief Engineer in writing. However, if required in tender documents by way of Special Conditions, a formal agreement duly notarized, legally enforceable in the court of law, shall be executed by the main contractor with the subcontractor for the component(s) of work proposed to be executed by the subcontractor(s), and shall be submitted along with the offer for considering subletting of that scope of work towards fulfillment of technical eligibility. Such subcontractor must fulfill technical eligibility criteria as follows:

The subcontractor shall have successfully completed at least one work similar to work proposed for subcontract, costing not less than 35% value of work to be subletted, in last 5 years, ending last day of month previous to the one in which tender is invited through a works contract. Note: for subletting of work costing up to Rs 50 lakh, no previous work experience of subcontractor shall be asked for by the Railway. In case after award of contract or during execution of work it becomes necessary for contractor to change subcontractor, the same shall be done with subcontractor(s) fulfilling the requirements as per clause 7 of the Standard General Conditions of Contract, with prior approval of Chief Engineer in writing. Note for Item 10.1:

Work experience certificate from private individual shall not be considered. However, in addition to work experience certificates issued by any Govt. Organization, work experience certificate issued by Public listed company having average annual turnover of Rs 500 crore and above in last 3 financial years excluding the current financial year, listed on National Stock Exchange or Bombay Stock Exchange, incorporated/registered at least 5 years prior to the date of closing of tender, shall also be considered provided the work experience certificate has been issued by a person authorized by the Public listed company to issue such certificates. In case tenderer submits work experience certificate issued by public listed company, the tenderer shall also submit along with work experience certificate,

the relevant copy of work order, bill of quantities, bill wise details of payment received duly certified by Chartered Accountant, TDS certificates for all payments received and copy of final/last bill paid by company in support of above work experience certificate.

10.2. Financial Eligibility Criteria: The tenderer must have minimum average annual contractual turnover of V/N or V whichever is less; where

V= Advertised value of the tender in crores of Rupees

N= Number of years prescribed for completion of work for which bids have been invited. The average annual contractual turnover shall be calculated as an average of "total contractual payments" in the previous three financial years, as per the audited balance sheet. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover. The tenderers shall submit requisite information as per Annexure-VIB, along with copies of audited Balance Sheets duly certified by the Chartered Accountant/ Certificate from Chartered Accountant duly supported by Audited Balance Sheet.

10.3 Bid Capacity: The tender/technical bid will be evaluated based on bid capacity formula detailed as Annexure-VI.

10.4 No Technical and Financial credentials are required for tenders having advertised value up to Rs 50 lakh.

10.5 Credentials if submitted in foreign currency shall be converted into Indian currency i.e., Indian Rupee as under: The conversion rate of US Dollars into Rupees shall be the daily representative exchange rates published by the Reserve Bank of India or entity authorized by RBI to do so for the relevant date or immediately previous date for which rates have been published. Where, relevant date shall be as on the last day of month previous to the one in which tender is invited. In case of any other currency, the same shall first be converted to US Dollars as on the last day of month previous to the one in which tender is invited, and the amount so derived in US Dollars shall be converted into Rupees at the aforesaid rate. The conversion rate of such currencies shall be the daily representative exchange rates published by the International Monetary Fund for the relevant date or immediately previous date for which rates have been published.

[Explanation for TENDER FORM -2including Para 10.1 to 10.5 - Eligibility Criteria: 1. Substantially Completed Work means an ongoing work in which payment equal to or more than 90% of the present contract value (excluding the payment made for adjustment of Price variation (PVC), if any) has been made to the contractor in that ongoing contract and no proceedings of termination of contract on Contractor's default has been initiated. The credential certificate in this regard should have been issued not prior to 60 days of date of invitation of present tender.

2. In case a work is started prior to 07 (seven) years, ending last day of month previous to the one in which tender is invited, but completed in last 07 (seven) years, ending last day of month previous to the one in which tender is invited, the completed work shall be considered for fulfillment of credentials.

3. If a work is physically completed and completion certificate to this extent is issued by the concerned organization but final bill is pending, such work shall be considered for fulfillment of credentials

4. In case of completed work, the value of final bill (gross amount) including the PVC amount (if paid) shall be considered as the completion cost of work. In case final bill is pending, only the total gross amount already paid including the PVC amount (if paid) shall be considered as the completion cost of work. In case of substantially completed work, the total gross amount already paid including the PVC amount (if paid), as mentioned in the certificate, shall be considered as the cost of substantially completed work. 5. If a bidder has successfully completed a work as subcontractor and the work experience certificate has been issued for such work to the subcontractor by a

Govt. Organization or public listed company as defined in Note for Item 10.1 Para 10 of the Tender Form (Second Sheet), the same shall be considered for the purpose of fulfillment of credentials. 6. In case a work is considered similar in nature for fulfillment of technical credentials, the overall cost including the PVC amount (if paid) of that completed work or substantially completed work, shall be considered and no separate evaluation for each component of that work shall be made to decide eligibility.

7. In case of newly formed partnership firm, the credentials of individual partners from previous propriety firm(s) or dissolved previous partnership firm(s) or split previous partnership firm(s), shall be considered only to the extent of their share in previous entity on the date of dissolution / split and their share in newly formed partnership firm. For example, a partner A had 30% share in previous entity and his share in present partnership firm is 20%. In the present tender under consideration, the credentials of partner A will be considered to the extent of 0.3×0.2 value of the work done in the previous entity. For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deed(s), dissolution deed(s) and proof of surrender of PAN No.(s) in case of dissolution of partnership firm(s) etc. 8. In case of existing partnership firm, if any one or more partners quit the partnership firm, the credentials of remaining partnership firm shall be re-worked out i.e., the quitting partner(s) shall take away his credentials to the extent of his share on the Northern Railway.

date of quitting the partnership firm(e.g. in a partnership firm of partners A, B & C having share 30%, 30% & 40% respectively and credentials of Rs 10 crore; in case partner C quits the firm, the credentials of this partnership firm shall remain as Rs 6 crore). For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deed(s), dissolution deed(s) and proof of surrender of PAN No.(s) in case of dissolution of partnership firm(s) etc. 9. In case of existing partnership firm if any new partner(s) joins the firm without any modification in the name and PAN/TAN no. of the firm, the credentials of partnership firm shall get enhanced to the extent of credentials of newly added partner(s) on the same principles as mentioned in item 6 above. For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deeds, dissolution/splitting deeds and proof of surrender of PAN No.(s) in case of dissolution of partnership firm etc. 10. Any partner in a partnership firm cannot use or claim his credentials in any other firm without leaving the partnership firm i.e., In a partnership firm of A&B partners, A or B partner cannot use credentials of partnership firm of A&B partners in any other partnership firm or propriety firm without leaving partnership firm of A&B partners.

11. In case a partner in a partnership firm is replaced due to succession as per succession law, the proportion of credentials of the previous partner will be passed on to the successor.

12. If the percentage share among partners of a partnership firm is changed, but the partners remain the same, the credentials of the firm before such modification in the share will continue to be considered for the firm as it is without any change in their value. Further, in case a partner of partnership firm retires without taking away any credentials from the firm, the credentials of partnership firm shall remain the same as it is without any change in their value.

13. In a partnership firm "AB" of A&B partners, in case A also works as propriety firm "P" or partner in some other partnership firm "AX", credentials of A in propriety firm "P" or in other partnership firm "AX" earned after the date of becoming a partner of the firm AB shall not be added in partnership firm AB. 14. In case a tenderer is LLP, the credentials of tenderer shall be worked out on above lines similar to a partnership firm. 15. In case company A is merged with company B, then company B would get the credentials of company A also.]

11. Tenderer Credentials:

Documents testifying tenderer previous experience and financial status should be produced along with the tender.

Tenderer(s) who is / are not borne on the approved list of the Contractors of _____ Railway shall submit along with his / their tender:

(i) Certificates and testimonials regarding contracting experience for the type of job for which tender is invited with list of works carried out in the past.

(ii) Audited Balance Sheet duly certified by the Chartered Accountant regarding contractual payments received in the past.

(iii) The list of personnel / organization on hand and proposed to be engaged for the tendered work. Similarly list of Plant & Machinery available on hand and proposed to be inducted and hired for the tendered work.

(iv) A copy of certificate stating that they are not liable to be disqualified and all their statements/documents submitted along with bid are true and factual. Standard format of the certificate to be submitted by the bidder is enclosed as Annexure-V. Non submission of a copy of certificate by the bidder shall result in summarily rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting

documents duly self attested / digitally signed by which they/he are/is qualifying the Qualifying Criteria mentioned in the Tender Document.

(v) The Railway reserves the right to verify all statements, information and documents submitted by the bidder in his tender offer, and the bidder shall, when so required by the Railway, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the Railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the Railway there under.

(vi) (a) In case of any information submitted by tenderer is found to be false, forged or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the tender Bid Security besides banning of business for a period of upto five years.

(b) In case of any information submitted by tenderer is found to be false, forged or incorrect after the award of contract, the contract shall be terminated. Bid Security, Performance Guarantee and Security Deposit available with the railway shall be forfeited. In addition, other dues of the contractor, if any, under this contract shall be forfeited and agency shall be banned for doing business for a period of upto five years.

12. Non-compliance with any of the conditions set forth therein above is liable to result in the tender being rejected.

13. Execution of Contract Documents: The successful Tenderer(s) shall be required to execute an agreement with the President of India acting through the _____ Railway for carrying out the work according to the Standard General Conditions of Contract, Special Conditions / Specifications. annexed to the tender and Standard Specifications (Works and Materials) of Railway as amended/corrected upto latest correction slips, mentioned in tender form (First Sheet).

14. Documents to be Submitted Along with Tender

(i) The tenderer shall clearly specify whether the tender is submitted on his own (Proprietary Firm) or on behalf of a Partnership Firm / Company / Joint Venture (JV) / Registered Society / Registered Trust / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc. The tenderer(s) shall enclose the attested copies of the constitution of their concern, and copy of PAN Card along with their tender. Tender Documents in such cases are to be signed by such persons as may be legally competent to sign them on behalf of the firm, company, association, trust or society, as the case may be. (ii) Following documents shall be submitted by the tenderer:

(i) Sole Proprietorship Firm:

(i) All documents in terms of TENDER FORM -2 above.

(ii) HUF:

(i) A copy of notarized affidavit on Stamp Paper declaring that he who is submitting the tender on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.

(ii) All other documents in terms of TENDER FORM -2 above.

(iii) Partnership Firm:

(i) All documents as mentioned in para18 of the TENDER FORM -2.

(iv) Joint Venture (JV): All documents as mentioned in para 17 of the Tender Form (Second Sheet).

(v) Company registered under Companies Act2013:

(i) The copies of **MOA (Memorandum of Association) / AOA (Articles of Association)** of the company

(ii) A copy of Certificate of Incorporation

(iii) A copy of Authorization/Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender on behalf of the company and create liability against the company.

(iv) All other documents in terms TENDER FORM -2 above.

(vi) LLP (Limited Liability Partnership):

(i) A copy of LLP Agreement

(ii) A copy of Certificate of Incorporation

(iii) A copy of Power of Attorney/Authorization issued by the LLP in favour of the individual to sign the tender on behalf of the LLP and create liability against the LLP.

(iv) An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were /are partners/members. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract.

(v) All other documents in terms of Para 10 of the Tender Form (Second Sheet).

(vii) Registered Society & Registered Trust:

(i) A copy of Certificate of Registration

(ii) A copy of Memorandum of Association of Society/Trust Deed

(iii) A copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the Society/Trust.

(iv) A copy of Rules & Regulations of the Society

(v) All other documents in terms of TENDER FORM -2above.

(iii) If it is NOT mentioned in the submitted tender that tender is being submitted on behalf of a Sole Proprietorship firm / Partnership firm / Joint Venture / Registered Company etc., then the tender shall be treated as having been submitted by the individual who has signed the tender.(iv) After opening of the tender, any document pertaining to the constitution of Sole Proprietorship Firm / Partnership Firm / Registered Company/ Registered Trust /Registered Society / HUF/LLP etc. shall be neither asked nor considered, if submitted. Further, no document cognizance of any document available in public domain (i.e., on internet etc.) or in Railway's record/office files etc. will be taken for consideration of the tender, if no such mention is available in tender offer submitted.(v) A tender from JV shall be considered only where permissible as per the tender conditions.

(vi) The Railway will not be bound by any change of power of attorney or in the composition of the firm made subsequent to the submission of tender. Railway may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the Contractor.

15. The tenderer whether sole proprietor / a company or a partnership firm / joint venture(JV) / registered society / registered trust / HUF / LLP etc if they want to act through agent or individual partner(s), should submit along with the tender, a copy of power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, specifically authorizing him/them to sign the tender, submit the tender and further to deal with the Tender/ Contract up to the stage of signing the agreement except in case where such specific person is authorized for above purposes through a provision made in the partnership deed / Memorandum of Understanding / Article of Association /Board resolution, failing which tender shall be summarily rejected. A separate power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favor of the specific person whether he/they be partner(s)of the firm or any other person, shall be submitted after award of work, specifically authorizing him/them to deal with all other contractual activities subsequent to signing of agreement, if required. Note: A Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Apostille certificate.

16. Employment/Partnership etc. of Retired Railway Employees:

(a) Should a tenderer

i) be a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement, whether in the executive or administrative capacity or whether holding a pensionable post or not, in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, ORii) being partnership firm / joint venture (JV) / registered society / registered trust etc have as one of its partners/members a retired Engineer of the gazetted rank or anyother gazetted officer working before his retirement, ORiii) being an incorporated company have any such retired Engineer of the gazette rank or any other gazetted officer working before his retirement as one of its directors AND in case where such Engineer or officer had not retired from government service at least 1 year prior to the date of submission of the tender THEN the tenderer will give full information as to the date of retirement of such Engineer or gazetted officer from the said service and as to whether permission for taking such contract, or if the Contractor be a partnership firm or an incorporated company, to

become a partner or director as the case may be, has been obtained by the tenderer or the Engineer or officer, as the case may be from the President of India or any officer, duly authorized by him in this behalf, shall be clearly stated in writing at the time of submitting the tender.

c) In case, upon successful award of contract, should a tenderer depute for execution of the works under or to deal matters related with this contract, any retired Engineer of gazetted rank or retired gazetted officer working before his retirement in the Engineering or any other department of any of the railways owned and administered by the president of India for the time being, and now in his employment, then the tenderer will ensure that retired Engineer or retired gazetted officer had retired from government service at least 1 year prior to the date of his employment with tenderer and in case he had retired from service within a year then he possesses the requisite permission from the President of India or any officer, duly authorized by him in this behalf, to get associated with the tenderer.

d) Should a tenderer or Contractor being an individual, have member(s) of his family or in the case of partnership firm/ company / joint venture (JV) / registered society / registered trust etc. one or more of his partner(s)/shareholder(s) or member(s) of the family of partner(s)/shareholder(s) having share of more than 1% in the tendering entity employed in gazetted capacity in the Engineering or any other department of the railway, then the tenderer at the time of submission of tender, will inform the authority inviting tenders the details of such persons.

Note: -If information as required as per 16.a), b), c) above has not been furnished, contract is liable to be dealt in accordance with provision of clause 62 of the Standard General Condition of contract.

JOINT VENTURE (JV) IN WORKS TENDERS

16. Participation of Joint Venture (JV) in Works Tender: This para shall be applicable for works tenders wherein tender documents provide for the same.

17.1 Separate identity/name shall be given to the Joint Venture.

17.2 Number of members in a JV shall not be more than three, if the work involves only one department (say Civil or S&T or Electrical or Mechanical) and shall not be more than five, if the work involves more than one Department. One of the members of the JV shall be its Lead Member who shall have a majority (at least 51%) share of interest in the JV. The other members shall have a share of not less than 20% each in case of JV with upto three members and not less than 10% each in case of JV with more than three members. In case of JV with foreign member(s), the Lead Member has to be an Indian firm/company with a minimum share of 51%. **17.3** A member of JV shall not be permitted to participate either in individual capacity or as a member of another JV in the same tender. **17.4** The tender form shall be purchased and submitted only in the name of the JV and not in the name of any constituent member. The tender form can however be submitted by JV or any of its constituent member or any person authorized by JV through Power of Attorney to submit tender. **17.5** Bid Security shall be submitted by JV or authorized person of JV either as:

- (i) Cash through e-payment gateway or as mentioned in tender document, or
- (ii) Bank Guarantee bond either in the name of JV, or in the name of all members of JV as per MOU irrespective of their share in the JV if the JV has not been constituted legally till the date of submission of tender.

17.6 A copy of Memorandum of Understanding (MoU) duly executed by the JV members on a stamp paper, shall be submitted by the JV along with the tender. The complete details of the members of the JV, their share and responsibility in the JV etc. particularly with reference to financial, technical and other obligations shall be furnished in the MoU.

17.7 Once the tender is submitted, the MoU shall not normally be modified / altered / terminated during the validity of the tender. In case the tenderer fails to observe/comply with this stipulation, the full Bid Security shall be liable to be forfeited.

17.8 Approval for change of constitution of JV shall be at the sole discretion of the Railway. The constitution of the JV shall not normally be allowed to be modified after submission of the bid by the JV, except when modification becomes inevitable due to succession laws etc., provided further that there is no change in qualification of minimum eligibility criteria by JV after change of composition. However, the Lead Member shall continue to be the Lead Member of the JV. Failure to observe this requirement would render the offer invalid.

17.9 Similarly, after the contract is awarded, the constitution of JV shall not be normally allowed to be altered during the currency of contract except when modification become inevitable due to succession laws etc. and minimum eligibility criteria should not get vitiated. Failure to observe this stipulation shall be deemed to be breach of contract with all consequential penal action as per contract conditions.

17.10 On award of contract to a JV, a single Performance Guarantee shall be submitted by the JV as per tender conditions. All the Guarantees like Performance Guarantee, Bank Guarantee for Mobilization Advance, Machinery

Advance etc. shall be accepted only in the name of the JV and no splitting of guarantees amongst the members of the JV shall be permitted.

17.11 On issue of LOA (Letter of Acceptance), the JV entity to whom the work has been awarded, with the same shareholding pattern as was declared in the MOU/JV Agreement submitted along with the tender, shall be got registered before the Registrar of the Companies under 'The Companies Act -2013' (in case JV entity is to be registered as Company) or before the Registrar/Sub-Registrar under the 'The Indian Partnership Act, 1932' (in case JV entity is to be registered as Partnership Firm) or under 'The LLP Act 2008' (in case JV entity is to be registered as LLP). A separate PAN shall be obtained for this entity. The documents pertaining to this entity including its PAN shall be furnished to the Railways before signing the contract agreement for the work. In case the tenderer fails to observe/comply with this stipulation within 60 days of issue of LOA, contract is liable to be terminated. In case contract is terminated railway shall be entitled to forfeit the full amount of the Bid Security and other dues payable to the Contractor under this contract. The entity so registered, in the registered documents, shall have, inter-alia, following Clauses:

17.11.1 Joint and Several Liability - Members of the entity to which the contract is awarded, shall be jointly and severally liable to the Railway for execution of the project in accordance with General and Special Conditions of Contract. The members of the entity shall also be liable jointly and severally for the loss, damages caused to the Railways during the course of execution of the contract or due to non execution of the contract or part thereof.

17.11.2 Duration of the Registered Entity - It shall be valid during the entire currency of the contract including the period of extension, if any and the maintenance period after the work is completed.

17.11.3 Governing Laws - The Registered Entity shall in all respect be governed by and interpreted in accordance with Indian Laws.

17.12 Authorized Member - Joint Venture members in the JV MoU shall authorize Lead member on behalf of the Joint Venture to deal with the contract, sign the agreement or enter into contract in respect of the said tender, to receive payment, to witness joint measurement of work done, to sign measurement books and similar such action in respect of the said tender/contract. All notices/correspondences with respect to the contract would be sent only to this authorized member of the JV.

17.13 No member of the Joint Venture shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other members and that of the Railway in respect of the said tender /contract.

17.14 Documents to be enclosed by the JV along with the tender:

17.14.1 In case one or more of the members of the JV is/are partnership firm(s), following documents shall be submitted:

(i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.
(ii) A copy of consent of all the partners or individual authorized by partnership firm, to enter into the Joint Venture Agreement on a stamp paper,

(iii) A notarized or registered copy of Power of Attorney in favour of the individual to sign the MOU/JV Agreement on behalf of the partnership firm and create liability against the firm.

(iv) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.

17.14.2 In case one or more members is/are Proprietary Firm or HUF, the following Documents shall be enclosed:

(i) A copy of notarized affidavit on Stamp Paper declaring that his Concern is a proprietary Concern and he is sole proprietor of the Concern OR he who assigning the affidavit on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.

17.14.3 In case one or more members of the JV is/are companies, the following documents shall be submitted:

(i) A copy of resolutions of the Directors of the Company, permitting the company to enter into a JV agreement,

- (ii) The copies of MOA (Memorandum of Association) / AOA (Articles of Association) of the company
- (iii) A copy of Certificate of Incorporation
- (iv) A copy of Authorization/copy of Power of Attorney issued by the Company(backed by the resolution of Board of Directors) in favour of the individual, to sign the tender, sign MOU/JV Agreement on behalf of the company and create liability against the company

17.14.4 In case one or more members of the JV is/are LLP firm/s, the following documents shall be submitted:

- (i) A copy of LLP Agreement
- (ii) A copy of Certificate of Incorporation of LLP
- (iii) A copy of resolution passed by partners of LLP firm, permitting the Firm to enter into a JV agreement
- (iv) A copy of Authorization /copy of Power of Attorney issued by the LLP firm(backed by resolution passed by the Partners) in favor of the individual, to sign the tender and/or sign the MOU/ JV agreement on behalf of the LLP and create liability against the LLP.

(v) An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were /are partners/members. Any Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract.

17.14.5 In case one or more members of the JV is/are Society/s or Trust/s, the following documents shall be submitted:

- (i) A copy of Certificate of Registration
- (ii) A copy of Memorandum of Association of Society/Trust Deed
- (iii) A copy of Rules & Regulations of the Society
- (iv) A copy of Power of Attorney, in favour of the individual to sign the tender documents and create liability against the Society/Trust.

17.14.6 All other documents in terms of TENDER FORM -2above.

17.15 Credentials & Qualifying Criteria: Technical, financial eligibility and Bid capacity of the JV shall be adjudged based on satisfactory fulfillment of the following criteria:

17.15.1 Technical Eligibility Criteria ('a' or 'b' mentioned hereunder):

(a) For Works without composite components

The technical eligibility for the work as per para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'Lead member of the JV'. Each other (non-lead) member(s) of JV, who is/ are not satisfying the technical eligibility for the work as per para 10.1 above, shall have technical capacity of minimum 25% of the cost of work i.e., each non-lead member of JV member must have satisfactorily completed or substantially completed during the last 07 (seven) years, ending last day of month previous to the one in which tender is invited, one similar single work for a minimum of 25% of advertised value of the tender.

(b) For works with composite components The technical eligibility for major component of work as per para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'Lead member of the JV' and technical eligibility for other component(s) of work as per Para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'any member of the JV'. Each other (non-lead) member(s) of JV, who is/ are not satisfying the technical eligibility for any component of the work as per para 10.1 above, shall have technical capacity of minimum 25% of the cost of any component of work mentioned in technical eligibility criteria. i.e., each other (non-lead) member of must have satisfactorily completed or substantially completed during the last 07 (seven) years, ending last day of month previous to the one in which tender is invited, one similar single work for a minimum of 25% of cost of any component of work mentioned in technical eligibility criteria.

Note for Para 17.15.1:

a) The Major component of the work for this purpose shall be the component of work having highest value. In cases where value of two or more component of works same, any one work can be classified as Major component of work.

b) Value of a completed work done by a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying his/her compliance to the above mentioned technical eligibility criteria in the tender under consideration.

17.15.2 Financial Eligibility Criteria The JV shall satisfy the requirement of "Financial Eligibility" mentioned at para 10.2 above. The "financial capacity" of the lead member of JV shall not be less than 51% of the financial eligibility criteria mentioned at para 10.2 above. The arithmetic sum of individual "financial capacity" of all the members shall be taken as JV's "financial capacity" to satisfy this requirement. Note: Contractual payment received by a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying compliance of the above mentioned financial eligibility criteria in the tender under consideration.

17.15.3 Bid Capacity The JV shall satisfy the requirement of "Bid Capacity" requirement mentioned at para 10.3 above. The arithmetic sum of individual "Bid capacity" of all the members shall be taken as JV's "Bid capacity" to satisfy this requirement.

17. Participation of Partnership Firms in works tenders:

18.1 The Partnership Firms participating in the tender should be legally valid under the provisions of the Indian Partnership Act. 18.2 The partnership firm should have been in existence or should have been formed prior to submission of tender. Partnership firm should have either been with the Registrar or the partnership deed should have been notarized as per the Indian Partnership Act, prior to submission of tender. 18.3 Separate identity / name should be given to the partnership firm. The partnership firm should have PAN / TAN number in its own name and PAN / TAN number in the name of any of the constituent partners shall not be considered. The valid constituents of the firm shall be called partners. 18.4 Once the tender has been submitted, the constitution of the firm shall not normally be allowed to be modified / altered / terminated during the validity of the tender as well as the currency of the contract except when modification becomes inevitable due to succession laws etc., in which case prior permission should be taken from Railway and in any case the minimum eligibility criteria should not get vitiated. The re-constitution of firm in such cases should be followed by a notary certified Supplementary Deed. The approval for change of constitution of the firm, in any case, shall be at the sole discretion of the Railways and the tenderer shall have no claims what-so-ever. Any change in the constitution of Partnership firm after submission of tender shall be with the consent of all partners and with the signatures of all partners as that in the Partnership Deed. Failure to observe this requirement shall render the offer invalid and full Bid Security shall be forfeited. If any Partner/s withdraws from the firm after submission of the tender and before the award of the contract, the offer shall be rejected and Bid Security of the tenderer will be forfeited. If any new partner joins the firm after submission of tender but prior to award of contract, his / her credentials shall not qualify for consideration towards eligibility criteria either individually or in proportion to his share in the previous firm. In case the tenderer fails to inform Railway beforehand about any such changes / modification in the constitution which is inevitable due to succession laws etc. and the contract is awarded to such firm, then it will be considered a breach of the contract conditions liable for determination of the contract under Clause 62 of the Standard General Conditions of Contract. 18.5 A partner of the firm shall not be permitted to participate either in his individual capacity or as a partner of any other firm in the same tender.

18.6 The tender form shall be submitted only in the name of partnership firm. The Bid Security shall be submitted by partnership firm. The Bid Security submitted in the name of any individual partner or in the name of authorized partner (s) shall not be considered.

18.7 On issue of Letter of Acceptance (LOA) to the partnership firm, all the guarantees like Performance Guarantee, Guarantee for various Advances to the Contractor shall be submitted only in the name of the partnership firm and no splitting of guarantees among the partners shall be acceptable. 18.8 On issue of Letter of Acceptance (LOA), contract agreement with partnership firm shall be executed in the name of the firm only and not in the name of any individual partner.

18.9 In case the Letter of Acceptance (LOA) is issued to a partnership firm, the following undertakings shall be furnished by all the partners through a notarized affidavit, before signing of contract agreement.

(a) Joint and several liabilities: The partners of the firm to which the Letter of Acceptance (LOA) is issued, shall be jointly and severally liable to the Railway for execution of the contract in accordance with General and Special Conditions of the Contract. The partners shall also be liable jointly and severally for the loss, damages caused to the Railway during the course of execution of the contract or due to non-execution of the contract or part thereof.

(b) Duration of the partnership deed and partnership firm agreement: The partnership deed/partnership firm agreement shall normally not be modified/altered/ terminated during the currency of contract and the maintenance period after the work is completed as contemplated in the conditions of the contract. Any change carried out by partners in the constitution of the firm without permission of Railway, shall constitute a breach of the contract, liable for determination of the contract under Clause 62 of the Standard General Conditions of Contract.

(d) Governing laws: The partnership firm agreement shall in all respect be governed by and interpreted in accordance with the Indian laws. (d) No partner of the firm shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other partner/s and that of the Railway.

18.10 The tenderer shall clearly specify that the tender is submitted on behalf of a partnership firm. The following documents shall be submitted by the partnership firm, with the tender:

(i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.

(ii) A notarized or registered copy of Power of Attorney in favour of the individual to tender for the work, sign the agreement etc. and create liability against the firm.

(iii) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.

(iv) All other documents in terms of TENDER FORM -2 above.

18.11 Evaluation of eligibility of a partnership firm:

Technical and financial eligibility of the firm shall be adjudged based on satisfactory fulfillment of the eligibility criteria laid down in TENDER FORM -2 above.

19.0 Advances to Contractor –

If specifically provided in Tender Documents of tender having advertised value more than Rs 50 Crores, Railway shall make payment, as an Interest bearing advances, as per Contractor's request. These advances shall carry a simple interest _____ as indicated in the Tender documents. The payment and recovery of such advances shall be made as per manners prescribed in Clause 46.4 of the Standard General Conditions of Contract.

(Signature)

(Designation)

Signature of Tenderer(s) _____ Railway Date _____
Date _____

5. Signature of Tenderer

Signature of Tender inviting Authority

TENDER FORM -2**SECTION 4.3: General information of the Tenderer**

SN.	Item Description	Item Details	Page No.
1.	Name of the Tenderer		
2.	Constitution of Tenderer ¹ (Tick as applicable)	Sole Proprietor /Partnership Firm/ Pvt. Ltd Co./Public Ltd. Co./ JV/ Society / (any other)	
3.	Act under which Tenderer is Registered	Company Act, Firm & Societies Act, Co-operative Societies Act, Income-tax Act, /(any other) etc.	
4.	Registration details ²		
5.	PAN No. ²		
6.	GSTIN No. ²		
7.	Registered Address		
8.	Communication Address along with Telephone, Fax and Email address		
9.	In case of Joint Venture (JV), MoU and other details ³		
10.	Details of Bank account on which payment shall be released		

Signature of Tenderer

Signature of Tender inviting Authority

SECTION 4.3: General information of the Tenderer contd.

a	Name of Bank, branch with IFS code		
b	Account type, Account No.		
c	MICR No.		
d	Partners of accounts in the bank ⁴		

Superscript Notes:

1. Please submit the supporting documents demonstrating the status of Applicant / Tenderer as legal person corresponding to its constitution like certificate of incorporation along with Memorandum and Article of Association in case of Pvt./Public Ltd. Co., copy of partnership deed, Affidavit in case of sole proprietor etc. as the case may be.
2. Please submit the copy of the registration certificate as applicable, PAN card, GSTIN certificate should be enclosed.
3. In case of Joint Venture, details as per Annexure-VIII need to be submitted. JV firms are not allowed to participate in the works costing less than or equal to **Rs.10.00Crores. (Railway Board letter no: 2002/CE-I/CT/37 JV Pt.VIII Dated: 14.12.2012)**
4. Details of all the partners of the subject bank account need to be disclosed by the Tenderer on its letter head under the signature of person who is authorized to operate the subject bank account.

Signature of Tenderer**Signature of Tender inviting Authority**

TENDER FORM -3

SECTION 4.4:

POWER OF ATTORNEY FORMAT FOR AUTHORISED SIGNATORY

(To be executed on non-judicial stamp paper of the appropriate value in accordance with Stamp Duty Act. The stamp paper should be in the name of the Firm / Company who is issuing the Power of Attorney in favour of Authorized Signatory).

POWER OF ATTORNEY

Know all men by these present, we do hereby constitute, appoint and authorize Mr./Ms.....who is presently employed with us and holding the position of as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our bid for the work of

.....including signing and submission of all documents and providing information/ responses to Northern Railway representing us in all matters, dealing with Northern Railway in all matters in connection with our Tender for the said work.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

Dated this. day of 201...

Place:

(Signature.....)

Name & Designation in Block letters of
Person authorized to sign Power of Attorney
for and on behalf of the Applicant Tenderer)

Common Seal of Company

I accept.

(Signature of Authorized Signatory)

Name and Designation of AS

Notes:

- (a) The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executants(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.
- (b) Please refer to Para.....of GCC Part-I for requirement of the Documents to be submitted in different cases of Tenderer being Sole Proprietor, Partnership, Private / Public Limited Company etc.
- (c) The obligations to Railway will not be affected by changes in the composition of the firm made subsequent to the opening of the tender / execution of the contract and / or grant of Revised Power of Attorney, if any, by the tenderer. However, changes in composition of the Firm and / or Revised POA should be promptly advised in writing to the Tender Issuing Authority / Contract Signing Authority as the case may be.

Witness 1: Signature..... Name..... (In Capital) Address.....
Witness 2: Signature..... Name..... (In Capital) Address.....

Signature of Tenderer

Signature of Tender inviting Authority

SECTION 4.5: DETAILS OF WORKS COMPLETED OR SUBSTANTIALLY IN LAST 7 FINANCIAL YEARS i.e.ONWARDS TO ADJUDGE TECHNICAL ELIGIBILITY

(All figures in Rs Lacs)

SN	Name of the Work ¹	Final cost of Completed work	Actual Date of Completion	Name & Nature of the Firm ²	Completion Certificate ³ at Page	%age of the ⁴ Tenderer	Amount for Technical eligibility
	1.	2	3	4	5	6	7= 6x2
1.							
2.							
Total							

Superscript Notes:

- The tenderer must have successfully completed or substantially completed any of the following during last 07 (seven) years, ending last day of month previous to the one in which tender is invited.
Three similar works costing not less than the amount equal to 30% of advertised value of tender, or
Two similar works costing not less than the amount equal to 40% of advertised value of tender, or
One Similar work costing not less than the amount equal to 60% of advertised value of tender.
- Letter of Acceptance issued by Competent Authority in favour of Name of the firm who had executed the work duly stating Name & cost of the Work, Original Date of Completion etc., against which the completion/Experience certificates have been attached with the tender document, must be enclosed.
- Completion Certificate issued by Competent Authority in favour of Name of the firm who had executed the work duly stating Name & Final cost of the Work, Date of Completion etc. must be attached. No printed Document like annual report etc. should be attached with Tender Document.
- Please go through the Annexure-VIII. If Work was executed jointly with other Firms, amount for credentials will be considered as per applicable percentage (%age).
- All Documents must be submitted along with the Tender failing which the claimed credentials as above will not be considered at the time of evaluation of Tender. It.

Signature of Tenderer

Signature of Tender inviting Authority

SECTION 4.5: DETAILS OF PAYMENT RECEIVED IN LAST 3 FINANCIAL YEARS i.e.ONWARDS TO ADJUDGE FINANCIAL ELIGIBILITY**(All figures in Rs Lacs)**

S N	Name of the Work ¹	Final cost of work	Date of Completi on	Name & Nature of the Firm ²	Completion Certificate ³ at Page	%age of the ⁴ Tenderer	Contractual during		Payment received			Amount for Financial eligibility
							CFY	LFY 1	LFY 2	LFY 3	Total	
	1.	2	3	4	5	6	7	8	9	10	11	12 =(6x11)
1.												
2.												
3.												
	Total											

Superscript Notes:

1. Please specify details of work undertaken for which payment has been received during last 3 Financial year and current financial year up to the date of opening of tender.
2. Letter of Acceptance issued by Competent Authority in favour of Name of the firm who had executed the work duly stating Name & cost of the Work, Original Date of Completion etc., against which the completion/Experience certificates have been attached with the tender document, must be enclosed.
3. Please go through the Para 3.7 and Annexure-VIII. If Work was executed jointly with other Firms, amount for credentials will be considered as per applicable percentage (%age).
4. Form 16A issued by Payment Disbursing Authority (other than Private Individual) for each Financial Year (for last 3 financial year and Certificate of payment received during current financial year up to the date of opening of tender) must be attached.
5. All Documents must be submitted along with the Tender failing which the claimed credentials as above will not be considered at the time of evaluation of Tender. It will lead to disqualification of Tender.

Signature of Tenderer**Signature of Tender inviting Authority**

SECTION 4.6: TOP SHEET FOR SCHEDULE OF RATES / QUANTITIES**All figures are in Indian Rupees**

- i) The contract value given approx. & subject to variation according to actual requirement to Railways. No claim on this account will be entertained by Railway Administration.
- ii) I/We clearly understand that I/We are not entitled to any compensation on account of any variation in the value of contract and also agree to complete all such works allotted to me/us within the stipulated period
- iii) It will be part of contract that all ceiling fan, fan regulator, tube fitting and other electrical accessories which will be dismantle/removed during the course of wiring/rewiring and other electrical work, shall be refitted again at its own place by the firm at his own cost and labour or same shall be deposited with the consignee (if the same are not required to be fitted)
- iv) The contractor shall undertake to finish the civil Engg; work of place where the work of electrical wiring have been carried out as per aesthetic requirement of catch area/finish the civil Engg; job.
- v) If any minor item which are not specified in the scope of work/schedule of rates and required for completeness of job, shall be provided by the firm.
- vi) The contractor may go through the SOR/site and specification before submitting their offer. The detailed specification are guidelines for the contractor for carrying out the work however SOR shall supersede the specification.
- vii) Competent authority reserves the right to accept/cancel/delete any item from SOR and or accept partial / full quantity of any item without giving any reason.
- viii) The drawing / design / sample of items shall be got approved by the contractor from competent authority before/ utilizing manufacturing the same
- ix) Contractor will collect the material to be supplied from stores of consignee at his own cost / Labour / transportation etc. No extra payment will be made
- x) As per need site may be changed anywhere in Ambala Division with the approval of competent authority. No extra payment will be made.
- xi) Make mentioned in SOR and in approved make list are indicative, in case other make is offered prior approval of Competent Authority shall be obtained before start of work.
- xii) The contractor will give documentary proof to show that all the spares required are genuine and having purchased from OEM.

Signature of Tenderer**Signature of Tender inviting Authority**

Contract Agreement for Works:**ANNEXURE - IV****NORTHERN RAILWAY****CONTRACT AGREEMENT OF WORKS**

CONTRACT AGREEMENT NO. _____ DATED _____

ARTICLES OF AGREEMENT made this _____ day of _____ 20____ between President of India acting through the Railway Administration hereafter called the "Railway" of the one part and _____ herein after called the "Contractor" of other part.

WHEREAS the Contractor has agreed with the Railway for performance of the works _____ set forth in the Schedule hereto annexed upon the Standard General Conditions of Contract, corrected up to latest Correction Slips and the Specifications of _____ Railway corrected up to the latest Correction Slips and the Schedule of Rates of _____ Railway, corrected up to latest Correction Slips and the Special Conditions and Special Specifications, if any and in conformity with the drawings here-into annexed AND WHEREAS the performance of the said works is an act in which the public are interested.

NOW THIS INDENTURE WITNESSETH that in consideration to the payments to be made by the Railways, the Contractors will duly perform the said works in the said schedule set forth and shall execute the same with great promptness, care and accuracy in a workman like manner to the satisfaction of the Railway and will complete the same in accordance with the said specifications and said drawings and said conditions of contract on or before the _____ day of _____ 20____ and will maintain the said works for a period of _____ Calendar months from the certified date of their completion and will observe, fulfill and keep all the conditions therein mentioned (which shall be deemed and taken to be part of this contract, as if the same have been fully set forth herein), AND the Railway, both hereby agree that if the Contractor shall duly perform the said works in the manner aforesaid and observe and keep the said terms and conditions, the Railway will pay or cause to be paid to the Contractor for the said works on the final completion thereof the amount due in respect thereof at the rates specified in the Schedule hereto annexed.

