Dedicated Freight Corridor Corporation of India Ltd.
(A Government of India Enterprise under Ministry of Railways)

Name of Work: - "Relocation of 132 KV D/C transmission line Koderma S/s to Koderma R/s of DVC near Koderma Railway station for construction of EDFC Project under Jurisdiction of General Manager/Co-Ordination/DFCCIL/Kolkata''

(Single Stage Single Packet Tender)

Tender No- KKK-EL-KQR-DVC-132KV-2R

(PARTICIPATION THROUGH E-TENDER ONLY)

E-tendering site- https://www.ireps.gov.in / its link at www.dfccil.com
(Help desk of IREPS: 011 -23761525)

Dedicated Freight Corridor Corporation of India Ltd.,

3rd Floor, DCOS Building, E-W Metro, Central Park Depot, Salt Lake Sector 1,
Bidhannagar, West Bengal, Kolkata-700091

CORPORATE OFFICE
DFCCIL, 5TH Floor, Supreme Court Metro Station Building Complex,
New Delhi-110001

Signature of tenderer(s) with seal

INDEX

Signature of tenderer(s) with seal

NOTICE INVITING E-TENDER

PART - I

Chapter I

DEDICATED FREIGHT CORRIDOR CORPORATION OF INDIA LIMITED
A GOVERNMENT OF INDIA (Ministry of Railways) ENTERPRISE

Tender No: KKK-EL-KQR-DVC-132KV-2R **DATE: 20-04-2023**

NOTICE INVITING E-TENDER
National Competitive Bidding

Dear Sir(s),

Name of Work: "Relocation of 132 kV Double Circuit Koderma S/s- Koderma R/s transmission lines of DVC to facilitate construction of DFC Railway lines near Koderma Railway station under Jurisdiction of General Manager/Co-Ordination/DFCCIL/Kolkata unit''**.**

1.1.0 DFCCIL invites e- tenders on **Single packet system** on prescribed forms from firms/Companies and other eligible entities as detailed in Tender Document having requisite experience and financial capacity for execution of the following works:-

Tender Notice No.	KKK-EL-KQR-DVC-132KV-2R
Name of the work	**Relocation of 132 KV D/C transmission line Koderma S/s to Koderma R/s of DVC near Koderma Railway station for construction of EDFC Project under Jurisdiction of General Manager/Co-Ordination /DFCCIL/ Kolkata.**
Employer	**General Manager/Co-ordination/Kolkata,** 3rd Floor, DCOS Building, E-W Metro, Central Park Depot, Salt Lake Sector 1, Bidhannagar, West Bengal, Kolkata-700 091, India **Acting through:** Ajay Kumar, IRSE Phone no: 033-23590322 Email: ajaykumar13@dfcc.co.in
Engineer	Employer/Employer's authorized Representative
Type of Tender	Open E-Tender (**Single Stage Single Packet**)
Type of Contract	Works Contracts
Estimated Cost	**Rs. 9,32,12,419/- (including GST @18%)** **(Rupees Nine Crore Thirty-two Lakh Twelve Thousand Four Hundred and Nineteen only)**
Period of Completion	**18 (Eighteen) months**
Cost of Tender Document	**Rs.11,800/- (Including GST @18%)** **(Rupees Eleven Thousand and Eight Hundred only)** The cost of the tender document shall be deposited through payment gateway provided on http://www.ireps.gov.in on or before schedule date and time of submission of Bid. The proof of submission of cost of tender document should be uploaded along with the Technical Bid.
Earnest Money/Bid Security	**Rs.18,64,300/- (Rupees Eighteen Lakh Sixty-Four Thousand and Three Hundred only)** The cost of the tender document shall be deposited through payment gateway provided on https:// www.ireps.gov.in on or before schedule

Signature of tenderer(s) with seal

	date and time of submission of Bid, as detailed in Para 1.3.8 of Preamble & General Instructions to Tenderers (Part-I, Chapter-III).
E-tendering website	**http://www.ireps.gov.in** For any help, please contact IREPS Help desk at 011-23761525
Date of uploading of NIT & BID documents (online Publishing date)	**On Date : 20.04.2023 at 1500 Hrs**
Date of document download/ Sale (online)	**From Date: 20 .04.2023 from 1530 Hrs**
Issue of Corrigendum, if any	**Upto 03 days prior** to the last date of submission of Bid (on websites **https://www.ireps.gov.in** and **www.dfccil.com**)
Date and Time of Submission of Tender	**On or before date 12.05.2023 at 1500 Hrs**
Date and Time of Opening of Tender online	**Date. 12.05.2023 at 1530 Hrs**
Communication Address	At office of Employer: **General Manager/Co-ordination/Kolkata,** 3rd Floor, DCOS Building, E-W Metro, Central Park Depot, Salt Lake Sector 1, Bidhannagar, West Bengal, Kolkata-700091.
Validity of offer	**90 days** from the date of opening of the Tender.
Security Deposit	5% of the Contract value
Performance Bank Guarantee	Performance Guarantee (PG) have to be submitted within 21 (Twenty-one) days from the date of issue of Letter of Acceptance (LOA), amounting to three percent (3%) of the contract value in the form as given in clause 16.4 of GCC.
Defect Liability Period	**12 Months** from the actual date of completion.

1.1.1 Eligibility shall be assessed on applicants, fulfilling the technical capability and competence as well as for financial and organizational resources as specified in clause no. 1.3.13 (i) A, B, C & D and clause 1.3.13 (ii) of Preamble & General Instruction to tenders (Part - I, Chapter III).

1.1.2 Tender document will be available on DFCCIL's website www.dfccil.com, https://www.ireps.gov.in & Central Procurement portal e-procure.gov.in. For submission purpose, the Tender document can be downloaded from https:// www.ireps.gov.in website. Tenderers are advised not to make any corrections, additions or alterations in the downloaded tender documents. In case, any corrections additions or alterations in the downloaded tender documents are made, such tender shall be summarily rejected.

1.1.3 DFCCIL may issue amendment(s) [addendum(s) / corrigendum(s)] to the tender documents. In such cases the amendment(s) shall be issued and placed on DFCCIL's website: www.dfccil.com and https:// www.ireps.gov.in at least **(03 Days)** Three Days prior to opening of tender. The tenderer who have downloaded the tenderdocuments from the website before issue of amendment(s) must visit the website and ensure that such amendment(s) (if any) is also downloaded by them. Such amendment(s) (if any) shall also be uploaded duly stamped and signed / digitally signed along with the submission of tenders

Any tender submitted without amendment(s) (if any) shall be liable to be rejected.

Signature of tenderer(s) with seal

1.1.4 The tender documents shall be submitted in online mode only through website https://www.ireps.gov.in in Single e-Packets only. Detailed credential as per the requirement of eligibility criteria and all tender papers except Bill of Quantities are to be submitted in technical bid.

Summery of Prices **(Form No. 3)** with % age above/ below/at par **on the amount of schedule(s)** duly filled in along with Schedule of Prices **(Form - 4)** are to be submitted **online mode only** in "Financial Bid".

Tenderer shall submit the Earnest Money Deposit/**Bid Security** as detailed in Para 1.3.8 of Preamble & General Instructions to Tenderers (Part-I, Chapter-III)

Financial Bid (as specified in "Financial Bid" in Tender Document) duly filled in is to be uploaded in schedule. The rates must be filled after downloading the financial bid document in the prescribed format from the website www.ireps.gov.in. The financial bid should be downloaded & then filled up, saved and uploaded on the E-tendering website using digital signature for signing the document.

1.1.5 **Procedure for e-tendering**

1.1.5.1 Accessing/ purchasing of Tender Documents.

1.1.5.2 It is mandatory for all the Bidders to have class-III Digital Signature Certificate (DSC) from any of the licensed certifying agency (Bidders can see the list of licensed certifying agencies from the link www.cca.gov.in) to participate in e-tendering.

1.1.5.3 To participate in the Bidding, it is mandatory for the Bidders to register with IREPS portal to have user ID & password. IREPS portal is the only website for submission of Bid. Vender manual containing the detailed guidelines for e-tendering is available on IREPS portal. Following may kindly be noted:

(a) Registration with IREPS portal should be valid at least up to the date of submission of bid.
(b) Bids can be submitted only during the validity of registration.

1.1.5.4 If the firm / Joint Venture is already registered with e-tendering service provider, and validity of registration is not expired, then the firm/Joint Venture is not required a fresh registration.

1.1.5.5 The complete Bidding Documents can be viewed / downloaded by the Bidder from IREPS portal as per the time and date mentioned on the IREPS portal.

1.1.5.6 Tenders shall be opened at the address given below as mentioned in Para 1.1.0 above in the presence of the tenderers or their authorized representatives intending to attend the opening.

All the Bids received shall be opened on the date and time mentioned above in the tender notice. Bid of the bidders shall be opened through process of e-tendering. The sequence of opening shall be :

i) Cost of Tender Document and Bid security
ii) Technical offer- Technical Bid
iii) Financial offer

1.1.6 Tender shall be submitted as per "Preamble & General Instruction to Tenderers" forming as part of the complete tender documents.

1.1.7 Any tender received without Earnest Money Deposit /Bid Security and/or Cost of tender Document in the form as specified in the tender documents shall not be considered and **shall be summarily rejected**.

1.1.8 DFCCIL reserves right to cancel the tender before submission / opening of tender, postpone the tender submission / opening date and to accept / reject any or all tenders without assigning any reason thereof. DFCCIL's assessment of suitability as per eligibility criteria shall be final and binding.

1.1.9 Tenderers may note that they are liable to be disqualified at any time during tendering process in case any of the information furnished by them is not found to be true and action as per Tender condition Bid Security Declaration will be taken. The decision of DFCCIL in this regard shall be final and binding.

1.1.10 DFCCIL reserves the right to pre-qualify the bidder(s) provisionally based on the documents submitted by them and open financial bid(s), subject to their final verification. In the event of any document being found false, the provisional qualification shall stand withdrawn, and the next lower bidder shall automatically come to the position of such disqualified bidder. Action against such disqualified tenderers shall be taken as per above Clause No. 1.1.9 of Notice Inviting E-Tender.