Contractor _____ (Signature)

Railway : Designation _____

(For & on behalf of President of India)

Address _____

Date :- _____

Date _____

Witness 1:

Signature.....

Name.....

(In Capital)

Address.....

.....

.....

Witness 2:

Signature.....

Name.....

(In Capital)

Address.....

.....

.....

Signature of Tenderer**Signature of Tender inviting Authority**

Work orders for Zone Contract:**ANNEXURE – III****WORK ORDER UNDER ZONE CONTRACT**

WORK ORDER NO. _____, DATED _____ UNDER CONTRACT AGREEMENT

NO. _____, DATED _____.

Name Of Work _____ (SITE) _____ Schedule of Drawings _____

Authority _____ Allocation _____

The Contractor(s) _____ is / are hereby ordered to carry out the following works at _____ % above/below the Standard Schedule of Rates (SSOR) of Northern Railway, updated with Correction Slips issued upto date of inviting tender of as otherwise specified in the tender documents under Zone Contract Agreement here-in-before referred to :

SL	Item No	Description of item of work	Approximate Qty	Unit	Rate in Figures and Word (Rs.)	Amount9Rs.)
Total Approximate Value of work= Rs.						

The works herein mentioned are required to be completed on or before _____ (Date). The quantities provided herein are approximate and subject to variation under Clause 42 of the Standard General Conditions of Contract updated with Correction Slips issued up to dated of inviting tender or as otherwise specified in the tender documents Divisional Railway Manager/Divisional Engineer _____ Division _____ Railway

Date _____
(For & on behalf of President of India)

I agree to complete the works herein set forth on or before the date specified under the Zone Contract Agreement herein before referred to in conformity with the drawings hereto annexed and in accordance with the General and Special (if any) Conditions of Contract updated with Correction Slips issued up to date of inviting tender or as otherwise specified in the tender documents and the Standard Specifications of Northern Railway updated with Correction Slips issued up to date of inviting tender or as otherwise specified in the tender documents also agree to maintain such works for the period specified below from the date of Completion:

(a) Repair and maintenance work including white/colour washing: three calendar months from date of completion.

(b) All new works except earth work: Six calendar months from date of completion.

Contractor _____ (Signature) Railway : Designation _____

(For & on behalf of President of India)

Address _____

Date _____

Date _____

Witness 1:

Signature.....

Name.....

(In Capital)

Address.....

.....

.....

Witness 2:

Signature.....

Name.....

(In Capital)

Address.....

.....

ANNEXURE-V

Name Of Work _____ (S I T E) _____ Schedule Of Drawings _____

CONTRACTOR'S AGREEMENT

Signature of Tenderer Signature of Tender inviting Authority

him in writing subsequent to the expiry of the said notice and measurement shall be made by him at the said time whether I am present or not and that on payment for work done and approved materials delivered-at site of work as ascertained by the said measurement, I shall have no further claim against the Railway and I agree that any dispute arisen on matters connected with this agreement, the same shall be referred to a person to be nominated in this behalf by the _____ for the time being of the Railway, whose decision in writing shall be final and binding on both parties. I agree that any claim I have to make shall be made in writing within seven days of date of measurement taken by the Engineer as aforesaid and that any claims in respect of such measurement made more than seven days after taking of such measurement shall be deemed to have waived by me. I agree to indemnify the Railway against any claims which may be made under Workmen's Compensation Act, 1923.

Contractor _____
Name _____
Address _____

Date _____

Address.....

.....
Witness 2:
Signature.....
Name.....
(In Capital)
Address.....
.....
.....

Signature of Tenderer

Contractor : _____

Witness 1:
Signature.....
Name.....
(In Capital)
Address.....
.....
.....

Witness 2:
Signature.....
Name.....
(In Capital)
Address.....
.....
.....

Signature of Tenderer

Signature of Tender inviting

6. Work orders for Works: (In case of composite work chargeable to different Allocation)

S.No	Name of Work	Particulars
	Acceptance letter with date	
	Agreement no with date	
	Cost of work	
	Security Deposit	
	Performance guarantee	
	Period of completion	
	Estimate no with allocation	

S.No	USSOR Item No NS item	Description of items	Rate	Unit	QTY	Amount

Signature Name (In capital) Address..... Date	Signature..... Name & Designation..... (In capital) Address..... Date
--	--

TENDERER'S CREDENTIALS (BID CAPACITY)

ANNEXURE-VII

NORTHERN RAILWAY

For tenders having advertised value more than Rs 20 crore wherein eligibility criteria includes bid capacity also, the tenderer will be qualified only if its available bid capacity is equal to or more than the total bid value of the present tender. The available bid capacity shall be calculated as under:

$$\text{Available Bid Capacity} = [A \times N \times 2] - 0.33 \times N \times B$$

Where,

A = Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender), taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of work for which bids have been invited.

B = Existing commitments and balance amount of ongoing works with tenderer as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to tenderer but yet not started upto the date of inviting tender

Note:

- (a) The Tenderer(s) shall furnish the details of- (i) Maximum value of construction works executed and payment received in any one of the previous three financial years of the current financial year (up to date of inviting tender) for calculating A, and (ii) existing commitments and balance amount of ongoing works with tenderer as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to tenderer but yet not started upto the date of inviting of tender for calculating B. In case of no works in hand, a 'NIL' statement should be furnished. The submitted details for (i) and (ii) above should be duly verified by Chartered Accountant. (b) In case if a bidder is JV, the tenderer(s) must furnish the details of (i) Maximum value of construction works executed and payment received in any one of the previous three financial years of the current financial year (up to date of inviting tender) by each member of JV for calculating A, and (ii) Existing commitments and balance amount of ongoing works with each member of JV either in individual capacity or as a member of other JV as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to each member of JV either in individual capacity or as a member of other JV but yet not started upto the date of inviting of tender for calculating B. In case of no works in hand, a 'NIL' statement should be furnished. The submitted details for (i) and (ii) above should be duly verified by Chartered Accountant. (c) Value of a completed work/work in progress/work awarded but yet not started for a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying his/her compliance to the above mentioned bid capacity in the tender under consideration. (d) The arithmetic sum of individual "bid capacity" of all the members shall be taken as JV's "bid capacity". (e) In case, the tenderer/s failed to submit the above statement along with offer, their/his offer shall be considered as incomplete and will be rejected **summarily**. (f) The available bid capacity of tenderer shall be assessed based on the details submitted by the tenderer. In case, the available bid capacity is lesser than estimated cost of work put to tender, his offer shall not be considered even if he has been found eligible in other eligibility criteria/tender requirement.

Signature of Tenderer

Signature of Tender inviting authority

(Bid Security)

ANNEXURE-VII A

Bank Guarantee Bond from any scheduled commercial bank of India

(On non-judicial stamp paper, which should be in the name of the Executing Bank).

Name of the Bank: -----

President of India,

Acting through,

Northern

Railway,

Beneficiary:..... Railway

Date:.....

Bank Guarantee Bond No.: Date:-----

In consideration of the President of India acting through----- **(Designation & address of Contract Signing Authority)**,

Railway,, (hereinafter called "The Railway") having invited the bid for _____ through Notice inviting tender (NIT) No., We have been informed that **[Insert name of the Bidder]**..... (hereinafter called "**the Bidder**") intends to submit its bid (herein after called "the Bid") .

WHEREAS, the Bidder is required to furnish Bid Security for the sum of **[Insert required Value of Bid Security]**, in the form of Bank Guarantee, according to conditions of Bid .**AND** WHEREAS,..... **[Insert Name of the Bank]**, with its Branch

.....**[Insert**

Address] having its Headquarters office at..... **[Insert Address]**, hereinafter called the **Bank**, acting through**[Insert**

Name and Designation of the authorized persons of the Bank], have, at the request of the Bidder, agreed to give guarantee for Bid Security as hereinafter contained, in favour of the Railway:

1. KNOW ALL MEN that by these present that I/We the undersigned **[Insert name(s) of authorized representatives of the Bank]**, being fully authorized to sign and incur obligations for and on behalf of the Bank, confirm that the Bank, hereby, Unconditionally and irrevocably guarantee to pay to the Railway full amount in the sum of **[Insert required Value of Bid Security]** as above stated.

2. The Bank undertakes to immediately pay on presentation of demand by the Railway any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Railway on the Bank shall be final, conclusive and binding, absolute and unequivocal on the notwithstanding any disputes raised/ pending before any Court, Tribunal, Arbitration or any Authority or any threatened litigation by the Bidder or Bank.

3. The Bank shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the Bidder and without the Railway being required to show grounds or give reasons for its demand of the amount so demanded.

4. The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank or in the constitution of the Bidder.

5. The Bank agrees that no change, addition, modifications to the terms of the Bid document or to any documents, which have been or may be made between the Railway and the Bidder, will in any way absolve the Bank from the liability under this guarantee; and the Bank, hereby, waives any requirement for notice of any such change, addition or modification made by Railway at any time.

6. This guarantee will remain valid and effective from.....**[insert date of issue]**till..... **[insert date, which should be minimum 90 days beyond the expiry of validity of Bid]**. Any demand in respect of this Guarantee should reach the Bank within the validity period of Bid Security.

7. The Bank Guarantee is unconditional and irrevocable.

8. The expressions Bank and Railway herein before used shall include their respective successors and assigns.

9. The Bank hereby undertakes not to revoke the guarantee during its currency, except with the previous consent in writing of the Railway. This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No.758.

10. The Bank hereby confirms that it is on the SFMS (Structured Financial Messaging System) and shall invariably send the advice of this Bank Guarantee to the following bank details –

IFSC CODE

IFSC TYPE

BRANCH

BANK NAME

STATE BANK OF INDIA

BRANCH NAME

RAIL

CITY NAME

ADDRESS

11. The Guarantee shall be valid in addition to and without prejudice to any other security Guarantee(s) of Bidder in favour of the Railway. The Bank, under this Guarantee, shall be deemed as Principal Debtor of the Railway.

Date

Place... .. Bank's Seal and authorized signature(s)

[Name in Block letters]

[Designation with Code No.].....

[P/Attorney] No.

Witness:

1 Signature, Name & Address & Seal

2 Signature, Name& address & Seal Bank's Seal

[P/Attorney]No.

Note: All italicized text is for guidance on how to prepare this bank guarantee and shall be deleted from the final document. be deleted from the final document.

Each Bidder or each member of a JV must fill in this form separately:

NAME OF BIDDER/JV PARTNER:

Annual Contractual Turn over Data for the Pervious $\frac{3}{4}$ years (Contractual payment only)			
Year	Amount Currency	Exchange Rate	Indian national Rupees Equivalent
Average Annual Contractual Turnover for last 3 years			

1. The average annual contractual turnover shall be calculated as an average of "total contractual payments" in the previous three financial years. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover. 2. The information supplied shall be substantiated by data in the audited balance sheets and profit and loss accounts for the relevant years in respect of the bidder or all members constituting the bidder.

3. Contents of this form should be certified by a Chartered Accountant duly supported by Audited Balance Sheet duly certified by the Chartered Accountant.

SEAL AND SIGNATURE OF THE BIDDER

Certified that all figures and facts submitted in this form have been furnished after full consideration of all observations/notes in Auditor's reports. _____

(Signature of Chartered Accountant)

Name of CA: _____

Registration No: _____

(Seal)

7. Guidelines for submitting tenders by Partnership Firms and their Eligibility Criteria

1. Participation of Partnership Firms in works tenders:

1. The Partnership Firms participating in the tender should be legally valid under the provisions of the Indian Partnership Act.
2. The partnership firm should have been in existence or should have been formed prior to submission of tender. Partnership firm should have either been registered with the Registrar or the partnership deed should have been notarized prior to date of tender opening as per the Indian Partnership Act.
3. Separate identity / name should be given to the partnership firm. The partnership firm should have PAN / TAN number in its own name and PAN / TAN number in the name of any of the constituent partners shall not be considered. The valid constituents of the firm shall be called partners.
4. Once the tender has been submitted, the constitution of the firm shall not normally be allowed to be modified / altered / terminated during the validity of the tender as well as the currency of the contract except when modification becomes inevitable due to succession laws etc., in which case prior permission should be taken from Railway and in any case the minimum eligibility criteria should not get vitiated. The re-constitution of firm in such cases should be followed by a notary certified Supplementary Deed. The approval for change of constitution of the firm, in any case, shall be at the sole discretion of the Railways and the tenderer shall have no claims what-so-ever. Any change in the constitution of Partnership firm after opening of tender shall be with the consent of all partners and with the signatures of all partners as that in the Partnership Deed. Failure to observe this requirement shall render the offer invalid and full EMD shall be forfeited. If any Partner/s withdraws from the firm after opening of the tender and before the award of the contract, the offer shall be rejected and EMD of the tenderer will be forfeited. If any new partner joins the firm after opening of tender but prior to award of contract, his / her credentials shall not qualify for consideration towards eligibility criteria either individually or in proportion to his share in the previous firm. In case the tenderer fails to inform Railway beforehand about any such changes / modification in the constitution which is inevitable due to succession laws etc. and the contract is awarded to such firm, then it will be considered a breach of the contract conditions liable for determination of the contract under Clause 62 of General Conditions of Contract.
5. A partner of the firm shall not be permitted to participate either in his individual capacity or as a partner of any other firm in the same tender.
6. The tender form shall be submitted only in the name of partnership firm. The EMD shall be deposited by partnership firm through e-payment gateway or as mentioned in tender document. The EMD submitted in the name of any individual partner or in the name of authorized partner (s) shall not be considered.
7. One or more of the partners of the firm or any other person (s) shall be designated as the authorized person (s) on behalf of the firm, who will be authorized by all the partners to act on behalf of the firm through a "Power of Attorney", specially authorizing him / them to submit & sign the tender, sign the agreement, receive payment, witness measurements, sign measurement books, make correspondences, compromise / settle / relinquish any claim (s) preferred by the firm, sign "No Claim Certificate", refer all or any dispute to arbitration and to take similar such action in respect of the said tender / contract. Such "Power of Attorney" shall be notarized / registered and submitted along with the tender.
8. On issue of Letter of Acceptance (LOA) to the partnership firm, all the guarantees like Performance Guarantee, Guarantee for various Advances to the Contractor shall be submitted only in the name of the partnership firm and no splitting of guarantees among the partners shall be acceptable.
9. On issue of Letter of Acceptance (LOA), contract agreement with partnership firm shall be executed in the name of the firm only and not in the name of any individual partner.
10. In case the Letter of Acceptance (LOA) is issued to a partnership firm, the following undertakings shall be furnished by all the partners through a notarized affidavit, before signing of contract agreement.
 - a. **Joint and several liabilities:** The partners of the firm to which the Letter of Acceptance (LOA) is issued, shall be jointly and severally liable to the Railway for execution of the contract in accordance with General and Special Conditions of the Contract. The partners shall also be liable jointly and severally for the loss, damages caused to the Railway during the course of execution of the contract or due to non-execution of the contract or part thereof.
 - (b) Duration of the partnership deed and partnership firm agreement: the partnership deed/partnership firm agreement shall normally not be modified/altered/ terminated during the currency of contract and the maintenance period after the work is completed as contemplated in the conditions of the contract. Any change carried out by partners in the constitution of the firm without permission of Railway, shall constitute a breach of the contract, liable for determination of the contract under Clause 62 of the General Conditions of Contract.
 - (c) Governing laws: The partnership firm agreement shall in all respect be governed by and interpreted in accordance with the Indian laws.
 - (d) No partner of the firm shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other partner/s and that of the Railway.
11. The tenderer shall clearly specify that the tender is submitted on behalf of a partnership firm. The following documents shall be submitted by the partnership firm, with the tender:
 - (i) A notarized copy of partnership deed.
 - (ii) A notarized or registered copy of Power of Attorney in favour of the individual to tender for the work, sign the agreement etc. and create liability against the firm.
 - (iii) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of opening of bids, either in their individual capacity or in any firm in which they were / are partners. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the General Conditions of Contract.
 - (iv) All other documents in terms of explanatory notes in clause 3.5(Eligibility Criteria) above.
12. **Evaluation of eligibility of a partnership firm:** Technical and financial eligibility of the firm shall be adjudged based on satisfactory fulfilment of the eligibility criteria laid down in 3.5 above.

Annexure-IX**8 Details of Plant and Machinery already available with the firm.**

SN	Particulars of equipment	No. of Unit.	Kind & make	Capacity	Date by which the plant would be available for use on this work	Age condition &	Work on which it is being used.
	1	2	3	4	5	6	7
1							
2							

ANNEXURE –X**9. List of engineers/personnel already available/ proposed to be employed for deployment on this work:**

SN	Name & Designation	Qualification	Professional experience	Organization with whom working	Date by which personnel will be available for this work.
	1	2	3	4	5
1					
2					

ANNEXURE – XI**10. Statement of works being executed/in hand by the contractor/s**

S N.	Name and place of work	Authority/agency for whom the work is being carried out	Date of award & agreement No. & Date	Date of completion (Original/ actual)
	1	2	3	4
1.				
2.				
3.				

Agree mental cost of work cost/likely cost	Principal/ Technical features work in brief	SN at which relevant certificate/Documents are attached	Payment taken till.
5	6	7	8

Signature of Tenderer**Signature of Tender inviting Authority**

11. Details of Beneficiary for Electronic Transfer of Funds

1	Beneficiary Name	:	
2	Beneficiary Address	:	
3	Bank Name	:	
4	Branch Address	:	
5	IFSC Code	:	
6	MICR Code	:	
7	Account Type	:	
8	Account Number	:	
9	City :	:	
10	Tel./Fax No. (if any)	:	
11	PAN NO.	:	
12.	Service Tax Registration number linked with PAN no	:	
13	GSTIN NO.	:	
14	Signature of Beneficiary	:	

Signature of Bank Official with Stamp

Signature of Tender inviting Authority**Signature of Tenderer**

ANNEXURE-XIII**12. Applicable charges/recoveries/Advance etc.**

S. no.	Item	Description
1.	Water charges	In case of contractor using Railway's water sources, water charges will be deducted @1% of the cost of the item(s) where water is being consumed.
2.	BOCW cess	The tenderers, for carrying out any construction work, shall get themselves registered with the Registering Officer under Section-7 of the Building and Other Construction Workers Act, 1996 and rules made thereto by the concerned State Govt., and submit certificate of Registration issued from the Registering Officer of the concerned State Govt. (Labour Dept.). The Cess shall be deducted from contractor's bills as per provisions of the Act. For enactment of this Act, the tenderer shall be required to pay BOCW cess @ 1% of cost of construction work to be deducted from each bill. Cost of material shall be outside the purview of cess, when supplied under a separate schedule item . Recoverable amount of BOCW cess at the rate of 1% shall be credited under Suspense Head Deposit Misc (BOCW cess) before arranging payment to the contractor as per directive of Railway Board issued vide letter No. 2008/CE-I/CT/6 dated 08.11.2012 with the concurrence of "Finance Directorate of Ministry of Railway" .
3.	Deployment of Technical supervisor	In terms of provisions of new clause 26 A.1 to the General Conditions of Contract (GCC), Contractor has to deploy following Qualified Engineers during execution of work: one qualified Graduate Engineer when cost of work to be executed is Rs. 200 lacs and above, and One qualified Diploma Engineer when cost of work to be executed is more than Rs. 25 lacs, but less than Rs. 200 lacs
		Graduate /Diploma holder Engineer will be available at site as and when or for the period as directed by Engineer's representative. Further, In case the Contractor fails to employ the Qualified Engineer, as aforesaid in above Paras, in terms of clause 26 A.1 to the General Conditions of Contract Part-II, shall be liable to pay an amount of Rs. 40, 000.00 and Rs. 25, 000.00 for each month or part thereof for the default period. (Railway Board's letter no: 2012/CE-I/CT/0/20 Dated: 10.05.2013)
4.	Income Tax	As applicable
5.	GSTIN NO	As applicable
6.	Brick bat	Quantity X rates of item no: 055140 + Tender % + 12.5% +7.5%+5%
7.	Tools and plants	The hire charges of tools and plants provided to the contractor will be as per letter no 64/W2/CT/56 dated. 27-03-1967 and 64/W2/CT/56 dated: 20.11.79.
8.	Mobilization advance	It will be applicable as per Railway Board letter no: 2007/CE-I/CT/18 Pt.3 dated 23.05.2012
9.	Stage Payment for Steel supplied by the contractor	It will be applicable as per Railway Board letter no: 2007/CE-I/CT/183 dated: 07.3.2008
10.	PVC clause	Price Variation clause will be applicable for Contract Agreement value above 2 Crore and completion period above 12 months.(Rly. Board Letter No. 2022/CE-1/CT/GCC-2022/Policy dated 14.07.2022)
11.	Maintenance Period	As per Guarantee/Maintenance & Release of Security money clause, mentioned in "Special Tender condition " of contract.

Signature of Tenderer

Signature of Tender inviting Authority

PART-II ANNEXURES

ANNEXURE – XIV
Reference Para 17(B)
Registered Acknowledgement Due

PROFORMA FOR TIME EXTENSION

No. _____

Dated: _____

Sub: (i) _____ (name of work).

(ii) Acceptance letter no. _____

(iii) Understanding/Agreement no. _____

Ref: _____ (Quote specific application of Contractor for extension to the date received)

Dear Sir,

1. The stipulated date for completion of the work mentioned above is _____. From the progress made so far and the present rate of progress, it is unlikely that the work will be completed by the above date (or 'However, the work was not completed on this date').

2. Expecting that you may be able to complete the work if some more time is given, the competent authority, although not bound to do so, hereby extends the time for completion from _____ to _____.

3. Please note that an amount equal to the liquidated damages for delay in the completion of the work after the expiry of _____ (give here the stipulated date for completion with/without any penalty fixed earlier) will be recovered from you as mentioned in Clause 17-B of the Standard General Conditions of Contract for the extended period, notwithstanding the grant of this extension. You may proceed with the work accordingly.

4. The above extension of the completion date will also be subject to the further condition that no increase in rates on any account will be payable to you.

5. Please intimate within a week of the receipt of this letter your acceptance of the extension of the conditions stated above.

6. Please note that in the event of your declining to accept the extension on the above said conditions or in the event of your failure after accepting or acting upto this extension to complete the work by _____ (here mention the extended date), further action will be taken in terms of Clause 62 of the Standard General Conditions of Contract.

Yours faithfully

For and on behalf of the President of India

Signature of Tenderer

Signature of Tender inviting Authority

CERTIFICATE OF FITNESS

1. (a) Serial Number _____
(b) Date _____
2. Name of person examined _____
3. Father's Name: son/daughter of _____
Residing at _____
4. Sex _____
5. Residence: _____
6. Physical fitness _____
7. Identification marks _____
8. Date of birth, if available, and/or certified age _____
I certify that I have personally examined (name) _____ who is desirous of being employed in a factory or on a work requiring manual labour and that his/her age as nearly as can be ascertained from my examination, is _____ years.

I certify that he/she is fit for employment in a factory or on a work requiring manual labour as an adult/child.
9. Reasons for :
(a) Refusal to grant certificate, or _____
(b) Revoking the certificate _____

Signature or left hand

Thumb impression of the person examined.

Signature of Certifying Surgeon

Note: In case of physical disability, the exact details and cause of the physical disability should be clearly stated.

Signature of Tenderer

Signature of Tender inviting Authority

**PROFORMA OF 7 DAYS NOTICE FOR WORKS AS A WHOLE/ IN PARTS
(DETAILS OF PART OF WORK TO BE MENTIONED)**

_____**RAILWAY**

(Without Prejudice)

To

M/s _____

Dear Sir,

Contract Agreement No. _____

In connection with _____

In spite of repeated instructions to you by the subordinate offices as well as by this office through various letters of even no. _____, dated _____; you have failed to start work/show adequate progress and/or submit detailed programme for completing the work/ part of work (details of part of work to be mentioned).

2. Your attention is invited to this office/Chief Engineer's office letter no. _____, dated _____ in reference to your representation, dated _____.

3. As you have failed to abide by the instructions issued to commence the work /to show adequate progress of work you are hereby given 7 days' notice in accordance with Clause 62 of Standard General Conditions of Contract to commence works / to make good the progress, failing which further action as provided in Clause 62 of the Standard General Conditions of Contract viz. to terminate your Contract and complete the balance work without your participation will be taken.

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

Signature of Tenderer

Signature of Tender inviting Authority

PERFORMA OF 48 HRS. NOTICE FOR WHOLE WORK_____RAILWAY

(Without Prejudice)

To

M/s_____

Dear Sir,

Contract Agreement No. _____

In connection with _____

Seven days' notice under Clause 62 of Standard General Conditions of Contract was given to you under this office letter of even no., dated_____; but you have taken no action to commence the work/show adequate progress of the work.

2. You are hereby given 48 hours' notice in terms of Clause 62 of Standard General Conditions of Contract to commence works / to make good the progress of works, failing which and on expiry of this period your above contract will be rescinded and the work under this contract will be carried out independently without your participation and your Security Deposit shall be forfeited and Performance Guarantee shall also be encashed and any other consequences which may please be noted.

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

Signature of Tenderer

Signature of Tender inviting Authority

PROFORMA OF TERMINATION NOTICE

NORTHERN RAILWAY

(Without Prejudice)

No. _____

Dated _____

To

M/s _____

Dear Sir,

Contract Agreement No. _____

In connection with _____

Forty eight hours (48 hrs.) notice was given to you under this office letter of even no., dated _____; but you have taken no action to commence the work/show adequate progress of the work.

Since the period of 48 hours' notice has already expired, the above contract stands rescinded in terms of Clause 62 of Standard General Conditions of Contract and the balance work under this contract will be carried out independently without your participation. Your participation as well as participation of every member/partner in any manner as an individual or a partnership firm/JV is hereby debarred from participation in the tender for executing the balance work and your Security Deposit shall be forfeited and Performance Guarantee shall also be encashed.

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

Signature of Tenderer

Signature of Tender inviting Authority

PROFORMA OF 48 HRS.NOTICE FOR PART OF THE WORK.....

(DETAILS OF PART OF WORK TO BE MENTIONED)

NORTHERN RAILWAY

(Without Prejudice)

To

M/s _____

Dear Sir,

Contract Agreement No. _____

In connection with _____

1. Seven days' notice under Clause 62 of Standard General Conditions of Contract was given to you under this office letter of even no., dated____; but you have taken no action to commence the work/show adequate progress of the part of work.....(details of part to be mentioned).
2. You are hereby given 48 hours' notice in terms of Clause 62 of Standard General Conditions of Contract to commence works / to make good the progress of works, failing which and on expiry of this period your above part of work..... (Details of part to be mentioned) in contract will be rescinded and the work will be carried out independently without your participation.
3. Your full Performance Guarantee for the contract shall be forfeited and you shall not be issued any completion certificate for the contract. However, no additional Performance Guarantee shall be required for balance of work being executed through the part terminated contract.
4. The contract value of part terminated contract shall stand reduced to

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

Signature of Tenderer

Signature of Tender inviting Authority

PROFORMA OF TERMINATION NOTICE FOR PART OF THE WORK.....**(DETAILS OF PART OF WORK TO BE MENTIONED)****NORTHERN RAILWAY**

(Without Prejudice)

No. _____

Dated _____

To

M/s _____

Dear Sir,

Contract Agreement No. _____

In connection with _____

1. Forty eight hours (48 hrs.) notice was given to you under this office letter of even no., dated _____; but you have taken no action to commence the work/show adequate progress of the part of work(details of part to be mentioned).
2. Your above part of work in contract(details of part to be mentioned) stands rescinded in terms of Clause 62 of Standard General Conditions of Contract and the same will be carried out independently without your participation. Your participation as well as participation of every member/partner in any manner as an individual or a partnership firm/JV is hereby debarred from participation in the tender for executing the balance work
3. Your full Performance Guarantee for the contract shall be forfeited and you shall not be issued any completion certificate for the contract. However, no additional Performance Guarantee shall be required for balance of work being executed through the part terminated contract.
4. The contract value of part terminated contract stands reduced to
Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

Signature of Tenderer**Signature of Tender inviting Authority**

18. Check list to be filled up by tender issuing authority

SN	Description of item to be checked before Issuing Tender Document by Department	Pl fill Yes / No
1.	Has all pages of the Tender Document are numbered serially & signed by the Tender Issuing Authority	
2.	Has the cost of Tender Document mentioned in the Tender Notice.	
3.	Has the Amount of Earnest Money mentioned in the Tender Notice.	
4.	Has the scope of work, location and sketches etc given in Section 3 of Tender document corresponding to TOP SHEET of Form 5	
5.	Has the work of Similar nature defined in Section 3 of the Tender document	
6.	Has amount of single, Similar nature of work for Technical Eligibility mentioned in superscript Note 1 of Form 4	
7.	Has amount of Financial Eligibility mentioned in superscript Note 1 of Form 4	
8.	Has the date, Time & Place of opening mentioned in the Tender Notice	
9	In support of TOP SHEET of Form 5, has SSE wise quantities given in Schedule of rates and Quantities	
10	In support of TOP SHEET of Form 5 and SSE wise quantities, has estimate wise amount given on Tender case file.	

Signature of Tenderer**Signature of Tender inviting Authority**

ANNEXURE – XXII

Reference Para 48.(3)

FINAL SUPPLEMENTARY AGREEMENT

Articles of agreement made this day _____ in the year _____ between the President of India, acting through the _____ Railway Administration having his office at _____ herein after called the Railway of the one part and _____ of the second part.

Whereas the party hereto of the second part executed an agreement with the party hereto of the first part being agreement Number _____ dated _____ for the performance _____ herein after called the 'Principal Agreement'.

And whereas it was agreed by and between the parties hereto that the works would be completed by the party hereto of the second part on _____ date last extended' and whereas the party hereto of the second part has executed the work to the entire satisfaction of the party hereto of the first part.

And whereas the party hereto of the first part already made payment to the party hereto of the second part diverse sums from time to time aggregating to ₹ _____ including the final bill bearing voucher No. _____ dated _____ of value _____ (the receipt of which is hereby acknowledged by the party hereto of the second part in full and final settlement of all his /its claims under the principal agreement.

And whereas the party hereto of the second part have received further sum of ₹ _____ through the final bill bearing voucher No. _____ dated _____ (the receipt of which is hereby acknowledged by the party hereto of the second part) from the party hereto of the first part in full and final settlement of all his/its disputed claims under principal agreement.

Now, it is hereby agreed by and between the parties in the consideration of sums already paid by the party hereto of the first part to the party hereto of the second part against all outstanding dues and claims for all works done under the aforesaid principal agreement including /excluding the security deposit, the party hereto of the second part have no further dues of claims against the party hereto of the first part under the said Principal Agreement. It is further agreed by and between the parties that the party hereto of the second part has accepted the said sums mentioned above in full and final satisfaction of all its dues and claims under the said Principal Agreement.

It is further agreed and understood by and between the parties that the arbitration clause contained in the said principal agreement shall cease to have any effect and/or shall be deemed to be non-existent for all purposes.

Signature of the Contractor/s _____
Witnesses _____
ADDRESS: _____

for and on behalf of the President of India

Signature of Tenderer

Signature of Tender inviting Authority

Agreement towards Waiver under Section 12(5) and Section 31A (5) of Arbitration and Conciliation (Amendment) Act

I/we..... (Name of agency/Contractor) with reference to agreement no. raise disputes as to the construction and operation of this contract, or the respective rights and liabilities, withholding of certificate and demand arbitration in respect of following claims :

Brief of claim:

- (i) Claim 1- Detailed at Annexure-
- (ii) Claim 2 –
- (iii) Claim 3 –

I/we..... (post of Engineer) with reference to agreement no. hereby raise disputes as to the construction and operation of this contract, or the respective rights and liabilities, withholding of certificate and demand arbitration in respect of following claims

I/wedo/do not agree to waive off applicability of section 12(5) of Arbitration and Conciliation (Amendment) Act.

Signature of Claimant_____Signature of Respondent _____

Agreement under Section 31(5)

I/we..... (Name of claimant) with reference to agreement no. hereby waive off the applicability of sub section 31-A (2) to 31-A (4) of the Arbitration and Conciliation (Amendment) Act. We further agree that the cost of arbitration will be shared by the parties as per Clause 64(6) of GCC.

Signature of Claimant_____Signature of Respondent_____

*Strike out whichever not applicable.

Signature of Tenderer

Signature of Tender inviting Authority

FORMAT FOR CERTIFICATE TO BE SUBMITTED/ UPLOADED BY TENDERER ALONGWITH THE TENDER DOCUMENTS

I.....(Name and designation)appointed as the attorney/authorized signatory of the tenderer,M/s.....(hereinafter called the tenderer) for the purpose of the Tender documents for the work ofas per the tender NO.....of.....(Railway), do hereby solemnly affirm and state on the behalf of the tenderer including its constituents as under:

1. I/we the tenderer (s) am/are signing this document after carefully reading the contents.
2. I/We the tenderer(s) also accept all the conditions of the tender and have signed all the pages in confirmation thereof.
3. I/we hereby declare that I/we have downloaded the tender documents from Indian Railway website www.ireps.gov.in . I/we have verified the content of the document from the website and there is no addition, no deletion or no alteration to the content of the tender document. In case of any discrepancy noticed at any stage i.e. evaluation of tenders, execution of work or final payment of the contract, the master copy available with the railway Administration shall be final and binding upon me/us.
4. I/we declare and certify that I/we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.
5. **I/We also understand that my/our offer will be evaluated based on the documents/credentials submitted along with the offer and same shall be binding upon me/us.**
6. **I/We declare that the information and documents submitted along with the tender by me/us are correct and I/we are fully responsible for the correctness of the information and documents, submitted by us.**
7. I/we certify that I/we the tenderer(s) is/are not blacklisted or debarred by Railways or any other Ministry/Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.
8. I/we understand that if the contents of the certificate submitted by us are found to be forged/false or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the Bid Security and may also lead to any other action provided in the contract including banning of business for a period of upto two year. Further, I/we (insert name of the tenderer).....and all my/our constituents understand that my/our offer shall be summarily rejected.
9. I/we also understand that if the contents of the certificate submitted by us are found to be false/forged or incorrect at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of Bid Security/Security Deposit and Performance guarantee and may also lead to any other action provided in the contract including banning of business for a period of upto two year.
10. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed)

SEAL AND SIGNATURE
OF THE TENDERER

Place:

Dated:

** The contents in Italics are only for guidance purpose. Details as appropriate are to be filled in suitably by tenderer.

Signature of Tenderer

Signature of Tender inviting Authority

NOTE: Submission of copy of certificate as per Annexure-XXIV is not mandatory if the bidder has confirmed and certified the same online at the time of submission of bids.

(This certificate is to be given by attorney/authorized signatory/each member of Partnership.firm/Joint Venture (JV)/Hindu Undivided Family (HUF)/Limited Liability Partnership (LLP) etc)

I/We_____ (Name), attorney/authorized signatory of the_____ (constituent firm/constituent partner) and member/partner of the_____ (tendering firm) hereby solemnly affirm and state as under:

1. I/we certify that (Constituent firm/constituent partner) is/are not blacklisted or debarred by Railways or any other Ministry/ Department of Govt.. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.
2. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that Iam/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfill all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed).

SEAL AND SIGNATURE
OF THE CONSTITUENT FIRM/CONSTITUENT PARTNER

Place:

Note:-Certificate as per Annexure XXIV(A) is to be given by each member of Partnership firm/Joint Venture (JV)/Hindu Undivided Family (HUF)/Limited Liability Partnership (LLP) etc.

Certification by Arbitrators appointed under Clause 63 & 64 of Indian Railways General Conditions of Contract

1. Name:
2. Contact Details:
3. Prior experience (Including Experience with Arbitrations):
4. **I do not have more than ten on-going Arbitration cases with me.**
5. I hereby certify that I have retired from Railways w.e.f._____ and empanelled as Railway Arbitrator as per 'The Arbitration and Conciliation Act- 1996'.
6. I have no any past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind.

Or

I have past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind. The list of such interests is as under:
7. I have no any past or present relationship with or interest in any of the parties whether financial, business, professional or other kind, which is likely to give rise to justifiable doubts as to my independence or impartiality in terms of The Arbitration and Conciliation Act-1996.

Or

I have past or present relationship with or interest in any of the parties whether financial, business, professional or other kind, which is likely to give rise to justifiable doubts as to my independence or impartiality in terms of The Arbitration and Conciliation Act-1996. The details of such relationship or interests are as under:
8. There are no concurrent Circumstances which are likely to affect my ability to devote sufficient time to the arbitration and in particular to finish the entire arbitration within twelve months.

Or

There are Circumstances which are likely to affect my ability to devote sufficient time to the arbitration and in particular to finish the entire arbitration within twelve months. The list of such circumstances is as under:

Or

There are Circumstances which are likely to affect my ability to devote sufficient time to the arbitration and in particular to finish the entire arbitration within twelve months. The list of such circumstances is as under:

Signature of Tenderer

Signature of Tender inviting Authority

Name of the Bank -----
 President of India
 Acting through Sr. DFM/N.Rly,

Bank Guarantee Bond No.:

Date: -----

PERFORMANCE GUARANTEE BOND

In consideration of the President of India acting through ----- (Designation & address of Contract signing Authority). Northern Railway, -----
 --- (hereinafter called "The Government") having agreed under the terms and conditions of agreement/Contract Acceptance letter No. -----
 dated ----- made between----- (Designation & address of contract signing Authority) and ----- (here in after called "the said
 contractor(s)" for the work ----- (here in after called "the said agreement") having agreed for submission of
 a irrevocable Bank Guarantee Bond for Rs.----- (Rs.only) as a performance security Guarantee Bond from the contractor (s) for
 compliance of his obligations in accordance of his obligations in accordance with the terms & conditions in the said agreement.

1. We..... (indicate the name of the Bank) hereinafter referred to as the Bank, undertake to pay the Government an amount not exceeding Rs..... (Rs only) on demand by the Government.
2. We (indicate the name of the bank, further agree that (and promise) to pay the amounts due and payable under this guarantee without any demur merely on a demand from the Government through the Sr. DFM/N.Rly (-----), stating that the amount claimed is due by way o loss or damage caused to or would be caused or suffered by the Government by reason of any breach by the said contractor of any of the terms of conditions contained in the said agreement or by reason of the contractor failure to perform the said agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs..... (Rupees Only).
3. (a) We (indicate the name of Bank) further undertake to pay to the Government any money so demanded notwithstanding any dispute or dispute raised by the contractor(s) in any suite or proceeding pending before any court or Tribunal relating to liability under this present being absolute and unequivocal.
 (c) The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the contracto r(s), shall have no claim against us for making such payment.
4. We,. (indicate the name of bank) to further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged by (Designation & Address of contract signing authority) on behalf of the Government. Certify that the terms and conditions of the said agreement have been fully and property carried out by the said contractor(s) and accordingly discharges this guarantee.
5. (a) Notwithstanding anything to the contrary contained herein the liability of the bank under this guarantee will remain in force and effect until such time as this guarantee is discharged in writing by the Government or until (date of validity/ extended validity) whichever is earlier and no claim shall be valid under this guarantee unless notice in writing thereof is given by the Government within validity/extended period of validity of guarantee for the date aforesaid.
 (b) Provided always that we (indicate the name of the bank) unconditionally undertakes to renew this guarantee on to extend the period of guarantee form year to year before the expiry of the period or the extended period of the guarantee, as the case may be on being called upon to do so by the Government. If the guarantee is not renewed or the period extended on demand, we..... (indicate the name of the bank) shall pay the Government the full amount of guarantee on demand and without demur.
6. We, (indicate the name of Bank) further agree with the Government that the Government shall have the fullest liberty without our consent and without effecting in any manner out of obligations hereunder to vary any of the terms and conditions of the said contract from time to time or to postpone for any time or from time to time any to the powers exercisable by the Government against the said contract (s) and to forbear or enforce any of the terms and conditions of the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said contractor(s) or for any bearance act or omission on the part of the Government or any indulgence by the Government to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties for the said reservation would relive us from the liability.
7. This guarantee will not be discharged by any change in the constitution of the Bank or the Contractor(s).
8. We, (indicate the name of the Bank) lastly undertake not to revoke this guarantee except with the previous consent of the Government in writing.
9. This guarantee shall be valid upto..... (date of Completion plus 60 days). Unless extended on demand by Government. Notwithstanding anything to the contrary contained hereinbefore, our liability under this guarantee is restricted to Rs..... (Rs only) unless a demand under this guarantee is made on us in writing on or before..... we shall be discharged from our liabilities under this guarantee thereafter.

Dated: the day of for

(indicate the name of bank)

Signature of Banks Authorised official

(Name)

Designation with Code No.....

Full Address.....

Witness 1:

Signature.....

Name.....

(In Capital)

Address.....

.....

.....

Witness 2:

Signature.....

Name.....

(In Capital)

Address.....

.....

.....

Signature of Tenderer

Signature of Tender inviting Authority

ANNEXURE -XXVIII

Declaration by bidder from a country sharing land border with India

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached]

I have read the clause regarding restrictions on procurement from abider of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will or sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certifythat this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]”

SEAL AND SIGNATURE
OF THE TENDERER

Place:
Dated:

PART-III PRICE AND PAYMENT

1.0 Scope

2.0

This chapter deals with prices to be paid to the contractor for completion of various items of work. The contractor shall be paid for completed works in accordance with accepted schedule of prices and rates, as stipulated in the tender document.

2.0 Schedule of Prices:-

a) Unit prices for materials:-The unit prices of materials as given in schedule of quantities shall be inclusive of all charges including transport, loading/unloading handling all insurance premium ,banker's charges all applicable taxes, duties and levies(including octroi etc.)applicable on works contracts etc.

b) For Erection:-The unit prices given in schedule of quantities shall include cost of erection ,testing and commissioning and cover all cost of administration of the contract, insurance, premium, bankers' charges for guarantees, cost of storage, loading, unloading and handling of materials and for any road transport which the contractor may use for carriage of materials between his depot and depots and site of work etc.

c) Unit price quoted shall be final .No price variation shall be allowed on any account.

D)All payments in respect of the contract during the currency of the contract shall be made through Electronic Clearing System(ECS)/ Electronic Funds Transfer.(EFT).The successful tenderer on award of contract must submit prescribed ECS/EFT mandate form complete in all respects. The successful tenderer on award of contract will have to furnish contractor's Bank account number and Name of Bank against which all payments in respect of the contract during the currency of contract shall be made.

3.0 Mode of Payment as Letter of credit (LC) arrangement:-

(i) For all the tenders having advertised cost of Rs 10 lakh or above, the contractor shall have the option to take payment from Railways through a letter of credit (LC) arrangement.

(ii) This option of taking payment through LC arrangement has to be exercised in IREPS (Indian Railway Electronic Procurement System the e-application on which tenders are called by Railways) by the tenderer at the time of bidding itself, and the tenderer shall affirm having read over and agreed to the terms and conditions of the LC option.

(iii) The option so exercised, shall be an integral part of the bidder's offer.

(iv) The above option of taking payment through LC arrangement, once exercised by tenderer at the time of bidding, shall be final and no change shall be permitted, thereafter, during execution of contract.

(v) In case tenderer opts for payment through LC, following shall be the procedure to deal release of payment through LC:

.(a) The LC shall be a sight LC

(b) The contractor shall select his Advising/Negotiating bank for LC. The incidental cost towards issue of LC and its operation thereof shall be borne by the contractor.

(c) SBI, New Delhi, Main Branch will be the nodal branch for issue of LCs based on online requests received from Railway Accounts Units for tenders opened in financial year 2018-19. SBI branches where the respective Railway Accounts Office has its Account (local SBI branch) will be the issuance/reimbursing branch for LC issued under this arrangement. The Bank shall remain same for this tender till completion of contract. The incidental cost @0.15% per annum of LC value, towards issue of LC and operation thereof shall be borne by the contractor and shall be recovered from his bills.

(d) The LC shall be opened initially for duration of 180 to 365 days in consultation with contractor. The LC shall be extended time to time as per the progress of the contract, on the request of the contractor. The value of LC to be opened initially as well as extended thereafter shall be finalised by the engineer in consultation with the contractor on the basis of expected progress of work.

(e) The LC terms and conditions shall inter-alia indemnify and save harmless the Railway from and against all losses, claims and demands of every nature and description brought or recovered against the Railways by reason of any act or omission of the contractor, his agents or employees, in relation to the Letter of Credit (LC). All sums payable/borne by Railways on this account shall be considered as reasonable compensation and paid by contractor.

(f) The LC terms and conditions shall inter-alia provide that Railways will issue a Document of Authorisation (format enclosed as Annexure 2) after passing the bill for completed work, to enable contractor to claim the authorized amount from their bank.

(g) The acceptable, agreed upon document for payments to be released under the LC shall be the Document of Authorisation.

(h) The Document of Authorisation shall be issued by Railway Accounts Office against each bill passed by Railways.

(i) On issuance of Document of Authorisation, a copy of Document of Authorisation shall be posted on IREPS for download by the contractor. A digitally signed copy of Document of Authorisation shall also be sent by Railway Accounts Office to Railway's bank (Local SBI Branch).

(j) The contractor shall take print out of the Document of Authorisation available on IREPS and present his claim to his bank (advising Bank) for necessary payments as per LC terms and conditions. The claim shall comprise of copy of Document of Authorisation, bill of exchange and Bill.

(k) The payment against LC shall be subject to verification from Railway's Bank (Local SBI Branch).

(l) The contractor's bank (advising bank) shall submit the documents to the Railway's Bank (Local SBI Branch).

(m) The railway's bank (issuing bank) shall, after verifying the claim so received w.r.t. the digitally signed Document of Authorisation received from Railway Accounts Office, release the payment to contractor's bank (advising bank) for crediting the same to contractor's account.

(n) Any number of bills can be dealt within one LC, provided the sum total of payments to contractor is within the amount for which LC has been opened.

(o) The LC shall be closed after the release of final payment including PVC amount, if any, to the contractor.

(p) The release of performance guarantee or security deposit shall be dealt directly by railway with the contractor i. e., not through LC.

4.0 Quantities-

The approximate estimated quantities of various items of works are included in schedule of quantities and rate. However, quantities can be increased/decreased as required and decided by competent authority as per extent variation rules.

5.0 New items of work. -

If during the execution of the work the Contractor is called upon to carry out any new item of work not included in Schedule of Rates & Quantities, the Contractor shall execute such works at such prices as may be mutually agreed in writing with the Purchaser and as per extent rules.

6.0 Deduction of taxes from Contractor's bills

Wherever the law makes it statutory for the purchaser to deduct any amount towards GST/Income tax, BCOWW etc on works contract, the same will be deducted and deposited with the concerned authority.

7.0 Payment:-

7.1 The rates quoted by the contractor as per schedule of items. Rates & quantities shall form the basis of on account payment of various items or the various items under this contract.

7.2 In the course of execution of various items of work under schedule of items, rates & quantities running bills payment for partly completed works will be made to the contractor. The quantum of such work for payment shall be decided by Engineer incharge whose decision shall be final & binding on the contractor.

7.3 Payment to the contractor shall be made as under:-

a) 80% of the item price (material cost of major item) may be paid on receipt of material in railway custody after inspection as decided by Engineer incharge whose decision shall be final & binding on the contractor. If for any item of work, price of material and erection is not separately available. 80% of the cost of item of work will be considered as material cost.

b) Further payment of material and erection cost of item of work shall be made on successful testing and commissioning of the installation.

7.4 No on account payment by the Railway shall protect the contractor/s against or prevent the Railway from recovering from the contractor/s any overpayment made to him/them.

7.5 Indemnity Bond for All "On Accounts payments" shall be covered by a standing indemnity bond as per approved Performa enclosed in Annexure.

8.0 The successful bidders have to submit the necessary documents in support of the following.

8.1 That the payments to contract labours are being paid through net banking /Cheque.

8.2 That the identity cards have been issued to all contract Labours.

8.3 That the provident fund are being deducted from the payment made to the contract labour and ensure that the same is created to their provident fund account along with firm contribution if applicable.

8.4. That the all contract labours has been covered under the ESI/EPF if applicable.

**Sr.Divl.Elect.Engineer/G,N.Rly.,AmbalaCantt
For & on behalf of the President of India.**

Part-IV

Special Tender Conditions

- 1.0 **SCOPE OF WORK:-** Raising of Passenger Platform from medium level to High level along with platform shelter of ABS (Abhor) station, Raising of Passenger Platform from medium level to High level along with platform shelter of SAG(Sangrur) station,Raising of Passenger Platform from medium level to High level along with shelter of NLDM (Nangal Dam) station, Provision of Ramps to existing FOB for improving divyangjan accessibility at Tapa & Bhuchchu Railway station,Power supply arrangement in connection with installation of HABD(Hot Axle Box Detector) as per Annexure, Replacement of existing electro mechanical inter locking with panel interlocking at RTP (Ropar Thermal Power Plant) in SIR-NLDM section of Ambala division, New Running Room at PKYN station,Repair of Transformers & allied works and Provision of Bio-toilet testing lab at C&W Depot, Chandigarh over Ambala Division.
- 2.0 Location of work:- over Ambala Division .However site can be changed anywhere over Ambala division as & when required.
- 3.0 Drawings:-The drawing, if any should be got approved from Sr.DEE/G before starting of work. These will be inspected by Sr.DEE/G or his representative.
- 4.0 **SPECIAL CONDITIONS OF WORK & RESPONSIBILITIES OF CONTRACTORS**
- 4.1 This contract shall be governed by latest version of Indian Electricity Act & Indian Electricity Rules.
- 4.2 The contractor shall ensure the staff engaged by him possess identity card, entry pass, duty pass signed by the authority designated by Engineer of contract Incharge.
- 4.3 Railway administration will not be responsible for any compensation to the firm's staffs by any reasons what so ever.
Contractor will ensure that the staff is fully insured for any liability in case of accident, strike s, notes,civil commotion etc. The railway will not be liable for any damage caused due to any reason.
- 4.4 Permission to work shall be given as per the Railway's convenience. No. claim for not giving the permission to workduringthe odd Hrs. will be accepted.
- 4.5 The Tenderer shall not assign, transfer and sublet the privileges conferred under this agreement.
- 4.6 Railway can increase ,or decrease the quantity as per variation clause.
- 4.7 In case of any dispute between the parties concerned, Sr. DEE shall be the sole arbitrator and his decision shall be final and binding on both the parties.
- 4.8 Income tax shall be deducted from the bills of the contractors as applicable and shall be deposited to IT Department.'.
- 4.9 If any minor item under SOR not covered but requiredfor completion of work will be don e by the contractor cost. at no extra
- 4.10 Any modification in technical details suggested by OEM can be accepted with the prior written approval of Sr.DEE/G/UMB
- 4.11 Any typographical error shall not be constructed to be benefit of the contractor, in such cases the interpretation anddecision of Sr DEE/G/UMB shall be final and binding upon the tenderer.
- 4.12 Tenderer are advised to visit work site before submitting offer.
- 4.13 The electrical work shall be carried out without interruption of power supply to the residents. Necessary shut down of power supplybe arranged by Railway if required
- 4.14 Contractor shall provide the matching whitewash/paint on the patches/repair done during the electrical work. (DRM/UMB L.No.G-42/DRM/Insp./2013/15 dated 28/10/13)
- 4.15 All work is to be carried out in the presence of Railway's representative.
- 4.16 The Railways Engineer Incharge may at any time terminate the contract without any notice payments in lieu thereof or assigning any reason thereof.
- 4.17 The firm shall depute sufficient number of well trained staff on the nominated Location to take up the work for its timely completion.
- 4.18 The work shall be carried out in best workmanship and any defects as per site condition pointed out by the inspecting authority will be done by the firm
- 4.19 Tenderer must ensure that his offer complies with Public Procurement Policy Order 2017 dated.15/06/2017.
- 4.20 Firm must upload all labour data on shramikkalyan.portal it should be insured by firm before claiming bill, SSE should verify and forward this with claimed bill

5.0 Inspection of Material & Pre-commissioning test:-

- 5.1 The pre-inspection of the material will be carried out by the Railway Representative/Inspecting Agency authorized by Government Deptt.. For inspecting the major/high valued items, like cables, HT/LT panels, Transformers, overhead, APFC, Energy saver, ACSR High masts .Poles any of length etc. the Railway representative shall visit manufactures' works at all reasonable time to witness and inspect the testing of equipments/material. It is the duty of the contractor to ensure that all the equipments/material. Supplied are tested as per relevant specifications. He shall provide all necessary assistance is carrying out tests and inspection at his own cost
- 5.2 The contractor shall furnish three copies of manufacture test certificate for the routine and type tests conducted on the equipments/materials offered. If necessary the contractor shall arrange to conduct the entire routine test at manufacture's premises in the presence of Railway representative at his own cost. The results of the routine tests shall be jointly signed by the authorized representative of the manufacture and Railways authorized inspecting official
- 5.3 For the remaining items the sealed sample should be submitted by the contractor/supplier to the Railway authorities, which willbe approved and kept in Railway custody for future reference during the execution of the project and the warranty period
- 5.4 Pre-commissioning test on various equipments/materials shall be carried out jointly by the contractorwith the Railway representative
- 5.5 No type test shall be carried out but all the certificates must be produced during inspection and it shall be only visibly inspected & certified by Inspecting Authority.
- 5.6 If the RITES is to be nominated for inspection, than successful tenderer will be required to sent an inspection call to M/s RITES on Prescribed Performa (obtainable from M/s RITES) with the copy of letter of acceptance issued by the purchase contract agreement and purchase order placed by successful tenderer to manufacturer. Inspection fee to M/s RITES shall be paid by Railways.

6.0 Guarantee:-

The Guarantee will be applicable as per RDSO/CEE specification where ever the material is prescribed as per RDSO/CEE spec. In all other cases the tenderer shall guarantee the equipments/installations for satisfactory performance for a period of 12 month or as mentioned in SOR for special item from the date of commissioning against any defect. The contractor should promptly attend complaint and replace/repair the defective equipments/parts free of cost promptly and satisfactorily. No guarantee period in case of AMC.

7.0 Makes of Material:-

All the materials/equipments to be supplied and installed as per of makes mentioned in tender. In case no makes are mentioned approved makes as per ISI/CEE spec shall be provided with the approval of Sr.DEE/G.

8.0 Release of Security Deposit

Security Deposited will be release after final acceptance of installation and completion of maintenance/guarantee period as per Special tender condition and instructions to tenderers, decided by competent authority.

Note: -Before procuring any material, a joint inspection must be conducted with the consignee at the site. The contractor shall supply the material only after obtaining approval from the consignee..

**Sr.Divl.Elect.Engineer/G, N.Rly.,
Ambala Cantt For & on
behalf of the President of India.**

Technical Specifications

	Schedule A-Raising of Passenger Platform from medium level to High level along with platform shelter of ABS (Abhor) station
01	Supply & recessing/ fixing of PVC conduit pipe conforming to IS 9537 part-III/1983(latest version) with accessories , junction box etc. including making chase , plastering/clamping etc. as per technical spec.i) 25 mm (medium)
02	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. ii) 1.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
03	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iii) 2.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
04	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iv) 4 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
05	Supply of batten/ angle holder/ ceiling rose & installation on the junction box of laid conduit including connection, testing & commissioning as per tech. spec..ii) Bakelite ceiling rose 3 plate Ceiling rose shall conform to IS 371/1979 (Latest Version). Lamp Holder and ceiling rose shall be provided in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version)
06	Laying of 2/3/4 core 16/25/35/50/75/95 /120/240/400 sqmm LT UG/XLPE in Trench/Pipe/Cable tray as per site requirement all as specified and as directed. Note LT UG Cable will be supplied by the Railways free of cost. However, Contractor has to make own arrangement for shifting the cable to site from the Elect maintenance Depot store. Laying shall be in conformity to IS: 1255/1983 (Latest Version)
07	Excavation of cable trench by cutting/breaking station platform concrete/pucca floor digging 400 mm deep and then refilling after laying of cable as per IS 1255:1983 and technical specification enclosed on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, leveling and repairing and finishing the said portion of platform with 1:2:4 cement concrete mixture 100 mm deep from top. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
08	Supply,erection,testing and commissioning of LED tube light fittings 20 Watt complete as per specification of CEE/NR/121-Elect/PS/2018 dt 28/06/18 or latest. Guarantee-05 years from date of commissioning.
09	Supply , lying of GI pipe class B ISI marked under road, clamping with erected pole or wall as per tech spec for passing cable. i) 50 mm dia GI pipe shall be conforming to IS conforming to IS 1239/Pt.I/1990 or latest and laying shall be in conformity to IS: 1255/1983 (Latest Version)
10	Supply, installation, testing and commissioning of the following double door wall mounted pre fabricated LT distribution Board of approved make as per spec."i) Incoming MCB DP 40 A ,10 KA, (B/C)=01 No.ii)Out going MCB SP 6/32 A 10 KA,(B/C)=06 No." Fabrication of meter cum distribution box shall be as per Northern Railway Tech. Specification No. 81-Elect/P/1991 and shall conform to IS 8623/Pt.I& Pt. III/1993 (Latest Version) with degree of protection IP 42 and shall be installed in conformity with 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
11	Supply, installation, testing and commissioning of the following double door wall mounted pre fabricated LT distribution Board of approved make as per spec."i) Incoming MCB TPN, 63 A ,10 KA, (B/C)=01 No.ii)Out going MCB SP 6/32 A 10 KA,(B/C)=18 Nos.(6 Nos on each phase)" Fabrication of meter cum distribution box shall be as per Northern Railway Tech. Specification No. 81-Elect/P/1991 and shall conform to IS 8623/Pt.I& Pt. III/1993 (Latest Version) with degree of protection IP 42 and shall be installed in conformity with 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
12	The price shall cover cost of design, manufacture, supply, loading, transportation and unloading to site, display, installation / erection, testing and commissioning of wall / hanging /floor mounting type LED illuminated sign/ direction boards in Full Elliptical (FE), Half Elliptical (HE), Semi Elliptical (SE), parabolic shape as per site requirements(tenderer may refer the pictures attached). The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2 mm thickness. The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed / router cut on monomeric calendared vinyl of 70-80 µM thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4-8 W / sq. ft and with brightness more than ambient light. Suitable size end cap of 1.5 mm thick SS 304 / die moulded polycarbonate should be provided. The signage boards shall be confirming to technical specification enclosed. <ol style="list-style-type: none"> The work covers design, manufacture, display, installation of elegant, aesthetically appealing energy efficient LED elliptical signage's for passenger amenities areas like platforms, direction, FOB's, Service buildings, utilities, concourse etc. of Station. The work which is not included in the schedule but required to complete the installation work shall be considered as the part of work and should be carried out by the contractor accordingly. No extra payment will be paid for that. Before supply of material, the agency shall submit the design report through professional design expert for approval of Sr.DEE(G)/UMB. LED Elliptical Glow Sign Boards are to be provided in dust environment and open space & should have proper louvers or ventilation for dissipation of heat generated by drivers / LED's. The quality of the Vinyl/ Polycarbonate sheet/ anodized coating should be covered under three years warranty from the manufacturer. LED's/LED drivers shall be covered for free replacement under five years warranty from the manufacturer. Documentary proof of purchasing of LED/LED drivers/Vinyl sheet/Polycarbonate sheet from reputed approved brand shall be required to be submitted along with bill. The unit prices indicated in the Schedule of quantity is inclusive of the prices for design, manufacturing, supplying of materials, multiple loading/unloading required under the particular item of schedule, storing, handling, erection testing and commissioning of installation in conformity of specification. The unit price is also inclusive of all incidental charges for transport, loading/unloading and handling of materials, commission for arranging dispatch direct from manufacturer's factory / authorized dealer / supplier and completing all necessary formalities in this respect, such as submission of forwarding notes, all insurance premium, bankers charges for bank guarantee, indemnity

bonds inclusive of cost of stamps, etc. The unit prices shall include all incidental charges duties and levies including GST.

TECHNICAL SPECIFICATION FOR ELLIPTICAL / PARABOLIC SIGNAGE BOARDS

SN	Model/Type	Full Elliptical (FE) / Half Elliptical (HE) / Semi Elliptical (SE) / Parabolic
1.	Mounting	<p>Mounting arrangement shall be hanging, Wall mounting, Ceiling Mounting, Pole Mounting, Floor Mounting or as per site requirement. Sign Boards shall be with integrated mounting arrangement powder coated pipes to FOB/PF Structure / walls with tension rope made of SS 304 and supplied with minimum 5 meter 2.5 sq.mm FRLS multi stranded copper flexible cable as per IS: 694 with latest amendment of make Anchor/Finolex/L&T/Poly-cab/BCH/RR Kable and socket pin for connecting to power supply system of make Anchor/Cona/SSK/Roma.</p> <p>The cost of fixing of sign board with suitable clamping arrangement with SS nut, bolts, washers, square shear nut, nut-bolts, screw, T bolt, Chuck nut, shear nut or welding etc. is also included. The clamps shall be powder coated and enamel paint of approved colour.</p>
2.	Elliptical Glow Board Frame	<p>Shall be made of Extruded Anodised hollow aluminium profile of size not less than 1.2 mm thickness and anodized to minimum 15 µm thickness (Grade AC- 15) in bronze & silver or any other approved colour. Anodizing coating shall be as per IS: 1868 or latest amendment.</p> <p>Provide Full length square SS powder coated pipe attached to bottom cap square bracket with level adjustment provision ribbiting without welding, pass thorough top cap interlock with clamp SS pipe sliding and level adjustment provision without compromising structural strength of Elliptical Glow Board.</p> <p>Provide nylon die molded & MS machine formed powder coated horizontal or vertical as per requirement heat sink bracket to hold top and bottom aluminium profile with press fit and bolting provision. Top bottom and/or side cap as per requirement flush fixed at profile to outer side holding all structural element together.</p>
3.	Bracket / clamp	<p>"I" beams of size 3" - 27" / "T" beams of size 6-8" x 5", "C" beam of size 3" x 5" and round pipes 2" - 6" holding machine bended seven tank processed powder coated clamp with SS 304 nut bolts & spring washers with provision of level, size and alignment adjustment. 'T', 'S' or round shaped clamp from center slot will interlock with top beam/girder, pipe at various size with horizontal or perpendicular or taper or slanted form with provision of beam to beam connected bracket to hold sign perpendicular or horizontal & bottom side of clamp will interlock with pipe of Elliptical Glow Board with SS nut-bolt and spring washer. High strength Round Mounting Clamp set of inner & outer clamp at R 2"/3" & for installation on round pipe of dia 2/3" shall be press-formed in SS 304 grade sheet of 2mm thickness, 2mm rib deep shall be formed along the periphery for additional strength, only the inner clamp shall be used with two holes shall be used for anchoring on wall. Universal mounting clamp approx. 70mm x 31mm x 22mm set consisting of sliding clamp, holding clamp, crimping lock and flexible strip shall be press- formed in SS 304 grade sheet of 1.2mm thickness this clamp shall be slid inside the mounting channels fixed to substrates. 0.8mm strip shall be passed through this clamp and around the structure on which the sign is to be installed and crimped firmly by crimping clamp. It should fix at any structure. M10 Square Head Bolts SS 304 grade, 4 side chamfered shall be used for installation. M10 Hexa Head shear nuts, which are high security, anti-theft, permanent fasteners, shall be used and shall be made of SS 304.</p>
4	Top profile	<p>Top Profile of Elliptical Glow Board shall be made up of Aluminium Alloy (6063-T6) Extruded profile anodised to 15 µm +/- 3 µm. The profile nominal wall thickness shall be 2 mm and width approx 170 mm, 137 mm and 268 mm. The reflective metallic silver PU particle coated granules shall be provided on the internal face of the profile. The edges of the profile shall be rounded.</p> <p>The profile shall have a slot of approx 4.8 mm & 7mm width on both sides to hold 2/3/4 mm thick polycarbonate sheet. The slot shall be at an angle of 80-84 degree to face firmly hold the polycarbonate sheet in elliptical and parabolic curvature. The Elliptical / Parabolic curvature of the polycarbonate sheet shall be maintained by its inherent flexural tension property. It should have circular slots for M6 self-tapping cheese head screws to fix the end caps. Along the centre line of the top of this profile there shall be a 10mm x 3mm slot for press fitting the heat sink holding brackets in place with circular slot for M6 self tapping screw should be made available. There shall also be a flat extension of 12mm to rectangular slot for additional support / fixing screws to firmly hold the heat sink holding bracket. The Total height of the central Projection should be Maintained to minimize obstruction to light illumination.</p>
5	Bottom, top & side Profile	<p>Bottom, top and side Profile full / half of the Elliptical Glow Board shall be made of extruded anodized Aluminium Alloy hollow profile (6063-T6) having 2mm to 5mm wall thickness. It should have internal ribs with approx 1.5mm, 2.5mm thickness and 4.5mm, 4.2mm wide slot to firmly hold the polycarbonate sheet in elliptical and parabolic curvature using its flexural tension. A circular slot of dia approx. 4.5 mm at the center of profile shall be provided to fix self tapping cheese head screw for end cap.</p> <p>An extruded extension diametrically opposite to this circular slot should have approx. 10mm x 3mm slot for press fitting the heat sink holding brackets. Further flat extension of 12 mm shall be provided for screwing the bracket for additional strength & fixed location.</p> <p>Total external width & Height of the bottom, top & side profile should be full of approx. 34mm x 48mm R 11.7mm / 42mm x 50mm, R 24.3mm / 42mm x 80mm, R16mm / 84mm x 80 mm, R16mm without compromising the strength and causing any obstruction to the light while giving maximum viewing area. The bottom corner shall have a curvature of approx. R11.7mm, 24.3mm and 16mm to appear in continuous flow of elliptical Curvature of polycarbonate sheet. This also shall add to aesthetic beauty of the whole Elliptical Glow Board.</p>

6	Heat Sink Holding bracket (HSH)	<p>Heat Sink Holding Bracket shall be of approx. length 184mm, 252mm, 260mm, 324mm, 397mm, 537mm, 551mm injection moulded in Nylon 6 material & 1130mm, 1156mm, 861mm in MS machine formed powder coated for its strength & flexibility. The bracket shall be of 'I' cross section of sizes approx. 102mm x 15mm x 10mm, 1080mm x 25mm x 5mm, 1156mm x 50mm x 5mm, 861mm x 50mm x 5mm at mid portion and it should reduce proportionately in slant at both the ends for nylon 6mm, MS 5mm. Thickness without obstructing the light and without compromising on strength.</p> <p>The 'I' cross section nylon shall have ribs for maintaining stiffness. Both the ends of HSH brackets shall have locking clasp to press fit in 10 mm x 3mm slot of top and bottom profile. The mid portion shall have offset of 14mm for nylon and 12 mm for MS.</p> <p>Central clasp shall be moulded in the Heat Sink Holding bracket to firmly hold the Heat Sink along the longitudinal axis of Elliptical Glow Board. The central clasp shall have two prong sets to hold the heat sink across its diagonal or along its sides as required. Two holes as per requirement shall be provided near the end clasps firmly.</p> <p>Two holes for nylon & MS shall be provided on both sides of central clasp to fix at both profiles. Two holes shall be provided on both sides of central clasp to fix the mid portion of bracket to strip in the event longer bracket if required. The mid portion of HSH bracket approx. 3 mm thick x 10 mm wide aluminium strip in the event longer bracket is required or more than one Heat Sink is required for bigger size of Elliptical Glow Board.</p>
7	Heat Sink	<p>Heat Sink shall be 25-26 mm hollow anodized Aluminium Alloy (6063-T6) profile of 2mm thickness. Corners shall be flattened to form a square across flat to hold the heat sink diagonally. Heat sink must be press fit horizontally and diagonally from all 8 sides. All the four sides shall have dovetail of slots.</p> <p>Circular slots of dia 2 mm shall be provided at all four internal corners to tight fit the pins of Heat Sink connector.</p> <p>There shall be a set of three of approx 1.5mm thick ribs central of approx. 5mm height and two sides of approx. 2mm height. Provision for maximize the surface area to aid in faster cooling as well as for additional strength to hollow square profile.</p>
8	Heat sink connector	<p>Heat Sink connector shall be a moulded from polycarbonate profile of same cross- sectional dimensions as that of Heat Sink. The thickness of the connector shall be approx. 5 mm. Two semicircular slots shall be provided on each face. Provision to pass out hot air from heat sink should be made. Four pins shall be moulded on four corners on both the faces of Heat Sink connectors to be press fitted in Heat Sink profile.</p>
9	Elliptical Glow Board end cap	<p>End caps full / half with elliptical and parabolic shape shall be made from injection moulded polycarbonate granules 2 mm thick / SS 304 1.2 mm thick / aluminum die casted 8 mm thick having curve on top side and internal hollow and elliptical base at bottom side with reflective internal surface. The End caps shall be perfectly opaque.</p> <p>The standard sizes are:</p> <p>170mm x 304mm x 21mm, R 511mm corner R 11.7mm / 210mm x 100mm x 20mm, R 150mm corner R 39mm / 278mm x 130mm x 20mm, R 193mm corner R 39mm / 350mm x 152mm x 20mm, R 257mm corner R 39mm / 425mm x 175mm x 20mm, R 316mm corner R 39mm / 563mm x 215mm x 20mm, R 449mm corner 39mm / 210mm x 69.2mm x 20mm, R 150mm corner R 39mm / 278mm x 84.2mm x 20mm, R 193.48mm corner R 39mm / 350mm x 95.2mm x 20mm, R 257mm corner R 39mm / 425mm x 106.7mm x 20mm, R 318mm corner R 39mm / 563mm x 126.7mm x 20mm, R 449mm corner R 39mm / 425mm x 150mm x 50mm, R 305mm corner 39mm / 600mm x 110mm x 50mm, R 445mm corner R 39mm / 862mm x 167mm x 60mm, R 707mm corner R 39mm / 425mm x 190mm x 50mm, R 315mm corner R 30mm / 573mm x 230mm x 57mm, R 450mm corner R 30mm / 859mm x 308mm x 67mm, R 734mm corner R 30mm / 529mm x 308mm x 99mm, R 371mm Corner 40 / 692mm x 308mm x 85mm, R 528mm corner R 53mm / 1063mm x 415mm x 126mm, R 943mm corner R 80mm / 1167mm x 353mm x 20mm, R 1062mm corner R 11.75mm / 169mm x 915mm x 30mm, R 1246mm corner R 17mm / 342mm x 2092mm x 30mm, R 2451mm corner R 17.2mm / 1488mm x 472mm x 30mm, R 1575mm corner R 16.3mm / 889mm x 263mm x 25mm, R 775mm corner R 17.5mm.</p> <p>Note: Above size of the end cap will be utilized as per the requirement The boards shall be such that the text & Graphics displayed on the Polycarbonate sheet held in these end caps should be completely visible even if it is viewed directly from the bottom or any direction; the text is very much legible.</p> <p>Polycarbonate cap Internal face shall be cross ribbed 2mm x 3mm to increase the strength of the end cap. Eight nos. locating pins tapering towards collar of the end cap shall be provided near the internal periphery of the end cap. These pins shall firmly hold the 3mm translucent polycarbonate sheet in elliptical / parabolic curvature.</p> <p>Circular cutout of dia approx. 80mm shall be provided for illuminated branding or opaque cap shall be provided in case of none branding. For branding translucent material fitting provision should provide without shadow on branding. Oblong cutout with collar shall be provided for projecting image of desired text & graphics on the floor below or opaque cap shall be provided in case of non-projecting. 2mm x 5mm Ribs approx. 20mm inside and parallel to the external periphery shall be provided for additional strength. Riser buttons shall be provided along the internal ribs to block the cutouts using opaque sheet screwed through these buttons. These buttons may also be used to mount the LED projector when required. Projector fitting bracket shall be fix to end cap to align with oval slot. Three nos. cap holding sockets shall be moulded at three corners of the End Cap. Two nos. locating pins shall be provided on each cap holding sockets and shall be provided at the bottom of these pins for additional strength. This pin shall locate in the top and bottom Aluminum profile. Two tapering ribs shall be provided to cap holding brackets for additional strength.</p> <p>Three through slots of approx. 17 mm x 1.5 mm shall be provided near the top of end cap for heat ventilation. Moulded Screw caps shall be provided to externally press fit in the cap holding sockets. The end cap shall be</p>

			Moulded Shatter proof opaque polycarbonate as per IS 14443 or latest amended with thickness not less than 1mm and of reputed Indian make using Bayer granules. SS 304 elliptical or parabolic cap should have approx. 20 mm vertical collar at corners of suitable dia hole to interlock with profile and structure, square bracket at bottom cap should provide to interlock vertical square structure pipe and top cap should have cut out to thorough pass the structure pipe with the provision of ventilation. Aluminium die Casted cap top should have curvature of R 1123-1125 mm and internal hollow with wall thickness of 6-8mm with polished and premiered with metallic PU gloss lacquer coated. internal 2 nos. cap holding socket shall be casted at both corners of cap to interlock with side profile, Bottom casted cap should have side curvature of - R78-79 / 112-113 mm and hollow of approx. 100 mm with internal 2 nos. cap holding socket shall be casted at both the corners of cap to interlock with side profile. Vertical rib should provide to interlock polycarbonate sheet with inner pins support should flushed with side aluminium profile. Cap should have a hole with die moulded dia approx. 12 mm grommet to pass mainsupply wire.																
10	Cue Beam		Cue beam holding bracket die-moulded with triangular parabolic base of approx. 77mm x 68mm, 2 mm thick. Hollow cylindrical die-moulded cover of dia approx. 29mm and height 43mm attached to side legs with provision of hinge for 360 degree rotation and angle adjustment with oblong cut out of bottom cap. It should fix with bottom cap with 3 nos. holes of dia approx 3 mm. The Elliptical Glow Board shall have the slot for provision of Cue Beam projector wherever required with provision of cue beam holding bracket. Cue beam projector should project the given sign image and text on floor or wall from max distance with maximum brightness than ambient light. 2 nos. Plano convex of approx. R 9.22mm, R 7.31mm and 1no. Biconvex lenses of approx. R 19.8mm, R 34.1mm, should fix at given slots. Projector lens with engraved image should create maximum projection on surface The CUE BEAM should incorporate in Elliptical Glow Board. Technical specification of CUE BEAM Voltage - AC 110V~220V Built in LED Driver - 12 V Power - 5W Luminosity - 150~ 200LM Image Projected distance -1~ 3 meters External Dimensions approx. - Ø26mm X 76 mm																
11	Podium		Elliptical shape one piece cut, top & bottom 3mm thick with size approx. 1170 mm x 512 mm x 508 mm at R914mm at corner R 117mm / 1643 mm x 575 mm x 508 mm at R 1652mm at corner R 92.5mm of SS 304 with parabolic shape cut at center having dia approx 8 mm, 2 hole on top for matching with bottom cap of Elliptical Glow Board for fixing and interlocking without welding and bottom approx. 12 mm 4 hole for foundation fitting should be provided. Provide approx. 4 mm 9 holes for ventilation at top and Backside open able door system with lock & key. SS 304 grade frame structure of size approx. 25mm x 50mm x 1.2mm square with vertical and horizontal supports covered with SS 304 sheet of 1.2mm thick with powder coated in elliptical shape machine formed matching with top of podium should provide Anchor fastener fitting provision has to be made for ground fixing.																
12	ACP Cladding		Design, fabrication & installation of 3mm thick exterior grade PVDF coated Aluminium composite panels (Timex, Alucobond) of having 0.5 mm thick aluminium PVDF coated sheet with specific standard colour + 3 mm core 80 material + 0.5 mm aluminium sheet chemically treated (back sheet) bent with 5mm uniform machine grooved as per requirement, fitted on anodised aluminium/ anodized aluminium angle Primer with PU coated MS rectangular grid work. Grid for supporting ACP shall be of size approx. 38mm x 38mm x 1.5mm at a distance of Heat sink fixed in Elliptical Glow Board should accurately match Horizontally & Vertically along with existing structure on site. Hardware, fixtures, brackets, anchor, fasteners of SS 304 grade etc. Complete duly sealed with weathering silicon (DOW / GE) for circular columns and curved beams etc. Provision of MS clamp/ bracket for fixing with existing structure vertically, horizontally or slanted without welding and with level size alignment adjustment and interlocking provision without compromising strength and structural stability of frame should provide.																
13	Text/Graphics		Shall be computer cut/printed on 80 µ m Monomeric calendared Vinyl matt sheet of reputed make (Metamark / 3M) of Pantone shade 27C/165C/260C/Cool grey 8C/Black/7408C.Note: Pantone provides a universal language of color that enables color-critical decisions through every stage of the workflow for brands and manufacturers.																
14	Led ribbon light illumination		Ribbon light shall be of waterproof SMD 2835. The width of Ribbon light shall be 12 +/- 1mm. This shall be slide into the dovetail grooves of the heat sink & firmly pasted on all four sides of the heat sink. The light emitted from LED ribbon light should be partially reflected from the elliptical and parabolic curvature of white glossy polycarbonate sheet multiple times. Any obstruction or low brightness at the edges of the beam should be taken care of.Uniform illumination Average 4W-8W/ Sq. ft.																
15	LED		Linear LED of density 120 LEDs per meter of quality of proven make such as Hi-sign or Samsung or Nichia or Osram or Cree or Panasonic or similar of any reputed make.OEM certificate of LED should be provided.																
			<table><tr><td>LED Wattage</td><td>0.08 W to 0.1W per LED</td></tr><tr><td>LED Driver</td><td>Constant current waterproof LED driver of approved brand make Hi-Sign or Meanwell or Eaglerise or Phillips or Osram or Tridonic or Panasonic or similar of any reputed make with separate surge protection.</td></tr><tr><td>LED Colour</td><td>Cool White</td></tr><tr><td>Colour temperature</td><td>5500 K/6500 K</td></tr><tr><td>Viewing angle</td><td>Text/Graphics/matter visibility shall not be less than 160°</td></tr><tr><td>Nominal Voltage</td><td>230V, AC, 50 Hz</td></tr><tr><td>Operating Voltage Range</td><td>150V-260V AC With SMPS power supply.</td></tr><tr><td>Ingress protection</td><td>>IP 65</td></tr></table>	LED Wattage	0.08 W to 0.1W per LED	LED Driver	Constant current waterproof LED driver of approved brand make Hi-Sign or Meanwell or Eaglerise or Phillips or Osram or Tridonic or Panasonic or similar of any reputed make with separate surge protection.	LED Colour	Cool White	Colour temperature	5500 K/6500 K	Viewing angle	Text/Graphics/matter visibility shall not be less than 160°	Nominal Voltage	230V, AC, 50 Hz	Operating Voltage Range	150V-260V AC With SMPS power supply.	Ingress protection	>IP 65
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17	Sizes of Boards		The size of board shall of different sizes, as per the site requirement.																