Signature of tenderer(s) with seal

1.1.11 Information as required as per various Forms to tender document should be submitted by the tenderers without fail strictly as per formats.

1.1.12 The validity of offer shall be 90 days from the date of opening of the Bid of the tender.

1.1.13 Transfer of the tender document purchased by intending tenderer to another tenderer is not admissible. Tenderer can submit tenders only on the documents purchased / downloaded from the website www.ireps.gov.in by them.

1.1.14 Tenderers must read all instructions regarding e-tendering process as mentions in PREAMBLE & GENERAL INSTRUCTIONS TO TENDERERS Part-I, Chapter-III.

1.1.15 Tenderers are advised to visit the DFCCIL website/IREPS website regularly for information regarding tender. Amendment(s) (if any) will be uploaded on DFCCIL website www.dfccil.com and www.ireps.gov.in only.

General Manager/Co-Ordination/Kolkata
For & on behalf of DFCCIL

Signature of tenderer(s) with seal

GENERAL INFORMATION / DATA SHEET

PART - I

Chapter II

GENERAL INFORMATION / DATA SHEET

Tender Notice No.	KKK-EL-KQR-DVC-132KV-2R
Name of the work	Relocation of 132 KV D/C transmission line Koderma S/s to Koderma R/s of DVC near Koderma Railway station for construction of EDFC Project under Jurisdiction of GM/Co- Ordination/DFCCIL/Kolkata.
Employer	General Manager/Co-ordination/Kolkata
Engineer	Employer/Employer's authorized Representative
Type of Tender	Open E-Tender (**Single Stage Single Packet**)
Type of Contract	Works Contracts
Estimated Cost	**Rs. 9,32,12,419/- (including GST @18%)** **(Rupees Nine Crore Thirty-two lakh Twelve Thousand Four Hundred and Nineteen only).**
Period of Contract/ Period of Completion	**18 (Eighteen) months**
Cost of Tender Document	**Rs.11,800/- (including GST @18%)** **Rupees Eleven Thousand and Eight Hundred only.** The cost of the tender document shall be deposited through **payment gateway provided on http://www.ireps.gov.in** on or before schedule date and time of submission of Bid. The proof of submission of cost of tender document should be uploaded along with the Technical Bid.
Earnest Money/Bid Security	**Rs.18,64,300/-** **(Rupees Eighteen Lakh Sixty-four thousand and Three Hundred only)** The cost of the tender document shall be deposited **through payment gateway provided on https://www.ireps.gov.in** on or before schedule date and time of submission of Bid, as detailed in Para 1.3.8 of Preamble & General Instructions to Tenderers (Part-I, Chapter-III).
E-tendering website	https://www.ireps.gov.in For any help, please contact IREPS Helpdesk at 011-23761525
Date of uploading of NIT & Bid documents (online Publishing date)	**On Date: 20.04.2023 at 1500 Hrs**
Date of document download/ Sale (online)	**From Date: 20.04.2023 from 1530 Hrs**
Issue of Corrigendum, if any	Up to 03 (three) days prior to the last date of submission (on websites **https://www.ireps.gov.in** and **www.dfccil.com**)
Date & Time of Submission of Tender	**On or before date : 12.05.2023 at 1500 Hrs**
Date and Time of Opening of Tender online	**Date: 12.05.2023 at 1530 Hrs**
Validity of offer	**90 days** from the date of opening of the Bid of the Tender
Security Deposit	5% of Contract value

Signature of tenderer(s) with seal

Performance Bank Guarantee	Performance Guarantee (PG) have to be submitted within 21 (Twenty one) days from the date of issue of Letter of Acceptance (LOA), amounting to three percent (3%) of the contract value in the form as given in clause 16.4 of G.C.C.
Defect Liability Period	12 Months from the date of actual completion.
DFCCIL's Bank Account	The DFCCIL's Bank Account details is as under for making deposit in cash for the purpose of Security Deposit/ Performance Guarantee is as under: Name of Account: Dedicated Freight Corridor Corporation of India Ltd. Name of Bank: Union Bank of India Account No: 353201010930385 Type of Account: Current IFSC Code: UBIN0546836

PREAMBLE
&
GENERAL INSTRUCTIONS TO TENDERERS

PART-I

Chapter- III

PREAMBLE & GENERAL INSTRUCTIONS TO TENDERERS

1.3.1 Introduction

(i) Dedicated Freight Corridor

Dedicated Freight Corridor Corporation of India Ltd. (DFCCIL), a public sector undertaking has been set up under the Indian Companies Act, 1956 for implementation of Dedicated Freight Corridor Project. Government of India is the sole shareholder of the DFCCIL.

Ministry of Railways (MOR), Government of India has planned to construct Dedicated Freight Corridor (DFC) covering about 3338 route Kilometers on Eastern and Western Corridors. The coverage of Eastern Corridor is from Ludhiana to Dankuni and Western Corridor is planned from Jawaharlal Nehru Port, Mumbai to Rewari/Tughlakabad/Dadri near Delhi. There will be a linkage between two corridors at Dadri.

(ii) Project Description - Eastern Dedicated Freight Corridor

Eastern DFC Route will be approximately 1839 Km long from Dankuni to Ludhiana via Dankuni–Asansol–Dhanbad–Gaya–Sonnagar - Pt. Din Dayal Upadhaya- Prayagraj - Kanpur - Tundla- Aligarh- Khurja- Bulandshahr– Meerut– Saharanpur– Ambala- Ludhiana. Proposed alignment of DFC has been generally kept parallel to existing Indian Railway line except provision of detours at some stations where the existing yards/cities are congested.

Relocation of 132 KV D/C transmission line Koderma S/s to Koderma R/s of DVC near Koderma Railway station is to be done for construction of EDFC Project under Jurisdiction of GM/Co-Ordination/DFCCIL/Kolkata.

(iii) General instructions (for on line tendering system)

Submission of Online Bid is mandatory for this Notice Inviting Tender. E-Tendering is a new methodology for conducting Public Procurement in a transparent and secured manner. Suppliers/ Vendors will be the biggest beneficiaries of this new system of procurement. An e-tendering portal of Dedicated Freight Corridor Corporation of India (DFCCIL)/Indian Railway introduced for the process of e-tendering which can be accessed on http://www. ireps.gov.in. (Refer in the BID DOCUMENTS)

Words in capital and not defined in this document shall have the same meaning as in "BID DOCUMENTS". Benefits to Suppliers/service providers are outlined on the Home-page of the portal.

A. <u>Accessing / Purchasing of bid documents</u>:

The Bidder who wish to view free Notification and Tender Documents can visit DFCCIL's website www.dfccil.com or www.ireps.gov.in or Central Procurement Portal www.eprocure.gov.in. Interested bidders who wish to participate should visit website www.ireps.gov.in, which is the only website for bidding their offer. Further the procedure is as follows:

It is mandatory for all the Bidders to have organizational class-III digital signature certificate (in the name of person who will sign the BId) from any of the licensed certifying agency ("CA") {Bidders can see the list of licensed CAs from the link www.cca.gov.in} to participate in e-tendering of DFCCIL.

To participate in the E-bid submission, it is mandatory for the Bidders to get themselves registered with the http://www.ireps.gov.in (IREPS- Indian Railway e-Procurement System) and to have user ID & password.

The BID DOCUMENTS can be viewed /downloaded from the http://www.ireps.gov.in free of cost till one day prior to last date of submission of the tender upto 24.00 hrs.

Signature of tenderer(s) with seal

Following may be noted -

1. Bids can be submitted only during the validity of registration with the http://www.ireps.gov.in.

2. The amendments/clarifications to the BID DOCUMENTS, if any, will be posted on the DFCCIL website www.dfccil.com which can also be seen on https://www.ireps.gov.in.

3. Registration with the https://www.ireps.gov.in should be valid at least upto the date of submission of bid.

B. Preparation & Submission of applications:

Detailed BID DOCUMENTS may be downloaded from IREPS and the Bid may be submitted online following the instructions appearing on the screen. A Vendor manual containing the detailed guidelines for e-tendering system is also available on IREPS.

Only Electronic Form (to be uploaded on the IREPS website)

Submission of Financial & Technical bid in prescribed Format in **ON LINE MODE ONLY**. No other mode of submission is accepted.

C. Document should be uploaded on the IREPS site (On line mode only)

(a) Power of Attorney for signing the Application.
(b) If applicable, the Power of Attorney for Lead Member of JV;
(c) An undertaking from the person having PoA referred in sub clause (a) above that they agree and abide by the bid documents uploaded by DFCCIL and amendments uploaded, if any.
(d) SUBMISSION OF FIRMS CREDENTIALS in prescribed format mentioned in BID DOCUMENT.
(e) SUBMISSION OF TECHNICAL PROPOSAL in prescribed format mentioned in BID DOCUMENT,
(f) Copy of Memorandum and Articles of Association, if the Applicant is a body corporate, and if a partnership then a copy of its partnership deed;
(g) Technical Bid Packet-A (duly signed & scanned or digitally signed), Financial Bid Packet-B (in excel sheet format) and other relevant documents.
(h) Deleted Memorandum of Understanding (in case of JV) as per Form-9 (Part-IV, Chapter- II) of BID DOCUMENT). Cost of BID DOCUMENT as detailed in Para 1.3.4.3 of Part-I, Chapter-III (Preamble & General Instructions to Tenderer) in favour of DFCCIL,
(i) BID SECURITY DEPOSIT as detailed in Para 1.3.8 of Part-I, Chapter-III (Preamble & General Instructions to Tenderer) in the acceptable form in favour of DFCCIL
(j) The Bidder shall upload signed and scanned or digitally signed copies of the documents on the IREPS before scheduled date and time of submission of Tender. No hard copy of the documents is requiredto be submitted.