18	Sign substrate	Shall be of Eco Friendly, High impact strength, shatter proof, UV resistant, Translucent, non- flammable White polycarbonate solid sheet as per IS 14448 of not less than 3mm of make Bayer / Lexan / Polymac or similar of any reputed make. Light transmission shall be in the range of 60% - 90%. Provide U shaped 7mm x 1mm / 4mm x 1mm / 8 mm x 2mm gasket for tight holding and interlocking polycarbonate sheet in aluminum profile.
Note: The successful contractor shall arrange of all equipment, tools, consumables, testing meters, Hydra scaffolding, crane, forklift etc. and other required materials for successful completion of the work. Any work not specifically mentioned, but required for successful completion of work is deemed to be included in the work. If any activity required to be included later on due to reliability and safety shall be carried out by contractor without any extra cost. The LED chip and driver shall be inspected by RITES and inspection charges shall be borne by the firm.		
13	Erection and installation of wall / hanging / floor mounting type LED illuminated sign / direction boards in half elliptical shape. The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2 mm thickness. The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed / router cut on monomeric calendered vinyl of 70 um thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4-8 W / sq. ft and with brightness more than ambient light. Suitable size end cap of 1.5 mm thick SS 304 should be provided.	
14	Earthing with 40mm dia. Earth GI pipe class 'B', 3 meter long, earth electrode as earth per IS:3043 (latest version) to achieve earth resistances less than 5ohms including construction of masonry enclosures with hinged cover plate of cast iron/RCC(Heavy Duty with lifting arrangement) with locking arrangement as required (Outer hole size: 450XmmX450mm and Cover plate(CI/RCC) size:300mmX300mm) on top, provision of earth plate, connections from earth electrode to switch earth gear/pole as per technical Specification/I.E. Rule.	
15	Supply & recessing/fixing on surface 6 SWG GI wire for loop earthing as required as per technical specification. This item shall be in conformity to IS 5613/Pt.I Sec. 1 & 2/1985 (Latest Version). GI wire shall conform to relevant IS	
16	Dismantling of Octagonal poles(5meter/7meter) & re-installation the poles in different location with necessary foundation & Nuts-Bolts as per the instruction of the engineer in site	
17	Design, Supply, testing & commissioning of floor mounted Polycarbonate feeder post of out door type IP-65 of size 500x985x620 mm deep complete with copper bus bar four nos duly grouted with cement concrete ratio 1:2:4 duly earthed with earthing terminals. Thermoplastic Polycarbonate IP 65 in accordance with EN 60 529 (Dust Proof, Water Proof & Weatherproof), Shock proof, Rust Proof, Corrosion Free, Acid & Chemical Resistant, Fire Retardant & Self Extinguishing, Silica and Halogen Free recyclable material conform to RoHS directive 2002/95/EC, UV resistant according to IEC 61439-1, having high grade internally embedded gasket made of Polyurethane (PUR), Glow wire tested at 960°C in accordance with IEC 60 695-2-11.Type tested as per IEC 61 439-1. Total Insulated with System. The manufacturer of Polycarbonate feeder post shall submit a copy of CPRI test report of Degree of Ingress Protection IP 65 in accordance with IEC 60529. Each enclosure should have multi no of self-threaded holes. Impact strength should be Ik-08 in accordance with IEC 62262. (The copper Bus Bar will be of 300 Amps rating) as per attached drawing & max input cable size 4Cx120 SQMM. Make Hensel or Similar	
18	Supply and laying of HDPE pipe 160 mm dia as per relevant IS through trenchless method as per site requirement and IS/IE rule. Note: Cable will be laid in HDPE pipe by contractor however cable will be supplied by Railway.	
19	Excavation and refilling of trench 0.3 Mtr. wide and 0.8 mtrs deep on pitched/stone/brick/ paved surface, road/crossing/platform etc and restoring the surface to its original condition. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)	
20	Supply and laying of HDPE pipe conforming to IS 4984:1995 50mm dia wall thickness 3 mm PN-6 under the road/air. The work involves laying of HDPE pipe.	
21	Dismantling/ cutting of rail/tubular poles after dismantling the overhead conductor/ fitting and staking of poles within 1km area as per site requirement.	
Schedule B-Raising of Passenger Platform from medium level to High level along with platform shelter of SAG(Sangrur) station		
1	Supply & recessing/ fixing of PVC conduit pipe conforming to IS 9537 part-III/1983(latest version) with accessories , junction box etc. including making chase , plastering/clamping etc. as per technical spec.i) 25 mm (medium)	
2	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. ii) 1.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).	
3	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iii) 2.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).	
4	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iv) 4 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).	
5	Supply of batten/ angle holder/ ceiling rose & installation on the junction box of laid conduit including connection, testing & commissioning as per tech. spec..ii) Bakelite ceiling rose 3 plate Ceiling rose shall conform to IS 371/1979 (Latest Version). Lamp Holder and ceiling rose shall beprovided in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version)	
6	Laying of 2/3/4 core 16/25/35/50/75/95 /120/240/400 sqmm LT UG/XLPE in Trench/Pipe/Cable tray as per site requirement all as specified and as directed. Note LT UG Cable will be supplied by the Railways free of cost. However, Contractor has to make own arrangement for shifting the cable to site from the Elect maintenance Depot store. Laying shall be in conformity to IS: 1255/1983 (Latest Version)	
7	Excavation of cable trench by cutting/breaking station platform concrete/pucca floor digging 400 mm deep and then refilling after laying of cable as per IS 1255:1983 and technical specification enclosed on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, leveling and repairing and finishing the said portion of platform with 1:2:4 cement concrete mixture 100 mm deep from top. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)	
8	Supply,erection,testing and commissioning of LED tube light fittings 20 Watt complete as per specification of CEE/NR/121-Elect/PS/2018 dt 28/06/18 or latest. Guarantee-05 years from date of commissioning.	

9	Supply , lying of GI pipe class B ISI marked under road, clamping with erected pole or wall as per tech spec for passing cable. i) 50 mm dia GI pipe shall be conforming to IS conforming to IS 1239/Pt.I/1990 or latest and laying shall be in conformity to IS: 1255/1983 (Latest Version)										
10	Supply, installation, testing and commissioning of the following double door wall mounted pre fabricated LT distribution Board of approved make as per spec."i) Incoming MCB DP 40 A ,10 KA, (B/C)=01 No.ii)Out going MCB SP 6/32 A 10 KA,(B/C)=06 No." Fabrication of meter cum distribution box shall be as per Northern Railway Tech. Specification No. 81-Elect/P/1991 and shall conform to IS 8623/Pt.I& Pt. III/1993 (Latest Version) with degree of protection IP 42 and shall be installed in conformity with 732/1989 (Latest Version), IS 4648/1968 (Latest Version).										
11	Supply, installation, testing and commissioning of the following double door wall mounted pre fabricated LT distribution Board of approved make as per spec."i) Incoming MCB TPN, 63 A ,10 KA, (B/C)=01 No.ii)Out going MCB SP 6/32 A 10 KA,(B/C)=18 Nos.(6 Nos on each phase)" Fabrication of meter cum distribution box shall be as per Northern Railway Tech. Specification No. 81-Elect/P/1991 and shall conform to IS 8623/Pt.I& Pt. III/1993 (Latest Version) with degree of protection IP 42 and shall be installed in conformity with 732/1989 (Latest Version), IS 4648/1968 (Latest Version).										
102	<p>The price shall cover cost of design, manufacture, supply, loading, transportation and unloading to site, display, installation / erection, testing and commissioning of wall / hanging /floor mounting type LED illuminated sign/ direction boards in Full Elliptical (FE), Half Elliptical (HE), Semi Elliptical (SE), parabolic shape as per site requirements(tenderer may refer the pictures attached). The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2 mm thickness. The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed / router cut on monomeric calendared vinyl of 70-80 µm thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4-8 W / sq. ft and with brightness more than ambient light. Suitable size end cap of 1.5 mm thick SS 304 / die moulded polycarbonate should be provided. The signage boards shall be confirming to technical specification enclosed.</p> <p>viii. The work covers design, manufacture, display, installation of elegant, aesthetically appealing energy efficient LED elliptical signage's for passenger amenities areas like platforms, direction, FOB's, Service buildings, utilities, concourse etc. of Station.</p> <p>ix. The work which is not included in the schedule but required to complete the installation work shall be considered as the part of work and should be carried out by the contractor accordingly. No extra payment will be paid for that.</p> <p>x. Before supply of material, the agency shall submit the design report through professional design expert for approval of Sr.DEE(G)/UMB.</p> <p>xi. LED Elliptical Glow Sign Boards are to be provided in dust environment and open space & should have proper louvers or ventilation for dissipation of heat generated by drivers / LED's.</p> <p>xii. The quality of the Vinyl/ Polycarbonate sheet/ anodized coating should be covered under three years warranty from the manufacturer. LED's/LED drivers shall be covered for free replacement under five years warranty from the manufacturer.</p> <p>xiii. Documentary proof of purchasing of LED/LED drivers/Vinyl sheet/Polycarbonate sheet from reputed approved brand shall be required to be submitted along with bill.</p> <p>xiv. The unit prices indicated in the Schedule of quantity is inclusive of the prices for design, manufacturing, supplying of materials, multiple loading/unloading required under the particular item of schedule, storing, handling, erection testing and commissioning of installation in conformity of specification. The unit price is also inclusive of all incidental charges for transport, loading/unloading and handling of materials, commission for arranging dispatch direct from manufacturer's factory / authorized dealer / supplier and completing all necessary formalities in this respect, such as submission of forwarding notes, all insurance premium, bankers charges for bank guarantee, indemnity bonds inclusive of cost of stamps, etc. The unit prices shall include all incidental charges duties and levies including GST.</p> <p>TECHNICAL SPECIFICATION FOR ELLIPTICAL / PARABOLIC SIGNAGE BOARDS</p> <table border="1"> <thead> <tr> <th>SN</th><th>Model/Type</th><th>Full Elliptical (FE) / Half Elliptical (HE) / Semi Elliptical (SE) / Parabolic</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Mounting</td><td>Mounting arrangement shall be hanging, Wall mounting, Ceiling Mounting, Pole Mounting, Floor Mounting or as per site requirement. Sign Boards shall be with integrated mounting arrangement powder coated pipes to FOB/PF Structure / walls with tension rope made of SS 304 and supplied with minimum 5 meter 2.5 sq.mm FRLS multi stranded copper flexible cable as per IS: 694 with latest amendment of make Anchor/Finolex/L&T/Poly-cab/BCH/RR Kable and socket pin for connecting to power supply system of make Anchor/Cona/SSK/Roma. The cost of fixing of sign board with suitable clamping arrangement with SS nut, bolts, washers, square shear nut, nut-bolts, screw, T bolt, Chuck nut, shear nut or welding etc. is also included. The clamps shall be powder coated and enamel paint of approved colour.</td></tr> <tr> <td>2.</td><td>Elliptical Glow Board Frame</td><td>Shall be made of Extruded Anodised hollow aluminium profile of size not less than 1.2 mm thickness and anodized to minimum 15 µm thickness (Grade AC- 15) in bronze & silver or any other approved colour. Anodizing coating shall be as per IS: 1868 or latest amendment. Provide Full length square SS powder coated pipe attached to bottom cap square bracket with level adjustment provision ribbiting without welding, pass thorough top cap interlock with clamp SS pipe sliding and level adjustment provision without compromising structural strength of Elliptical Glow Board. Provide nylon die molded & MS machine formed powder coated horizontal or vertical as per requirement heat sink bracket to hold top and bottom aluminium profile with press fit and bolting provision. Top bottom and/or side cap as per requirement flush fixed at profile to outer side holding all structural element together.</td></tr> </tbody> </table>		SN	Model/Type	Full Elliptical (FE) / Half Elliptical (HE) / Semi Elliptical (SE) / Parabolic	1.	Mounting	Mounting arrangement shall be hanging, Wall mounting, Ceiling Mounting, Pole Mounting, Floor Mounting or as per site requirement. Sign Boards shall be with integrated mounting arrangement powder coated pipes to FOB/PF Structure / walls with tension rope made of SS 304 and supplied with minimum 5 meter 2.5 sq.mm FRLS multi stranded copper flexible cable as per IS: 694 with latest amendment of make Anchor/Finolex/L&T/Poly-cab/BCH/RR Kable and socket pin for connecting to power supply system of make Anchor/Cona/SSK/Roma. The cost of fixing of sign board with suitable clamping arrangement with SS nut, bolts, washers, square shear nut, nut-bolts, screw, T bolt, Chuck nut, shear nut or welding etc. is also included. The clamps shall be powder coated and enamel paint of approved colour.	2.	Elliptical Glow Board Frame	Shall be made of Extruded Anodised hollow aluminium profile of size not less than 1.2 mm thickness and anodized to minimum 15 µm thickness (Grade AC- 15) in bronze & silver or any other approved colour. Anodizing coating shall be as per IS: 1868 or latest amendment. Provide Full length square SS powder coated pipe attached to bottom cap square bracket with level adjustment provision ribbiting without welding, pass thorough top cap interlock with clamp SS pipe sliding and level adjustment provision without compromising structural strength of Elliptical Glow Board. Provide nylon die molded & MS machine formed powder coated horizontal or vertical as per requirement heat sink bracket to hold top and bottom aluminium profile with press fit and bolting provision. Top bottom and/or side cap as per requirement flush fixed at profile to outer side holding all structural element together.
SN	Model/Type	Full Elliptical (FE) / Half Elliptical (HE) / Semi Elliptical (SE) / Parabolic									
1.	Mounting	Mounting arrangement shall be hanging, Wall mounting, Ceiling Mounting, Pole Mounting, Floor Mounting or as per site requirement. Sign Boards shall be with integrated mounting arrangement powder coated pipes to FOB/PF Structure / walls with tension rope made of SS 304 and supplied with minimum 5 meter 2.5 sq.mm FRLS multi stranded copper flexible cable as per IS: 694 with latest amendment of make Anchor/Finolex/L&T/Poly-cab/BCH/RR Kable and socket pin for connecting to power supply system of make Anchor/Cona/SSK/Roma. The cost of fixing of sign board with suitable clamping arrangement with SS nut, bolts, washers, square shear nut, nut-bolts, screw, T bolt, Chuck nut, shear nut or welding etc. is also included. The clamps shall be powder coated and enamel paint of approved colour.									
2.	Elliptical Glow Board Frame	Shall be made of Extruded Anodised hollow aluminium profile of size not less than 1.2 mm thickness and anodized to minimum 15 µm thickness (Grade AC- 15) in bronze & silver or any other approved colour. Anodizing coating shall be as per IS: 1868 or latest amendment. Provide Full length square SS powder coated pipe attached to bottom cap square bracket with level adjustment provision ribbiting without welding, pass thorough top cap interlock with clamp SS pipe sliding and level adjustment provision without compromising structural strength of Elliptical Glow Board. Provide nylon die molded & MS machine formed powder coated horizontal or vertical as per requirement heat sink bracket to hold top and bottom aluminium profile with press fit and bolting provision. Top bottom and/or side cap as per requirement flush fixed at profile to outer side holding all structural element together.									

3.	Bracket / clamp	<p>"I" beams of size 3" - 27" / "T" beams of size 6-8" x 5", "C" beam of size 3" x 5" and round pipes 2" - 6" holding machine bended seven tank processed powder coated clamp with SS 304 nut bolts & spring washers with provision of level, size and alignment adjustment. 'T', 'S' or round shaped clamp from center slot will interlock with top beam/girder, pipe at various size with horizontal or perpendicular or taper or slanted form with provision of beam to beam connected bracket to hold sign perpendicular or horizontal & bottom side of clamp will interlock with pipe of Elliptical Glow Board with SS nut-bolt and spring washer. High strength Round Mounting Clamp set of inner & outer clamp at R 2"/3" & for installation on round pipe of dia 2/3" shall be press-formed in SS 304 grade sheet of 2mm thickness, 2mm rib deep shall be formed along the periphery for additional strength, only the inner clamp shall be used with two holes shall be used for anchoring on wall. Universal mounting clamp approx. 70mm x 31mm x 22mm set consisting of sliding clamp, holding clamp, crimping lock and flexible strip shall be press- formed in SS 304 grade sheet of 1.2mm thickness this clamp shall be slid inside the mounting channels fixed to substrates. 0.8mm strip shall be passed through this clamp and around the structure on which the sign is to be installed and crimped firmly by crimping clamp. It should fix at any structure. M10 Square Head Bolts SS 304 grade, 4 side chamfered shall be used for installation. M10 Hexa Head shear nuts, which are high security, anti-theft, permanent fasteners, shall be used and shall be made of SS 304.</p>
4	Top profile	<p>Top Profile of Elliptical Glow Board shall be made up of Aluminium Alloy (6063-T6) Extruded profile anodised to 15 µm +/- 3 µm. The profile nominal wall thickness shall be 2 mm and width approx 170 mm, 137 mm and 268 mm. The reflective metallic silver PU particle coated granules shall be provided on the internal face of the profile. The edges of the profile shall be rounded.</p> <p>The profile shall have a slot of approx 4.8 mm & 7mm width on both sides to hold 2/3/4 mm thick polycarbonate sheet. The slot shall be at an angle of 80-84 degree to face firmly hold the polycarbonate sheet in elliptical and parabolic curvature. The Elliptical / Parabolic curvature of the polycarbonate sheet shall be maintained by its inherent flexural tension property. It should have circular slots for M6 self-tapping cheese head screws to fix the end caps. Along the centre line of the top of this profile there shall be a 10mm x 3mm slot for press fitting the heat sink holding brackets in place with circular slot for M6 self tapping screw should be made available. There shall also be a flat extension of 12mm to rectangular slot for additional support / fixing screws to firmly hold the heat sink holding bracket. The Total height of the central Projection should be Maintained to minimize obstruction to light illumination.</p>
5	Bottom, top & side Profile	<p>Bottom, top and side Profile full / half of the Elliptical Glow Board shall be made of extruded anodized Aluminium Alloy hollow profile (6063-T6) having 2mm to 5mm wall thickness. It should have internal ribs with approx 1.5mm, 2.5mm thickness and 4.5mm, 4.2mm wide slot to firmly hold the polycarbonate sheet in elliptical and parabolic curvature using its flexural tension. A circular slot of dia approx. 4.5 mm at the center of profile shall be provided to fix self tapping cheese head screw for end cap.</p> <p>An extruded extension diametrically opposite to this circular slot should have approx. 10mm x 3mm slot for press fitting the heat sink holding brackets. Further flat extension of 12 mm shall be provided for screwing the bracket for additional strength & fixed location.</p> <p>Total external width & Height of the bottom, top & side profile should be full of approx. 34mm x 48mm R 11.7mm / 42mm x 50mm, R 24.3mm / 42mm x 80mm, R16mm / 84mm x 80 mm, R16mm without compromising the strength and causing any obstruction to the light while giving maximum viewing area. The bottom corner shall have a curvature of approx. R11.7mm, 24.3mm and 16mm to appear in continuous flow of elliptical Curvature of polycarbonate sheet. This also shall add to aesthetic beauty of the whole Elliptical Glow Board.</p>
6	Heat Sink Holding bracket (HSH)	<p>Heat Sink Holding Bracket shall be of approx. length 184mm, 252mm, 260mm, 324mm, 397mm, 537mm, 551mm injection moulded in Nylon 6 material & 1130mm, 1156mm, 861mm in MS machine formed powder coated for its strength & flexibility. The bracket shall be of 'I' cross section of sizes approx. 102mm x 15mm x 10mm, 1080mm x 25mm x 5mm, 1156mm x 50mm x 5mm, 861mm x 50mm x 5mm at mid portion and it should reduce proportionately in slant at both the ends for nylon 6mm, MS 5mm. Thickness without obstructing the light and without compromising on strength.</p> <p>The 'I' cross section nylon shall have ribs for maintaining stiffness. Both the ends of HSH brackets shall have locking clasp to press fit in 10 mm x 3mm slot of top and bottom profile. The mid portion shall have offset of 14mm for nylon and 12 mm for MS.</p> <p>Central clasp shall be moulded in the Heat Sink Holding bracket to firmly hold the Heat Sink along the longitudinal axis of Elliptical Glow Board. The central clasp shall have two prong sets to hold the heat sink across its diagonal or along its sides as required. Two holes as per requirement shall be provided near the end clasps firmly.</p> <p>Two holes for nylon & MS shall be provided on both sides of central clasp to fix at both profiles. Two holes shall be provided on both sides of central clasp to fix the mid portion of bracket to strip in the event longer bracket if required. The mid portion of HSH bracket approx. 3 mm thick x 10 mm wide aluminium strip in the event longer bracket is required or more than one Heat Sink is required for bigger size of Elliptical Glow Board.</p>
7	Heat Sink	<p>Heat Sink shall be 25-26 mm hollow anodized Aluminium Alloy (6063-T6) profile of 2mm thickness. Corners shall be flattened to form a square across flat to hold the heat sink diagonally. Heat sink must be press fit horizontally and diagonally from all 8 sides. All the four sides shall have dovetail of slots.</p> <p>Circular slots of dia 2 mm shall be provided at all four internal corners to tight fit the pins of Heat Sink connector.</p> <p>There shall be a set of three of approx 1.5mm thick ribs central of approx. 5mm height and two sides of approx. 2mm height. Provision for maximize the surface area to aid in faster cooling as well as for additional strength to hollow square profile.</p>
8	Heat sink connector	<p>Heat Sink connector shall be a moulded from polycarbonate profile of same cross- sectional dimensions as that of Heat Sink. The thickness of the connector shall be approx. 5 mm. Two semicircular slots shall be provided on each face. Provision to pass out hot air from heat sink should be made. Four pins shall be moulded on four corners on both the faces of Heat Sink connectors to be press fitted in Heat Sink profile.</p>

9	Elliptical Glow Board end cap	<p>End caps full / half with elliptical and parabolic shape shall be made from injection moulded polycarbonate granules 2 mm thick / SS 304 1.2 mm thick / aluminum die casted 8 mm thick having curve on top side and internal hollow and elliptical base at bottom side with reflective internal surface. The End caps shall be perfectly opaque.</p> <p>The standard sizes are:</p> <p>170mm x 304mm x 21mm, R 511mm corner R 11.7mm / 210mm x 100mm x 20mm, R 150mm corner R 39mm / 278mm x 130mm x 20mm, R 193mm corner R39mm / 350mm x 152mm x 20mm, R 257mm corner R 39mm / 425mm x 175mm x 20mm, R 316mm corner R 39mm / 563mm x 215mm x 20mm, R 449mm corner 39mm / 210mm x 69.2mm x 20mm, R 150mm corner R 39mm / 278mm x 84.2mm x 20mm, R 193.48mm corner R 39mm / 350mm x 95.2mm x 20mm, R 257mm corner R 39mm / 425mm x 106.7mm x 20mm, R 318mm corner R 39mm / 563mm x 126.7mm x 20mm, R 449mm corner R 39mm / 425mm x 150mm x 50mm, R 305mm corner 39mm / 600mm x 110mm x50mm, R 445mm corner R39mm / 862mm x 167mm x 60mm, R 707mm corner R39mm / 425mm x 190mm x 50mm, R 315mm corner R30mm / 573mm x 230mm x57mm, R 450mm corner R30mm / 859mm x 308mm x 67mm, R 734mm corner R30mm / 529mm x 308mm x 99mm, R 371mm Corner 40 / 692mm x 308mm x 85mm, R 528mm corner R53mm / 1063mm x 415mm x 126mm, R943mm corner R 80mm / 1167mm x 353mm x 20mm, R 1062mm corner R 11.75mm / 169mm x 915mm x 30mm, R 1246mm corner R17mm / 342mm x 2092mm x 30mm, R 2451mm corner R 17.2mm / 1488mm x 472mm x 30mm, R 1575mm corner R 16.3mm / 889mm x 263mm x 25mm, R 775mm corner R 17.5mm.</p> <p>Note: Above size of the end cap will be utilized as per the requirement The boards shall be such that the text & Graphics displayed on the Polycarbonate sheet held in these end caps should be completely visible even if it is viewed directly from the bottom or any direction; the text is very much legible.</p> <p>Polycarbonate cap Internal face shall be cross ribbed 2mm x 3mm to increase the strength of the end cap. Eight nos. locating pins tapering towards collar of the end cap shall be provided near the internal periphery of the end cap. These pins shall firmly hold the 3mm translucent polycarbonate sheet in elliptical / parabolic curvature.</p> <p>Circular cutout of dia approx. 80mm shall be provided for illuminated branding or opaque cap shall be provided in case of none branding. For branding translucent material fitting provision should provide without shadow on branding. Oblong cutout with collar shall be provided for projecting image of desired text & graphics on the floor below or opaque cap shall be provided in case of non-projecting. 2mm x 5mm Ribs approx. 20mm inside and parallel to the external periphery shall be provided for additional strength. Riser buttons shall be provided along the internal ribs to block the cutouts using opaque sheet screwed through these buttons. These buttons may also be used to mount the LED projector when required. Projector fitting bracket shall be fix to end cap to align with oval slot. Three nos. cap holding sockets shall be moulded at three corners of the End Cap. Two nos. locating pins shall be provided on each cap holding sockets and shall be provided at the bottom of these pins for additional strength. This pin shall locate in the top and bottom Aluminum profile. Two tapering ribs shall be provided to cap holding brackets for additional strength.</p> <p>Three through slots of approx. 17 mm x 1.5 mm shall be provided near the top of end cap for heat ventilation. Moulded Screw caps shall be provided to externally press fit in the cap holding sockets. The end cap shall be Moulded Shatter proof opaque polycarbonate as per IS 14443 or latest amended with thickness not less than 1mm and of reputed Indian make using Bayer granules. SS 304 elliptical or parabolic cap should have approx. 20 mm vertical collar at corners of suitable dia hole to interlock with profile and structure, square bracket at bottom cap should provide to interlock vertical square structure pipe and top cap should have cut out to thorough pass the structure pipe with the provision of ventilation.</p> <p>Aluminium die Casted cap top should have curvature of R 1123-1125 mm and internal hollow with wall thickness of 6-8mm with polished and premiered with metallic PU gloss lacquer coated. internal 2 nos. cap holding socket shall be casted at both corners of cap to interlock with side profile, Bottom casted cap should have side curvature of - R78-79 / 112-113 mm and hollow of approx. 100 mm with internal 2 nos. cap holding socket shall be casted at both the corners of cap to interlock with side profile. Vertical rib should provide to interlock polycarbonate sheet with inner pins support should flushed with side aluminium profile. Cap should have a hole with die moulded dia approx. 12 mm grommet to pass mainsupply wire.</p>	
10	Cue Beam	<p>Cue beam holding bracket die-moulded with triangular parabolic base of approx. 77mm x 68mm, 2 mm thick. Hollow cylindrical die-moulded cover of dia approx. 29mm and height 43mm attached to side legs with provision of hinge for 360 degree rotation and angle adjustment with oblong cut out of bottom cap. It should fix with bottom cap with 3 nos. holes of dia approx 3 mm.</p> <p>The Elliptical Glow Board shall have the slot for provision of Cue Beam projector wherever required with provision of cue beam holding bracket. Cue beam projector should project the given sign image and text on floor or wall from max distance with maximum brightness than ambient light. 2 nos. Plano convex of approx. R 9.22mm, R 7.31mm and 1no. Biconvex lenses of approx. R 19.8mm, R 34.1mm, should fix at given slots. Projector lens with engraved image should create maximum projection on surface The CUE BEAM should incorporate in Elliptical Glow Board.</p> <p>Technical specification of CUE BEAM Voltage - AC 110V~220V Built in LED Driver - 12 V Power - 5W Luminosity - 150~ 200LM Image Projected distance -1~ 3 meters External Dimensions approx. - Ø26mm X 76 mm</p>	

11	Podium	Elliptical shape one piece cut, top & bottom 3mm thick with size approx. 1170 mm x 512 mm x 508 mm at R914mm at corner R 117mm / 1643 mm x 575 mm x 508 mm at R 1652mm at corner R 92.5mm of SS 304 with parabolic shape cut at center having dia approx 8 mm, 2 hole on top for matching with bottom cap of Elliptical Glow Board for fixing and interlocking without welding and bottom approx. 12 mm 4 hole for foundation fitting should be provided. Provide approx. 4 mm 9 holes for ventilation at top and Backside open able door system with lock & key. SS 304 grade frame structure of size approx. 25mm x 50mm x 1.2mm square with vertical and horizontal supports covered with SS 304 sheet of 1.2mm thick with powder coated in elliptical shape machine formed matching with top of podium should provide Anchor fastener fitting provision has to be made for ground fixing.	
12	ACP Cladding	Design, fabrication & installation of 3mm thick exterior grade PVDF coated Aluminium composite panels (Timex, Alucobond) of having 0.5 mm thick aluminium PVDF coated sheet with specific standard colour + 3 mm core 80 material + 0.5 mm aluminium sheet chemically treated (back sheet) bent with 5mm uniform machine grooved as per requirement, fitted on anodised aluminium/ anodized aluminium angle Primer with PU coated MS rectangular grid work. Grid for supporting ACP shall be of size approx. 38mm x 38mm x 1.5mm at a distance of Heat sink fixed in Elliptical Glow Board should accurately match Horizontally & Vertically along with existing structure on site. Hardware, fixtures, brackets, anchor, fasteners of SS 304 grade etc. Complete duly sealed with weathering silicon (DOW / GE) for circular columns and curved beams etc. Provision of MS clamp/ bracket for fixing with existing structure vertically, horizontally or slanted without welding and with level size alignment adjustment and interlocking provision without compromising strength and structural stability of frame should provide.	
13	Text/Graphics	Shall be computer cut/printed on 80 µ m Monomeric calendared Vinyl matt sheet of reputed make (Metamark / 3M) of Pantone shade 27C/165C/260C/Cool grey 8C/Black/7408C.Note: Pantone provides a universal language of color that enables color-critical decisions through every stage of the workflow for brands and manufacturers.	
14	Led ribbon light Illumination	Ribbon light shall be of waterproof SMD 2835. The width of Ribbon light shall be 12 +/- 1mm. This shall be slide into the dovetail grooves of the heat sink & firmly pasted on all four sides of the heat sink. The light emitted from LED ribbon light should be partially reflected from the elliptical and parabolic curvature of white glossy polycarbonate sheet multiple times. Any obstruction or low brightness at the edges of the beam should be taken care of.Uniform illumination Average 4W-8W/ Sq. ft.	
15	LED	Linear LED of density 120 LEDs per meter of quality of proven make such as Hi-sign or Samsung or Nichia or Osram or Cree or Panasonic or similar of any reputed make.OEM certificate of LED should be provided.	
		LED Wattage	0.08 W to 0.1W per LED
		LED Driver	Constant current waterproof LED driver of approved brand make Hi-Sign or Meanwell or Eaglerise or Phillips or Osram or Tridonic or Panasonic or similar of any reputed make with separate surge protection.
		LED Colour	Cool White
		Colour temperature	5500 K/6500 K
		Viewing angle	Text/Graphics/matter visibility shall not be less than 160°
		Nominal Voltage	230V, AC, 50 Hz
		Operating Voltage Range	150V-260V AC With SMPS power supply.
		Ingress protection	>IP 65
17	Sizes of Boards	The size of board shall of different sizes, as per the site requirement.	
18	Sign substrate	Shall be of Eco Friendly, High impact strength, shatter proof, UV resistant, Translucent, non- flammable White polycarbonate solid sheet as per IS 14448 of not less than 3mm of make Bayer / Lexan / Polymac or similar of any reputed make. Light transmission shall be in the range of 60% - 90%. Provide U shaped 7mm x 1mm / 4mm x 1mm / 8 mm x 2mm gasket for tight holding and interlocking polycarbonate sheet in aluminum profile.	
Note: The successful contractor shall arrange of all equipment, tools, consumables, testing meters, Hydra scaffolding, crane, forklift etc. and other required materials for successful completion of the work. Any work not specifically mentioned, but required for successful completion of work is deemed to be included in the work. If any activity required to be included later on due to reliability and safety shall be carried out by contractor without any extra cost. The LED chip and driver shall be inspected by RITES and inspection charges shall be borne by the firm.			
13	Erection and installation of wall / hanging / floor mounting type LED illuminated sign / direction boards in half elliptical shape. The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2 mm thickness. The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed / router cut on monomeric calendered vinyl of 70 um thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4-8 W / sq. ft and with brightness more than ambient light. Suitable size end cap of 1.5 mm thick SS 304 should be provided.		
14	Earthing with 40mm dia. Earth GI pipe class 'B' , 3 meter long, earth electrode as earth per IS:3043 (latest version) to achieve earth resistances less than 5ohms including construction of masonry enclosures with hinged cover plate of cast iron/RCC(Heavy Duty with lifting arrangement) with locking arrangement as required (Outer hole size: 450XmmX450mm and Cover plate(CI/RCC) size:300mmX300mm) on top, provision of earth plate, connections from earth electrode to switch earth gear/pole as per technical Specification/I.E. Rule.		
15	Supply & recessing/fixing on surface 6 SWG GI wire for loop earthing as required as per technical specification.		
16	This item shall be in conformity to IS 5613/Pt.I Sec. 1 & 2/1985 (Latest Version). GI wire shall conform to relevant IS		
16	Dismantling of Octagonal poles(5meter/7meter) & re-installation the poles in different location with necessary foundation & Nuts-Bolts as per the instruction of the engineer in site		
17	Design, Supply, testing & commissioning of floor mounted Polycarbonate feeder post of out door type IP-65 of size 500x985x620 mm deep complete with copper bus bar four nos duly grouted with cement concrete ratio 1:2:4 duly earthed with earthing terminals. Thermoplastic Polycarbonate IP 65 in accordance with EN 60 529 (Dust Proof, Water Proof & Weatherproof), Shock proof, Rust Proof, Corrosion Free, Acid & Chemical Resistant, Fire Retardant & Self Extinguishing, Silica and Halogen Free recyclable material conform to RoHS directive 2002/95/EC, UV resistant according to IEC 61439-1, having high grade internally embedded gasket made of Polyurethane (PUR)		

	Glow wire tested at 960°C in accordance with IEC 60 695-2-11.Type tested as per IEC 61 439-1. Total Insulated with System. The manufacturer of Polycarbonate feeder post shall submit a copy of CPRI test report of Degree of Ingress Protection IP 65 in accordance with IEC 60529. Each enclosure should have multi no of self-threaded holes. Impact strength should be Ik-08 in accordance with IEC 62262. (The copper Bus Bar will be of 300 Amps rating) as per attached drawing & max input cable size 4Cx120 SQMM. Make Hensel or Similar
18	Supply and laying of HDPE pipe 160 mm dia as per relevant IS through trenchless method as per site requirement and IS/IE rule. Note: Cable will be laid in HDPE pipe by contractor however cable will be supplied by Railway.
19	Excavation and refilling of trench 0.3 Mtr. wide and 0.8 mtrs deep on pitched/stone/brick/ paved surface, road/crossing/platform etc and restoring the surface to its original condition.
20	Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
21	Supply and laying of HDPE pipe conforming to IS 4984:1995 50mm dia wall thickness 3 mm PN-6 under the road/air. The work involves laying of HDPE pipe.
	Dismantling/ cutting of rail/tubular poles after dismantling the overhead conductor/ fitting and staking of poles within 1km area as per site requirement.
	Schedule C-Raising of Passenger Platform from medium level to High level along with shelter of NLDM (Nangal Dam) station
1	Supply & recessing/ fixing of PVC conduit pipe conforming to IS 9537 part-III/1983(latest version) with accessories , junction box etc. including making chase , plastering/clamping etc. as per technical spec.i) 25 mm (medium)
2	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. ii) 1.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
3	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iii) 2.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
4	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iv) 4 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
5	Supply of batten/ angle holder/ ceiling rose & installation on the junction box of laid conduit including connection, testing & commissioning as per tech. spec.ii) Bakelite ceiling rose 3 plate Ceiling rose shall conform to IS 371/1979 (Latest Version). Lamp Holder and ceiling rose shall be provided in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version)
6	Laying of 2/3/4 core 16/25/35/50/75/95 /120/240/400 sqmm LT UG/XLPE in Trench/Pipe/Cable tray as per site requirement all as specified and as directed. Note LT UG Cable will be supplied by the Railways free of cost. However, Contractor has to make own arrangement for shifting the cable to site from the Elect maintenance Depot store. Laying shall be in conformity to IS: 1255/1983 (Latest Version)
7	Excavation of cable trench by cutting/breaking station platform concrete/pucca floor digging 400 mm deep and then refilling after laying of cable as per IS 1255:1983 and technical specification enclosed on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, leveling and repairing and finishing the said portion of platform with 1:2:4 cement concrete mixture 100 mm deep from top. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
8	Supply,erection,testing and commissioning of LED tube light fittings 20 Watt complete as per specification of CEE/NR/121-Elect/PS/2018 dt 28/06/18 or latest. Guarantee-05 years from date of commissioning.
9	Supply , lying of GI pipe class B ISI marked under road, clamping with erected pole or wall as per tech spec for passing cable. i) 50 mm dia GI pipe shall be conforming to IS conforming to IS 1239/Pt.I/1990 or latest and laying shall be in conformity to IS: 1255/1983 (Latest Version)
10	Supply, installation, testing and commissioning of the following double door wall mounted pre fabricated LT distribution Board of approved make as per spec."i) Incoming MCB DP 40 A ,10 KA, (B/C)=01 No.ii)Out going MCB SP 6/32 A 10 KA,(B/C)=06 No." Fabrication of meter cum distribution box shall be as per Northern Railway Tech. Specification No. 81-Elect/P/1991 and shall conform to IS 8623/Pt.I& Pt. III/1993 (Latest Version) with degree of protection IP 42 and shall be installed in conformity with732/1989 (Latest Version), IS 4648/1968 (Latest Version).
11	Supply, installation, testing and commissioning of the following double door wall mounted pre fabricated LT distribution Board of approved make as per spec."i) Incoming MCB TPN, 63 A ,10 KA, (B/C)=01 No.ii)Out going MCB SP 6/32 A 10 KA,(B/C)=18 Nos.(6 Nos on each phase)" Fabrication of meter cum distribution box shall be as per Northern Railway Tech. Specification No. 81-Elect/P/1991 and shall conform to IS 8623/Pt.I& Pt. III/1993 (Latest Version) with degree of protection IP 42 and shall be installed in conformity with732/1989 (Latest Version), IS 4648/1968 (Latest Version).
12	The price shall cover cost of design, manufacture, supply, loading, transportation and unloading to site, display, installation / erection, testing and commissioning of wall / hanging /floor mounting type LED illuminated sign/ direction boards in Full Elliptical (FE), Half Elliptical (HE), Semi Elliptical (SE), parabolic shape as per site requirements(tenderer may refer the pictures attached). The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2 mm thickness. The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed / router cut on monomeric calendared vinyl of 70-80 µM thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4-8 W / sq. ft and with brightness more than ambient light. Suitable size end cap of 1.5 mm thick SS 304 / die moulded polycarbonate should be provided. The signage boards shall be confirming to technical specification enclosed. xv. The work covers design, manufacture, display, installation of elegant, aesthetically appealing energy efficient LED elliptical signage's for passenger amenities areas like platforms, direction, FOB's, Service buildings, utilities, concourse etc. of Station. xvi. The work which is not included in the schedule but required to complete the installation work shall be considered as the part of work and should be carried out by the contractor accordingly. No extra payment will be paid for that. xvii. Before supply of material, the agency shall submit the design report through professional design expert for approval of Sr.DEE(G)/UMB. xviii. LED Elliptical Glow Sign Boards are to be provided in dust environment and open space & should have proper louvers or ventilation for dissipation of heat generated by drivers / LED's. xix. The quality of the Vinyl/ Polycarbonate sheet/ anodized coating should be covered under three years warranty from the manufacturer. LED's/LED drivers shall be covered for free replacement under five years warranty from the manufacturer. xx. Documentary proof of purchasing of LED/LED drivers/Vinyl sheet/Polycarbonate sheet from reputed approved brand shall be required to be submitted along with bill.