D. Modification / Substitution/ Withdrawal of bids:

(i) The Bidder may modify, substitute or withdraw its e-bid after submission but prior to scheduled date and time of submission of tender. No Bid shall be modified, substituted or withdrawn by the Applicant after scheduled date and time of submission of tender.
(ii) Any alteration/ modification in the Bid or additional information supplied subsequent to the scheduled date and time of submission of tender, unless the same has been expressly sought for by the Authority, shall be disregarded.
(iii) For modification of e-bid, applicant/tenderer has to detach its old bid from e-tendering portal and upload / resubmit digitally signed modified bid.
(iv) For withdrawal of bid, applicant/tenderer has to click on withdrawal icon at e-tendering portal and can withdraw its e-bid.
(v) Before withdrawal of a bid, it may specifically be noted that after withdrawal of a bid for any reason, applicant/tenderer cannot re-submit e-bid again.

E. Opening and Evaluation of bids:

(i) Opening of Bids will be done through online process.

Signature of tenderer(s) with seal

(ii) For participating in the tender, the authorized signatory holding Power of Attorney shall be the Digital Signatory. In case the authorized signatory holding Power of Attorney and Digital Signatory are not the same, the bid shall be considered non-responsive.

(iii) The DFCCIL Authority shall open bid documents received in electronic form at the scheduled date and time of opening of tender i.e. in the presence of the Bidders who choose to attend. The DFCCIL Authority will subsequently examine and evaluate the Bids in accordance with the provisions set out in the BID DOCUMENTS.

F. Online E-Bidding Methodology:

Online E- Bid System – Financial bids & Technical bids shall be submitted by the bidder at the same time. First the Technical Bid will be opened at the time and date notified in the tender notice.

G. Broad outline of activities from bidders perspective:

1. Procure a Digital Signing Certificate (DSC)
2. Registration on Electronic Tendering System (ETS)
3. Create Users and assign roles on ETS
4. View Notice Inviting Tender (NIT) on ETS
5. Download Official Copy of Tender Documents from ETS
6. Clarification to Tender Documents on ETS– Query to DFCCIL (Optional) – view response to queries posted by DFCCIL, through addenda if any.
7. Bid-Submission on ETS: Prepare & arrange all documents/papers for submission of bid & tender cost online and EMD deposit on online/offline as per instruction.
8. Attend Public Online Tender Opening Event (TOE) on ETS
9. Post-TOE Clarification on ETS (Optional)- Respond to DFCCIL's Post-TOE queries

For participating in this tender online, the following instructions are to be read carefully. These instructions are supplemented with more detailed guidelines on the relevant screens of the ETS.

Note 1: It is advised that all the documents to be submitted are kept scanned and converted to PDF format in a separate folder on your computer before starting online submission. The Price bid (Excel Format) may be downloaded and rates may be filled appropriately. The size of each document should not more than 3.75MB.

H. Digital Certificates:

For integrity of data and its authenticity/non-repudiation of electronic records and to be compliant with IT Act 2000, it is necessary for each user to have a Class Three Digital Certificate (DC), also referred to as Digital Signature Certificate (DSC), of Class-III issued by a Certifying Authority (CA) licensed by Controller of Certifying Authorities (CCA) [refer http://www.cca.gov.in].

I. Registration:

Intending bidders are requested to register themselves with IREPS (https://**www.ireps.gov.in)** portal through for obtaining user-Id and Password. DFCCIL has decided to use process of e-tendering for inviting this tender and thus the physical copy of the tender would not be sold.

J. Help Desk for E-Tendering:

For any help, please contact IREPS Help desk at 011-23761525.

(iv) Scope of work:

Scope of work shall be as per details given in BOQ in Form-4 Schedule of Prices and total prices of Financial Bid and GCC, SCC, Specifications etc detailed in Technical Bid. However, scope of work in brief are given below.

i) Existing location in between diversion is to be taken place- Between existing location no. 03 to location no.11 .

ii) No. and type of existing location involved which is to be dismantled :- Total 07 nos (LOC. 4 to LOC.10) required to be dismantled.

iii) Total route length 2.004KM for which conductor including Earth wire is to be dismantled.

iv) Total 11 nos location required to be constructed**.**

v) Total route length for new stringing – 2.213 KM **(0.746Km underground cable of 132 KV 1Cx400 sq.mm copper cable and 1.467KM over head AAA panther(37/3.15mm) conductor).**

vi) Making of temporary arrangement for maintain power supply to Koderma receiving sub station.

vii) Necessary arrangement for obtaining all statutory clearance for forest clearance, PTCC clearance, NH/SH clearance, Crop compensations etc. for Right of Ways (ROW) clearances.

Note : The scpoe of work is only indicative and as per requirement, more items may be added in the scope of work.

(v) Cost of the work:

The estimated cost of the tendered work is indicated in Part-I, Chapter =II (General Information /Data Sheet)**.**

(vi) The tenderer shall be governed by General Conditions of Contract (GCC) 2022, Preamble & General Instructions to Tenderers (GIT) and Special Conditions of Contract (SCC). Wherever, there is a conflict in any condition between GCC and Special Conditions of Contract mentioned in the tender documents, the condition mentioned in Special Conditions of Contract will prevail. However, Engineer's decision in this connection shall be final and binding. Part I, Chapter-IV and V of the tender document contains General Conditions of Contract and Special Conditions of Contract respectively are specific to this work and shall be applicable in the contract.

(vii) Location:

Works are to be executed near Koderma station area, near landmark Govt. Law College Koderma of **Dhanbad** division of East Central Railway.

1.3.2 (a) Tender Bid

The Tender Bid shall be submitted through online only on website **https://www.ireps.gov.in** as under: Eligibility/Qualifying element of the Tender Bid along with other documents mentioned in para 1.3.2 (b) (ii), here in after called "TECHNICAL BID "

Price elements of the Tender Bid as per para 1.3.2 (b) (iii), herein after called "FINANCIAL BID". The BID shall be opened on the date of tender opening and the detailed scrutiny of TECHNICAL BID and FINANCIAL BID shall be carried out. The detailed procedure for tender opening and processing is given in Para 1.3.5.

1.3.2 (b) Form of Tender:

The Tender documents shall be in **single packet** viz:

Containing technical bid and financial bid. Detailed credentials as per the requirement of eligibility criteria and all tender papers except Summary of Prices and Schedule of Prices are to be submitted in "TECHNICAL BID" and **Summary of Prices and Schedule of Prices** with percentage above/below/at par duly filled in are to be submitted in "FINANCIAL BID".

Tenders not submitted in the proper Forms are liable to be rejected.

(i) Documents to be submitted in the office of GM/Co-Ord/DFCCIL/Kolkata:

S. No	Description	Documents
(1)	Nil	Nil

Signature of tenderer(s) with seal

(ii)Documents to be enclosed with the TECHNICAL BID :

S. No	Description	Documents
1	Offer letter complete.	Form No.1
(2	Tenderer's credentials in accordance with Para 1.3.13 (i), (ii) & (iii) of Part-I, Chapter-III (Preamble & General Instructions to Tenderers).	Form No. 2A, 2B, 2C, & 2D along with supporting documents
(3	Affidavit for authenticity of certificates/documents.	Form No. 22
(4	Details of **Bid Security** in accordance with Para 1.3.8 and Cost of Tender Document in accordance with Para 1.3.4.3 of Part-I, Chapter-III (Preamble & General Instructions to Tenderers)	
(5	Written confirmation authorizing the signatory of the tender to commit the tenderer and other documents as per format as applicable, in accordance with para 1.3.6 of Part- I, Chapter-II (Preamble & General Instructions to Tenderers).	
(6	A copy of tender papers including amendments duly signed and scanned or digitally signed by the tenderer on each and every page in token of his having studies the tender papers carefully shall be attached with the tender.	

Documents to be enclosed with the FINANCIAL BID :

S. No	Description	Documents
(1)	Summary of Prices, Schedule of Prices & Total Prices	Form No. 3 & 4 (Financial Schedule on https://www.ireps.gov.in)

1.3.3 Tender Document:

This tender document consists of following five parts:

PART/ CHAPTERS	DESCRIPTION
PART – I	
Chapter I	Notice Inviting E-Tender
Chapter II	General Information / Data sheet
Chapter III	Preamble & General Instructions to Tenderer
Chapter IV	General Conditions of Contract (GCC)
Chapter V	Special Conditions of Contract (SCC)
Chapter VI	Schedule of price and Explanatory notes
PART - II	Technical Specifications

Signature of tenderer(s) with seal

Chapter I	General Guidelines regarding specifications and Standards for 132 KV XLPE Cable
Chapter II	General Guidelines regarding specifications and Standards for for for Conductor
Chapter III	General Guidelines regarding specifications and Standards for Insulators
Chapter IV	General Guidelines regarding specifications and Standards for Hardware and accessories
Chapter V	General Guidelines regarding specifications and Standards for Earth wire
Chapter VI	General Guidelines regarding specifications and Standards for 120KV Lightning Arrester
Chapter VII	Precautions while working in close proximity of existing Indian Railways Track
PART-III	
Chapter I	Payment Terms
PART -IV	
Chapter I	Priority of Documents
Chapter II	Time Schedule
Chapter III	Tender Forms (including Schedule of Prices)
PART -V	Drawings

1.3.4 Sale and Submission of Tender Document

(i) Tender document can be viewed from DFCCIL's website www.dfccil.com, https://www.ireps.gov.in & Central Procurement portal eprocure.gov.in. Amendment(s) (if any) will be uploaded on DFCCIL website www.dfccil.com and www.ireps.gov.in only**.** For submitting the tender, the Tender documents and amendment(s) can be downloaded from the **https://www.ireps.gov.in** by the registered tenderers only. The details of registration and online tendering process is mentioned in Para 1.3.1 (iii) above.

(ii) Clause applicable for tender documents downloaded from Internet

Tenderer/s is/are free to download tender documents at their own cost, for the purpose of perusal. Master copy of the tender document will be available in the office. After award of the work, an agreement will be drawn up. The agreement shall be prepared based on the master copy available in the office of General Manager/Co-Ordination/Kolkata, 3rd Floor, DCOS Building, Central Park Depot, E-W Metro, Salt lake, Sector-I, Kolkata – 700 091, India and not based on the tender documents submitted by the Tenderer. In case of any discrepancy between the tender documents downloaded from the internet and the master copy, later shall prevail and will be binding on the Tenderers. No claim on this account shall be entertained.

(iii) Cost of Tender documents downloaded from internet

For submitting the tender, the Tender documents and Amendment(s), if any, is/are available on **https://www.ireps.gov.in and www.dfcc.com** and the same can be downloaded and used as tender documents for submitting the offer. The cost of the tender document is indicated in **NIT**.

The cost of tender document shall be deposited through payment gateway provided on *https://www.ireps.gov.in* on or before schedule date and time of submission of Bid. The proof of submission of cost of tender document should be uploaded along with Technical Bid.

(iv) Complete tender documents must be submitted online duly completed in all respect **up to the scheduled date and time mentioned in the Para 1.1.0 of Notice Inviting E-Tender.** The **BID** will be opened on the scheduled day and time on IREPS. 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. Any modified date and time for submission of tenders shall be uploaded on DFCCIL website **www.dfccil.com** and **https://www.ireps.gov.in**. The detailed procedure of tender opening will be as per para 1.3.5.

(v) Financial Bid shall be filled directly on the website https://ireps.gov.in through digital signature and not to be submitted in hard copy at all. ***The financial bid (after filling the rates) should neither be scanned & uploaded, nor, the hard copy of the same should be submitted to the office of the Employer.***

(vi) Deleted

(vii) Each page of the tender papers is to be signed either physically or digitally by the tenderers or such person/s on his/their behalf that is/are legally authorized to sign for him / them.

(viii) **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 with 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 Conditions of Contract for the completion of works to the entire satisfaction of the Engineer.

ii) Tenderer 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. Tenderer will ensure that full benefit of Input Tax (ITC) likely to be availed by them is duly considered while quoting rates.

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 DFCCIL 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.

iv) In case, the successful tenderer is not liable to be registered under CGST/IGST/UTGST/SGST Act, the DFCCIL shall deduct the applicable GST from his/their bills under reverse charge mechanism (RCM) and deposit the same to the concerned authority.

(ix) Tenders containing erasures and/or alteration of the tender documents are liable to be rejected. Any correction made by Tenderer(s) in his/their entries must be attested by him/them. Any interlineations, erasures, or overwriting shall be valid only if they are signed or initiated by the person signing the bid.

(x) The bid submitted / received after the time and date fixed for receipt of Bids as set out in the documents are liable to be rejected.

(xi) Conditional tenders are liable to be rejected straightway. DFCCIL reserves the right to reject such tenders summarily without assigning any reasons whatsoever. In case tenderer/s still decides to have conditional offer, all such conditions are required to be listed separately and shall be supplemented by the details of exact financial implications, if applicable. DFCCIL will not take cognizance of any other conditions / variations from the tender stipulations mentioned at any other place in the tender documents.

(xii) The bidder shall submit only one bid in the capacity of an individual or sole proprietor, partnership firm or company. Violation of this condition is liable to disqualify the tender in which bidder has participated and EMD of all such tenderer shall stand forfeited.

(xiii) **Withdrawal of Tender**: No tender can be withdrawn after scheduled date and time of submission and during tender validity period.

1.3.5 Opening of Tender:

(a) Tender will be opened at the scheduled date and time mentioned in the Para 1.1.1 of Notice Inviting E-Tender in the office of **General Manager/Co-Ordination/DFCCIL/Kolkata**, 3rd Floor, DCOS Building, E-W Metro, Central Park Depot, Salt Lake Sector 1, Bidhannagar, West Bengal, Kolkata-700091, India in the

presence of the tenderers or their representatives as may be present at the prescribed date and time.

(b) Bid of the bidders shall be opened through process of e-tendering.

(c) Bid only of all the tenderers shall be opened and the contents there of i.e. qualification details shall be read out.

(d) After the opening of **BID** of all the tenderers, these bids shall bescrutinized and analysed. If found necessary by the Employer, the tenderers shall be asked to furnish clarifications and the Employer may also hold discussions with the tenderers after giving due notice. The names of the tenderers whose bid are considered complete and meet eligibility criteria shall be shortlisted.

(e) The time of opening, date and venue as per section 1.1.1 through **IREPS**. The Bid security of non-qualifying tenderers will be returned back within a reasonable period after completion of results of bid.

1.3.6 Constitution of the Firm:

1.3.6.1 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 Partership (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 maybe.

1.3.6.2 The tenderer shall give full details of the constitution of the Firm / JV / Company/ Registered Society /Registered Trust / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) and shall also submit following documents (as applicable), in addition to documents mentioned above:

(a) **Sole Proprietorship Firm:** The tenderer shall submit the notarized copy of the affidavit.

(b) **Partnership Firm :** The tenderer shall submit self attested copies of (i) registered / notarized Partnership Deed and (ii) Power of Attorney 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 payments, 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 tenders / contracts or said tender / contract. (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 General Conditions of Contract.

(c) **Joint Venture:** Joint Ventures (JV) are not eligible to Participate in this Tender.

(d) **Companies registered under Companies Act-1956/2013**: The tenderer shall submit (i) the copies of Memorandum of Association (MOA)/ Articles of Association (AOA) of the company; (ii) Power of attorney duly registered / notarized by the company (backed by the resolution of Board of Directors) in favour of the individual, signing the tender on behalf of company; and (iii) A copy of Certificate of Incorporation.

(e) **HUF:** 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.

(f) **LLP (Limited Liability Partnership):** 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.

(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 that the LLP is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of JV in which the LLP was / is a member. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the General Conditions of Contract.

(v) All other documents in terms of explanatory notes in clause 1.3.2 of General Information/Data sheet.

(g) **Registered Society & Registered Trust:** The tenderer shall submit:

(i) Copy of the Certificate of Registration.

(ii) A copy of Deed of Formation.

(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) All other documents in terms of explanatory notes in clause 1.3.2 of General Information/Data sheet.

1.3.6.3 If it is mentioned in the submitted tender that it is being submitted on behalf of a Sole Proprietorship firm / Partnership firm / Joint Venture / Registered Company etc., but above-mentioned documents (as applicable) are not enclosed along with the tender**. The tender shall be summarily rejected tender**.

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.

(a) After opening of the tender, any document pertaining to the constitution of Sole Proprietorship Firm / Partnership Firm / Registered Company/ Registered Trust / Registered Society / HUF 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.

(b) A tender from JV / Partnership firm etc. shall be considered only where permissible as per the tender conditions.

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

(d) The tenderer whether sole proprietor / a company or a partnership firm / joint venture (JV) / registered society / registered trust / HUF 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 submit the tender, sign the agreement, receive money, co-ordinate measurements through contractor's authorized engineer, witness measurements, sign measurement books, compromise, settle, relinquish any claim(s) preferred by the firm and sign "No Claim Certificate" and refer all or any disputes to arbitration. The above power of attorney shall be submitted **even if** such specific person is authorized for above purposes through partnership deed / Memorandum of Understanding / Article of Association or such other document, failing which tender shall be summarily rejected.

After opening of the tender, any document pertaining to the constitution of the Firm / Joint Venture etc. shall neither be asked nor be entertained/ considered by DFCCIL

A tender from Joint Venture / Partnership Firm etc. shall be considered only where permissible as per the tender conditions.

The DFCCIL 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 submission of tender. It may, however, recognize such power of attorney and changes after obtaining proper legal advice.

1.3.7 **Validity of Tender:** Tenderer shall keep his offer open for a minimum period of **90 days** from the date of opening of the Bid of the tender or as mentioned in the Tender Notice.

1.3.8 Bid Security/Earnest Money Deposit :

For the subject tender, the **Bid Security/ Earnest Money** deposit shall be **Rs.18,64,300/-** and shall be governed below. In case the Bid Security/ Earnest Money Deposit for the tender is applicable, the below instructions shall be applicable

(a) The tenderer shall be required to deposit earnest money 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.

Note: (a) Any firm recognized by Department of Industrial Policy and Promotion (DIPP) as "Startups" shall be exempted from payment of earnest money deposit detailed above. (b) 100% Govt. owned PSUs shall be exempted from payment of earnest money deposit detailed above. (c) Labour Cooperative Societies shall deposit only 50% of above earnest money deposit detailed above.

(b) 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 liable to be forfeited to the DFCCIL.

(c) If his tender is accepted this earnest money mentioned above will be retained as part security for the due and faithful fulfilment of the contract in terms of Clause 16 of the Standard General Conditions of Contract. The Earnest Money of other Tenderers shall, save as herein before provided, be returned to them, but the DFCCIL shall not be responsible for any loss or depreciation that may happen thereto while in their possession, nor be liable to pay interest thereon.

(d) The Earnest Money shall be deposited through e-payment gateway or as mentioned in tender documents.

(e) The tender must be accompanied by Earnest Money as mentioned above deposited through e-payment gateway or as mentioned in tender documents, failing which the tender shall not be considered.

The Tenderer(s) shall keep the offer open for a minimum period of 60 days from the date of opening 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 the DFCCIL, Should the Tenderer fail to observe or comply with the foregoing stipulation, the amount deposited as Earnest Money for the due performance of the above stipulation, shall be forfeited to the DFCCIL.

NOTE: No interest shall be paid by DFCCIL on Bid Security amount.

1.3.9 Execution of Contract Agreement:

The successful tenderer, whose tender has been accepted by the competent authority of DFCCIL, will be informed by the DFCCIL though a Letter of Acceptance (LoA). Letter of Acceptance after it is signedby the Contractor in token of his acceptance shall constitute a legal and binding contract between DFCCIL and the contractor till such time the contract agreement is signed.

The Tenderer whose tender is accepted shall be required to appear in person at the Employer's office or if a firm or corporation, a duly authorized representative shall so appear and execute the contract agreement within 3 0 days after notice that the contract has been awarded to him. Failure to do so shall constitute a breach of the agreement affected by the acceptance of the tender in which case the full value of the Bid Security accompanying the tender shall stand forfeited without prejudice to any other rights or remedies.

In the event of any tenderer whose tender is accepted refuses to execute the contract agreement as here in before provided, DFCCIL may determine that such tenderer has abandoned the contract and there upon his tender and acceptance thereof shall be treated as cancelled and DFCCIL shall be entitled to forfeit the full amount of the Bid Security.