- xxi. The unit prices indicated in the Schedule of quantity is inclusive of the prices for design, manufacturing, supplying of materials, multiple loading/unloading required under the particular item of schedule, storing, handling, erection testing and commissioning of installation in conformity of specification. The unit price is also inclusive of all incidental charges for transport, loading/unloading and handling of materials, commission for arranging dispatch direct from manufacturer's factory / authorized dealer / supplier and completing all necessary formalities in this respect, such as submission of forwarding notes, all insurance premium, bankers charges for bank guarantee, indemnity bonds inclusive of cost of stamps, etc. The unit prices shall include all incidental charges duties and levies including GST.

TECHNICAL SPECIFICATION FOR ELLIPTICAL / PARABOLIC SIGNAGE BOARDS

SN	Model/Type	Full Elliptical (FE) / Half Elliptical (HE) / Semi Elliptical (SE) / Parabolic
1.	Mounting	Mounting arrangement shall be hanging, Wall mounting, Ceiling Mounting, Pole Mounting, Floor Mounting or as per site requirement. Sign Boards shall be with integrated mounting arrangement powder coated pipes to FOB/PF Structure / walls with tension rope made of SS 304 and supplied with minimum 5 meter 2.5 sq.mm FRLS multi stranded copper flexible cable as per IS: 694 with latest amendment of make Anchor/Finolex/L&T/Poly-cab/BCH/RR Kable and socket pin for connecting to power supply system of make Anchor/Cona/SSK/Roma. The cost of fixing of sign board with suitable clamping arrangement with SS nut, bolts, washers, square shear nut, nut-bolts, screw, T bolt, Chuck nut, shear nut or welding etc. is also included. The clamps shall be powder coated and enamel paint of approved colour.
2.	Elliptical Glow Board Frame	Shall be made of Extruded Anodised hollow aluminium profile of size not less than 1.2 mm thickness and anodized to minimum 15 µm thickness (Grade AC- 15) in bronze & silver or any other approved colour. Anodizing coating shall be as per IS: 1868 or latest amendment. Provide Full length square SS powder coated pipe attached to bottom cap square bracket with level adjustment provision ribbiting without welding, pass thorough top cap interlock with clamp SS pipe sliding and level adjustment provision without compromising structural strength of Elliptical Glow Board. Provide nylon die molded & MS machine formed powder coated horizontal or vertical as per requirement heat sink bracket to hold top and bottom aluminium profile with press fit and bolting provision. Top bottom and/or side cap as per requirement flush fixed at profile to outer side holding all structural element together.
3.	Bracket / clamp	"I" beams of size 3" - 27" / "T" beams of size 6-8" x 5", "C" beam of size 3" x 5" and round pipes 2" - 6" holding machine bended seven tank processed powder coated clamp with SS 304 nut bolts & spring washers with provision of level, size and alignment adjustment. 'T', 'S' or round shaped clamp from center slot will interlock with top beam/girder, pipe at various size with horizontal or perpendicular or taper or slanted form with provision of beam to beam connected bracket to hold sign perpendicular or horizontal & bottom side of clamp will interlock with pipe of Elliptical Glow Board with SS nut-bolt and spring washer. High strength Round Mounting Clamp set of inner & outer clamp at R 2"/3" & for installation on round pipe of dia 2/3" shall be press-formed in SS 304 grade sheet of 2mm thickness, 2mm rib deep shall be formed along the periphery for additional strength, only the inner clamp shall be used with two holes shall be used for anchoring on wall. Universal mounting clamp approx. 70mm x 31mm x 22mm set consisting of sliding clamp, holding clamp, crimping lock and flexible strip shall be press- formed in SS 304 grade sheet of 1.2mm thickness this clamp shall be slid inside the mounting channels fixed to substrates. 0.8mm strip shall be passed through this clamp and around the structure on which the sign is to be installed and crimped firmly by crimping clamp. It should fix at any structure. M10 Square Head Bolts SS 304 grade, 4 side chamfered shall be used for installation. M10 Hexa Head shear nuts, which are high security, anti-theft, permanent fasteners, shall be used and shall be made of SS 304.
4	Top profile	Top Profile of Elliptical Glow Board shall be made up of Aluminium Alloy (6063-T6) Extruded profile anodised to 15 µm +/- 3 µm. The profile nominal wall thickness shall be 2 mm and width approx 170 mm, 137 mm and 268 mm. The reflective metallic silver PU particle coated granules shall be provided on the internal face of the profile. The edges of the profile shall be rounded. The profile shall have a slot of approx 4.8 mm & 7mm width on both sides to hold 2/3/4 mm thick polycarbonate sheet. The slot shall be at an angle of 80-84 degree to face firmly hold the polycarbonate sheet in elliptical and parabolic curvature. The Elliptical / Parabolic curvature of the polycarbonate sheet shall be maintained by its inherent flexural tension property. It should have circular slots for M6 self-tapping cheese head screws to fix the end caps. Along the centre line of the top of this profile there shall be a 10mm x 3mm slot for press fitting the heat sink holding brackets in place with circular slot for M6 self tapping screw should be made available. There shall also be a flat extension of 12mm to rectangular slot for additional support / fixing screws to firmly hold the heat sink holding bracket. The Total height of the central Projection should be Maintained to minimize obstruction to light illumination.
5	Bottom, top & side Profile	Bottom, top and side Profile full / half of the Elliptical Glow Board shall be made of extruded anodized Aluminium Alloy hollow profile (6063-T6) having 2mm to 5mm wall thickness. It should have internal ribs with approx 1.5mm, 2.5mm thickness and 4.5mm, 4.2mm wide slot to firmly hold the polycarbonate sheet in elliptical and parabolic curvature using its flexural tension. A circular slot of dia approx. 4.5 mm at the center of profile shall be provided to fix self tapping cheese head screw for end cap. An extruded extension diametrically opposite to this circular slot should have approx. 10mm x 3mm slot for press fitting the heat sink holding brackets. Further flat extension of 12 mm shall be provided for screwing the bracket for additional strength & fixed location. Total external width & Height of the bottom, top & side profile should be full of approx. 34mm x 48mm R 11.7mm / 42mm x 50mm, R 24.3mm / 42mm x 80mm, R16mm / 84mm x 80 mm, R16mm without compromising the strength and causing any obstruction to the light while giving maximum viewing area. The bottom corner shall have a curvature of approx. R11.7mm, 24.3mm and 16mm to appear in continuous flow of elliptical Curvature of polycarbonate sheet. This also shall add to aesthetic beauty of the whole Elliptical Glow Board.

6	Heat Sink Holding bracket (HSH)	<p>Heat Sink Holding Bracket shall be of approx. length 184mm, 252mm, 260mm, 324mm, 397mm, 537mm, 551mm injection moulded in Nylon 6 material & 1130mm, 1156mm, 861mm in MS machine formed powder coated for its strength & flexibility. The bracket shall be of 'I' cross section of sizes approx. 102mm x 15mm x 10mm, 1080mm x 25mm x 5mm, 1156mm x 50mm x 5mm, 861mm x 50mm x 5mm at mid portion and it should reduce proportionately in slant at both the ends for nylon 6mm, MS 5mm. Thickness without obstructing the light and without compromising on strength.</p> <p>The 'I' cross section nylon shall have ribs for maintaining stiffness. Both the ends of HSH brackets shall have locking clasp to press fit in 10 mm x 3mm slot of top and bottom profile. The mid portion shall have offset of 14mm for nylon and 12 mm for MS.</p> <p>Central clasp shall be moulded in the Heat Sink Holding bracket to firmly hold the Heat Sink along the longitudinal axis of Elliptical Glow Board. The central clasp shall have two prong sets to hold the heat sink across its diagonal or along its sides as required. Two holes as per requirement shall be provided near the end clasps firmly.</p> <p>Two holes for nylon & MS shall be provided on both sides of central clasp to fix at both profiles. Two holes shall be provided on both sides of central clasp to fix the mid portion of bracket to strip in the event longer bracket if required. The mid portion of HSH bracket approx. 3 mm thick x 10 mm wide aluminium strip in the event longer bracket is required or more than one Heat Sink is required for bigger size of Elliptical Glow Board.</p>
7	Heat Sink	<p>Heat Sink shall be 25-26 mm hollow anodized Aluminium Alloy (6063-T6) profile of 2mm thickness. Corners shall be flattened to form a square across flat to hold the heat sink diagonally. Heat sink must be press fit horizontally and diagonally from all 8 sides. All the four sides shall have dovetail of slots.</p> <p>Circular slots of dia 2 mm shall be provided at all four internal corners to tight fit the pins of Heat Sink connector.</p> <p>There shall be a set of three of approx 1.5mm thick ribs central of approx. 5mm height and two sides of approx. 2mm height. Provision for maximize the surface area to aid in faster cooling as well as for additional strength to hollow square profile.</p>
8	Heat sink connector	<p>Heat Sink connector shall be a moulded from polycarbonate profile of same cross- sectional dimensions as that of Heat Sink. The thickness of the connector shall be approx. 5 mm. Two semicircular slots shall be provided on each face. Provision to pass out hot air from heat sink should be made. Four pins shall be moulded on four corners on both the faces of Heat Sink connectors to be press fitted in Heat Sink profile.</p>
9	Elliptical Glow Board end cap	<p>End caps full / half with elliptical and parabolic shape shall be made from injection moulded polycarbonate granules 2 mm thick / SS 304 1.2 mm thick / aluminum die casted 8 mm thick having curve on top side and internal hollow and elliptical base at bottom side with reflective internal surface. The End caps shall be perfectly opaque.</p> <p>The standard sizes are:</p> <p>170mm x 304mm x 21mm, R 511mm corner R 11.7mm / 210mm x 100mm x 20mm, R 150mm corner R 39mm / 278mm x 130mm x 20mm, R 193mm corner R 39mm / 350mm x 152mm x 20mm, R 257mm corner R 39mm / 425mm x 175mm x 20mm, R 316mm corner R 39mm / 563mm x 215mm x 20mm, R 449mm corner 39mm / 210mm x 69.2mm x 20mm, R 150mm corner R 39mm / 278mm x 84.2mm x 20mm, R 193.48mm corner R 39mm / 350mm x 95.2mm x 20mm, R 257mm corner R 39mm / 425mm x 106.7mm x 20mm, R 318mm corner R 39mm / 563mm x 126.7mm x 20mm, R 449mm corner R 39mm / 425mm x 150mm x 50mm, R 305mm corner 39mm / 600mm x 110mm x 50mm, R 445mm corner R 39mm / 862mm x 167mm x 60mm, R 707mm corner R 39mm / 425mm x 190mm x 50mm, R 315mm corner R 30mm / 573mm x 230mm x 57mm, R 450mm corner R 30mm / 859mm x 308mm x 67mm, R 734mm corner R 30mm / 529mm x 308mm x 99mm, R 371mm Corner 40 / 692mm x 308mm x 85mm, R 528mm corner R 53mm / 1063mm x 415mm x 126mm, R 943mm corner R 80mm / 1167mm x 353mm x 20mm, R 1062mm corner R 11.75mm / 169mm x 915mm x 30mm, R 1246mm corner R 17mm / 342mm x 2092mm x 30mm, R 2451mm corner R 17.2mm / 1488mm x 472mm x 30mm, R 1575mm corner R 16.3mm / 889mm x 263mm x 25mm, R 775mm corner R 17.5mm.</p> <p>Note: Above size of the end cap will be utilized as per the requirement The boards shall be such that the text & Graphics displayed on the Polycarbonate sheet held in these end caps should be completely visible even if it is viewed directly from the bottom or any direction; the text is very much legible.</p> <p>Polycarbonate cap Internal face shall be cross ribbed 2mm x 3mm to increase the strength of the end cap. Eight nos. locating pins tapering towards collar of the end cap shall be provided near the internal periphery of the end cap. These pins shall firmly hold the 3mm translucent polycarbonate sheet in elliptical / parabolic curvature.</p> <p>Circular cutout of dia approx. 80mm shall be provided for illuminated branding or opaque cap shall be provided in case of none branding. For branding translucent material fitting provision should provide without shadow on branding. Oblong cutout with collar shall be provided for projecting image of desired text & graphics on the floor below or opaque cap shall be provided in case of non-projecting. 2mm x 5mm Ribs approx. 20mm inside and parallel to the external periphery shall be provided for additional strength. Riser buttons shall be provided along the internal ribs to block the cutouts using opaque sheet screwed through these buttons. These buttons may also be used to mount the LED projector when required. Projector fitting bracket shall be fix to end cap to align with oval slot. Three nos. cap holding sockets shall be moulded at three corners of the End Cap. Two nos. locating pins shall be provided on each cap holding sockets and shall be provided at the bottom of these pins for additional strength. This pin shall locate in the top and bottom Aluminum profile. Two tapering ribs shall be provided to cap holding brackets for additional strength.</p> <p>Three through slots of approx. 17 mm x 1.5 mm shall be provided near the top of end cap for heat ventilation. Moulded Screw caps shall be provided to externally press fit in the cap holding sockets. The end cap shall be</p>

			Moulded Shatter proof opaque polycarbonate as per IS 14443 or latest amended with thickness not less than 1mm and of reputed Indian make using Bayer granules. SS 304 elliptical or parabolic cap should have approx. 20 mm vertical collar at corners of suitable dia hole to interlock with profile and structure, square bracket at bottom cap should provide to interlock vertical square structure pipe and top cap should have cut out to thorough pass the structure pipe with the provision of ventilation. Aluminium die Casted cap top should have curvature of R 1123-1125 mm and internal hollow with wall thickness of 6-8mm with polished and premiered with metallic PU gloss lacquer coated. internal 2 nos. cap holding socket shall be casted at both corners of cap to interlock with side profile, Bottom casted cap should have side curvature of - R78-79 / 112-113 mm and hollow of approx. 100 mm with internal 2 nos. cap holding socket shall be casted at both the corners of cap to interlock with side profile. Vertical rib should provide to interlock polycarbonate sheet with inner pins support should flushed with side aluminium profile. Cap should have a hole with die moulded dia approx. 12 mm grommet to pass mainsupply wire.																
10	Cue Beam		Cue beam holding bracket die-moulded with triangular parabolic base of approx. 77mm x 68mm, 2 mm thick. Hollow cylindrical die-moulded cover of dia approx. 29mm and height 43mm attached to side legs with provision of hinge for 360 degree rotation and angle adjustment with oblong cut out of bottom cap. It should fix with bottom cap with 3 nos. holes of dia approx 3 mm. The Elliptical Glow Board shall have the slot for provision of Cue Beam projector wherever required with provision of cue beam holding bracket. Cue beam projector should project the given sign image and text on floor or wall from max distance with maximum brightness than ambient light. 2 nos. Plano convex of approx. R 9.22mm, R 7.31mm and 1no. Biconvex lenses of approx. R 19.8mm, R 34.1mm, should fix at given slots. Projector lens with engraved image should create maximum projection on surface The CUE BEAM should incorporate in Elliptical Glow Board. Technical specification of CUE BEAM Voltage - AC 110V~220V Built in LED Driver - 12 V Power - 5W Luminosity - 150~ 200LM Image Projected distance -1~ 3 meters External Dimensions approx. - Ø26mm X 76 mm																
11	Podium		Elliptical shape one piece cut, top & bottom 3mm thick with size approx. 1170 mm x 512 mm x 508 mm at R914mm at corner R 117mm / 1643 mm x 575 mm x 508 mm at R 1652mm at corner R 92.5mm of SS 304 with parabolic shape cut at center having dia approx 8 mm, 2 hole on top for matching with bottom cap of Elliptical Glow Board for fixing and interlocking without welding and bottom approx. 12 mm 4 hole for foundation fitting should be provided. Provide approx. 4 mm 9 holes for ventilation at top and Backside open able door system with lock & key. SS 304 grade frame structure of size approx. 25mm x 50mm x 1.2mm square with vertical and horizontal supports covered with SS 304 sheet of 1.2mm thick with powder coated in elliptical shape machine formed matching with top of podium should provide Anchor fastener fitting provision has to be made for ground fixing.																
12	ACP Cladding		Design, fabrication & installation of 3mm thick exterior grade PVDF coated Aluminium composite panels (Timex, Alucobond) of having 0.5 mm thick aluminium PVDF coated sheet with specific standard colour + 3 mm core 80 material + 0.5 mm aluminium sheet chemically treated (back sheet) bent with 5mm uniform machine grooved as per requirement, fitted on anodised aluminium/ anodized aluminium angle Primer with PU coated MS rectangular grid work. Grid for supporting ACP shall be of size approx. 38mm x 38mm x 1.5mm at a distance of Heat sink fixed in Elliptical Glow Board should accurately match Horizontally & Vertically along with existing structure on site. Hardware, fixtures, brackets, anchor, fasteners of SS 304 grade etc. Complete duly sealed with weathering silicon (DOW / GE) for circular columns and curved beams etc. Provision of MS clamp/ bracket for fixing with existing structure vertically, horizontally or slanted without welding and with level size alignment adjustment and interlocking provision without compromising strength and structural stability of frame should provide.																
13	Text/Graphics		Shall be computer cut/printed on 80 µ m Monomeric calendared Vinyl matt sheet of reputed make (Metamark / 3M) of Pantone shade 27C/165C/260C/Cool grey 8C/Black/7408C.Note: Pantone provides a universal language of color that enables color-critical decisions through every stage of the workflow for brands and manufacturers.																
14	Led ribbon light illumination		Ribbon light shall be of waterproof SMD 2835. The width of Ribbon light shall be 12 +/- 1mm. This shall be slide into the dovetail grooves of the heat sink & firmly pasted on all four sides of the heat sink. The light emitted from LED ribbon light should be partially reflected from the elliptical and parabolic curvature of white glossy polycarbonate sheet multiple times. Any obstruction or low brightness at the edges of the beam should be taken care of.Uniform illumination Average 4W-8W/ Sq. ft.																
15	LED		Linear LED of density 120 LEDs per meter of quality of proven make such as Hi-sign or Samsung or Nichia or Osram or Cree or Panasonic or similar of any reputed make.OEM certificate of LED should be provided.																
			<table><tr><td>LED Wattage</td><td>0.08 W to 0.1W per LED</td></tr><tr><td>LED Driver</td><td>Constant current waterproof LED driver of approved brand make Hi-Sign or Meanwell or Eaglerise or Phillips or Osram or Tridonic or Panasonic or similar of any reputed make with separate surge protection.</td></tr><tr><td>LED Colour</td><td>Cool White</td></tr><tr><td>Colour temperature</td><td>5500 K/6500 K</td></tr><tr><td>Viewing angle</td><td>Text/Graphics/matter visibility shall not be less than 160°</td></tr><tr><td>Nominal Voltage</td><td>230V, AC, 50 Hz</td></tr><tr><td>Operating Voltage Range</td><td>150V-260V AC With SMPS power supply.</td></tr><tr><td>Ingress protection</td><td>>IP 65</td></tr></table>	LED Wattage	0.08 W to 0.1W per LED	LED Driver	Constant current waterproof LED driver of approved brand make Hi-Sign or Meanwell or Eaglerise or Phillips or Osram or Tridonic or Panasonic or similar of any reputed make with separate surge protection.	LED Colour	Cool White	Colour temperature	5500 K/6500 K	Viewing angle	Text/Graphics/matter visibility shall not be less than 160°	Nominal Voltage	230V, AC, 50 Hz	Operating Voltage Range	150V-260V AC With SMPS power supply.	Ingress protection	>IP 65
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17	Sizes of Boards		The size of board shall of different sizes, as per the site requirement.																

	18	Sign substrate	Shall be of Eco Friendly, High impact strength, shatter proof, UV resistant, Translucent, non- flammable White polycarbonate solid sheet as per IS 14448 of not less than 3mm of make Bayer / Lexan / Polymac or similar of any reputed make. Light transmission shall be in the range of 60% - 90%. Provide U shaped 7mm x 1mm / 4mm x 1mm / 8 mm x 2mm gasket for tight holding and interlocking polycarbonate sheet in aluminum profile.	
	Note: The successful contractor shall arrange of all equipment, tools, consumables, testing meters, Hydra scaffolding, crane, forklift etc. and other required materials for successful completion of the work. Any work not specifically mentioned, but required for successful completion of work is deemed to be included in the work. If any activity required to be included later on due to reliability and safety shall be carried out by contractor without any extra cost. The LED chip and driver shall be inspected by RITES and inspection charges shall be borne by the firm.			
13		Erection and installation of wall / hanging / floor mounting type LED illuminated sign / direction boards in half elliptical shape. The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2 mm thickness. The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed / router cut on monomeric calendered vinyl of 70 um thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4-8 W / sq. ft and with brightness more than ambient light. Suitable size end cap of 1.5 mm thick SS 304 should be provided.		
14		Earthing with 40mm dia. Earth GI pipe class 'B', 3 meter long, earth electrode as earth per IS:3043 (latest version) to achieve earth resistances less than 5ohms including construction of masonry enclosures with hinged cover plate of cast iron/RCC(Heavy Duty with lifting arrangement) with locking arrangement as required (Outer hole size: 450XmmX450mm and Cover plate(CI/RCC) size:300mmX300mm) on top, provision of earth plate, connections from earth electrode to switch earth gear/pole as per technical Specification/I.E. Rule.		
15		Supply & recessing/fixing on surface 6 SWG GI wire for loop earthing as required as per technical specification. This item shall be in conformity to IS 5613/Pt.I Sec. 1 & 2/1985 (Latest Version). GI wire shall conform to relevant IS		
16		Dismantling of Octagonal poles(5meter/7meter) & re-installation the poles in different location with necessary foundation & Nuts-Bolts as per the instruction of the engineer in site		
17		Design, Supply, testing & commissioning of floor mounted Polycarbonate feeder post of out door type IP-65 of size 500x985x620 mm deep complete with copper bus bar four nos duly grouted with cement concrete ratio 1:2:4 duly earthed with earthing terminals. Thermoplastic Polycarbonate IP 65 in accordance with EN 60 529 (Dust Proof, Water Proof & Weatherproof), Shock proof, Rust Proof, Corrosion Free, Acid & Chemical Resistant, Fire Retardant & Self Extinguishing, Silica and Halogen Free recyclable material conform to RoHS directive 2002/95/EC, UV resistant according to IEC 61439-1, having high grade internally embedded gasket made of Polyurethane (PUR), Glow wire tested at 960°C in accordance with IEC 60 695-2-11.Type tested as per IEC 61 439-1. Total Insulated with System. The manufacturer of Polycarbonate feeder post shall submit a copy of CPRI test report of Degree of Ingress Protection IP 65 in accordance with IEC 60529. Each enclosure should have multi no of self-threaded holes. Impact strength should be Ik-08 in accordance with IEC 62262. (The copper Bus Bar will be of 300 Amps rating) as per attached drawing & max input cable size 4Cx120 SQMM. Make Hensel or Similar		
18		Supply and laying of HDPE pipe 160 mm dia as per relevant IS through trenchless method as per site requirement and IS/IE rule. Note: Cable will be laid in HDPE pipe by contractor however cable will be supplied by Railway.		
19		Excavation and refilling of trench 0.3 Mtr. wide and 0.8 mtrs deep on pitched/stone/brick/ paved surface, road/crossing/platform etc and restoring the surface to its original condition. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)		
20		Supply and laying of HDPE pipe conforming to IS 4984:1995 50mm dia wall thickness 3 mm PN-6 under the road/air. The work involves laying of HDPE pipe.		
21		Dismantling/ cutting of rail/tubular poles after dismantling the overhead conductor/ fitting and staking of poles within 1km area as per site requirement.		
		Schedule D- Provision of Ramps to existing FOB for improving divyangjan accessibility at Tapa & Bhuchchu Railway station.		
1		Supply & recessing/ fixing of PVC conduit pipe conforming to IS 9537 part-III/1983(latest version) with accessories , junction box etc. including making chase , plastering/clamping etc. as per technical spec.i) 25 mm (medium)		
2		Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. ii) 1.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).		
3		Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iii) 2.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).		
4		Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iv) 4 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).		
5		Supply of batten/ angle holder/ ceiling rose & installation on the junction box of laid conduit including connection, testing & commissioning as per tech. spec..ii) Bakelite ceiling rose 3 plate Ceiling rose shall conform to IS 371/1979 (Latest Version). Lamp Holder and ceiling rose shall be provided in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version)		
6		Supply, installation, testing and commissioning of the following double door wall mounted pre fabricated LT distribution Board of approved make as per spec."i) Incoming MCB DP 40 A ,10 KA, (B/C)=01 No.ii)Out going MCB SP 6/32 A 10 KA,(B/C)=06 No." Fabrication of meter cum distribution box shall be as per Northern Railway Tech. Specification No. 81-Elect/P/1991 and shall conform to IS 8623/Pt.I& Pt. III/1993 (Latest Version) with degree of protection IP 42 and shall be installed in conformity with 732/1989 (Latest Version), IS 4648/1968 (Latest Version).		
7		Supply, installation, testing and commissioning of the following double door wall mounted pre fabricated LT distribution Board of approved make as per spec."i) Incoming MCB TPN, 63 A ,10 KA, (B/C)=01 No.ii)Out going MCB SP 6/32 A 10 KA,(B/C)=18 Nos.(6 Nos on each phase)" Fabrication of meter cum distribution box shall be as per Northern Railway Tech. Specification No. 81-Elect/P/1991 and shall conform to IS 8623/Pt.I& Pt. III/1993 (Latest Version) with degree of protection IP 42 and shall be installed in conformity with 732/1989 (Latest Version), IS 4648/1968 (Latest Version).		
9		Earthing with 40mm dia. Earth GI pipe class 'B', 3 meter long, earth electrode as earth per IS:3043 (latest version) to achieve earth resistances less than 5ohms including construction of masonry enclosures with hinged cover plate of cast iron/RCC(Heavy Duty with lifting arrangement) with locking arrangement as required (Outer hole size: 450XmmX450mm and Cover plate(CI/RCC) size:300mmX300mm) on top, provision of earth plate,		

	connections from earth electrode to switch earth gear/pole as per technical Specification/I.E. Rule.						
10	Supply & recessing/fixing on surface 6 SWG GI wire for loop earthing as required as per technical specification. This item shall be in conformity to IS 5613/Pt.I Sec. 1 & 2/1985 (Latest Version). GI wire shall conform to relevant IS						
11	Supply,erection,testing and commissioning of LED tube light fittings 20 Watt complete as per specification of CEE/NR/121-Elect/PS/2018 dt 28/06/18 or latest. Guarantee-05 years from date of commissioning.						
12	Laying of 2/3/4 core 16/25/35/50/75/95 /120/240/400 sqmm LT UG/XLPE in Trench/Pipe/Cable tray as per site requirement all as specified and as directed. Note LT UG Cable will be supplied by the Railways free of cost. However, Contractor has to make own arrangement for shifting the cable to site from the Elect maintenance Depot store. Laying shall be in conformity to IS: 1255/1983 (Latest Version)						
13	Excavation of cable trench by digging 1000 mm deep and then refilling after laying of cable as per IS1255:1983 and technical specification on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, levelling and repairing the floor to its original condition. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)						
14	Excavation of cable trench by cutting/breaking station platform concrete/pucca floor digging 400 mm deep and then refilling after laying of cable as per IS 1255:1983 and technical specification enclosed on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, leveling and repairing and finishing the said portion of platform with 1:2:4 cement concrete mixture 100 mm deep from top. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)						
15	Supply and erection of 103 mm inner dia Double walled Corrugated pipe under the railway track/road as per site required.						
16	Excavation and refilling of trench 0.3 Mtr. wide and 0.8 mtrs deep on pitched/stone/brick/ paved surface, road/crossing/platform etc and restoring the surface to its original condition. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)						
17	Supply , lying of GI pipe class B ISI marked under road, clamping with erected pole or wall as per tech spec for passing cable. i) 50 mm dia GI pipe shall be conforming to IS conforming to IS 1239/Pt.I/1990 or latest and laying shall be in conformity to IS: 1255/1983 (Latest Version)						
18	Supply, fixing, testing and commissioning of RCBO 25A,RCBOdouble pole, 30mA with Earth leakage, overload and short circuit protection . The contractor shall supply, installation, testing and commissioning 25Amp, 30mA sensitivity RCBO (DP) with metal enclosure of same make with ISI mark only. RCBO should be cat. No. 4113 25 of Legrand or model No. AUF3C202503 of L&T make or equivalent						
	<p>The price shall cover cost of design, manufacture, supply, loading, transportation and unloading to site, display, installation / erection, testing and commissioning of wall / hanging /floor mounting type LED illuminated sign/ direction boards in Full Elliptical (FE), Half Elliptical (HE), Semi Elliptical (SE), parabolic shape as per site requirements(tenderer may refer the pictures attached). The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2 mm thickness. The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed / router cut on monomeric calendared vinyl of 70-80 µm thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4-8 W / sq. ft and with brightness more than ambient light. Suitable size end cap of 1.5 mm thick SS 304 / die moulded polycarbonate should be provided. The signage boards shall be confirming to technical specification enclosed.</p> <p>xxii. The work covers design, manufacture, display, installation of elegant, aesthetically appealing energy efficient LED elliptical signage's for passenger amenities areas like platforms, direction, FOB's, Service buildings, utilities, concourse etc. of Station.</p> <p>xxiii. The work which is not included in the schedule but required to complete the installation work shall be considered as the part of work and should be carried out by the contractor accordingly. No extra payment will be paid for that.</p> <p>xxiv. Before supply of material, the agency shall submit the design report through professional design expert for approval of Sr.DEE(G)/UMB.</p> <p>xxv. LED Elliptical Glow Sign Boards are to be provided in dust environment and open space & should have proper louvers or ventilation for dissipation of heat generated by drivers / LED's.</p> <p>xxvi. The quality of the Vinyl/ Polycarbonate sheet/ anodized coating should be covered under three years warranty from the manufacturer. LED's/LED drivers shall be covered for free replacement under five years warranty from the manufacturer.</p> <p>xxvii. Documentary proof of purchasing of LED/LED drivers/Vinyl sheet/Polycarbonate sheet from reputed approved brand shall be required to be submitted along with bill.</p> <p>xxviii. The unit prices indicated in the Schedule of quantity is inclusive of the prices for design, manufacturing, supplying of materials, multiple loading/unloading required under the particular item of schedule, storing, handling, erection testing and commissioning of installation in conformity of specification. The unit price is also inclusive of all incidental charges for transport, loading/unloading and handling of materials, commission for arranging dispatch direct from manufacturer's factory / authorized dealer / supplier and completing all necessary formalities in this respect, such as submission of forwarding notes, all insurance premium, bankers charges for bank guarantee, indemnity bonds inclusive of cost of stamps, etc. The unit prices shall include all incidental charges duties and levies including GST.</p>						
TECHNICAL SPECIFICATION FOR ELLIPTICAL / PARABOLIC SIGNAGE BOARDS							
	<table><tr><th>SN</th><th>Model/Type</th><th>Full Elliptical (FE) / Half Elliptical (HE) / Semi Elliptical (SE) / Parabolic</th></tr><tr><td>1.</td><td>Mounting</td><td><p>Mounting arrangement shall be hanging, Wall mounting, Ceiling Mounting, Pole Mounting, Floor Mounting or as per site requirement. Sign Boards shall be with integrated mounting arrangement powder coated pipes to FOB/PF Structure / walls with tension rope made of SS 304 and supplied with minimum 5 meter 2.5 sq.mm FRLS multi stranded copper flexible cable as per IS: 694 with latest amendment of make Anchor/Finolex/L&T/Poly-cab/BCH/RR Kable and socket pin for connecting to power supply system of make Anchor/Cona/SSK/Roma.</p><p>The cost of fixing of sign board with suitable clamping arrangement with SS nut, bolts, washers, square shear nut, nut-bolts, screw, T bolt, Chuck nut, shear nut or welding etc. is also included. The clamps shall be powder coated and enamel paint of approved colour.</p></td></tr></table>	SN	Model/Type	Full Elliptical (FE) / Half Elliptical (HE) / Semi Elliptical (SE) / Parabolic	1.	Mounting	<p>Mounting arrangement shall be hanging, Wall mounting, Ceiling Mounting, Pole Mounting, Floor Mounting or as per site requirement. Sign Boards shall be with integrated mounting arrangement powder coated pipes to FOB/PF Structure / walls with tension rope made of SS 304 and supplied with minimum 5 meter 2.5 sq.mm FRLS multi stranded copper flexible cable as per IS: 694 with latest amendment of make Anchor/Finolex/L&T/Poly-cab/BCH/RR Kable and socket pin for connecting to power supply system of make Anchor/Cona/SSK/Roma.</p> <p>The cost of fixing of sign board with suitable clamping arrangement with SS nut, bolts, washers, square shear nut, nut-bolts, screw, T bolt, Chuck nut, shear nut or welding etc. is also included. The clamps shall be powder coated and enamel paint of approved colour.</p>
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2.	Elliptical Glow Board Frame	<p>Shall be made of Extruded Anodised hollow aluminium profile of size not less than 1.2 mm thickness and anodized to minimum 15 µm thickness (Grade AC- 15) in bronze & silver or any other approved colour. Anodizing coating shall be as per IS: 1868 or latest amendment.</p> <p>Provide Full length square SS powder coated pipe attached to bottom cap square bracket with level adjustment provision ribbiting without welding, pass thorough top cap interlock with clamp SS pipe sliding and level adjustment provision without compromising structural strength of Elliptical Glow Board.</p> <p>Provide nylon die molded & MS machine formed powder coated horizontal or vertical as per requirement heat sink bracket to hold top and bottom aluminium profile with press fit and bolting provision. Top bottom and/or side cap as per requirement flush fixed at profile to outer side holding all structural element together.</p>	
3.	Bracket / clamp	<p>"I" beams of size 3" - 27" / "T" beams of size 6-8" x 5", "C" beam of size 3" x 5" and round pipes 2" - 6" holding machine bended seven tank processed powder coated clamp with SS 304 nut bolts & spring washers with provision of level, size and alignment adjustment. 'T', 'S' or round shaped clamp from center slot will interlock with top beam/girder, pipe at various size with horizontal or perpendicular or taper or slanted form with provision of beam to beam connected bracket to hold sign perpendicular or horizontal & bottom side of clamp will interlock with pipe of Elliptical Glow Board with SS nut-bolt and spring washer. High strength Round Mounting Clamp set of inner & outer clamp at R 2"/3" & for installation on round pipe of dia 2/3" shall be press-formed in SS 304 grade sheet of 2mm thickness, 2mm rib deep shall be formed along the periphery for additional strength, only the inner clamp shall be used with two holes shall be used for anchoring on wall. Universal mounting clamp approx. 70mm x 31mm x 22mm set consisting of sliding clamp, holding clamp, crimping lock and flexible strip shall be press- formed in SS 304 grade sheet of 1.2mm thickness this clamp shall be slid inside the mounting channels fixed to substrates. 0.8mm strip shall be passed through this clamp and around the structure on which the sign is to be installed and crimped firmly by crimping clamp. It should fix at any structure. M10 Square Head Bolts SS 304 grade, 4 side chamfered shall be used for installation. M10 Hexa Head shear nuts, which are high security, anti-theft, permanent fasteners, shall be used and shall be made of SS 304.</p>	
4	Top profile	<p>Top Profile of Elliptical Glow Board shall be made up of Aluminium Alloy (6063-T6) Extruded profile anodised to 15 µm +/- 3 µm. The profile nominal wall thickness shall be 2 mm and width approx 170 mm, 137 mm and 268 mm. The reflective metallic silver PU particle coated granules shall be provided on the internal face of the profile. The edges of the profile shall be rounded.</p> <p>The profile shall have a slot of approx 4.8 mm & 7mm width on both sides to hold 2/3/4 mm thick polycarbonate sheet. The slot shall be at an angle of 80-84 degree to face firmly hold the polycarbonate sheet in elliptical and parabolic curvature. The Elliptical / Parabolic curvature of the polycarbonate sheet shall be maintained by its inherent flexural tension property. It should have circular slots for M6 self-tapping cheese head screws to fix the end caps. Along the centre line of the top of this profile there shall be a 10mm x 3mm slot for press fitting the heat sink holding brackets in place with circular slot for M6 self tapping screw should be made available. There shall also be a flat extension of 12mm to rectangular slot for additional support / fixing screws to firmly hold the heat sink holding bracket. The Total height of the central Projection should be Maintained to minimize obstruction to light illumination.</p>	
5	Bottom, top & side Profile	<p>Bottom, top and side Profile full / half of the Elliptical Glow Board shall be made of extruded anodized Aluminium Alloy hollow profile (6063-T6) having 2mm to 5mm wall thickness. It should have internal ribs with approx 1.5mm, 2.5mm thickness and 4.5mm, 4.2mm wide slot to firmly hold the polycarbonate sheet in elliptical and parabolic curvature using its flexural tension. A circular slot of dia approx. 4.5 mm at the center of profile shall be provided to fix self tapping cheese head screw for end cap.</p> <p>An extruded extension diametrically opposite to this circular slot should have approx. 10mm x 3mm slot for press fitting the heat sink holding brackets. Further flat extension of 12 mm shall be provided for screwing the bracket for additional strength & fixed location.</p> <p>Total external width & Height of the bottom, top & side profile should be full of approx. 34mm x 48mm R 11.7mm / 42mm x 50mm, R 24.3mm / 42mm x 80mm, R16mm / 84mm x 80 mm, R16mm without compromising the strength and causing any obstruction to the light while giving maximum viewing area. The bottom corner shall have a curvature of approx. R11.7mm, 24.3mm and 16mm to appear in continuous flow of elliptical Curvature of polycarbonate sheet. This also shall add to aesthetic beauty of the whole Elliptical Glow Board.</p>	
6	Heat Sink Holding bracket (HSH)	<p>Heat Sink Holding Bracket shall be of approx. length 184mm, 252mm, 260mm, 324mm, 397mm, 537mm, 551mm injection moulded in Nylon 6 material & 1130mm, 1156mm, 861mm in MS machine formed powder coated for its strength & flexibility. The bracket shall be of 'I' cross section of sizes approx. 102mm x 15mm x 10mm, 1080mm x 25mm x 5mm, 1156mm x 50mm x 5mm, 861mm x 50mm x 5mm at mid portion and it should reduce proportionately in slant at both the ends for nylon 6mm, MS 5mm. Thickness without obstructing the light and without compromising on strength.</p> <p>The 'I' cross section nylon shall have ribs for maintaining stiffness. Both the ends of HSH brackets shall have locking clasp to press fit in 10 mm x 3mm slot of top and bottom profile. The mid portion shall have offset of 14mm for nylon and 12 mm for MS.</p> <p>Central clasp shall be moulded in the Heat Sink Holding bracket to firmly hold the Heat Sink along the longitudinal axis of Elliptical Glow Board. The central clasp shall have two prong sets to hold the heat sink across its diagonal or along its sides as required. Two holes as per requirement shall be provided near the end clasps firmly.</p> <p>Two holes for nylon & MS shall be provided on both sides of central clasp to fix at both profiles. Two holes shall be provided on both sides of central clasp to fix the mid portion of bracket to strip in the event longer bracket if required. The mid portion of HSH bracket approx. 3 mm thick x 10 mm wide aluminium strip in the event longer bracket is required or more than one Heat Sink is required for bigger size of Elliptical Glow Board.</p>	