1.3.10 Security Deposit on Acceptance of Tender:

The Security Deposit/rate of recovery/mode of recovery on acceptance of tender shall be as per the Para 16. (1) to 16.(3) of General Conditions of Contract (GCC).

1.3.11 Tenderer's Address

The tenderer should state in the tender his postal address legibly and clearly. Any communication sent in time, to the tenderer by post at his said address shall be deemed to have reached the tenderer duly and in time. Important documents should be sent by registered post.

1.3.12 Right of DFCCIL to Deal with Tenders

(a) The DFCCIL reserves the right of not to invite tenders for any of DFCCIL 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 t o reject any tender or all tenders without assigning reasons for any such action.

(b) The authority for the acceptance of the tender will rest with the DFCCIL. It shall not be obligatory on the said authority to accept the lowest tender or any other tender and no tenderer(s) shall demand any explanation for the cause of rejection of his/their tender nor the DFCCIL undertake to assign reasons for declining to consider or reject any particular tender or tenders.

Signature of tenderer(s) with seal

1.3.13 (i) Eligibility Criteria

(A) Technical Eligibility Criteria: Form 2A

In support of their credentials, the Tenderer(s) should have to submit documents as stipulated in tender document along with their tenders.

Criteria
Requirement
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: (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 each costing not less than the amount equal to 60% of advertised value of the tender. **NOTE :** 1**. "Similar Work"** for this tender is defined as: - Any work consisting of Supply Erection, Testing & Commissioning of Transmission lines of 66 KV or above 2. The tenderers shall submit requisite information as per **Form 2A**, along with relevant documents.

(B) Financial Eligibility Criteria : Form 2B

Criteria
Requirement
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 **Form 2B,** along with copies of Audited Balance Sheets duly certified by the Chartered Accountant/ Certificate from Chartered Accountant duly supported by Audited Balance Sheet**.**

Note:

1. Contractual payments received by a Member in an earlier JV firm shall be reckoned only to extent of the concerned member's share in that JV Firm for the purpose of satisfying compliance of the above mentioned financial eligibility criteria in tender for considerations.

2. In case the tenderer/s is a partnership firm, the turnover etc. shall be in the name of partnership firm only.

(C) Bid Capacity

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:

Available Bid Capacity = [A x N x 2] – 0.33xNxB 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 has been invited.

B = Existing commitments and balance amount of ongoing works with tenderer as per Form No. 2C for statement of all works in progress and also the works which are awarded to tenderer but yet not started up to the date of inviting of 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 or 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 Form No. 2C 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 or 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 Form No. 2C 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 liable to be rejected.
(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.

The tender/technical bid will be evaluated based on details submitted in Form No. 2C.

Explanatory Notes for Clause 1.3.13 (i) -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.

Signature of tenderer(s) with seal

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 Notes of Para 1.3.13 , the same shall be considered for the purpose of fulfilment of credentials.
6. In case a work is considered similar in nature for fulfilment 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 unless mentioned otherwise specifically.
7. Partership Firm

(i) 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.

(ii) 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 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.

(iii) 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 7.2 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.

(iv) 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.

(v) 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.

(vi) 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.

(vii) 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.

8. In case a tenderer is LLP, the credentials of tenderer shall be worked out on above lines similar to a partnership firm.

9. In case company A is merged with company B, then company B would get the credentials of company A also.

(D) Electrical contractor license:-

For participating in tenders for a work in any state the Contractors shall have to possess electrical license of appropriate voltage issued by any State Govt. under Clause 60 of compilation of rule of Indian Electricity Rules 1956 or as amended from time to time and a copy of the same should be submitted along with the offer. They shall keep valid class A electrical license or equivalent throughout the period of execution of work by getting it renewed at suitable intervals and submit a copy of the same to the DFCCIL after each renewal. In the event of any discontinuity in validity of electrical license of the contractor, its authority to work with DFCCIL will also automatically cease to be valid.

1.3.13 (ii) Credentials of Tenderer:

The tenderer shall provide satisfactory evidence in support of their technical and financial eligibility, which are acceptable to DFCCIL, as follows:

(a) For Technical eligibility criteria, the details will be submitted in Form No.2A along with supporting documents.

(b) For Financial eligibility criteria, the details will be submitted in Form No.2B along with supporting documents.

(c) For Bid Capacity, the details will be submitted in Form No. 2C along with supporting documents.

(d) 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.

The following will be applicable for evaluating the eligibility:

(i) The tenderer shall be considered disqualified/in-eligible if:

(a) The Tenderer or any of its partners and/or subcontractors included in the tender has been banned for business with Ministry of Railways/DFCCIL along with any ofits attached and subordinate offices through an order issued by Ministry of Railways or DFCCIL pertaining to banning of Business, with the banning being valid ason the date of submission the Tender.

(b) The Tenderer or any of its partners has suffered bankruptcy / insolvency or it is inthe process of winding-up or there is a case of insolvency pending before any Courton the deadline of submission of application.

(ii) 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.

(iii) For the purpose of evaluation of proposals, all values given in INR in eligible qualification criteria and the values provided by the applicants in the proposal in the currencies otherthan INR shall be converted into one i.e. INR as per exchange rate mentioned in para above.

1.3.13 (iii) System of Verification of Tenderer's Credential:

1. For the works tenders, it has been decided to adopt the certificate based (Form self-attested is required. Signature, Stamp on Each Page). The tenderer shall submit along with the tender document, documents in support of his/their claim to fulfil the eligibility criteria as mentioned in the tender document. Each page of the copy of documents/certificates in support of certificates submitted by the tenderer, shall be self–attested/ digitally signed by the tenderer or authorized representative of the tendering firm. Self – attestation shall include signature, stamp and date (on each page).
2. The tenderers shall submit a 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 **Form-22**. Non submission of an certificate (Form No. 22) by the bidder shall result in summarily rejection of his/their bid. And it shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self-attested by which they/he is qualifying the Qualifying Criteria mentioned in the Tender Document. It will not be obligatory on the part of Tender Committee to scrutinize beyond the submitted document of tenderer as far as his qualification for the tender is concerned.

Signature of tenderer(s) with seal

3. The DFCCIL 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 DFCCIL, 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 DFCCIL shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any right of the DFCCIL thereunder.
4. In case of any wrong information submitted by tenderer, the contract shall be terminated, Earnest Money Deposit (EMD), Performance (PG) and Security Deposit (SD) of contract forfeited and agency barred for doing business on entire DFCCIL for 5(five) years.

1.3.14 Period of Completion:

The entire work is required to be completed in all respects within **18 months (Eighteen months)** from the date of issue of the acceptance letter. Time is the essence of contract. The contractor shall be required to maintain steady and regular progress to the satisfaction of the Engineer to ensure that the work will be completed in all respects within the stipulated time.

1.3.15 Deleted

1.3.16 If the Tenderer/s deliberately gives any wrong information about credentials/documents in his/ their tenders and thereby create(s) circumstances for acceptance of his/their tender, DFCCIL reserves the right to reject such tender at any stage, besides, shall suspend business with such tenderer. The EMD of such tenderers shall also be forfeited.

1.3.17 (a) 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.

The Bidder must indicate the percentage of local content as stipulated in Public Procurement (preference to Make in India), order 2017 as amended from time to time and its subsequent orders/ notification issued by concerned Nodal Ministry for specific Goods/Products. The minimum local content to qualify as class I local supplier is 50% and to qualify as Class II local supplier would be 20%. Non local suppliers are not eligible to participate as per provisions of the public Procurement (Preference to Make In India), Order 2017 and its subsequent amendment. The bidder shall be required to upload a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or by a practicing cost accountant or practicing chartered accountant (if bidder is other than companies), giving the percentage of local content. Preference shall be given to class I local suppliers as per provisions of the Public Procurement (Preference to Make in India), order 2017 and its subsequent amendments.

(b) 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.

1.3.18 Quantum of work and materials:

The indicative schedule of quantities of various items of works Form No. 3 & 4 (Summary of Prices has been separately attached in Financial Bid).

1.3.19 Employer not bound to accept any tender:

The employer shall not be bound to accept the lowest or any tender or to assign any reason for non-acceptance or rejection of a tender. The employer reserves the right to accept any tender in respect of the whole or any portion of the work specified in the tender papers or to reduce the work or to accept any tender for less than the tendered quantities without assigning any reason whatsoever.

1.3.20 Schedule of Prices

Form -3 and Form-4 of Part-IV, Chapter-II of BID DOCUMENTS lists out the Schedule of Prices for various items. Based on these, the total tender value has also been worked out.

1.3.21 Performance Guarantee: Refer relevant clause of **GCC.**

1.3.22 The tenderer shall furnish information for making payment through ECS/ NEFT / RTGS (Tender Form No. 8 placed at Part IV of the tender documents).

Signature of tenderer(s) with seal

1.3.23 Negotiation:

DFCCIL should decide to negotiate with a view to bring down the rates, the tenderer called for negotiations should furnish the following form of declaration before commencement of negotiations? "I..... do declare that in the event of failure of contemplated

negotiations relating to Tender No..... dated .....my origin altender shall remain open for acceptance on its original terms and conditions,".

1.3.24 Site Inspection:

Tenderers are requested to inspect the site and carry out careful examination to satisfy them as to the nature of work involved and facilities available at the site. They should note carefully all the existing structures and those under construction through other agencies. They should also study the suitability of utilizing the different equipment and the machinery that they intend to use for the execution of the work. The tenderers should also select suitable sites for the purpose of locating their store yard, laboratory, staff quarters etc., and satisfy themselves with regard to the feasibility of transporting the supply and support items, etc. from the yard to the final site of placement etc.

1.3.25 Tenderer(s) who can participate for this tender/Bid are company, firm, Joint venture/Partnership Firm/ Limited liability partnership/HUF/Registered society and Registered trust/MSE as per their eligibility detailed in this tender document

1.3.26 Preliminary examination of bids

a) The DFCCIL shall examine the bids to determine whether they are complete, whether any computational errors have been made, whether the documents have been properly signed and whether the bids are generally in order.

b) Arithmetical errors shall be rectified on the following basis if found. If there is a discrepancy between the unit price and the total price, which is obtained by multiplying the unit price and quantity, or between subtotals and the total price, the unit or subtotal price shall prevail, and the total price shall be corrected.

c) The rates should be quoted in figures as well as in words. If there is variation between rates quoted in figures and in words, the rate quoted in 'words' shall be taken as correct. If more than one or improper rates are tendered for the same item, the tender is liable to be rejected.

d) Prior to the detailed evaluation, DFCCIL shall determine whether each bid is of acceptable quality, is generally complete and is substantially responsive to the bidding documents. For purposes of this determination, a substantially responsive bid is one that conforms to all the terms, conditions and specifications of the bidding documents without material deviations, objections, conditionality or reservation. A material deviation, objections, conditionality or reservation is one:
(i)That affects in any substantial way the scope, quality or Performance of the contract.
(ii)That limits in any substantial way, inconsistent with the bidding documents, the DFCCIL's rights or the successful Bidder's obligations under the contracts; **or**
(iii) Whose rectification would unfairly affect the competitive position of other Bidders who are presenting substantially responsive bids.

e) If a bid is not substantially responsive, it shall be rejected by the DFCCIL.

f) In case of tenders containing any conditions or deviations or reservations about contents of tender document. DFCCIL can summarily reject such tender.

1.3.27 Evaluation and comparison of tenders:

In case of open tenders, bids, which are determined as substantially responsive, shall be evaluated based on criteria as given in Eligibility Criteria" and as given in Notice Inviting E-Tender. The tenderer must submit all necessary authentic data with necessary supporting certificates of the various items of evaluation criteria failing which his tender is liable to be rejected.

1.3.28 Canvassing

No tenderer is permitted to canvass to DFCCIL on any matter relating to this tender. Any tenderer found doing so may be disqualified and his bid may be rejected.

1.3.29 Award of Contract

1. DFCCIL shall notify the successful tenderer in writing by a IREPS Registered Letter/Courier/Speed Post/ Email or through bearer that his tender has been accepted.
2. Letter of Acceptance after it is signed by the Contractor in token of his acceptance shall constitute a legal and binding contract between DFCCIL and the contractor till such time the contract agreement is signed.

1.3.30 Understanding and Amendments of Tender Documents:

1. The bidder must own all responsibilities and bear all cost for obtaining all the information including risks, contingencies & other circumstances in execution of the work. It shall also carefully read and understandall its obligations & liabilities given in tender documents.
2. The bidder is advised to visit and examine the site where the work is to be executed and its surroundings or other areas as deemed fit by the bidder and should obtain at his own cost all information that may be necessary for preparing the bid and execution of the contract. The cost of visiting the site and collecting relevant data shall be at the bidder's own expenses. It is a condition of the tender that the tenderer is deemed to have visited the site and satisfied himself with all the conditions prevailing including any difficulties for executing the work.
3. At any time prior to the deadline for submission of bids, DFCCIL may for any reason whether at its own initiative or in response to any request by any prospective bidder amend the bidding documents by issuing Amendment, which shall be part of the Tender documents.
4. DFCCIL may at its discretion extend the deadline for submission of the bids at any time before the time of submission of the bids.

1.3.31 DELETED

1.3.32 JOINT VENTURE (JV) FIRMS IN WORKS TENDERS (Not eligible for the tender):

1.3.33 **Participation of Partnership Firms in works tenders:**

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

1.3.33.2 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 as per the Indian Partnership Act, prior to submission of tender.

1.3.33.3 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.

1.3.33.4 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 caseprior permission should be taken from DFCCIL and in any case the minimum eligibility criteriashould 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 DFCCIL 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 DFCCIL 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 General Conditions of Contract.

1.3.33.5 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.

1.3.33.6 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.

1.3.33.7 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.

1.3.33.8 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

1.3.33.9 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 DFCCIL 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 DFCCIL 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 DFCCIL, 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 DFCCIL.

1.3.33.10 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 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 /DFCCIL fromparticipation 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 General Conditions of Contract.

1.3.33.11 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 para 1.3.13(i) of Chapter III Part I of the Tender document.

1.3.34 The DFCCIL has appointed 2 (two) independent external monitors for the purpose of monitoring the Bidding Process and execution of the Contract Agreement for compliance with the principles specified in the integrity pact enclosed as Form no. 20. The co-ordinates of the independent external monitors are as under:

(a) **Shri V Kannan, Ex-CMD, Vijaya Bank**,
Address: TA-1, Krishna Regency, Third Floor,
Tata Silk Farm, K R Road, Basavanagudi, Bangalore-4,
Mob.: No. 0810530555.
Email: Kannan, venkata@gmail.com

(b) **Ms. Rashmi Verma, IAS (Retd.)**
Address; D-87, Ground Floor, Panchsheel Enclave, New Delhi-110017,
Mob No. 9810735544
E-mail-verma.rashmi@rediffmail.com

GENERAL CONDITIONS OF CONTRACT(GCC)

PART - I

CHAPTER IV

GENERAL CONDITIONS OF CONTRACT
DEFINITIONS AND INTERPRETATION

1. (1) **Definition: -**In these General conditions of Contract, the following terms shall have the meaning 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 / DFCCIL or of the Successor Railway/DFCCIL authorized to deal with any matter which these presents are concerned on his behalf.

(b) "General Manager of Railway" shall mean the officer - in-charge of the General Superintendence and Control of the Railway and shall mean and include their successors, of the successor Railway and shall also include Managing Director/ Director of DFCCIL;

(c) "Chief Engineer" shall mean the officer - in-charge of the Engineering Department of Railway and shall also include Chief Engineer (Construction), Chief Signal and Telecommunication Engineer, Chief Signaland Telecommunication Engineer (Construction), Chief Electrical Engineer, Chief Electrical Engineer (Construction) and shall also include GGM/CGM/GM/CPM of DFCCIL.

(d) "Divisional Railway Manager" shall mean the Officer in-charge of a Division of the Railway and shall also mean any officer nominated by "Railway" and shall mean and include their successors of the successor Railway.

(e) "Engineer" and Employer's Engineer shall mean the Chief Project Manager/Chief General Manager/General Manager (Coordination) of DFCCIL / PMC appointed by DFCCIL.

(f) "Engineer's Representative" shall mean the Assistant Engineer, Assistant Signal and Telecommunication Engineer and Assistant Electrical Engineer, APM / Dy.PM /PM/ Dy. CPM / Add. CPM of DFCCIL in direct charge of the work and shall include any Sr. Sec. / Sec / Jr. Engineer / Executive / Sr. Executive, APM/Dy.PM /PM/ Dy. CPM of DFCCIL of Civil Engineering / Signal & Telecommunication Engineering / Electrical Engineering Department appointed by the Railway / DFCCIL and shall mean and include the Engineer's Representative of the PMC appointed by Railway/DFCCIL.

(g) "Contractor" shall mean the person / Firm / Company / JV whether incorporated or not who enters into the contract with the DFCCIL and shall include their executors, administrators, and successors and permitted assigns.

(h) "Contractor's authorised 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 Engineer.

(i) "Contract" shall mean and include the Agreement of Work Order, the accepted schedule of rates of the Schedule or Rates of Railway / DFCCIL modified by the tender percentage for items of work quantified, or not quantified, General Conditions of Contract, Special Conditions of Contracts, if any, Drawings, Specifications, Additional / Special Specifications, if any and tender forms, if any, and all other documents included as part of contract.

(j) "Works" shall mean the works to be executed in accordance with the contract.

(k) "Specifications" shall mean the Specifications for materials and works referred / mentioned in tender documents.

(l) "Schedule of rates of Railway" shall mean the schedule of rates issued under the authority of the Chief Engineer from time to time and shall also includes Rates specified in tender document.

(m) "Drawing" shall mean the maps, drawings, plans and tracings or prints there of annexed to the contract and shall include any modifications of such drawings and further drawings as may be issued by the Engineer from time to time.

(n) "Constructional Plan" shall mean all appliances or things of whatsoever nature required for the execution, completion or maintenance of the works or temporary works (as hereinafter defined) but does not include materials or other things intended to form or forming part of the permanent work.

(o) "Temporary Works" shall mean all temporary works of every kind required for the execution completion and/or maintenance of the works.

Signature of tenderer(s) with seal

(p) "Site" shall mean the land and other places on, under, in or through which the works are to be carriedout and any other lands or places provided by the Railway/DFCCIL for the purpose of the Contract.

(q) "Period of Maintenance" shall mean the defect liability period (DLP) from the date of completion of theworks as certified by the Engineer.

(r) "Bid" or "Tender", "Bidder" or "Tenderer" wherever appearing in this document shall have the same and interchangeable meaning.

(s) 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. (2) **Singular and Plural**: - Words importing the singular number shall also include the plural and vice versa where the context requires.

1.(3) **Headings & marginal headings:** The headings and marginal headings in these general conditions are solely for the purpose of facilitating reference and shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or the contract.

GENERAL OBLIGATION

2.(1) **Execution Co-relation and intent of contract Documents: -**The contract documents shall be signed in triplicate by the DFCCIL and the Contractor. The contract documents are complementary, and what is called for by any one shall be as binding as if called for by all, the intention of the documents is to include all labour and materials, equipments and transportation necessary for the proper execution of work. Materials or work not covered by or properly inferable from any heading or class of the specifications shall not be supplied by the DFCCIL to the contractors unless distinctly specified in the contract documents. Materials or works described in words which so applied have a well known technical or trade meaning shall be held to refer to such recognized standards.

2.(2) If a work is transferred from the jurisdiction of one Railway to another Railway or to a Project Authority/DFCCIL or vice versa while contract is in subsistence, the contract shall be binding on the Contractor and the Successor Railway/Project in the same manner & take effect all respects as if the Contractor and the Successor Railway/Project were parties there to from the inception and the corresponding officer or the Competent Authority in the Successor Railway/Project will exercise the same powers and enjoy the same authority as conferred to the Predecessor Railway/Project under the original contract/agreement entered into.