7	Heat Sink	<p>Heat Sink shall be 25-26 mm hollow anodized Aluminium Alloy (6063-T6) profile of 2mm thickness. Corners shall be flattened to form a square across flat to hold the heat sink diagonally. Heat sink must be press fit horizontally and diagonally from all 8 sides. All the four sides shall have dovetail of slots.</p> <p>Circular slots of dia 2 mm shall be provided at all four internal corners to tight fit the pins of Heat Sink connector.</p> <p>There shall be a set of three of approx 1.5mm thick ribs central of approx. 5mm height and two sides of approx. 2mm height. Provision for maximize the surface area to aid in faster cooling as well as for additional strength to hollow square profile.</p>	
8	Heat sink connector	<p>Heat Sink connector shall be a moulded from polycarbonate profile of same cross- sectional dimensions as that of Heat Sink. The thickness of the connector shall be approx. 5 mm. Two semicircular slots shall be provided on each face. Provision to pass out hot air from heat sink should be made. Four pins shall be moulded on four corners on both the faces of Heat Sink connectors to be press fitted in Heat Sink profile.</p>	
9	Elliptical Glow Board end cap	<p>End caps full / half with elliptical and parabolic shape shall be made from injection moulded polycarbonate granules 2 mm thick / SS 304 1.2 mm thick / aluminum die casted 8 mm thick having curve on top side and internal hollow and elliptical base at bottom side with reflective internal surface. The End caps shall be perfectly opaque.</p> <p>The standard sizes are:</p> <p>170mm x 304mm x 21mm, R 511mm corner R 11.7mm / 210mm x 100mm x 20mm, R 150mm corner R 39mm / 278mm x 130mm x 20mm, R 193mm corner R39mm / 350mm x 152mm x 20mm, R 257mm corner R 39mm / 425mm x 175mm x 20mm, R 316mm corner R 39mm / 563mm x 215mm x 20mm, R 449mm corner 39mm / 210mm x 69.2mm x 20mm, R 150mm corner R 39mm / 278mm x 84.2mm x 20mm, R 193.48mm corner R 39mm / 350mm x 95.2mm x 20mm, R 257mm corner R 39mm / 425mm x 106.7mm x 20mm, R 318mm corner R 39mm / 563mm x 126.7mm x 20mm, R 449mm corner R 39mm / 425mm x 150mm x 50mm, R 305mm corner 39mm / 600mm x 110mm x50mm, R 445mm corner R39mm / 862mm x 167mm x 60mm, R 707mm corner R39mm / 425mm x 190mm x 50mm, R 315mm corner R30mm / 573mm x 230mm x57mm, R 450mm corner R30mm / 859mm x 308mm x 67mm, R 734mm corner R30mm / 529mm x 308mm x 99mm, R 371mm Corner 40 / 692mm x 308mm x 85mm, R 528mm corner R53mm / 1063mm x 415mm x 126mm, R943mm corner R 80mm / 1167mm x 353mm x 20mm, R 1062mm corner R 11.75mm / 169mm x 915mm x 30mm, R 1246mm corner R17mm / 342mm x 2092mm x 30mm, R 2451mm corner R 17.2mm / 1488mm x 472mm x 30mm, R 1575mm corner R 16.3mm / 889mm x 263mm x 25mm, R 775mm corner R 17.5mm.</p> <p>Note: Above size of the end cap will be utilized as per the requirement The boards shall be such that the text & Graphics displayed on the Polycarbonate sheet held in these end caps should be completely visible even if it is viewed directly from the bottom or any direction; the text is very much legible.</p> <p>Polycarbonate cap Internal face shall be cross ribbed 2mm x 3mm to increase the strength of the end cap. Eight nos. locating pins tapering towards collar of the end cap shall be provided near the internal periphery of the end cap. These pins shall firmly hold the 3mm translucent polycarbonate sheet in elliptical / parabolic curvature.</p> <p>Circular cutout of dia approx. 80mm shall be provided for illuminated branding or opaque cap shall be provided in case of none branding. For branding translucent material fitting provision should provide without shadow on branding. Oblong cutout with collar shall be provided for projecting image of desired text & graphics on the floor below or opaque cap shall be provided in case of non-projecting. 2mm x 5mm Ribs approx. 20mm inside and parallel to the external periphery shall be provided for additional strength. Riser buttons shall be provided along the internal ribs to block the cutouts using opaque sheet screwed through these buttons. These buttons may also be used to mount the LED projector when required. Projector fitting bracket shall be fix to end cap to align with oval slot. Three nos. cap holding sockets shall be moulded at three corners of the End Cap. Two nos. locating pins shall be provided on each cap holding sockets and shall be provided at the bottom of these pins for additional strength. This pin shall locate in the top and bottom Aluminum profile. Two tapering ribs shall be provided to cap holding brackets for additional strength.</p> <p>Three through slots of approx. 17 mm x 1.5 mm shall be provided near the top of end cap for heat ventilation. Moulded Screw caps shall be provided to externally press fit in the cap holding sockets. The end cap shall be Moulded Shatter proof opaque polycarbonate as per IS 14443 or latest amended with thickness not less than 1mm and of reputed Indian make using Bayer granules. SS 304 elliptical or parabolic cap should have approx. 20 mm vertical collar at corners of suitable dia hole to interlock with profile and structure, square bracket at bottom cap should provide to interlock vertical square structure pipe and top cap should have cut out to thorough pass the structure pipe with the provision of ventilation.</p> <p>Aluminium die Casted cap top should have curvature of R 1123-1125 mm and internal hollow with wall thickness of 6-8mm with polished and primiered with metallic PU gloss lacquer coated. internal 2 nos. cap holding socket shall be casted at both corners of cap to interlock with side profile, Bottom casted cap should have side curvature of - R78-79 / 112-113 mm and hollow of approx. 100 mm with internal 2 nos. cap holding socket shall be casted at both the corners of cap to interlock with side profile. Vertical rib should provide to interlock polycarbonate sheet with inner pins support should flushed with side aluminium profile. Cap should have a hole with die moulded dia approx. 12 mm grommet to pass mainsupply wire.</p>	

10	Cue Beam	<p>Cue beam holding bracket die-moulded with triangular parabolic base of approx. 77mm x 68mm, 2 mm thick. Hollow cylindrical die-moulded cover of dia approx. 29mm and height 43mm attached to side legs with provision of hinge for 360 degree rotation and angle adjustment with oblong cut out of bottom cap. It should fix with bottom cap with 3 nos. holes of dia approx 3 mm.</p> <p>The Elliptical Glow Board shall have the slot for provision of Cue Beam projector wherever required with provision of cue beam holding bracket. Cue beam projector should project the given sign image and text on floor or wall from max distance with maximum brightness than ambient light. 2 nos. Plano convex of approx. R 9.22mm, R 7.31mm and 1no. Biconvex lenses of approx. R 19.8mm, R 34.1mm, should fix at given slots.</p> <p>Projector lens with engraved image should create maximum projection on surface The CUE BEAM should incorporate in Elliptical Glow Board.</p> <p>Technical specification of CUE BEAM Voltage - AC 110V~220V Built in LED Driver - 12 V Power - 5W Luminosity - 150~ 200LM Image Projected distance -1~ 3 meters External Dimensions approx. - Ø26mm X 76 mm</p>																
11	Podium	<p>Elliptical shape one piece cut, top & bottom 3mm thick with size approx. 1170 mm x 512 mm x 508 mm at R914mm at corner R 117mm / 1643 mm x 575 mm x 508 mm at R 1652mm at corner R 92.5mm of SS 304 with parabolic shape cut at center having dia approx 8 mm, 2 hole on top for matching with bottom cap of Elliptical Glow Board for fixing and interlocking without welding and bottom approx. 12 mm 4 hole for foundation fitting should be provided. Provide approx. 4 mm 9 holes for ventilation at top and Backside open able door system with lock & key.</p> <p>SS 304 grade frame structure of size approx. 25mm x 50mm x 1.2mm square with vertical and horizontal supports covered with SS 304 sheet of 1.2mm thick with powder coated in elliptical shape machine formed matching with top of podium should provide Anchor fastener fitting provision has to be made for ground fixing.</p>																
12	ACP Cladding	<p>Design, fabrication & installation of 3mm thick exterior grade PVDF coated Aluminium composite panels (Timex, Alucobond) of having 0.5 mm thick aluminium PVDF coated sheet with specific standard colour + 3 mm core 80 material + 0.5 mm aluminium sheet chemically treated (back sheet) bent with 5mm uniform machine grooved as per requirement, fitted on anodised aluminium/ anodized aluminium angle Primer with PU coated MS rectangular grid work. Grid for supporting ACP shall be of size approx. 38mm x 38mm x 1.5mm at a distance of Heat sink fixed in Elliptical Glow Board should accurately match Horizontally & Vertically along with existing structure on site.</p> <p>Hardware, fixtures, brackets, anchor, fasteners of SS 304 grade etc. Complete duly sealed with weathering silicon (DOW / GE) for circular columns and curved beams etc. Provision of MS clamp/ bracket for fixing with existing structure vertically, horizontally or slanted without welding and with level size alignment adjustment and interlocking provision without compromising strength and structural stability of frame should provide.</p>																
13	Text/Graphics	Shall be computer cut/printed on 80 µ m Monomeric calendared Vinyl matt sheet of reputed make (Metamark / 3M) of Pantone shade 27C/165C/260C/Cool grey 8C/Black/7408C.Note: Pantone provides a universal language of color that enables color-critical decisions through every stage of the workflow for brands and manufacturers.																
14	Led ribbon light illumination	Ribbon light shall be of waterproof SMD 2835. The width of Ribbon light shall be 12 +/- 1mm. This shall be slide into the dovetail grooves of the heat sink & firmly pasted on all four sides of the heat sink. The light emitted from LED ribbon light should be partially reflected from the elliptical and parabolic curvature of white glossy polycarbonate sheet multiple times. Any obstruction or low brightness at the edges of the beam should be taken care of.Uniform illumination Average 4W-8W/ Sq. ft.																
15	LED	Linear LED of density 120 LEDs per meter of quality of proven make such as Hi-sign or Samsung or Nichia or Osram or Cree or Panasonic or similar of any reputed make.OEM certificate of LED should be provided.																
		<table><tr><td>LED Wattage</td><td>0.08 W to 0.1W per LED</td></tr><tr><td>LED Driver</td><td>Constant current waterproof LED driver of approved brand make Hi-Sign or Meanwell or Eaglerise or Phillips or Osram or Tridonic or Panasonic or similar of any reputed make with separate surge protection.</td></tr><tr><td>LED Colour</td><td>Cool White</td></tr><tr><td>Colour temperature</td><td>5500 K/6500 K</td></tr><tr><td>Viewing angle</td><td>Text/Graphics/matter visibility shall not be less than 160°</td></tr><tr><td>Nominal Voltage</td><td>230V, AC, 50 Hz</td></tr><tr><td>Operating Voltage Range</td><td>150V-260V AC With SMPS power supply.</td></tr><tr><td>Ingress protection</td><td>>IP 65</td></tr></table>	LED Wattage	0.08 W to 0.1W per LED	LED Driver	Constant current waterproof LED driver of approved brand make Hi-Sign or Meanwell or Eaglerise or Phillips or Osram or Tridonic or Panasonic or similar of any reputed make with separate surge protection.	LED Colour	Cool White	Colour temperature	5500 K/6500 K	Viewing angle	Text/Graphics/matter visibility shall not be less than 160°	Nominal Voltage	230V, AC, 50 Hz	Operating Voltage Range	150V-260V AC With SMPS power supply.	Ingress protection	>IP 65
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Ingress protection	>IP 65																	
17	Sizes of Boards	The size of board shall of different sizes, as per the site requirement.																
18	Sign substrate	Shall be of Eco Friendly, High impact strength, shatter proof, UV resistant, Translucent, non- flammable White polycarbonate solid sheet as per IS 14448 of not less than 3mm of make Bayer / Lexan / Polymac or similar of any reputed make. Light transmission shall be in the range of 60% - 90%. Provide U shaped 7mm x 1mm / 4mm x 1mm / 8 mm x 2mm gasket for tight holding and interlocking polycarbonate sheet in aluminum profile.																
Note: The successful contractor shall arrange of all equipment, tools, consumables, testing meters, Hydra scaffolding, crane, forklift etc. and other required materials for successful completion of the work. Any work not specifically mentioned, but required for successful completion of work is deemed to be included in the work. If any activity required to be included later on due to reliability and safety shall be carried out by contractor without any extra cost. The LED chip and driver shall be inspected by RITES and inspection charges shall be borne by the firm.																		
20	Erection and installation of wall / hanging / floor mounting type LED illuminated sign / direction boards in half elliptical shape. The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2 mm thickness. The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed / router cut on monomeric calendered vinyl of 70 um thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4-8 W / sq. ft and with																	

	brightness more than ambient light. Suitable size end cap of 1.5 mm thick SS 304 should be provided.
21	"Supply, erection, testing and commissioning of the following double door wall mounted Pre-fabricated L.T. Distribution Boards of approved make & comprising with per tech specification PCEE /NR PCEE/NR/126-Elect/PS/2019/dt 10.12.19 Incoming MCCB 4Pole 125 A 35 KA B/C - 1 No. ii. Outgoing MCB 32 A SP 10 KA B/C- 9 Nos. (3 Nos. on each phase) iii. Outgoing MCB 20 A. SP 10 KA B/C (2 Nos. on each Phase) - 6 Nos iv Outgoing MCB 10A SP 10KA B/C 6 Nos. (2 Nos. on each phase)"
	Schedule E-Provision of Hot Axle Box Detector (HABD) system with provision of Electrical supply over Ambala Division
1	Earthing with 40mm dia. Earth GI pipe class 'B' , 3 meter long, earth electrode as earth per IS:3043 (latest version) to achieve earth resistances less than 5ohms including construction of masonry enclosures with hinged cover plate of cast iron/RCC(Heavy Duty with lifting arrangement) with locking arrangement as required (Outer hole size: 450XmmX450mm and Cover plate(CI/RCC) size:300mmX300mm) on top, provision of earth plate, connections from earth electrode to switch earth gear/pole as per technical Specification/I.E. Rule.
2	Supply & recessing/fixing on surface 6 SWG GI wire for loop earthing as required as per technical specification. This item shall be in conformity to IS 5613/Pt.I Sec. 1 & 2/1985 (Latest Version). GI wire shall conform to relevant IS
3	Boring & laying of power cables by trenchless method through HDPE pipe along with supply and insertion of HDPE pipe of PE 80 PN 8 grade of 90 mm dia with min. 6.7 mm and max. 7.6 mm wall thickness as per IS:4984-95 in the bore for the laying of power cables under the track of road. HDPE pipe is to be supplied by the contractor. The power cables will be supplied by railway.
4	Laying of 2/3/4 core 16/25/35/50/75/95 /120/240/400 sqmm LT UG/XLPE in Trench/Pipe/Cable tray as per site requirement all as specified and as directed. Note LT UG Cable will be supplied by the Railways free of cost. However, Contractor has to make own arrangement for shifting the cable to site from the Elect maintenance Depot store. Laying shall be in conformity to IS: 1255/1983 (Latest Version)
5	Excavation of cable trench by digging 1000 mm deep and then refilling after laying of cable as per IS1255:1983 and technical specification on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, levelling and repairing the floor to its original condition. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
6	Excavation of cable trench by cutting/breaking station platform concrete/pucca floor digging 400 mm deep and then refilling after laying of cable as per IS 1255:1983 and technical specification enclosed on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, leveling and repairing and finishing the said portion of platform with 1:2:4 cement concrete mixture 100 mm deep from top. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
7	Supply & laying of HDPE pipe of 110mm dia, wall thickness 7.7 to 8.7mm. The work involves laying of cable in HDPE pipe.
8	Excavation and refilling of trench 0.3 Mtr. wide and 0.8 mtrs deep on pitched/stone/brick/ paved surface, road/crossing/platform etc and restoring the surface to its original condition. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
9	Design, Supply, testing & commissioning of floor mounted MS feeder post of out door type MS Sheet 16 SWG Die pressed of size 550x450x275 mm deep complete with Aluminium bus bar four nos duly grouted with cement concrete ratio 1:2:4 duly earthed with earthing terminals .(The Bus Bar will be of 500 Amps rating)
10	Supply, fixing and connection of 16-32A DP MCB with Enclosure.
11	Fabrication, supply, erection, testing and commissioning of control and distribution LT panel board for panel colour light signalling(CLS) as per RDSO Drawing No.TI/SPC/PSICLS/0020 and approved source for 10 kVA 240 V 3 supply 60 Amp
12	Supply, fixing, testing, commissioning of Automatic change over switch 32 Amp with Enclosure. Suitable as per site work requirement.
	Schedule F-Replacement of existing electro mechanical inter locking with panel interlocking at RTP (Ropar Thermal Power Plant) in SIR-NLDM section of Ambala division
1	Supply & recessing/ fixing of PVC conduit pipe conforming to IS 9537 part-III/1983(latest version) with accessories , junction box etc. including making chase , plastering/clamping etc. as per technical spec.i) 25 mm (medium)
2	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. i) 1 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
3	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. ii) 1.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
4	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iii) 2.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
5	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iv) 4 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
6	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. v) 6 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
7	Supply of batten/ angle holder/ ceiling rose & installation on the junction box of laid conduit including connection , testing & commissioning as per tech. spec..i) Bakelite batten/angle holder
8	Supply of batten/ angle holder/ ceiling rose & installation on the junction box of laid conduit including connection, testing & commissioning as per tech. spec..ii) Bakelite ceiling rose 3 plate Ceiling rose shall conform to IS 371/1979 (Latest Version). Lamp Holder and ceiling rose shall beprovided in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version)
9	supply,fixing,testing & commisioning of 6 amp module switch with IS 4772:2000 (Latest Version).
10	supply,fixing,testing & commisioning of 6 amp 5 pin module socket with IS 4772:2000 (Latest Version).
11	supply,fixing,testing & commisioning of 16 amp module switch with IS 4772:2000 (Latest Version).
12	supply,fixing,testing & commisioning of 16 amp module socket with IS 4772:2000 (Latest Version).
13	supply, fixing, testing & commisioning of 12 module metal GI box with 12 module cover plate with IS 4772:2000 (Latest Version).

14	supply,fixing,testing & commissioning of 8 module metal GI box with 8 module cover plate with IS 4772:2000 (Latest Version).																				
15	supply,fixing,testing & commissioning of 6 module metal GI box with 6 module cover plate with IS 4772:2000 (Latest Version).																				
16	supply,fixing,testing & commissioning of modular socket type (2 module) regulator with IS 4772:2000 (Latest Version).																				
17	supply,fixing,testing & commissioning of 32 Amp Modular Switch with IS 4772:2000 (Latest Version).																				
18	"Supply, erection, testing and commissioning of the following double door wall mounted Pre-fabricated L.T. Distribution Boards of approved make & comprising with per tech specification PCEE /NR PCEE/NR/126-Elect/PS/2019/dt 10.12.19 Incoming MCCB 4Pole 125 A 35 KA B/C - 1 No. ii. Outgoing MCB 32 A SP 10 KA B/C- 9 Nos. (3 Nos. on each phase) iii. Outgoing MCB 20 A. SP 10 KA B/C (2 Nos. on each Phase) - 6 Nos iv Outgoing MCB 10A SP 10KA B/C 6 Nos. (2 Nos. on each phase)"																				
19	Supply,erection,testing and commissioning of LED tube light fittings 20 Watt complete as per specification of CEE/NR/121-Elect/PS/2018 dt 28/06/18 or latest. Guarantee-05 years from date of commissioning.																				
20	Supply ,installation ,testing & commissioning of AC MS Exhaust fan 380 mm 900RPM , copper wound motor and with double ball bearing connection with twin core PVC insulated flexible cable size 14/0076" as required suitable for operation on single phase 230 V AC Supply system, earthing, including by grouting MS Nut & bolt of suitable size as per IS:2312 or latest .																				
21	Supply, erection, testing and commissioning of LED street light fitting complete with driver (70 watts) confirming to CEE/NR/121-Elect/PS/2019(Rev-04) dt 04/11/2019 or latest specification and site requirement. in details. Guarantee-05 years from date of commissioning.																				
22	Boring & laying of power cables by trenchless method through HDPE pipe along with supply and insertion of HDPE pipe of PE 80 PN 8 grade of 90 mm dia with min. 6.7 mm and max. 7.6 mm wall thickness as per IS:4984-95 in the bore for the laying of power cables under the track of road. HDPE pipe is to be supplied by the contractor. The power cables will be supplied by railway.																				
23	<p>LT PTTA with IP-65 protection with canopy Junction box -Design, manufacturing, supply, install, testing, erection and commissioning of junction box with 100 Amps MCCB, 4-Pole 36kA & rotary operated mechanism, FP spreader with Aluminium bus bar. As per specification.</p> <p>i. The contractor shall have to design, manufacturing, supply, install, testing, erection and commissioning of outdoor type PTTA Junction box with IP-65 protection. The LT distribution panel shall be fabricated CRCA sheet steel (Panel frame- 2mm / Door, Cover, Partitions- 1.6mm / Gland plate -2mm). Canopy at top will be provided.</p> <p>ii. The Junction box shall be of totally enclosed with IP-65 protection, floor mounted (necessary arrangement will be done by the contractor), dust and vermin proof. To prevent a dust proof joint, polyurethane foam gasket shall be provided on the inner side of the door of the Junction box. The junction box should have hinged double door and locking arrangement at the front. It should also be provided with bottom opening for removal of gland plates etc. Knock out/ glands / gland plates as applicable shall be provided in the junction box for incoming and outgoing cable. Adequate space inside the box shall be provided for bus bar & cable to accommodate the incoming and outgoing cables in a proper manner. Minimum two-earth terminals shall be provided. The junction box should be suitable for three phase 4 wire 415V 50 Cycles AC. Size of junction box shall be 700 x 550 x 350 mm.</p> <p>iii. The junction box (tank process powder coating) should be treated with powder coating microns (80 to 120 microns). Paint shade RAL 7035. GI Silver coating of suitable grade for hardware (nut, bolt, washer, lock, hinges etc.).</p> <p>iv. Bus Bar: Three phase & Neutral Aluminium bus bar (1 sqmm / 0.8A) similar to E91 grade of Hindalco make with colour PVC tape or sleeves and bus bar insulators as per requirement. Size of bus bar – 25x6mm for MCCB 100A (04 nos - 03 phase + 01 neutral). Bus bar support use FRP type material & fault level as per incomer rating. Bus bars shall be covered with 2mm perforated acrylic sheet.</p> <p>v. Complete internal wiring with FR-LSH type copper conductor multi strand (Control wiring – 1.5 sq mm)</p> <p>vi. Caution board in English & Hindi shall be provided and shall be metallic type.</p> <p>vii. PTTA Junction box should have following configurations –</p> <table><tr><th>SN</th><th>Particulars Qty Unit</th><th>Qty</th><th>Unit</th></tr><tr><td>A</td><td>Incomer :</td><td></td><td></td></tr><tr><td>1</td><td>MCCB 100amps, 4Pole, Breaking capacity at 415V AC, 50Hz, 25kA, Ics=100%Icu, thermal release, adjustable over load setting: 0.8 - 1.0 x In, fixed short circuit setting: 10 x In, conforms to IS/IEC 60947-2 &IS 13947 (Part-1 & 2) similar to cat no: DPX3 420095 of Legrand make</td><td>01</td><td>No.</td></tr><tr><td>2</td><td>Ext. Rotary handle</td><td>01</td><td>No.</td></tr><tr><td>3</td><td>FP spreader for MCCB 100A</td><td>02</td><td>Nos</td></tr></table>	SN	Particulars Qty Unit	Qty	Unit	A	Incomer :			1	MCCB 100amps, 4Pole, Breaking capacity at 415V AC, 50Hz, 25kA, Ics=100%Icu, thermal release, adjustable over load setting: 0.8 - 1.0 x In, fixed short circuit setting: 10 x In, conforms to IS/IEC 60947-2 &IS 13947 (Part-1 & 2) similar to cat no: DPX3 420095 of Legrand make	01	No.	2	Ext. Rotary handle	01	No.	3	FP spreader for MCCB 100A	02	Nos
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24	Earthing with 40mm dia. Earth GI pipe class 'B' , 3 meter long, earth electrode as earth per IS:3043 (latest version) to achieve earth resistances less than 5 ohms including construction of masonry enclosures with hinged cover plate of cast iron/RCC(Heavy Duty with lifting arrangement) with locking arrangement as required (Outer hole size: 450XmmX450mm and Cover plate(CI/RCC) size:300mmX300mm) on top, provision of earth plate, connections from earth electrode to switch earth gear/pole as per technical Specification/I.E. Rule.																				
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25	Laying of 2/3/4 core 16/25/35/50/75/95 /120/240/400 sqmm LT UG/XLPE in Trench/Pipe/Cable tray as per site requirement all as specified and as directed. Note:- LT UG Cable will be supplied by the Railways free of cost. However, Contractor has to make own arrangement for shifting the cable to site from the Elect maintenance Depot store. Laying shall be in conformity to IS: 1255/1983 (Latest Version)																				
26	Excavation of cable trench by digging 1000 mm deep and then refilling after laying of cable as per IS1255:1983 and technical specification on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, levelling and repairing the floor to its original condition. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)																				
27	Excavation of cable trench by cutting/breaking station platform concrete/pucca floor digging 400 mm deep and then refilling after laying of cable as per IS 1255:1983 and technical specification enclosed on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, leveling and repairing and finishing the said portion of platform with 1:2:4 cement concrete mixture 100 mm deep from top. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)																				
28	Supply, installation, testing and commissioning of Ceiling fan 1200 mm sweep having BEE 5 star rating, Motor: Brushless DC, power consumption (W): 25- 30, Winding: Copper, Speed control: 5 step with Remote, No. of Blades: 3, Rated Voltage: 140- 285 V AC, 50 Hz AC, Rated speed in RPM: 340, conforming to IS:374/1979 and IS:374/2019 or latest, Conformity to Safety Standard IS: 302/1979 connection with twin core PVC insulated flexible copper conductor copper cable of size 14/0.193 mm including earthing.																				
29	Supply and laying of HDPE pipe conforming to IS 4984:1995 50mm dia wall thickness 3 mm PN-6 under the road/air. The work involves laying of HDPE pipe.																				

30	Excavation and refilling of trench 0.3 Mtr. wide and 0.8 mtrs deep on pitched/stone/brick/ paved surface, road/crossing/platform etc and restoring the surface to its original condition. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
31	Supply , lying of GI pipe class B ISI marked under road, clamping with erected pole or wall as per tech spec for passing cable. i) 50 mm dia GI pipe shall be conforming to IS conforming to IS 1239/Pt.I/1990 or latest and laying shall be in conformity to IS: 1255/1983 (Latest Version)
32	Dismantling/ cutting of rail/tubular poles after dismantling the overhead conductor/ fitting and staking of poles within 1km area as per site requirement.
33	Supply, fixing of 1 meter long 40 mm dia GI pipe bracket with two no. 25x6mm clamp each with nut & bolt to hold.
34	Supply & erection of 5 mtrs high hot dip galvanized Octagonal pole with top 70 mm around face bottom 130 mm thick steel base plate size 200X200X12mm complete with appropriate sleeve at the top of pole for following mounting arm bracket 300 mm long suitable foundation and foundation GI nut bolt with washer and smart pack junction box with single pole MCB and terminals and as per explanatory note.i) Single Arm bracket
	Schedule G-New Running Room at PKYN station
1	Supply & recessing/ fixing of PVC conduit pipe conforming to IS 9537 part-III/1983(latest version) with accessories , junction box etc. including making chase , plastering/clamping etc. as per technical spec.i) 25 mm (medium)
2	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. i) 1 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
3	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. ii) 1.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
4	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iii) 2.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
5	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iv) 4 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
6	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. v) 6 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
7	Supply of batten/ angle holder/ ceiling rose & installation on the junction box of laid conduit including connection, testing & commissioning as per tech. spec..i) Bakelite batten/angle holder
8	Supply of batten/ angle holder/ ceiling rose & installation on the junction box of laid conduit including connection, testing & commissioning as per tech. spec..ii) Bakelite ceiling rose 3 plate Ceiling rose shall conform to IS 371/1979 (Latest Version). Lamp Holder and ceiling rose shall be provided in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version)
9	supply,fixing,testing & commissioning of 12 module metal GI box with 12 module cover plate with IS 4772:2000 (Latest Version).
10	supply,fixing,testing & commissioning of 8 module metal GI box with 8 module cover plate with IS 4772:2000 (Latest Version).
11	supply,fixing,testing & commissioning of 6 module metal GI box with 6 module cover plate with IS 4772:2000 (Latest Version).
12	supply,fixing,testing & commissioning of 4 module metal GI box with 4 module cover plate with IS 4772:2000 (Latest Version).
13	supply,fixing,testing & commissioning of 3 module metal GI box with 3 module cover plate with IS 4772:2000 (Latest Version).
14	supply,fixing,testing & commissioning of 6 amp module switch with IS 4772:2000 (Latest Version).
15	supply,fixing,testing & commissioning of 6 amp 5 pin module socket with IS 4772:2000 (Latest Version).
16	supply,fixing,testing & commissioning of 16 amp module switch with IS 4772:2000 (Latest Version).
17	supply,fixing,testing & commissioning of 16 amp module socket with IS 4772:2000 (Latest Version).
18	supply,fixing,testing & commissioning of modular socket type (2 module) regulator with IS 4772:2000 (Latest Version).
19	Laying of 2/3/4 core 16/25/35/50/75/95 /120/240/400 sqmm LT UG/XLPE in Trench/Pipe/Cable tray as per site requirement all as specified and as directed. Note:- LT UG Cable will be supplied by the Railways free of cost. However, Contractor has to make own arrangement for shifting the cable to site from the Elect maintenance Depot store. Laying shall be in conformity to IS: 1255/1983 (Latest Version)
20	Excavation of cable trench by digging 1000 mm deep and then refilling after laying of cable as per IS1255:1983 and technical specification on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, levelling and repairing the floor to its original condition. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
21	Excavation of cable trench by cutting/breaking station platform concrete/pucca floor digging 400 mm deep and then refilling after laying of cable as per IS 1255:1983 and technical specification enclosed on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, leveling and repairing and finishing the said portion of platform with 1:2:4 cement concrete mixture 100 mm deep from top. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
22	Supply and erection of 103 mm inner dia Double walled Corrugated pipe under the railway track/road as per site required.
23	Excavation and refilling of trench 0.3 Mtr. wide and 0.8 mtrs deep on pitched/stone/brick/ paved surface, road/crossing/platform etc and restoring the surface to its original condition. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
24	Supply,erection,testing and commissioning of LED tube light fittings 20 Watt complete as per specification of CEE/NR/121-Elect/PS/2018 dt 28/06/18 or latest. Guarantee-05 years from date of commissioning.
25	Supply ,installation ,testing & commissioning of AC MS Exhaust fan 380 mm 900RPM , copper wound motor and with double ball bearing connection with twin core PVC insulated flexible cable size 14/0076" as required suitable for operation on single phase 230 V AC Supply system, earthing, including by grouting MS Nut & bolt of suitable size as per IS:2312 or latest .
26	Supply ,istallation ,testing & commissioning of AC MS Exhaust fan 450 mm 900RPM connection with twin core PVC insulated flexible cable size 14/0076" as required suitable for operation on single phase 230 V AC Supply system, earthing, including by grouting MS Nut & bolt of suitable size as per IS:2312 or latest .
27	Supply, installation, testing and commissioning of Ceiling fan 1200 mm sweep having BEE 5 star rating, Motor: Brushless DC, power consumption (W): 25- 30, Winding: Copper, Speed control: 5 step with Remote, No. of Blades: 3, Rated Voltage: 140- 285 V AC, 50 Hz AC, Rated speed in RPM: 340, conforming to IS:374/1979 and IS:374/2019 or latest, Conformity to Safety Standard IS: 302/1979 connection with

	twin core PVC insulated flexible copper conductor copper cable of size 14/0.193 mm including earthing.
28	Supply, fixing, testing and commissioning of cabin fan sweep 400 mm oscillating type suitable for low cabin room make Khaitan , BAJAJ, USHA,
29	Supply, installation, testing and commissioning of the following double door wall mounted pre fabricated LT distribution Board of approved make as per spec."i) Incoming MCB DP 40 A ,10 KA, (B/C)=01 No.ii)Out going MCB SP 6/32 A 10 KA,(B/C)=06 No." Fabrication of meter cum distribution box shall be as per Northern Railway Tech. Specification No. 81-Elect/P/1991 and shall conform to IS 8623/Pt.I& Pt. III/1993 (Latest Version) with degree of protection IP 42 and shall be installed in conformity with 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
30	Supply, installation, testing and commissioning of the following double door wall mounted pre fabricated LT distribution Board of approved make as per spec."i) Incoming MCB TPN, 63 A ,10 KA, (B/C)=01 No.ii)Out going MCB SP 6/32 A 10 KA,(B/C)=18 Nos.(6 Nos on each phase)" Fabrication of meter cum distribution box shall be as per Northern Railway Tech. Specification No. 81-Elect/P/1991 and shall conform to IS 8623/Pt.I& Pt. III/1993 (Latest Version) with degree of protection IP 42 and shall be installed in conformity with 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
31	Supply, erection, testing and commissioning of the following double door wall mounted Pre-fabricated L.T. Distribution Boards of approved make & comprising withs per tech specification PCEE /NR PCEE/NR/126-Elect/PS/2019/dt 10.12.19 i. Incoming MCCB 4Pole 125 A 35 KA B/C - 1 No. ii. Outgoing MCB 32 A DP 10 KA B/C- 6 Nos. (2 Nos. on each Phase)
32	Supply of LED Night lamp fittings with lamp complete with all accessories as per IS. Make: Bajaj/Philips/Havells/Crompton/Panasonic or equivalent.
33	Fixing, connection and commissioning of indoor F.L./LED tube light fittings/LED night lamp/LED name sign board with G. I. clamps made of G. I. Flat of suitable size & G. I. Nut, bolts etc.
34	Supply and fixing of indoor type Wall LED reading light,2W, power supply-220- 240V,50Hz complete with all accessories as per IS, Make: Bajaj/Philips/Havells/Crompton/Panasonic or equivalent.
35	supply,fixing,,testing and commissioning of down lighter 12 watt LED Cool day light as per specification CEE/NR/121-Elect/PS/2019(Rev-04) dt 04/11/2019 or latest specification and site requirement. Guarantee five years from date of commissioning
36	Supply Installation Testing & commissioning of Decorative LED Mirror Light Fitting 10-12 watt to be fitted in mounting.the fitting should have decorative and attractive look.LED should be conforming to CEE/NR's spec. No. CEE/NR/121- Elect/PS/2018 (Rev- '3') or latest at Tech Spec-III attached & PCEE/NR's spec. No. PCEE/NR/121- Elect/PS/2019 (Rev- '4') at Tech Spec-IV attached or latest.
37	Design, manufacture,display, installation of wall / hanging / floor mounting type LED illuminated sign /direction boards in half elliptical shape.The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2 mm thickness.The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed / router cut on monomeric calendered vinyl of 70 um thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4-8 W / sq. ft and with brightness more than ambient light. Suitable size end cap of 1.5 mm thick SS 304 should be provided.
38	Erection and installation of wall / hanging / floor mounting type LED illuminated sign / direction boards in half elliptical shape. The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2 mm thickness. The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed / router cut on monomeric calendered vinyl of 70 um thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4-8 W / sq. ft and with brightness more than ambient light. Suitable size end cap of 1.5 mm thick SS 304 should be provided.
39	Supply, fixing, testing and commissioning of surface mounted /flush type power unit complete with 4 modular plate, 25 A MCB, starter, plug & socket for AC. Make Legrand, Havells, Crabtree, Wipro, Cona ,anchor or equivalent as per IS & IE rules.
40	Earthing with 40mm dia. Earth GI pipe class 'B' , 3 meter long, earth electrode as earth per IS:3043 (latest version) to achieve earth resistances less than 5ohms including construction of masonry enclosures with hinged cover plate of cast iron/RCC(Heavy Duty with lifting arrangement) with locking arrangement as required (Outer hole size: 450XmmX450mm and Cover plate(CI/RCC) size:300mmX300mm) on top, provision of earth plate, connections from earth electrode to switch earth gear/pole as per technical Specification/I.E. Rule.
41	Supply & recessing/fixing on surface 6 SWG GI wire for loop earthing as required as per technical specification. This item shall be in conformity to IS 5613/Pt.I Sec. 1 & 2/1985 (Latest Version). GI wire shall conform to relevant IS
42	Earthing with 600x600x3mm thick copper plate earth electrode as per IS 3043(Latest version), to achieve earth resistance less than one ohm, including construction of masonry enclosure with hinged cover plate of cast iron with locking arrangement (Approx.size 600x600mm) on top, watering pipe, connections from earth plate to top with 40x6mm copper strip in 50mm dia GI pipe class B provision of earth plate as per drawing and tech. spec.
43	Connections with 40x6mm copper strip in 50mm dia G.I. pipe class-B, 300 mm deep in ground/recessing in floor from earth electrode strip to neutral of transformer/alternator as per drawing and technical specification including supply of material.
44	Supply, installation, testing and commissioning of DB Panel having 1 No. 400 A MCCB FP Microprocessor based having LSIG protection as incoming and 2 Nos. 250 Amp. MCCB FP, 2 Nos. 100A MCCB FP & 4 Nos. 63A MCB FP as outgoing with all associate accessories as per technical specification.(i) Erection 1. The contractor shall have to design, supply, install, test and commission LT Panel/ distribution panel board fabricated by 2mm thick MS sheet, standard angles, channels etc. as required in design. The drawing, design switch gears with make and model of the panel shall be submitted by the contractor & got approved by Sr.DEE/G/ADI or SSE/Incharge before fabrication. 2. The panel shall be fabricated by CPRI approved manufacturer. Contractor should submit the copy of CPRI certificate issued to panel manufacturer. 3. The panel shall be indoor rectangular cubicle type, dust and vermin proof suitable for 3 phase, 4-wire, 415V, 50Hz AC supply system. 4. 500A current carrying capacity bus bar for main circuit and neutral shall have uniform cross section electrolytic tinned copper with color coded heat shrinkable PVC insulated and current density of 1.6 Amp/mm2 cross sectional area. 5. Knock out / gland plates as applicable shall be provided. Gland plates of suitable size shall be designed for terminating cables in a straight and easy manner. 6. All power connections from the bus bar shall be made such a manner that there is a clear metal to metal clearance at the tapping is available. Both spring washer and flat washer shall be used with stud/ nuts/to ensure proper contact pressure. 7. The panel shall have metal locks & operated by a common key. All covers & doors to be provided with neoprene gasket & Hinges. 8. The sheet steel enclosure / angle / channel used in the fabrication of panel shall be provided with double coating of red oxide and final coating of Siemens grey powder coated paint. 9. The panel shall be supplied complete with C-channel base plate of 75mm, louver on sides, four lifting hooks and feeder nameplates completely wired and ready for commissioning. 10.Caution board in Hindi, Gujarati & English of metallic type shall be provided on panel. 11. Minimum two earth terminals shall be provided in the panel all sheet steel section shall be electrically connected with a separate G.I. earth strip of 50x6 mm size across the panel at bottom. 12.Panel shall be provided with Digital Multi-Function Meter for each incoming feeder having voltage, Amp. Frequency, KW, KWH, PF, KVAR, KVA with