2.(3) If for administrative or other reasons the contract is transferred to the Successor Railway/Successor Project Authority of DFCCIL the contract shall not withstanding any things contained herein contrary there to, be binding on the Contractor and the Successor Railway /Project Authority/ DFCCIL in the same mannerand take effect in all respect as if the Contractor and the Successor Railway/ successor Project Authority of DFCCIL had been parties thereto from the date of this contract. The contract shall be Administered/Managed by GGM/CGM/GM/CPM/nominated by DFCCIL.

3.(1) **Law governing the contract:** The contract shall be governed by the law for the time being in force in the Republic of India.

3.(2) **Compliance to regulations and bye-laws:-**The contractor shall conform to the provision of any statute relating to the works and regulations and by-laws of any location authority and of any water and lighting companies or undertakings, with whose system the work is proposed to be connected and shall before making any variation from the drawings or the specifications that may be necessitated by so confirming give to the Engineer notice specifying the variation proposed to be made and the reasons for making the variation and shall not carry out such variation until he has received instructions from the Engineer in respect thereof. The contractor shall be bound to give all notices required by statute, regulations or bye- laws as aforesaid and to pay all fees and taxes payable to any authority in respect hereof.

4. **Communications to be in writing**: - All notices, communications, reference and complaints made by the Railway/DFCCIL or the Engineer or the Engineer's Representative or the Contractor inter-se concerning the works shall be in writing or e-mail on registered e-mail IDs and no notice, communication, reference or complaint not in writing or through e-mail, shall be recognized.

5. **Service of Notices on Contractors:-**The contractor shall furnish to the Engineer the name designation and address of his authorized agent and all complaints, notices, communications and references shall be deemed

to have to the contractor or his authorized agent or left at or posted to the address so given andshall be deemed to have been so given in the case of posting on day on which they would have reached such address in the ordinary course of post or on the day on which they were so delivered or left. In the case of contract by partners, any change in the constitution of the firm shall be forthwith notified by the contractor to the Engineer.

6. **Occupation and use of land: -** No land belonging to or in the possession of the Railway/DFCCIL shall be occupied by the Contractor without the permission of the Railway/DFCCIL. The Contractor shall not use, or allow to be used, the site for any purposes other than that of executing the works. Whenever non- railway bodies / persons are permitted to use railway premises with competent authority's approval, conservancy charges as applicable from time to time may be levied.

7. **Assignment or subletting of contract: -** The Contractor shall not assign or sublet the contract or any part thereof or allow any person to become interested therein in any manner whatsoever without the special permission in writing of the Chief Engineer/Chief General Manager/General Manager/DFCCIL, save as provided below. Any breach of this condition shall entitle the Railway/DFCCIL to rescind the contract under Clause 62 of these Conditions and also render the Contractor liable for payment to the Railway/DFCCIL in respect of any loss or damage arising or ensuing from such cancellation; provided always that execution of the details of the work by petty Contractor under the direct and personal supervision of the Contractor or his agent shall not be deemed to be sub-letting under this clause.

In case Contractor intends to subcontract part of work, he shall submit a proposal in writing seeking permission of Chief Engineer/Chief General Manager/DFCCIL for the same. While submitting the proposal to railway/DFCCIL, Contractor shall ensure the following: -

a) (i) Total value of work to be assigned to sub-contractor(s) shall not be more than 50% of total contractvalue.
(ii) 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 through a works contract directly given to him by a Govt. Department; or by a 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, registered at least 5 years back from the date of submission of proposal by Contractor to Railway/DFCCIL and work experience certificate issued by a person authorised by the Public Listed Company to issue such certificates.

In case contractor submits subcontractor's work experience certificate issued by public listed company, the contractor shall also submit along with work experience certificate, the relevant copy ofwork 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.

(ii) There is no banning of business with the sub-contractor in force over IR/DFCCIL.

b) The Contractor shall provide to the Engineer a copy of the agreement to be entered into by Contractor with subcontractor. No subcontractor shall be permitted without a formal agreement between Contractor and subcontractor. This agreement shall clearly define the scope of work to be carried out by subcontractor and the terms of payment in clear & unambiguous manner.

c) On receipt of approval from Chief Engineer/Chief General Manager/DFCCIL, Contractor shall enter into a formal agreement legally enforceable in Court of Law with subcontractor and submit a copy of the same to the Engineer.

d) The Contractor shall intimate to the Engineer not less than 7 days in advance, the intended date of

commencement of subcontractor's work.

e) Once having entered into above arrangement, Contractor shall discontinue such arrangement, if he intends to do so at his own or on the instructions of Railway/DFCCIL, with prior intimation to Chief Engineer/Chief General Manager/DFCCIL.

f) The Contractor shall indemnify railway/DFCCIL against any claim of subcontractor.

g) The Contractor shall release payment to the Sub-contractor(s) promptly and shall endeavour to resolve all issues amicably and speedily with the Sub-contractor(s), so that the execution of work is not affected in any manner whatsoever.

Signature of tenderer(s) with seal

h) In addition to issuance of work experience certificate to Contractor, the Engineer, when, based on documents, is satisfied that subcontracted work has been carried out by subcontractor, shall issue work experience certificate to the subcontractor also for the portion of work subcontracted and successfully completed by the sub-contractor.

Note: Work Experience Certificate to the subcontractor shall be issued only when the contractor's work is complete and contractor is entitled for the issuance of Work Experience Certificate. However, in the same contract, when the CGM/GM DFCCIL, based on documents, is satisfied that the subcontractor has successfully carried out subletted work; without issuance of work experience certificate to subcontractor at this stage, the CGM/GM DFCCIL can, only once, consider the successfully completed subletted work for the fulfilment of eligibility for further subletting of work to the subcontractor in the same contract. When the contractor's work is complete and contractor is entitled for the issuance of work experience certificate, the subcontractor shall be issued one Work Experience Certificate for the total scope of work executed by the subcontractor in the contract.

i) The responsibility of successful completion of work by subcontractor shall lie with Contractor. Subcontracting will in no way relieve the Contractor to execute the work as per terms of the Contract.

j) Further, in case Engineer is of the view that subcontractor's performance is not satisfactory, he may instruct the Contractor to remove the subcontractor from the work and Contractor has to comply with the above instructions with due promptness. Contractor shall intimate the actual date of discontinuation of subcontract to Engineer. No claim of Contractor whatsoever on this account shallbe entertained by the Railway/DFCCIL and this shall be deemed as 'excepted matter' (matter not arbitrable).

k) The permitted subcontracting of work by the Contractor shall not establish any contractual relationship between the sub-contractor and the Railway/DFCCIL and shall not relieve the Contractor of any responsibility under the Contract.

8. Assistance by the DFCCIL for the Stores to be obtained by the Contractor:- Owing to difficulty in obtaining certain materials (including Tools & Plant) in the market, the DFCCIL may have agreed without any liability therefore to endeavour to obtain or assist the contractor in obtaining the required quantitiesof such materials as may be specified in the tender. In the event of delay or failure in obtaining the required quantities of the aforesaid material the contractor shall not be deemed absolved of his own responsibility and shall keep in touch with day to day positions regarding their availability and accordingly adjust progress of works including employment of labour and the DFCCIL shall not in any waybe liable for the supply of materials or for the non-supply thereof for any reasons whatsoever nor for anyloss or damage arising in consequence of such delay or no supply.

9. Deleted.

10. Carriage of materials: - No forwarding orders shall be issued by the DFCCIL for the conveyance of contractor's materials, tools and plant by Rail which may be required for use in the works and the contractor shall pay full freight charges at public tariff rates therefore.

11. Deleted

12. Representation on Works: -The contractor shall, when he is not personally present on the site of the works place and keep a responsible agent at the works during working hours who shall on receiving reasonable notice, present himself to the Engineer and orders given by the Engineer or the engineer's representative to the agent shall be deemed to have the same force as if they had been given to the Contractor. Before absenting himself, the contractor shall furnish the name and address of his agent for the purpose of this clause and failure on the part of the Contractor to comply with this provision at any time will entitle the DFCCIL to rescind the contract under clause 62 of these conditions.

13. Relics and Treasures: -All gold, silver, oil and other minerals of any description and all precious stones, coins, treasures relics antiquities and other similar things which shall be found in or upon the site shall be the property of the DFCCIL and the Contractor shall duly preserve the same to the satisfaction of the DFCCIL and shall from time to time deliver the same to such person or persons as the DFCCIL may appoint to receive the same.

14. Excavated material:- The contractor shall not sell or otherwise dispose of or remove except for the purpose of this contract, the sand, stones, clay, ballast, earth, rock or other substances or materials which may be obtained from any excavation made for the purpose of the works or any building or produced upon the site at the time of delivery of the possession thereof but all the substances, materials, buildings and produce shall be the property of the DFCCIL provided that the contractor may, with the permission of the

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Engineer, use the same for the purpose of the works either free of cost or pay the cost of the same at such rates as may be determined by the Engineer.

15. **Indemnity by Contractors:-** The contractor shall indemnify and save harmless the Railway/ DFCCIL from and against all actions, suit proceedings losses, costs, damages, charges, claims and demands of every nature and description brought or recovered against the Railways /DFCCIL by reason of any act or omission of the contractor, his agents or employees, in the execution of the works or in his guarding of the same. All sums payable by way of compensation under any of these conditions shall be considered asreasonable compensation to be applied to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

16 **(1) Security Deposit: -** The Security Deposit shall be 5% of the contract value. The Bid Security submitted by the Contractor with his tender will be retained/encashed by the DFCCIL as part of security for the due and faithful fulfilment of the contract by the Contractor. Provided further that, if Contractor submits the Cash or Term Deposit Receipt issued from a Scheduled commercial bank of India or irrevocable Bank Guarantee Bond from a Scheduled commercial bank of India in the form of Form 28, either towards the Full Security Deposit or the Part Security Deposit equal to or more than Bid Security, the DFCCIL shall return the Bid Security, to the Contractor.

Balance of Security Deposit may be deposited by the Contractor in cash or Term Deposit Receipt issued from Scheduled commercial bank of India or irrevocable Bank Guarantee bond issued from Scheduled commercial bank of India in the form of Form 24, or may be recovered at the rate of 6% of the bill amount till the full Security Deposit is recovered. Provided also that in case of defaulting Contractor, the DFCCIL may retain any amount due for payment to the Contractor on the pending "on account bills" so that the amounts so retained (including amount guaranteed through Performance Guarantee) may not exceed 08% of the total value of the contract.