	<p>CT in all phases as per relevant IS. Make as per List of Approved Make given below of Energy meter/ Measuring instrument and shall be got approved from Sr.DEE/G/ADI or SSE/incharge.</p> <p>13.CT shall be 10 VA burden, class 1.0 accuracy. CT shall confirming to IS:2705.</p> <p>14.Digital voltmeter and Digital Ammeter of suitable capacity (According to MCCB Rating) with selector switch [Kaycee, thakor, L&T (Sulzer)] & CT shall be provided on each phase of outgoing feeder having 63A or more capacity. The meters shall be confirmed as per relevant IS.</p> <p>15.Multi LED type indication lamp confirming to relevant IS having colour code Red, Yellow & blue with control fuses on each incoming & outgoing feeder shall be provided.</p> <p>16.Panel shall be mounted on the fabricated MS Angle (Size 50x50x6mm) stand of suitable size on floor and cemented trench for incoming and outgoing cables shall be prepared by the contractor.</p> <p>17.The breaking capacity of MCCBs should not be less than 35 KA with Rotary handle.</p> <p>18.The contractor shall submit three sets of drawing and wiring diagram of panel along with panel at the time of supply.</p> <p>19.The breaking capacity of MCBs should not be less than 10KA. The DB/panel shall be comprised with following switchgears:</p> <p>Incoming circuit:</p> <ul style="list-style-type: none"> • 1 No. 400A MCCB 4-pole adjustable type with Microprocessor Release having LSIG protection with rotary handle. MCCB should be CM930030000AG of L&T with microprocessor release MTX2.0 or its equivalent of make as per List of Approved Make given below. <p>Outgoing circuit:</p> <ul style="list-style-type: none"> • 2 Nos. 250Amps. MCCB 4-pole adjustable type with thermal magnetic release with rotary handle. MCCB should be CM921090OP1OG of L&T or its equivalent of make as per List of Approved Make given below. • 2 Nos. 100A MCCB 4-pole adjustable type with thermal magnetic release with rotary handle. MCCB should be CM906810OLOOG of L&T or its equivalent of make as per List of Approved Make given below. • 4 Nos. 63A MCB FP, „C” curve. Contractor shall have to supply materials as per List of Approved Make given below. <p>Note:- The contractor shall have to arrange inspection of the LT PANEL at the manufacturer’s premises at his own cost.</p>
45	<p>Supply, installation, testing and commissioning of DB Panel having 1 No. 400 A MCCB FP Microprocessor based having LSIG protection as incoming and 2 Nos. 250 Amp. MCCB FP, 2 Nos. 100A MCCB FP & 4 Nos. 63A MCB FP as outgoing with all associate accessories as per technical specification.(ii) Supply</p> <p>1. The contractor shall have to design, supply, install, test and commission LT Panel/ distribution panel board fabricated by 2mm thick MS sheet, standard angles, channels etc. as required in design. The drawing, design switch gears with make and model of the panel shall be submitted by the contractor & got approved by Sr.DEE/G/ADI or SSE/Incharge before fabrication.</p> <p>2. The panel shall be fabricated by CPRI approved manufacturer. Contractor should submit the copy of CPRI certificate issued to panel manufacturer.</p> <p>3. The panel shall be indoor rectangular cubicle type, dust and vermin proof suitable for 3 phase, 4-wire, 415V, 50Hz AC supply system.</p> <p>4. 500A current carrying capacity bus bar for main circuit and neutral shall have uniform cross section electrolytic tinned copper with color coded heat shrinkable PVC insulated and current density of 1.6 Amp/mm² cross sectional area.</p> <p>5. Knock out / gland plates as applicable shall be provided. Gland plates of suitable size shall be designed for terminating cables in a straight and easy manner.</p> <p>6. All power connections from the bus bar shall be made such a manner that there is a clear metal to metal clearance at the tapping is available. Both spring washer and flat washer shall be used with stud/ nuts/to ensure proper contact pressure.</p> <p>7. The panel shall have metal locks & operated by a common key. All covers & doors to be provided with neoprene gasket & Hinges.</p> <p>8. The sheet steel enclosure / angle / channel used in the fabrication of panel shall be provided with double coating of red oxide and final coating of Siemens grey powder coated paint.</p> <p>9. The panel shall be supplied complete with C-channel base plate of 75mm, louver on sides, four lifting hooks and feeder nameplates completely wired and ready for commissioning.</p> <p>10.Caution board in Hindi, Gujarati & English of metallic type shall be provided on panel.</p> <p>11. Minimum two earth terminals shall be provided in the panel all sheet steel section shall be electrically connected with a separate G.I. earth strip of 50x6 mm size across the panel at bottom.</p> <p>12.Panel shall be provided with Digital Multi-Function Meter for each incoming feeder having voltage, Amp. Frequency, KW, KWH, PF, KVAR, KVA with CT in all phases as per relevant IS. Make as per List of Approved Make given below of Energy meter/ Measuring instrument and shall be got approved from Sr.DEE/G/ADI or SSE/incharge.</p> <p>13.CT shall be 10 VA burden, class 1.0 accuracy. CT shall confirming to IS:2705.</p> <p>14.Digital voltmeter and Digital Ammeter of suitable capacity (According to MCCB Rating) with selector switch [Kaycee, thakor, L&T (Sulzer)] & CT shall be provided on each phase of outgoing feeder having 63A or more capacity. The meters shall be confirmed as per relevant IS.</p> <p>15.Multi LED type indication lamp confirming to relevant IS having colour code Red, Yellow & blue with control fuses on each incoming & outgoing feeder shall be provided.</p> <p>16.Panel shall be mounted on the fabricated MS Angle (Size 50x50x6mm) stand of suitable size on floor and cemented trench for incoming and outgoing cables shall be prepared by the contractor.</p> <p>17.The breaking capacity of MCCBs should not be less than 35 KA with Rotary handle.</p> <p>18.The contractor shall submit three sets of drawing and wiring diagram of panel along with panel at the time of supply.</p> <p>19.The breaking capacity of MCBs should not be less than 10KA. The DB/panel shall be comprised with following switchgears:</p> <p>Incoming circuit:</p> <ul style="list-style-type: none"> • 1 No. 400A MCCB 4-pole adjustable type with Microprocessor Release having LSIG protection with rotary handle. MCCB should be CM930030000AG of L&T with microprocessor release MTX2.0 or its equivalent of make as per List of Approved Make given below. <p>Outgoing circuit:</p> <ul style="list-style-type: none"> • 2 Nos. 250Amps. MCCB 4-pole adjustable type with thermal magnetic release with rotary handle. MCCB should be CM921090OP1OG of L&T or its equivalent of make as per List of Approved Make given below. • 2 Nos. 100A MCCB 4-pole adjustable type with thermal magnetic release with rotary handle. MCCB should be CM906810OLOOG of L&T or its equivalent of make as per List of Approved Make given below. • 4 Nos. 63A MCB FP, „C” curve. Contractor shall have to supply materials as per List of Approved Make given below. <p>Note:- The contractor shall have to arrange inspection of the LT PANEL at the manufacturer’s premises at his own cost.</p>
46	Supply, lying of GI pipe class B ISI marked under road, clamping with erected pole or wall as per tech spec for passing cable. (i) 100 mm dia
47	Supply & erection of 7 mtrs high hot dip galvanized Octagonal pole with top 70 mm around face bottom 130 mm thick steel base plate size 200X200X12mm complete with appropriate sleeve at the top of pole for following mounting arm bracket 300 mm long suitable for LED street light fittings and M20 foundation including casting, muffing, with cement concrete foundation(1:2:4) painting,earthing & foundation GI nut bolt with washer and smart pack junction box with 6 Amp DP RCBO with 30 mAmp sensitivity and terminals and as per explanatory note. (i) Single/double Arm bracket

48	Supply,erection,testing and commissioning of LED street light luminaire 90 watt as per CEE/NR/121-Elect/PS/2019(Rev-04) dt 04/11/2019 or latest specification and site requirement. in details. Guarantee-05 years from date of commissioning
49	Provision of making new trench with use of brick, cement, sand, graded stone along with RCC Trench cover of the following size with providing angle iron in trench for cable laying with support and proper dressing there in trench. Size:50 mtrs x 0.6 mtrs X 1 meter.
50	Supply, fixing, testing and commissioning of low depth sleek type complete LED ceiling fitting 2x2 1x36-40 watt natural white complete fitting should be as per NR tech. specification CEE/NR/121-Elect/PS/2018 dt 28/06/18 or latest specification.Guarantee five years from date of commissioning.
51	supply,fixing,,testing and commisioning of 15 watt LED Bollard Light IP 66 complete as per IS & IE rules and site requirement prior approval of sample. Make-Adhunik, Twinkle Light or equivalent as per drawing.
52	Supply, fixing, testing and commissioning of 4 pole RCBO 16 Amp, 30mA with Earth leakage, overload and short circuit protection as per spec
53	Supply and fixing of Fire extinguisher, cylindrical, portable, 9 Kg capacity, (CO2) foam type with control valve, pressure gauge and flexible hose with nozzle all as specified and as directed.
54	Design, manufacturing, supply, fixing & commissioning of 2 mm thick hot dip galvanized cable tray of under mentioned sizes with all accessories such as corner, bend tie rods etc as per site requirement and to the satisfaction of railway authority. (i) 50x150x50 mm
55	Supply, fixing of MCCB 100 Amp, Fixed Magnetic Release 4 Pole rating 415V, 50 Hz, 50 kA breaking capacity, Frame F3 with electronic microprocessor range with 4 year warranty (As per IEC 60947-2). Make: Schneider, Legrand or L&T or similar.
56	Supply , lying of GI pipe class B ISI marked under road, clamping with erected pole or wall as per tech spec for passing cable. i) 50 mm dia GI pipe shall be conforming to IS conforming to IS 1239/Pt.I/1990 or latest and laying shall be in conformity to IS: 1255/198 3 (Latest Version)
57	Supply, testing and commissioning of submersible pump motor set (BEE), 5 star rating, 5 HP/3.7 KW, 350 V -420 v, 3 phase copper winding, 78 Meter head, 160 LPM, confirming to latest spec & ISI marked.
58	Supply of submersible pump motor set (BEE), 5 star rating, 5 HP/3.7 KW, 350 V -420 v, 3 phase copper winding, 78 Meter head, 160 LPM, confirming to latest spec & ISI marked.
59	Fully Automatic Star-Delta smart controller suitable for 6 HP pump-motor 3 phase 415VAC, 4-22A, Compatible with model: MU-G6S of L&T make, inbuilt anti theft protection, dry run, locked rotor & short circuit protection, voltage and current based protection, hour based and real time clock based timer with line voltage, phase current, power factor, energy metering, total run time of pump. Complete operation (Remote on/off) through SMS or LTLK connect mobile App or IVRS in Hindi & English language, micro controller based technology., Make: L&T, Havells, Seimens, Schneider, C&S or similar.
60	Supply installation ,testing and commissioning of 06 sq mm weather proof submersible cable 3 core flat (1x3x6 sq mm)
61	Supply,fixing & commissioning of GI Bend one side flanged 1.5".
62	Supply, fixing & commissioning of rubber gasket 3mm thick with 4 Nos holes. (i) 8'x4' with hole size 5/8"
63	Supply,fixing & commissioning of NRV G.Metal 1.5".
64	Supply,fixing & commissioning of Sluce valve G.Metal 1.5".
65	Supply,fixing & commissioning of MS Clamp1.5".
66	Supply,fixing & commissioning of Nut bolt 1.5"x3/8" with washer.
67	Fabrication,supply , fixing and commissioning of 38mm dia "C" class G.I. Pipe lengths of 3 meters(10 feet) G.I. Pipe conforming to IS 1239.with 2 nos. welded M.S. flange of size 76mm/38mm" dia 5/8" thickness with four drilled holes of 1/2" dia and and 75/38 mm dia flange with 4 no holes of 3/5" dia and two semicircular cable grooves,for cable(Lowering will include the lowering of motor also to be either supplied by Rly or Contractor)
Schedule H-Repair and rewinding of 1 Nos. 250 kva Transformer (BTI)	
1	New copper coil for rewinding of transformer
2	Oil Filtration at site of Transformers for improvement of IR values & BDV Values as per IE rule.
3	Insulation, Paint, Misc. Items for 250 KVA Transformer
4	Labour Charges for 250 KVA Transformer including transportation, loading unloading etc. complete job.
Schedule I-Repair and rewinding of 1 Nos. 1000 kva Transformer (BTI)	
1	New copper coil for rewinding of transformer
2	Oil Filtration at site of Transformers for improvement of IR values & BDV Values as per IE rule.
3	Insulation, paint, Misc. Items for 1000 KVA Transformer
4	Labour Charges for 1000 KVA Transformer including transportation, loading unloading etc. complete job.
Schedule J-Oil Filtration at UMB/RV/Power depot, NLDM/Power depot, UMB/Colony/Power depot, BTI/Power depot	
1	Oil Filtration at site of Transformers for improvement of IR values & BDV Values as per IE rule.
Schedule K-Provision of Bio-toilet testing lab at C&W Depot, CDG.	
1	Supply & recessing/ fixing of PVC conduit pipe conforming to IS 9537 part-III/1983(latest version) with accessories , junction box etc. including making chase , plastering/clamping etc. as per technical spec.i) 25 mm (medium)
2	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. i) 1 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
3	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. ii) 1.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
4	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iii) 2.5 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
5	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. iv) 4 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
6	Supply and drawing of the following Sizes FRLS PVC insulated multi- stranded copper conductor single core flexible cable conforming to IS 694 (latest version) in laid (recessed/Surface) MS/PVC/HDG Conduit pipe for wiring of point wiring/circuit wining/Sub main/Main as required & as per explanatory note including drawing, connection testing and commissioning. v) 6 sqmm Wiring of installation shall be in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
7	Supply of batten/ angle holder/ ceiling rose & installation on the junction box of laid conduit including connection, testing & commissioning as per tech. spec..i) Bakelite batten/angle holder
8	Supply of batten/ angle holder/ ceiling rose & installation on the junction box of laid conduit including connection, testing &

	commissioning as per tech. spec..ii) Bakelite ceiling rose 3 plate Ceiling rose shall conform to IS 371/1979 (Latest Version). Lamp Holder and ceiling rose shall be provided in conformity with IS 732/1989 (Latest Version), IS 4648/1968 (Latest Version)
9	Supply, fixing, testing & commissioning of 8 module metal GI box with 8 module cover plate with IS 4772:2000 (Latest Version).
10	supply,fixing,testing & commissioning of 6 module metal GI box with 6 module cover plate with IS 4772:2000 (Latest Version).
11	supply,fixing,testing & commissioning of 3 module metal GI box with 3 module cover plate with IS 4772:2000 (Latest Version).
12	supply,fixing,testing & commissioning of 6 amp module switch with IS 4772:2000 (Latest Version).
13	supply,fixing,testing & commissioning of 6 amp 5 pin module socket with IS 4772:2000 (Latest Version).
14	supply,fixing,testing & commissioning of 16 amp module switch with IS 4772:2000 (Latest Version).
15	supply,fixing,testing & commissioning of 16 amp module socket with IS 4772:2000 (Latest Version).
16	Laying of 2/3/4 core 16/25/35/50/75/95 /120/240/400 sqmm LT UG/XLPE in Trench/Pipe/Cable tray as per site requirement all as specified and as directed. Note:- LT UG Cable will be supplied by the Railways free of cost. However, the contractor has to make own arrangement for shifting the cable to site from the Elect maintenance Depot store. Laying shall be in conformity to IS: 1255/1983 (Latest Version)
17	Excavation of cable trench by digging 1000 mm deep and then refilling after laying of cable as per IS1255:1983 and technical specification on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, levelling and repairing the floor to its original condition. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
18	Excavation of cable trench by cutting/breaking station platform concrete/pucca floor digging 400 mm deep and then refilling after laying of cable as per IS 1255:1983 and technical specification enclosed on a cushion of sand 100 mm below and providing protective bricks as per drawing and soil and ramming, leveling and repairing and finishing the said portion of platform with 1:2:4 cement concrete mixture 100 mm deep from top. i) Trench width 300 mm wide for laying up to 3 cables with 9 protective bricks per meter. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
19	Supply,erection,testing and commissioning of LED tube light fittings 20 Watt complete as per specification of CEE/NR/121-Elect/PS/2018 dt 28/06/18 or latest. Guarantee-05 years from date of commissioning.
20	Supply ,installation ,testing & commissioning of AC MS Exhaust fan 380 mm 900RPM , copper wound motor and with double ball bearing connection with twin core PVC insulated flexible cable size 14/0076" as required suitable for operation on single phase 230 V AC Supply system, earthing, including by grouting MS Nut & bolt of suitable size as per IS:2312 or latest .
21	Supply, installation, testing and commissioning of Ceiling fan 1200 mm sweep having BEE 5 star rating, Motor: Brushless DC, power consumption (W): 25- 30, Winding: Copper, Speed control: 5 step with Remote, No. of Blades: 3, Rated Voltage: 140- 285 V AC, 50 Hz AC, Rated speed in RPM: 340, conforming to IS:374/1979 and IS:374/2019 or latest, Conformity to Safety Standard IS: 302/1979 connection with twin core PVC insulated flexible copper conductor copper cable of size 14/0.193 mm including earthing.
22	Supply, installation, testing and commissioning of the following double door wall mounted pre fabricated LT distribution Board of approved make as per spec."i) Incoming MCB TPN, 63 A ,10 KA, (B/C)=01 No.ii)Out going MCB SP 6/32 A 10 KA,(B/C)=18 Nos.(6 Nos on each phase)" Fabrication of meter cum distribution box shall be as per Northern Railway Tech. Specification No. 81-Elect/P/1991 and shall conform to IS 8623/Pt.I& Pt. III/1993 (Latest Version) with degree of protection IP 42 and shall be installed in conformity with 732/1989 (Latest Version), IS 4648/1968 (Latest Version).
23	supply,fixing,testing and commissioning of down lighter 12 watt LED Cool day light as per specification CEE/NR/121-Elect/PS/2019(Rev-04) dt 04/11/2019 or latest specification and site requirement. Guarantee five years from date of commissioning
24	Design, supply, installation, testing & commissioning of weather proof outdoor feeder pillar (MCCB incoming & MCCB outgoing) comprising with the following MCCB's fixed in it of make Havells, Siemens, L&T, Schneider, Legrand or equivalent conforming to IEC 60947-2/IS 13947:2008 & IS 8623:2008 or latest with digital measuring instrument & bus bar arrangement and conforming to PCEE/NR spec. no. 126-Elect./PS/2019 or latest and as per IS, IR rules and site requirement. 4P MCCB 400A 36kA with adjustable thermal & fixed magnetic release = 01 No. (Incoming) 4P MCCB 125A 36kA with adjustable thermal & fixed magnetic release = 04 Nos. (outgoing)
25	Supply and erection of 103 mm inner dia Double walled Corrugated pipe under the railway track/road as per site required.
26	Excavation and refilling of trench 0.3 Mtr. wide and 0.8 mtrs deep on pitched/stone/brick/ paved surface, road/crossing/platform etc and restoring the surface to its original condition. Excavation shall be done complying with Code of Safety as per IS: 3764/1992(Latest Version)
27	Supply, fixing, testing and commissioning of surface mounted /flush type power unit complete with 4 modular plate, 25 A MCB, starter, plug & socket for AC. Make Legrand, Havells, Crabtree, Wipro, Cona ,anchor or equivalent as per IS & IE rules.
28	Earthing with 40mm dia. Earth GI pipe class 'B', 3 meter long, earth electrode as earth per IS:3043 (latest version) to achieve earth resistances less than 5ohms including construction of masonry enclosures with hinged cover plate of cast iron/RCC(Heavy Duty with lifting arrangement) with locking arrangement as required (Outer hole size: 450XmmX450mm and Cover plate(CI/RCC) size:300mmX300mm) on top, provision of earth plate, connections from earth electrode to switch earth gear/pole as per technical Specification/I.E. Rule.
29	Supply & recessing/fixing on surface 6 SWG GI wire for loop earthing as required as per technical specification. This item shall be in conformity to IS 5613/Pt.I Sec. 1 & 2/1985 (Latest Version). GI wire shall conform to relevant IS
30	SITC OF 2 KVA 24 VOLT SINE WAVE INVERTER OPERATING ON 230 VOLT 50 Hz AC ALONG WITH 12 VOLT 180 AH LEAD ACID TUBULAR BATTERY 2 NOS WITH BOX STAND.
31	Installation, testing and commissioning of 1.5 Ton/2 Ton capacity window AC unit alongwith replacement if required including supply and fixing of suitable size wooden frame matching the size of the AC Casing to be fixed in the window and providing drainage pipe upto nearest drainage point. Proper sealing to be done by providing low density foam strip between wooden frame / wall and the AC unit as per technical scope of work. (Note : Air conditioner will be supplied by the Railways)
32	Supply , lying of GI pipe class B ISI marked under road, clamping with erected pole or wall as per tech spec for passing cable. i) 50 mm dia GI pipe shall be conforming to IS conforming to IS 1239/Pt.I/1990 or latest and laying shall be in conformity to IS: 1255/198 3 (Latest Version)
33	Supply, fixing of 1 meter long 40 mm dia GI pipe bracket with two no. 25x6mm clamps each with nut & bolt to hold.
34	Supply, erection, testing and commissioning of LED street light fitting complete with driver (70 watts) conforming to CEE/NR/121-Elect/PS/2019(Rev-04) dt 04/11/2019 or latest specification and site requirement. in details. Guarantee-05 years from date of commissioning.
35	Supply, fixing, testing and commissioning of low depth sleek type complete LED ceiling fitting 2x2 1x36-40 watt natural white complete fitting should be as per NR tech. specification CEE/NR/121-Elect/PS/2019(Rev-04) dt 04/11/2019 or latest specification.Guarantee five years from date of commissioning.

These explanatory notes are for guidance of field staff. Each work has its own particular requirements. Engineer in- charge will be responsible for successful execution of work as per technical specifications.

- i) All electrical works should comply with Indian Electricity Act 1910 and Indian Electricity Rules 1956 or latest
- ii. All electrical installations works shall conform to relevant Indian Standard Code of Practice and carried out as per relevant safety Code of Practices, Guide for Safety Procedures in Electrical W ork as per I.S. 5216/Pt.I& II/1982 or latest
- i) All components used in installation shall be of appropriate ratings of voltage, current, and frequency.
- ii) All minor items viz. hardware items, foundation bolts, termination lugs for electrical connections etc. as required and necessary for proper working of the equipment shall be deemed to have been included in the tender, whether such items are specifically mentioned in the tender documents or not.

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Note: All petty hardware required for completion will be supplied by the contractor free of cost,if any specification not found ,

it can be seen in the office of SrDEE/G/UMB.

Specification for internal electrical installation and wiring

All the works shall be carried out in general in accordance with relevant IS code of practice and IE rule in practice in accordance with special conditions & specifications of contract.

1.0 SCOPE

This specification covers the general technical requirements and measurement of the various components in internal electrical installation and wiring works in office and residential buildings.

2.0 Wiring :-

Wiring shall include all work necessary to complete wiring of ceiling rose, light holder, ceiling fan and exhaust fan outlets plug points etc. from the controlling switch. The scope of wiring for a point shall, however, include the wiring work necessary for a point, include the wiring work necessary in tapping from another point in the same distribution circuit. In case of call bell points wiring from the ceiling rose meant for connection to bell push shall be taken.

Following shall be deemed to be included in the wiring :-

- a) Conduit, conduit accessories and wiring cables between switch box and point outlet.
- b) All fixing accessories such as staples, saddles, nails and screws etc.
- c) M.S switch boxes for mounting controlling switches sockets and regulators etc., recessed or surface type, and phenolic laminated top sheet over the switch boxes.
- d) Outlet boxes, junction boxes, pull through boxes etc. excluding loose wire boxes.
- e) Control switches
- f) 3 pin or 6 pin sockets, ceiling rose or connector etc.
- g) Connections to ceiling rose, connectors, sockets outlet, lamp holder and switches etc.
- h) Interconnecting wiring between points on the same circuit in the same switch box or from another.
- i) 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 circuits/submains/mains is excluded from the scope of points)
- j) Bushed conduit or porcelain tubing/flexible conduit where wiring cables pass through walls.

3.0 Measurements:-

- i) Measurements for wiring work shall be done in running meters for individual materials to be installed such as conduit pipe, wires etc.
- ii) Measurements for other electrical accessories shall be done in numbers.
- iii) Measurements for earthing complete shall be done in number or per job.
- iv) Measurement for switch box shall be in numbers.

The wiring shall be done with single core, multi stranded, PVC insulated, 1100 Volts grading, (as per CEE's approved list) unsheathed, copper conductor wires of 1.5mm sq.size for wiring of light and fan points. G.I. earth wire of required size shall be drawn for earthing purposes for light, fan and 5 Amps plug points terminating in 3 plate ceiling rose or 3 pin 5 Amps socket. Protective earth conductor shall be drawn outside the conduit and terminated on the earth terminal in switch box and three plate ceiling rose and 5 Amps 3 pin socket.

The 5 Amps plug and 15 Amps plug wiring shall be measured on linear basis for material i.e. conduit, wires etc., from the respective tapping point of the line cable, namely switch board, another socket outlet or the sub distribution board as the case may be, upto the socket outlet.

Note:-However, where point wiring is not adopted measurement of each item required to execute the work shall be made separately.

Measurement of conduit shall be in meters run which will include all items required for providing conduit in walls or ceiling.

No separate measurement shall be made for conduit accessories, saddles, cement etc.

3. Circuit Wiring.

Circuit wiring shall mean the wiring from the distribution board/meter cum DB board to room switch boards. Separate circuits from distribution board shall be drawn to each room switch board. Circuit wiring shall be measured on linear basis along the run of the wiring. The increase on account of diversion or slackness shall not be included in the measurement.(When wires of different circuits are grouped in a single conduit the same shall be measured on linear basis depending on the actual number and size of wires run) when circuit wires of different circuits are grouped in a single conduit the same shall be measured on linear basis depending on the actual number and size of the wires run. Protective loop earthing conductors which are run along the circuit wiring shall be measured along with the circuit. The circuits may be drawn with 1.5mm/2.5mm/4mm/6mm sq. single core, stranded PVC copper. 1100 V grading ISI marked wires for room switch board with 5 Amps, 3 pin, plug point and with 2.5mm sq. PVC, ISI marked wires .Wiring of installation shall be in conformity with IS 732/1989 (Latest version) IS 4648/1968 (Latest Version)

Any light circuit shall not have more than 10 points of light 2 fan or total connected load of 800 watts whichever is less. Common 14 SWG G.I. earth wire or copper wire shall be used all along the route of circuits for protective loop earthing. The earthing conductor should be run outside the conduit. Each circuit shall be controlled by circuit breaker or fuse on the phase, provided on the distribution board.

The neutral conductors shall be connected to a common link and be capable of being disconnected individually for testing purposes. The power circuits shall be drawn in separate conduits. The power circuit shall be with only one outlet per circuit for non-residential buildings and shall be for not more than two outlets per circuits for residential buildings. Each power circuit shall be drawn with 4mm sq/6mm sq./10mm sq.. size PVC, Copper., single core, stranded, unsheathed wires in concealed conduit as the case may be. A continuous protective (loop earthing) 14 SWG G.I wire or copper wire as required size. Earth conductor shall be provided for power circuit. The MCB shall be connected on phase conductor. The circuit shall be designed on the basis of load where not specified the load shall taken as 1 KW per outlet point. Circuits wiring shall include conduit, conduit accessories, bends, fan boxes, inspection boxes, staples, saddles, nails, screws, PVC wires earth wire and all other required materials

4. Sub main wiring.

Sub. Main wiring shall mean from main distribution board to sub.D.B. or in case of residential quarters block distribution board to individual quarters meter cum distribution board. Sub main wiring shall be measured on running meter basis along the run of the wiring for conduit & wires. The measurements shall include all length from end to end of conduit exclusive of interconnections inside the switchboards. The increase on account of diversion or slackness shall not be included in the measurements. When wires of different sub mains are grouped in a single conduit the same shall be measured on running meter basis depending upon the actual number of sub mains. Protective (loop earthing) conductors of 14 SW G GI or copper wire as the case may be, run along the sub mains wiring this be measured on running meters basis.

Submains shall be of size 4mm sq., 6 sq.mm or 10mm sq as the case may be. For load conditions in non-residential and residential buildings or as specified, sub main wiring shall include all the work necessary for wiring from main distribution board to sub main board and block DB or to individual quarter DB. This includes conduit, conduit accessories, staples, saddles, nails, screws, J.Boxes, bends, PVC wires, earth wire and all other materials required. Each sub main shall be controlled through proper capacity circuit breaker or fuse or MCB as the case may be.

5. Mains:

Mains means from outside source of supply such as LT overhead pole, outdoor type LT panel, LT 'KIOSK' etc. up to main switch/main distribution board in the building. This should be through underground cables, overhead conductors weather proof wires or with PVC wires in concealed/surface conduit as the case may be. The size and type of cables/wires/conductors shall be as per load requirements or as specified in the schedule of rates. For underground cable laying attached cabling specifications should be adhered to for passing cables below Rly. track, pucca road or surface, for rising cables on wall or on poles G.I. pipe, well clamped of adequate size and length shall be provided on wall or pole.

6. CONDUITING:-

The erection of conduits, each circuit shall be complete before the wires are drawn in. heavy gauge Conduit pipes. The conduit shall be fixed by means of staples at not more than 60cms apart & at either side of bends; saddle staples shall be fixed at a distance of 15 cm from the center of bends. The conduit pipe shall be fixed in nicely made recess. Concerned conduit work shall be done for all applications and surface conduit work may be adopted in places where concealed work is not possible to be done. The type of conducting shall be as specified in the individual work. Flexible PVC conduits shall be used only at terminals wherever specified. Laying of conduit shall be in conformity with IS732/1989 (Latest Version), IS 4648/1968 (Latest version)

All PVC rigid medium conduit shall be conforming to IS 9537 Part-III and IS 3419 for rigid conduit and IS 6946 for flexible conduit. The interior of the conduit pipe shall be free from obstructions. The conduit pipe should be ISI marked. No conduit less than 25mm in dia shall be used. The maximum number of PVC insulated aluminum/copper conductor cables of 1100 volt grade can be drawn in one conduit of various sizes is as under: -

Cross secd.area of conductor in sq.mm	20mm		25mm		32mm		38mm		51mm	
	S	B	S	B	S	B	S	B	S	B
1.5	5	4	10	8	18	12	-	-	-	-
2.5	5	3	8	6	12	10	-	-	-	-
4	3	2	6	5	10	8	-	-	-	-
6	2	-	-	4	8	7	-	-	-	-
10	2	-	4	3	6	5	8	6	-	-
16	-	-	2	2	3	3	6	5	10	7
25	-	-	-	-	3	2	5	3	8	6

Note:

- i) S apply to runs of conduits which have distance not exceeding 4.25 meters between draw in boxes and which do not deflect from straight line.
- ii) B apply to runs of conduit which deflect from straight line by an angle of more than 15 degrees. Conduit sizes are the nominal external diameters.

All the joints shall be sealed. Dam aged conduit pipes shall not be used in the work. All bends in the system should be formed by inserting suitable conduit accessories such as bends, elbows or by fixing metallic inspection boxes with covers. Radius of bends in conduit pipe shall not be less than 7.5 cm. No length of conduit shall have more than the equivalent of four quarters bends from outlet to outlet. The chassis in wall shall be neatly made of ample dimensions to permit the conduit to be fixed in a manner desired. The conduit shall be fixed in wall chassis by means of staples j- hooks not more than

60mm apart. In RCC work the conduit shall be laid in position and fixed to the steel reinforcement bars by steel binding wires before casting. Suitable number of MS inspection boxes and MS J.Boxes shall be provided for easy drawing of wire in each run of conduit.

7. Providing Switch boxes:

The switch boxes shall of 18 SWG(1.2MM) thick M.S. sheet fabricated. The M. S. switch boxes shall be duly painted with anticorrosive paint. The following sizes shall be used:-

- i) 100mmx100mmx60mm (for single or double light point control)
- ii) 180mmx100mmx60mm (for plug point and 4 light points control)
- iii) 200mm x 250mm x 100mm (for rooms with one ceiling fan, with light fittings)
- iv) 300mm x200mm x 100mm (for rooms with one ceiling fan, with light fittings)
- v) 375mm x 300mm x 100mm (for big halls for light and 2 fan points)

An earth terminal with stud and 2 metal washers shall be provided in each M.S. switch box for earth Conductor. The switch box shall be installed so that the bottom of box is 1.25 meters above floor level flush to wall surface unless or otherwise specified in the tender documents. Two M.S. switch box shall have knock and holes for entry and exit of wires. Where a large number of control switches & fan regulators are required to be installed more than one switch box shall be used for easy maintenance. Phenolic laminated sheet of approved shade shall be used for switch boxes covers. These phenolic laminated sheet shall be 3mm thickness conforming to grade P-1 of I.S. 2036. The phenolic laminated sheet shall be neatly cut to accommodate requirement number of switches, sockets and fan regulators. The switch board shall be located at convenient places consultation with zonal Electrical Incharges. The switch box shall not be located above gas stove, sinks or within 2.5 meters of any washing unit. The top sheet shall be fixed with the help of brass screws of adequate required sizes. M.S. boxes may also be used as junction/inspection boxes in concealed conduit wiring if required for easy maintenance and easy drawing of wires. These boxes shall be covered with phenolic laminated sheet with the help of brass screws and cup washers.

8. Meter box cum main switch box for residential quarter

Meter box shall of 1.2mm thick CRCA steel construction of overall size 500mm height, 300mm width, 135mm depth. Finished in grey stove enamel. It should be having two equal compartments independently lockable. The hinged lockable doors of both compartments should be properly rubber gasketed. The rubber gaskets shall be fixed in a groove provided in the door itself. The openings and doors of both compartments should have collar of 10mm width neat finish to prevent water. Upper compartment shall be suitable for accommodating 8 nos. SP MCB's (outgoing) of 5/16 Amps rating but shall be equipped with specified numbers of MCB as per requirement of quarter. And as per schedule of work, directly mounted on an bus bar. The bus bar shall be insulated from body of box. This compartment shall also have Al. neutral link and one earth link. Lower compartment shall be suitable for 1 no. MCBs of 6Amps/16 Amps/32 Amps/63 Amps rating as per schedule (incoming). It shall be suitable for fixing single phase energy meter. This compartment shall also be provided with glass window size 90mmx70mm such that the meter reading is taken without opening the door. MCB's shall conform to IS 8828 for any of the approved makes and shall be suitably mounted in the box on elevated sheet steel supports so that only the knobs of the MCB's are outside for operation without opening the door. The meter box shall be suitable for mounting one single phase energy meter (supplied by Railways) in the lower compartment with suitable fixing base along with 6mm thick suitable size quivale sheet The box shall have knockout and type 40mm dia 3 nos. cable entry holes with grummet on the top and bottom of the meter box. The meter box overall shall conform to NR HQ specification no.81-Elect/P/1991 with degree of protection IP-42 conforming to IS 8623/Pt-I & III shall be conformity to IS 732 & IS 4648.. The meter box in quarters shall be located inside the quarter in such a position that it is easily accessible to maintenance staff and meter reader. However, the location of meter box shall be decided by the zonal Electrical Incharge at site "L" series MCB's shall be used for light circuits and "G" series for power circuits.

9. Rewireable type Iron clad Distribution Box:-

The box may be used as block distribution board for blocks of residential quarters. The block distribution board shall be of 2.0mm thick CRCA steel construction of overall size 400mmx250mmx135mm shall be conform to IS 5623 Pt-I & III with degree of Protection IP-53. Finished in grey stove enamel paint with a prior coating into corrosion red oxide primer. The board shall have a hinged, lockable door. It should be properly gasketed with rubber gasket fixed in a groove knockout and 40mm dia holes on top and bottom for cable entry & exit. The box shall be painted inside and outside. The box consist of 32 Amps Kit-kat. Suitable insulated from body of box aluminum busbar of cap. 60 Amps for phases and neutral. The box shall have earth link for connecting earth and neutral link. The DP shall be 4,6,8,10,12,16 way as specified in schedule The box shall have rewire able type proactive 16 Amps cap or 32 Amps Kit-kats for outgoing feeder to each quarter in a block of quarter as per schedule The DB shall be provided at center location on block of quarters or on service poles with proper clamps/foundation bolts as the case may be. The box may also be location in one block. Outgoing rewire able type porcelain kit-kats ways shall be provided according to number of quarters in a block. The location for fixing the block DB shall be given by zonal Electrical Incharge at site and shall be installed in conformity with IS 732 & IS 4648. On the door warning in bold letters in red colour "DANGER" shall be marked both in Hindi & English

10. MCB type Distribution Board(If required):-

Single phase or three phase & neutral distribution boards of MS sheet (1.6mm thickness) fabricated having hinged door or detachable front cover, water and vermin proof shall be used as main DB or sub DB's The complete board shall be factory fabricated and shall be duly rewired in the work, ready for installation. The DB may be with or without loose wire box as specified in the tender documents. The DB shall be of minimum height 125mm in case of TPN and 100mm in case of SPN DB's.

The board shall have sufficient number of knock out holes at top and bottom for cable entry and exit. The DB shall be provided flush to wall surface and shall be suitable for accommodating MCB's of single, double or triple poles. Only the knob of the MCB's shall be protrude out of the front door/cover through openings neatly machine made for this proposal. The bus bars shall be of solid electrolytic copper of appropriate sections. Din bar/channel shall be provided for mounting MCB's. The cover/door shall be gasketed suitable for protection class IP 54. The DB's shall be 4/6/8/10/12/16 way single phase or 3 phase and neutral as per requirements and is specified in the tender documents. The DB shall be phosphatized powder painted both inside and outside.

"L" series MCB's shall be used for normal light circuits and "G" series MCB's for power circuits

11. LT MS outdoor type switch board or 'KIOSK'(if required):-

The MS sheet fabricated KIOSK shall be fabricated out of 14 SW G MS sheet. Overall size of KIOSK height 800mm x 10mm for slinging roof, width 400mm and depth 200mm, The KIOSK shall have two separate compartments upper and lower. Upper compartment of height 350mm and lower compartment of 450mm, height. Both compartments shall have separate side opening, hinged, lockable, dust/vermin proof, and gasket doors with handles. Proper gaskets shall be provided in specially made gloves in the doors. The roof of the KIOSK shall be slanting/sloppy towards front and back of the KIOSK. The Kiosk shall have IP 65 Protection. The slanting roof of KIOSK shall remain 10mm projected outside on front and backside of the KIOSK for proper protection from rains. Both the compartments of KIOSK shall have fabricated MS sheet supports/base plate for fixing meter and ICTP/ICDP switches. The KIOSK shall have four 50mmx50mmx5mm angle iron legs of 400mm length. These legs shall be properly welded to box.

These legs shall be grouted in cement concrete platform to be provided. For fixing KIOSK. The details please see Drg. No.Elect/UMB./Genl./91 . The KIOSK shall be painted with light grey super enamel spray paint on a coating of red oxide primer both inside and outside. Location of the KIOSK should be got approved by the contractor from zonal Electrical Incharges at site before installation.

12. Nomenclature of equipments & materials.-

All the materials and equipments shall be new and they shall be such design, size and material as to satisfaction by function under the rated conditions of operation and to withstand the environmental conditions. All components shall conform to relevant Indian standard specifications. Similar parts of all switches, holders, DB's switchgear, and other components should be interchangeable.

1. PVC Insulated copper conductor stranded, 100 volts grading wires :- IS 694(Latest version)
2. PVC insulated Electric cables working voltage 1100 V copper conductor:-IS 1554 (Pt-1)
3. Metal Clad switches : IS 4064
4. MCB : IS 8828
5. Piano type switches : IS 3854
6. Three pin sockets : IS 1293
7. PVC Conduit 25mm dia(medium) : IS 9537 (Pt-3)
8. Bakelite Holder : IS 1258
9. Ceiling rose(Three pin) : IS 371
10. MS switch Boxes(1.2mm thick CRCA sheet) : IS 5133(Pt-1)
11. Phenolic Laminated sheet : Grade P-1 of IS 2036

For items of materials for which makes are approved by Railway time to time, only such approved makes shall be permitted in the work. The conductor shall get samples of all materials approved by Sr.DEE/G/UMB before starting the execution of work at site.

13. Instructions to be strictly following:-

- i) Electric supply to whole quarter should not be disconnected during quarter rewiring and shall be restarted at end on day.
- ii) Wiring of quarters should be done circuit wise/section wise i.e. one circuit of one room should be taken in hand at a time to cause minimum discomfort to the occupant.
- iii) Supply of other circuits/rooms should not be disconnected.
- iv) Circuit for rewiring taken in hand should be completed before evening and restore the electric supply before evening.
- v) In case of quarters of one room, sufficient man power must be engaged to complete the work within one day.
- vi) While doing the conduit work debris as a result of wall cutting must be removed immediately from the quarters and should be disposed off in dust bin earmarked for garbage.
- vii) Instruction laid down in attached explanatory notes shall be strictly followed.

14. Testing:

On completion of installation following tests shall be carried out.

- a) Insulation resistance test.
- b) Polarity test of switches
- c) Earth continuity test
- d) Earth electrode resistance test

Testing shall be carried out for the complete installation in the presence of zonal Electrical Incharge to his satisfaction, all the test results shall be recorded and signed by contractor and zonal electrical incharge and submitted to Sr.DEE/G/UMB All necessary test instruments for testing shall be arranged by the contractor if so required by the zonal electrical incharge.

All the tests shall be carried out strictly according to latest ISS and IE rules & Act and rules framed hereunder. All the installation work shall conform in all respects to latest IE Act/Rules/regulations/ IS code practices for incharge shall submit a completion report of the work along with the measurements.

1.0 SCOPE:-

This specification covers the requirements for the selection and installation of power cables for low, medium and high voltage applications.

2.0 TYPE OF CABLES:-

The cables for applications for low and medium voltage supply shall be XLPE cable conforming to IS 7098/ Pt-I 1988 or latest.

The cables for applications above 1.1KV but up to and including 11 KV supply shall be XLPE cable conforming to IS 7098/ Pt-I 1988 or latest. The cables for applications above 11 KV but up to and inclusive of 33 KV supply shall XLPE(E) cable conforming to IS 7098/ Pt-II 1988 or latest. The cables shall have stranded aluminum conductors. where paper insulated cables are used, in predominantly vertical situation, these shall be of non-draining type.

3.0 SELECTION OF CABLES:-

Cable sizes shall be selected considering the current carrying capacity, voltage drop, maximum short circuit duty and the period of short circuit to meet the present and future anticipated loads.

Medium voltage distributions shall be designed such that the voltage available at final outlets are generally within the limits recommended by IS 732-1963.

Guidance for the selection of cables shall be derived from the relevant Indian Standards such as IS 3961(Part-I)_1967, IS 3961(Part II)- 1967, IS 5819-1970, IS 1255-1967 etc.

While deciding cable sizes, the derating factors for type and depth of laying, grouping, ambient temperature, ground temperature, and soil resistivity shall be taken into account.

4.0 HANDLING & STORAGE :-

The cable drums should be stored on a well-drained, hard surface, preferably a concrete platform, so that the drums do not sink into the ground causing flange rot and damage to the cable

During storage the drum should be rolled periodically at least once in three months through ninety (90) degrees in the direction of arrow marked on the drum.

During storage it should be ensured that both the ends of the cable are properly sealed with plastic caps to prevent ingress of moisture into the insulation.

Adequate protection should be provided from rain & sun. Ventilation should be sufficient between the power cable drums. Adequate drainage between the cable drums should be ensured to avoid water logging.

The drum shall be rested on the flanges and not on the flat side.

In case the batons of drums get damaged, the same should be replaced.

Whenever the drums are required to be moved to short distance these should be rolled in the direction of arrow marked on the drums.

While transporting the drums over longer distance the drums should be mounted on cable drum wheel strong enough to carry the weight of drum and cable should be rolled with ropes. Alternatively, the drum should be mounted on a trailer for movement, otherwise suitable mechanical means of transporting should be utilized.

In order to unload the drum from the transport vehicle use of cranes should be made, otherwise the drum should be rolled down carefully on suitable ramps or rails wherever necessary.

For removing the cable from drum, the drum should be properly mounted on jacks or on a cable wheel ensuring adequate strength of jack and spindles for carrying the weight of drum.

If the cable is to be transferred from one drum to another, it should be ensured that new drum should not have diameter less than that of the original drum.

While unloading, transporting or removing the cables, it should be ensured that cable should not be bent to small radius. The minimum safe bending radius for all types of PVC/paper insulated cable should be at least 15 times of the diameter of the cable, up to 11 KV grade and 20 times diameter for cables, above 11 KV grade.

For XLPE cables, minimum bending radius of 15 times the diameter for cables up to 11 KV and beyond is permissible. 1.12. At the termination and under onerous site conditions, the bending radius for cables may be reduced from the value mentioned above, without causing any damages to the cables and taking adequate precautions.

At the joints and terminations bending radius for the individual cables should be above 12 times the diameter over the insulation.

The maximum permissible tensile strength for cables i.e. PVC and XLPE insulated armoured power cables shall be $9 D^2$ where D is the outer diameter of cables in mm. The force thus calculated shall be in Newtons (N).

It should be given due consideration when cables are pulled with stocking.

For the cables pulled with pulling eye the maximum permissible tensile stress shall be 50 N/mm² for aluminum Conductor cables.

5.0 INSTALLATION OF CABLES

It should be ensured that no cable with kinks or similar apparent defects like defective armoring shall be installed. Prov. of BIS 1255-1983 should be followed in general for laying of and installation of cables.

6.0 ROUTE OF THE CABLE

The route of the cable should be decided before the work of cable laying is under taken. It should be got approved from the Engineer-in- Charge. A

proper drawing showing the route of the cable should be prepared and got approved before hand and should be preserved as proper record for posterity.

Always the shortest possible route should be preferred to economies in the use of cables. Cable runs should generally follow the fixed developments such of roads. Pathway etc. with proper off sets so that the future maintenance work, identification etc. can be easily done. Cross country runs for shorter routes should be avoided as it would create problem in identification and maintenance later on.

Care should be taken to avoid the corrosive soil, around surrounding, sewage effluent etc. In case it is not possible to avoid such like corrosive soils etc. proper protection of the cable should be ensured for avoiding deterioration at a later stage.

As far as possible the alignment of cable should be decided taking into consideration the present and future requirement of other services like water supply, sewage, telecommunication cable and other electrical LT/HT cables.

The cable route should be kept adequately away from the drains to avoid any seepage of water.

There should be adequate distance between HT & LT cables. The cables should be laid in well demarcated routes along the roads and other fixed developments.

The cables of different voltages grading and power and control cables should be laid in different trenches. In case it is not possible to lay them in separate trenches, same trenches may be used, but in the trench adequate separation should be ensured.

In case it is unavoidable to separate HT & LT cables. The high tension HT cable should be laid below LT cable.

Wherever the power and telecom cables are to cross each other the same should be laid at right angles to avoid interference. Wherever it is unavoidable to lay them in proximity, horizontal and vertical clearance between the two should not normally be less than 600mm.

7.0 RAILWAY CROSSING

Wherever the cables are to be laid under Railway tracks, the cables should be laid in RCC/CI/Steel pipes not less than 1000mm measured from the bottom of sleeper to the top of the pipe. Inside Railway station limits pipe shall be laid up to the point of railway boundary from a point to be decided by Railways. Outside the Railway station limits, pipe shall be laid up to the minimum distance of 3 m from center to the nearest track on either side.

8.0 LAYING OF CABLES:-

8.1 Method of laying of cables.

The cable shall be directly laid in ground., in RCC pipes, in open ducts or on surface depending upon the requirement and site condition. While deciding the route of the cable at preliminary stage it should be ensured that the joint in the cable shall be placed at most suitable place. Such increasable location like the water logged areas, carriages ways, pavements proximity to telecom cables, water mains pipes etc. should be avoided.

8.2 LAYING DIRECTLY IN GROUND

The cable should be laid directly in ground, wherever it is passing open country, along the roads/lanes etc. The area which is likely to be excavated frequently should be avoided. Care should be taken to select the area where re-excavation is easily possible without affecting the other services in the proximity.

9.0 PROVISION OF TRENCHES

9.1 WIDTH OF TRENCH: - The width of trench shall be determined on the following basis :-

The minimum width of cable trench shall be 400mm. Wherever more than one cable laid in the same trench in horizontal formation the width of trench shall be increased such that inter axial distance between the cable shall be at least 200mm.

There shall be clearance of 150mm between the end cables and the sides of the trench.

In addition to the protective cover over the cable laid in the underground trench, a brick on edge should be laid in between the two juxtaposed cables along the direction of the lay of the cable for providing separation.

9.2 DEPTH OF TRENCH :- The depth of the trench shall be determined on the following guide lines :-

Normally cables should be laid in single tier formation. Wherever the cables are laid in single tier formation, the total depth of the trench should not be less than 750mm for cables up to 1.1 KV grade and 1200mm for cables above 1.1 KV.

Wherever it is unavoidable to lay the cables in more than one tier the depth of trench should be increased by at least 300mm for each additional tier to be formed.

9.3 EXCAVATION OF TRENCH

To the extent possible the trench should be excavated in straight lines.

In case gradient has to be provided in the depth of the trenches, it should be a gradual one.\

Manual or mechanical means should be employed for doing excavation. The soil shall be stacked one the side of the trench in such a manner that it should not fall back into the trench.

Due care should be taken to avoid damage to any existing cables. pipes or other such installations in the proposed route during excavation. While excavating, if route markers, bricks, tiles, bare or protective covers encountered further excavation should not be carried out without the approval of Engineer-in-Charge.

In case existing property gets exposed during trenching the same should be temporarily supported or proposed adequately as directed by the Engineer-in-charge. The trenching in such case shall be limited to short lengths, Protective pipes should be laid for passing the existing cables therein, and the trench should be refilled in accordance with clause 6. In case there is a danger of collapse, or the trench is endangering existing structure the site should be well supported before proceeding on with the excavation work.

The bottom of the trench should be level, free from, brick-bats and gravel etc. The trench shall be provided with the layer of clean dry sand cushion of not less than 8cm in depth.

10.0 LAYING OF CABLE IN TRENCHES:-

Before the cable is issued for laying, the individual cores should be tested for continuity and insulation resistance. The cable should be removed from drum by mounting the drum on jacks and spindles of adequate strength. Care should be taken of that the supporting arrangement does not creep to one side while the drum is in rotation.

The cable should be pulled over rollers in trench, steadily and uniformly and without jerks and strains. The entire cable shall be as far as possible be paved off in one strength, however, if this is not possible. The remaining in reverse direction. After uncoiling the cable and laying into the trench over rollers the cable shall be lifted over the roller by helper sustaining about 1000m. apart and drawn straight. The cable shall then be taken off, the rollers by additional helpers by lifting the cable and then laying in reasonably straight line.

In shorter runs sizes up to 50 sq.mm of cable and 9 grade up to 1.1 KV any other method with the approval of Engineer-in-Charge may be employed. After properly straightening the cable, the cores are tested for continuity and insulation resistance as per clause 1.0/Pt.IV and the cable is then measured. The ends of cable should be sealed suitably to avoid ingress of moisture. The cable laid in a single tier formation shall have covering of dry sand of not less than 150mm above the base cushion of sand before the protection cover is laid.

In case of the multi tier formation, after laying the first cable, sand cushion of 300mm shall be provided if following tier are required to be provided. Each of the subsequent tier shall have sand cover of not less than 150mm before the protection cover is laid.

Wherever straight through/Termination joint is to be provided, a surplus length of 3000 mm of cable should be left on both the sides in the formation of loop. Wherever longer run of cable length is provided, balance cable may be left at suitable entrance as specified by the Engineer-in-Charge.

Wherever the cable is entering buildings, fixed structures like sub-station end/or back trenches, surplus length of 3000 mm should be left in the shape of loop, otherwise as decided by Engineer-in-Charge. Surplus cable of same locations as found suitable should be left in the cable of loop.

11.0 FINAL PROTECTION: - The cable shall be protected in accordance with sand layer provide warning to future excavators and also for avoiding any accidental mechanical damage by pickaxe blows etc.

11.1 The cable should be protected with well-burnt bricks of not less than 20x10x10 cms. Bricks shall be laid widthwise for the full length of the cable on the top of the sand to the satisfaction of Engineer-in-Charge. When more than one cable is laid in the same trench this protective covering shall cover all the cables and project at least 5 cm over the sides of the end cable

11.2
12.0 BACK FILLING OF TRENCHES:-
After excavation and laying of cables, the trench should be back filled with excavated earth, free from stone or other sharp-edge debris and should be watered if necessary. A crown of earth of 50mm should be left in the center, tapering towards the sides of the trench to allow for subsidence. The trench should be inspected at regular intervals particularly during wet weather and any settlement shall be made good by contractor by future filling, if required.

Due to cable laying work any disturbance to existing equipments in the area like roads, pavements, garden should be made good after the cable laying work is over.

13.0 ROUTE MARKERS
Route marker should be provided along straight runs of the cables at locations approved by the Engineer-in-Charge and generally at intervals not exceeding 100 Mtd. Wherever the cable route is changing or it is entering a fixed installation, route marker must be provided. Route marker shall also be provided at joints of cable.

Route marker shall be made out of 100x100x5mm CI/GI plate, welded or bolted on two 35x35x6mm angle iron 500mm long. The said route marker shall be mounted parallel to, and at a distance of .5 Mts. From the edge of the trench. The word cables, the level of voltage, size of cable should be inscribed on the route marker.

14.0 CABLE IDENTIFICATION TAGS
Cable markers should be provided where more than one cable is laid in just posted configuration. The marker tags as approved described with cable identification details shall be permanently attached to all the cables at the manhole pull pits/ entering points in buildings through open duct etc

15.0 LAYING OF CABLES IN PIPES/CLOSED DUCTS :-
Wherever the cable is To cross road, enter into any building, be mounted on poles be laid in paved areas, the cable areas, the cable shall be laid in pipes or closed ducts.

GI/CI/RCC pipes shall be used for such purposes. The diameter of such pipes shall be adequate for passing of cables. The pipes shall be laid on suitable bed provided on the ground. Sand cushion/brick/tiles if required can be provided under the pipe. The pipe should be filled with sand after laying the cable insides. The top surface of pipes shall be at a minimum depth of 100mm from the ground level.

The pipes on road crossings should be laid on the skew to reduce the angle of bend as the cables enters and leaves crossing. This is very important for high voltage cables, at convenient distance should be provided for facilitating inspection and maintenance of cables. Pipes shall be continuous and clear of any debris before drawing of cables sharp edges at ends should be smoothened to prevent injury to cable insulation and/or sheathing.

Wherever pipes are provided for entry of cable into building, the same shall slope downward and other ends shall be sealed to prevent entry of water inside the building.

All chases and passages necessary for the laying of service cables shall be cut as required and made good to the original finish to the satisfaction of Engineer-in-Charge.

Cable grips/draw wire and winches etc. be employed for drawing cables through pipes/close ducts etc. without damaging the conductor and insulation and ensuring proper safety.

16.0 LAYING IN OPEN DUCTS :-
Open ducts with suitable removable covers should be preferred in sub-stations, switchrooms, generator rooms and workshops etc. The cable ducts should be of suitable dimensions so that the cable shall be laid conveniently. If required, the cable can be fixed with clamps on the walls of the ducts. The duct shall be covered with removable RCC slabs of suitable dimensions MS chequered plate covers so that covers can be lifted conveniently for maintenance inspection and replacement. The ducts should be filled with dry sand after the cable is laid and covered or finished with cement plaster specially in high voltage applications. No joint/splices should be permitted inside the ducts. As far as possible, laying of cable with different voltage grade in the same duct should be avoided. The cable trays, hooks or racks should be provided for supporting cables in masonry/concrete cable ducts etc. Otherwise the cable can be laid directly in the duct or trench or trough etc. While laying the cables in ducts due care should be exercised to ensure that unnecessary crossing of cable is avoided.

17.0 LAYING ON SURFACE:

In the switching stations, factories, tunnels and for rising mains through special rack ways, the laying of cables on surface should be done. The cable shall be laid in troughs or brackets at regular intervals or directly cleared to wall ceilings. The cable should be laid over bracket support and clamps to prevent undue sag. The cable clamps should be made from material such as mild steel, porcelain wood, Alu. PVC, epoxy materials. These should be non-magnetic and non-corrosive in nature.

18.0 LAYING ON MS LADDER TRAY :

The cables shall be laid in the existing MS ladder tray in straight line as far as possible & shall be clamped properly by providing suitable clamps as per site requirement. (The clamping arrangements to be got approved from Railways before providing). Normally the distance between each clamp of one cable shall not be more than 1.5M (approx.).

19.0 CABLE JOINTING

19.1 Identification of cores :

19.2 Cores shall be provided with following co-lour scheme for PVC insulation.

- 1 Core - Red/Black/Yellow/Blue.
- 2 Core - Red & black.
- 3 Core - Red, Yellow and Blue.
- 3 .5/4 Core - Red, yellow, Blue, Black (Black is for neutral).
-

19.3 Cable jointing :-

19.3.1 The manufacturer's instructions mentioned in the jointing kit should be followed.

19.3.2 The manufacturer's instructions mentioned in the jointing kit should be followed.

19.4 Insulation resistance of cables to be jointed should be measured with 500V megger up to 1.1 KV grade and with 2500V megger for cables of higher voltage. Unless insulation resistance value of cables are satisfactory the jointing should not be done. Before jointing work is taken up safety precautions like insulation, earthing etc. should be observed to ensure that the cable would not be inadvertently charged. Metallic Armour and external bonding should be connected to earth.

19.5 Wherever the system of permit to work is prevalent, the same should be followed for cable jointing work.

19.5.1 Identification of cables should be very properly done before jointing is taken up. Proper identification of individual core is also very important to avoid any cross connection and damage to installation.

19.6 Complete record of joint etc. shall be maintained as per site plan.

20.0 CABLE TESTING:-

1.0 Testing.

1.1 All cables before laying should be tested with 500V megger up to and including 1,1 KV grade or with 2500/5000V megger for cables of higher voltage. The cable cores should be tested for continuity, insulation resistance etc. All cables should be tested during laying and before covering. After laying and jointing the cable should be subjected to a 15 minutes pressure test.

1.2 After laying of cable and jointing, the cables should be subjected in a high voltage last guidelines of BIS; 1255-1983 and the results should be recorded.

1.3 In case high voltage test is not possible at site, the cables should be tested for one minute with 1000V megger up to 1.1 KV grade and with 2500/5000V megger for cables of higher grade.

21 COMPLETION PLAN:-

1.0 The work should be carried out in accordance with the drawings enclosed with the tender. In case there is a deviation the same should be got approved from the Engineer-in-Charge before execution of the work is taken up. The completion plan should be drawn in a tracing sheet with polyester backing with ink indicating following :

- Layout of cable work.
- Length, size, type and voltage rating of cables.
- Method of laying, i.e. directly in ground/duct/pipes.
- Location of each joint with joints followed.
- Route marker and joint marker with clearance from permanent land mark available.
- Name of work etc.

This specification confers to CPWD General Specification for Electrical works Part II External & IS 1255/1967 with latest amendment.

SPECIFICATION FOR PIPE EARTHING

Specification no.Sr.DEE/G/UMB/02

1.0 Earthing system:-

Earthing:- The earthing shall conform to the following specification and as per Drawing No.CEE/C/TKJ/GNL/3

1.1 PIPE ELECTRODE:-

- I)The earthing electrode shall be made of G.I. pipe of 40mm dia medium class (Class B) conforming to relevant ISI 3 meter long tapered at the bottom with holes of 12mm dia drilled not less than 75mm from each other upto 2 meters of length from the bottom.
- II) In HT sub.stations, 100mm dia G.I. pipe with flange shall be used for HT equipment earthing.
- III) The pipe electrode shall be buried in the ground vertically with its top nearly 200mm below from the top of enclosure.
- IV) A funnel with mesh shall be provided on top of this pipe for watering the earth. The watering funnel attachment shall be housed in the above masonry enclosure.

2.0 MASONARY ENCLOSURE:-

The top of pipe electrode shall be housed in a masonry enclosure of not less than300mmx300mmx300mm.(Internal size). The pipe shall be buried in the ground vertically with its top nearly 20cm below top of enclosures. The covers of masonry enclosures for electrode shall be hinged type made of MS with proper arrangement for locking or CI. In HT substation size of masonry enclosure shall be 600x600x300mm(internal size)

3.0 LOCATION FOR EARTH ELECTRODE:-

Normally an earth electrode shall not be situated less than 1.5 meter from any building. Care shall be taken that the excavations for the earth electrode may not affect the column footings or foundations of the building. In such case electrode may be located further away from building. The location of earth shall be such where the soil has reasonable chances of remaining moist as far as possible. Entrances, pavements, roads should definitely be avoided for location of earth electrodes. The location of earth electrodes shall be fixed in consultation with Railway authority.

4.0 ARTIFICIAL TREATMENT OF SOIL:-

In case there is no option of site and earth electrode resistance is high, the earth electrode resistance shall be reduced by artificial treatment of the soil. For this purpose the most commonly used substances are sodium chloride (common salt) mixed with soft coke or charcoal in suitable proportions. When this treatment is resorted to the electrode shall be completely surrounded by charcoal and salt.

5.0 Method of connecting Earthing lead to Earth Electrode:-

Earthing lead shall be connected to earth electrode by means of bolts and nuts, washers and as required. All material used for connecting the earth lead with earth electrode shall be galvanized/tinned. The earthing lead shall be securely connected at the other end of the equipment.

6.0 PROTECTION OF EARTHING LEAD:-

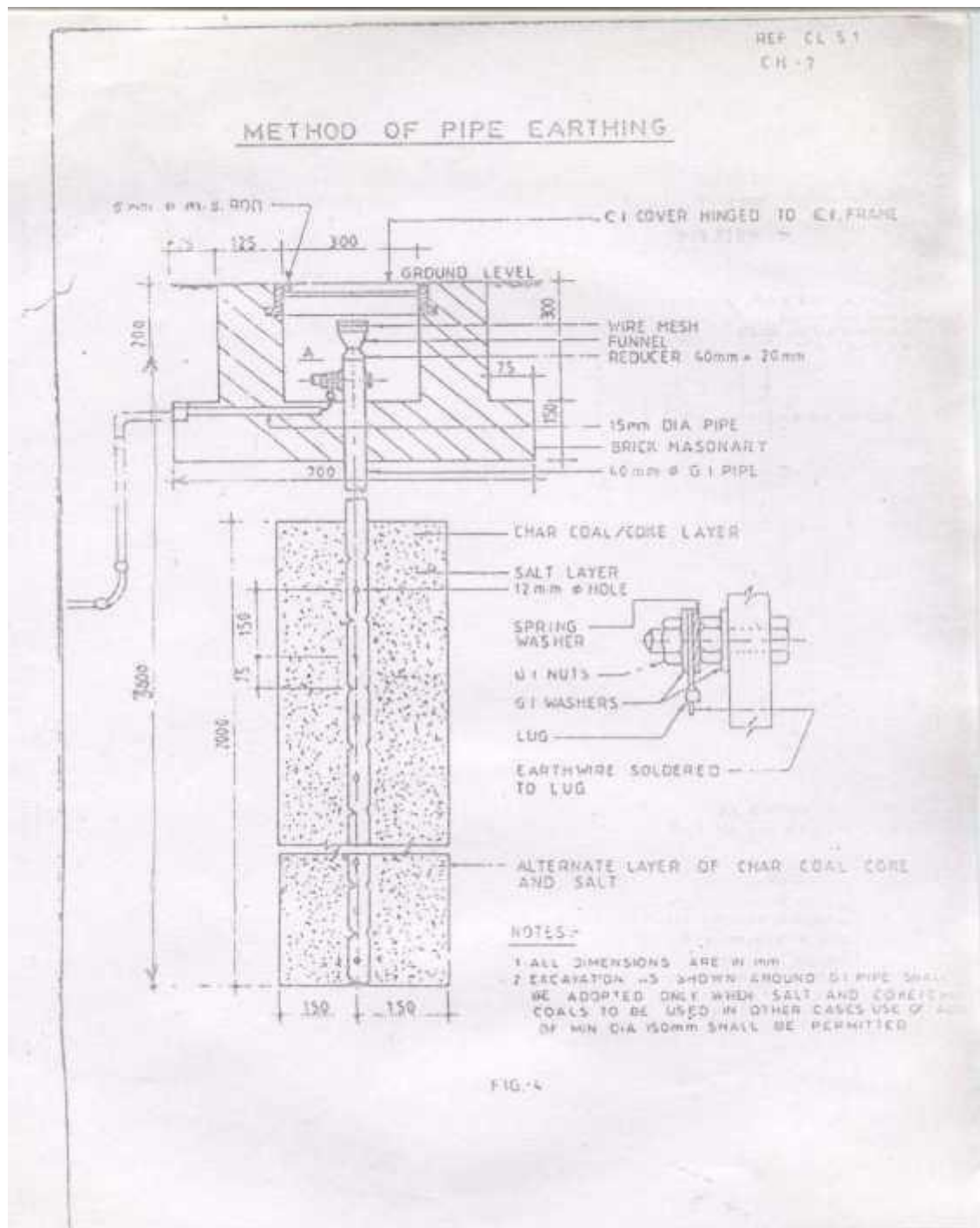
The earthing lead from earth electrode shall be suitably protected from mechanical injury. The portion within the building shall be recessed in wall and floor at adequate depth. (Para 16.9 of CPW D general specification of electrical works Pt-I/1972).

7.0 RESISTANCE OF EARTH ELECTRODE:-

No earth electrode shall have greater Ohm resistance than 2 ohms.
An earth plate of MS sheet 14 SWG Size 30x22 cm duly painted with black enamel and written by yellow enamel paint shall be fixed a conspicuous location near each earth electrode.

- 1. Earth No. _____
- 2. Individual resistance _____ ohm.
- 3. Overall resistance _____ ohm
- 4. Tested on date _____

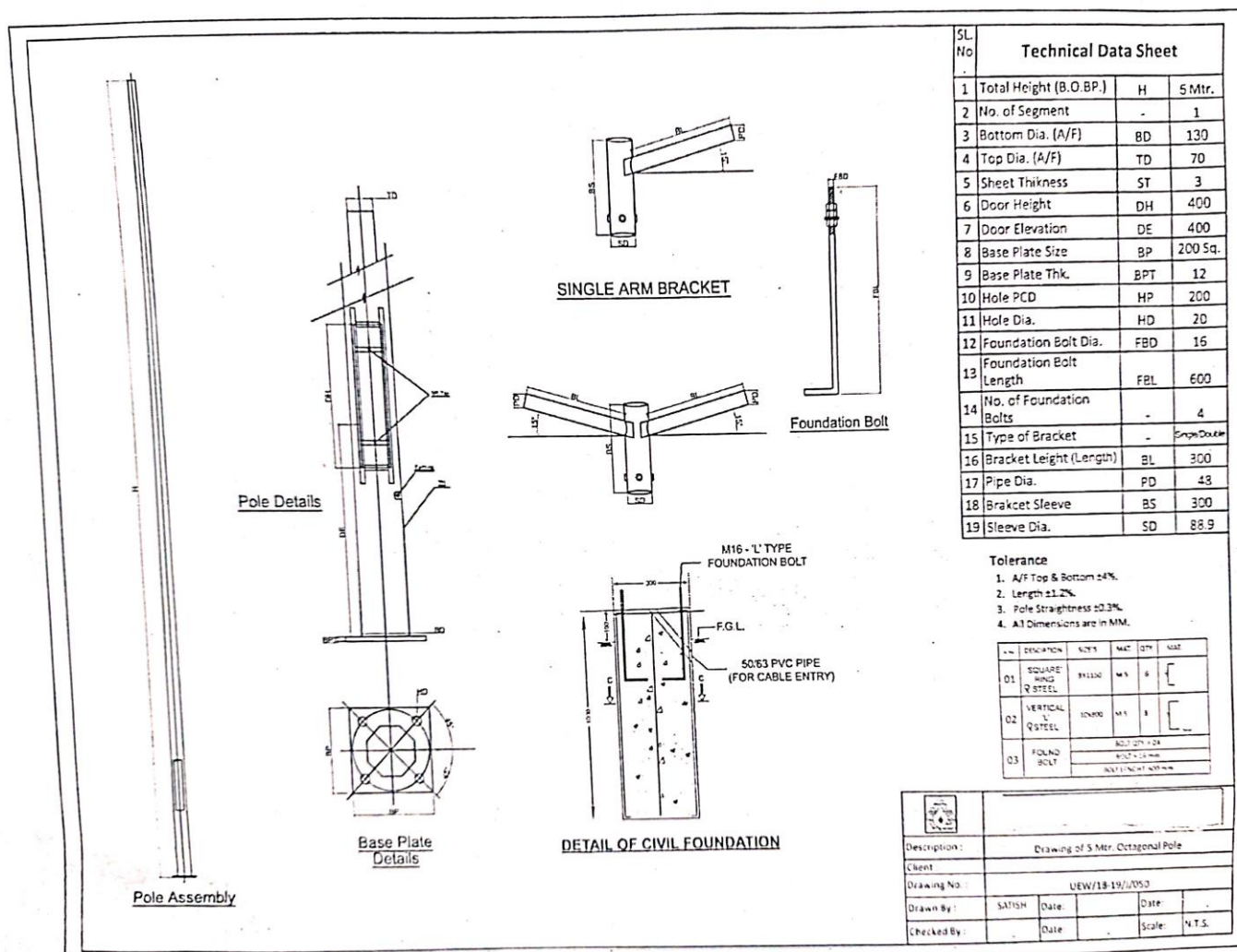
Drawing of Pipe Earthing:-

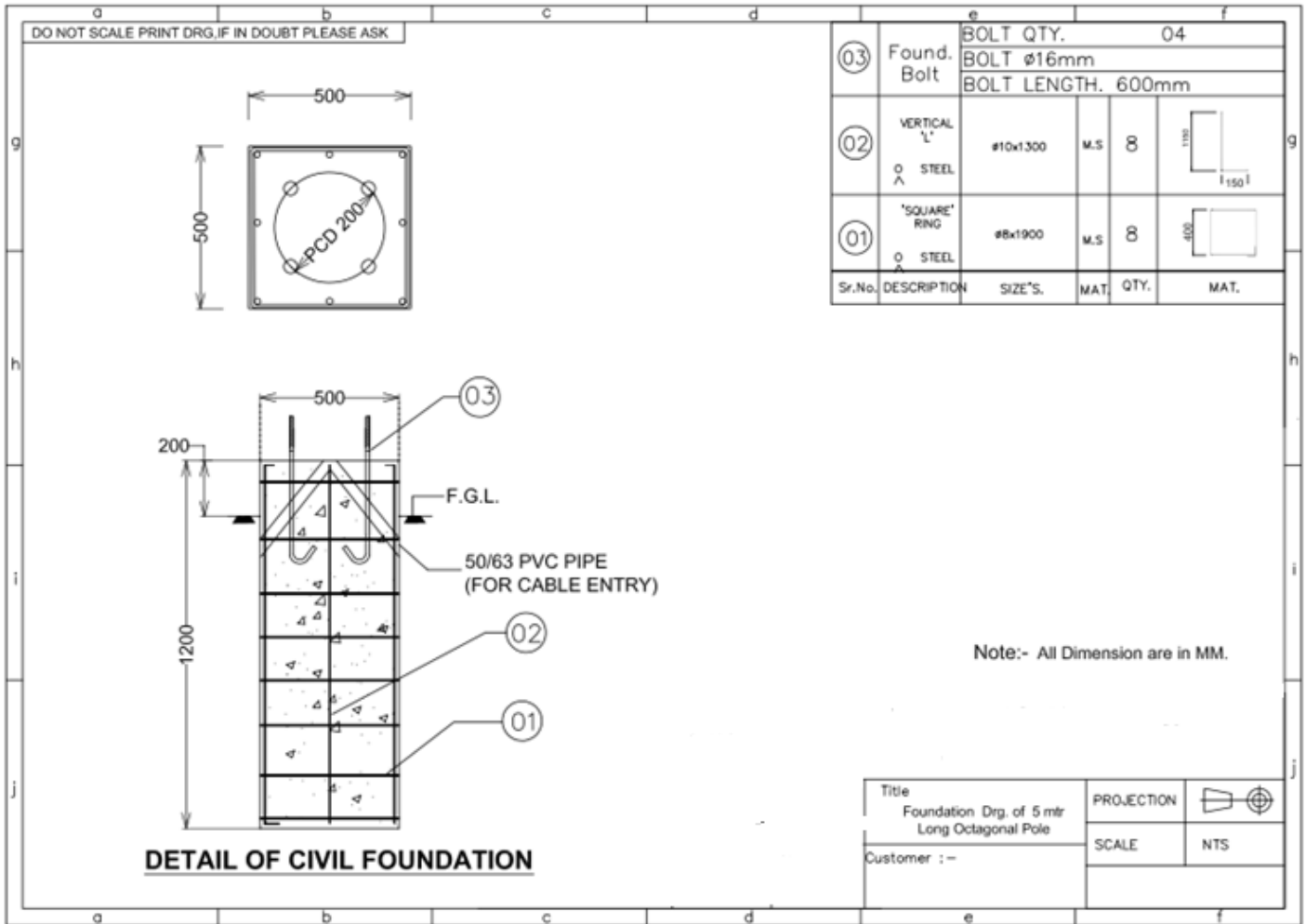


Note: All petty hardware/masonry material required for completion will be supplied by the contractor free of cost

- if any specification not found, it can be seen in the office of SrDEE/G/UMB

Drawing of 5 meter single/double arm pole:-





Annexure – XXVII**List of Relevant Specifications:-**

SN	Brief Description of Item	Ref. and No. of Specifications
1.	ISI marked PVC insulated multi-strand copper conductor cable working voltage up to and including 1100 Volts	IS:694/1990
2.	Piano type Switch & Flush type Sockets ,	IS:3854/88 & 1293/1988
3	Electronic fan regulator	IS 11037 (1984)
4	Ceiling Rose/Batten Holder/Music Chime Bell.	IS:371/(1979), IS 1258(2005)
5	MCB & Pre-fabricated Distribution Board	IS: 12640-1/2000,IS:8828IEC: 60898-1/2002 ,IS:13032 :1991
6	MCCB	IS:13947/Pt II/1993 IEC 60947-2
7	G I Pipe	IS 1239/Pt .I/1990
8	White Hylum Sheet/Phenolic laminated sheet	IS: 2036/1979
9	PVC Conduit Pipe	IS: 9537 (Pt. I,II& III)/1981,
10	HDPE pipe	As per Explanatory Note, Relevant IS:16205 part18 or latest
11	LT XLPE cable (1.1 KV to 11 KV)	IS 7098 Part-I (1978) with amendments or latest
12	Indoor type 11000 volts switchgear	IS/IEC:62271-102/IS:13118/IS:12729/IS:8623-Part-3 or latest.

Note: All Petty hardware/ machinery work required to complete the work will be provided by the contractor at free of cost.

If any specification not found in the tender document, it may be seen in the office of Sr. DEE/G/UMB.

*******END OF TENDER DOCUMENT*******