The Irrevocable Bank Guarantee submitted towards Security deposit shall be initially valid up to the stipulated date of Maintenance period plus 60 days and shall be extended from time to time, depending upon extension of contract granted in terms of Clause 17A and 17B of the General Conditions of Contract.

Note: Security Deposit deposited in cash by the Contractor or recovered from the running bills of a Contractor or submitted by contractor as Term Deposit Receipt(s) can be refunded/returned to the contractor, in lieu of irrevocable Bank Guarantee bond issued from scheduled commercial bank of India, to be submitted by him, for an amount equal to or more than the already available Security Deposit, provided however that, in a contract of value less than Rs. 50 Crore, such refund/ return of the already available Security Deposit is permitted up to two times and in a contract of value equal to or more than Rs. 50 Crore, such refund / return of the already available Security Deposit is permitted up to three times.

16. **(2) (i) Refund of Security Deposit:** Security Deposit mentioned in sub-clause (1) above shall be returned to the Contractor along with or after, the following:

(a) Final Payment of the Contract as per clause 51. (1) and
(b) Execution of Final Supplementary Agreement or Certification by Engineer that DFCCIL has No Claim on Contractor and
(c) Maintenance Certificate issued, on expiry of the maintenance period as per clause 50. (1), in case applicable.

16. **(2)(ii) Forfeiture of Security Deposit:** Whenever the contract is rescinded as a whole under clause 62 (1) of GCC, the Security Deposit already with DFCCIL under the contract shall be forfeited. However, in case the contract is rescinded in part or parts under clause 62 (1) of GCC, the Security Deposit shall not be forfeited.

16. **(3)** No interest shall be payable upon the Earnest Money and Security Deposit or amounts payable to the Contractor under the Contract, but Government Securities deposited in terms of Sub-Clause 16. (4)(b) of this clause will be payable with interest accrued thereon.

16. **(4) Performance Guarantee (P.G.):**

The procedure for obtaining Performance Guarantee is outlined below:

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(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 DFCCIL, 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 DFCCIL shall be entitled to forfeit Earnest Money Deposit and other dues payable against that contract. In case a tenderer has not submitted Earnest Money Deposit on the strength of their registration as a Start-uprecognized 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 contract value:

(i) A deposit of Cash;
(ii) Irrevocable Bank Guarantee;
(iii) Government Securities including State Loan Bonds at 5% below the market value;
(iv) Deposit Receipts, Pay Orders, Demand Drafts and Guarantee Bonds. These forms of Performance Guarantee could be either of the State Bank of India or of any of the Nationalized Banks;
(v) Guarantee Bonds executed or Deposits Receipts tendered by all Scheduled Banks;
(vi) Deposit in the Post Office Saving Bank;
(vii)Deposit in the National Savings Certificates;
(viii) Twelve years National Defence certificates;
(vii)Ten years Defence Deposits;
(x) National Defence Bonds and
(xi)Unit Trust Certificates at 5% below market value or at the face value whichever is less. Also, FDR in favour of DFCCIL (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 will not change for variation upto 25% (either increase or decrease). In case during the course of execution, value of the contract increases by more than 25% of the original contract value, an additional Performance Guarantee amounting to *3% (three percent)* for the excess value over the original contract value shall be deposited by the Contractor. On the other hand, if the value of contract decreases by more than 25% of the original contract value, Performance Guarantee amounting to *3% (three percent)* of the decrease in the contract value shall be returned to the Contractor. The PG amount in excess of required PG for decreased contract value, available with DFCCIL, shall be returned to Contractor as per his request duly safeguarding the interest of DFCCIL.

(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 DFCCIL.

(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.

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(ii) Failure by the Contractor to pay President of India / DFCCIL 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 the GCC

17. Force Majeure Clause:- If at any time, during the continuance of this contract, the performance in whole or in part by either party of any obligation under this contract shall be prevented or delayed by reason of any war, hostility, acts of public enemy, civil commotion, sabotage, serious loss or damage by fire, explosions, epidemics/pandemics, strikes, lockouts or acts of God (hereinafter, referred to events) provided, notice of the happening of any such event is given by either party to the other within 30 days from the date of occurrence thereof, neither party shall by reason of such event, be entitled to terminate this contract nor shall either party have any claim for damages against the other in respect of such non- performance or delay in performance, and works under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, and the decision of the Engineer as to whether the works have been so resumed or not shall be final and conclusive, PROVIDED FURTHER that if the performance in whole or in part of any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 120 days, either party may at its option terminate the contract by giving notice to the other party.

17 A Extension of time in Contracts: -Subject to any requirement in the contract as to completion of any portion or portions of the works before completion of the whole, the contractor shall fully and finally complete the whole of the works comprised in the contract (with such modifications as may be directed under conditions of this contract) by the date entered in the contract or extended date in terms of the following clauses: -

(i) **Extension due to modification**:- If any modifications have been ordered which in the opinion of the Engineer have materially increased the magnitude of the work, then such extension of the contracted date of completion may be granted as shall appear to the Engineer to be reasonable in the circumstances, provided moreover that the Contractor shall be responsible for requesting such extension of the date as may be considered necessary as soon as the cause thereof shall arise and in any case not less than one month before the expiry of the date fixed for completion of the works.

(ii) **Extension for delay not due to DFCCIL or Contractor**:-If in the opinion of the Engineer the progress of work has any time been delayed by any act or neglect of DFCCIL's employees or by other contractor employed by the DFCCIL under sub-clause (4) of clause 20 of these conditions or in executing the work not forming part of the contract but on which contractor's performance necessarily depends or by reasons of proceeding taken or threatened by or dispute with adjoining or to neighbouring owners or public authority arising otherwise through the Contractor's own default etc. or by the delay authorized by the Engineer pending arbitration or in consequences of the contractor not having received in due time necessary instructions from the DFCCIL for which he shall have specially applied in writing to the Engineer or his authorized representative then upon happening of any such event causing delay, the contractor shall immediately give notice thereof in writing to the Engineer within 15 days of such happening but shall nevertheless make constantly his best endeavors to bring down or make good the delay and shall do all that may be reasonably required of him to the satisfaction of the Engineer to proceed with the works. The contractor may also indicate the period for which the work is likely to be delayed and shall be bound to ask for necessary extension of time. The Engineer on receipt of such request from the contractor shall consider the same and shall grant such extension of time as in his opinion is reasonable having regard to the nature and period of delay and the type and quantum of work affected thereby.

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No other compensation shall be payable for works so carried forward to the extended period of time, the same rates, terms and conditions of contract being applicable as if such extended period of time was originally provided in the original contract itself.

(iii) **Extension for delay due to DFCCIL/Railway:-** In the event of any failure or delay by the DFCCIL to hand over the Contractor possession of the lands necessary for the execution of the works or to give the necessary notice to commence the works or to provide the necessary drawings or instructions any other delay caused by the DFCCIL due to any other cause whatsoever, then such Failure or delay shall in no way affect or vitiate the contract or alter the character thereof or entitle the contractor to damages orcompensation therefore, but in any such case, the DFCCIL may grant such extension or extensions of the completion date as may be considered reasonable.

The Contractor shall indicate the period for which the work is likely to be delayed and shall seek extension of time as may be considered necessary under clause 17 A(i) or/and 17 A(ii) or/ and 17 A(iii) above, as soon as the cause thereof shall arise and, in any case, not less than 15 days before the expiry of the date fixed for completion. of the works. The Engineer shall consider the same and shall grant and communicate such extension of time as in his opinion is reasonable having regard to the nature and period of delay and the type-and quantum of work affected thereby. No other compensation shall be payable for works so carried forward to the extended period of time; the same rates, terms and conditions of contract being applicable, as if such extended period of time was originally provided in the original contract itself.

The non-submission of request for extension or submission of request within less than 15 days before the expiry of the date fixed for completion of the works, shall make him ineligible for extension under these sub clauses, subject to final decision of Engineer

17-B **Extension of time for delay due to contractor: -** Extension of Time with Liquidated Damages (LD) for delay due to Contractor: The time for the execution of the work or part of the works specified in the contract documents shall be deemed to be the essence of the contract and the works must be completed not later than the date(s) as specified in the contract. If the Contractor fails to complete the works within the time as specified in the contract for the reasons other than the reasons specified in Clause 17 and 17-A, the Railway/DFCCIL may, if satisfied that the works can be completed by the Contractor within reasonable short time thereafter, allow the Contractor for further extension of time (Proforma at Form- 14) as the Engineer may decide. On such extension the Railway will be entitled without prejudice to any other right and remedy available on that behalf, to recover from the Contractor as agreed damages and not by way of penalty for each week or part of the week, a sum calculated at the following rates of the contract value of the works.

For the purpose of this Clause, the contract value of the works shall be taken as value of work as per contract agreement including any supplementary work order/contract agreement issued. Provided also, that the total amount of liquidated damages under this condition shall not exceed 5% of the contract valueor of the total value of the item or groups of items of work for which a separate distinct completion period is specified in the contract.

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S.No.	Duration of extension of time under Clause 17-B	Rate of Liquidated Damages
(i)	Up to Twenty percent of original period of completion including period of extension of DOC granted under Section 17A(i)	As decided by Engineer, between 0.01% to 0.05% of contract value for each week or part of the week
(ii)	Above Twenty percent but upto Thirty percent of original period of completion including period of extension of DOC granted under Section 17A(i)	0.10% of contract value for each week or part of the week
(iii)	Above Fifty percent but upto Forty percent of original period of completion including period of extension of DOC granted under Section 17A(i)	0.30% of contract value for each week or part of the week

Provided further, that if the Railway/DFCCIL is not satisfied that the works can be completed by the Contractor and in the event of failure on the part of the contractor to complete the work within further extension of time allowed as aforesaid, the Railway/DFCCIL shall be entitled without prejudice to any other right or remedy available in that behalf, to appropriate the contractor's Security Deposit and rescind the contract under Clause 62 of these Conditions, whether or not actual damage is caused by such default.

NOTE: In a contract, where extension(s) of time have been allowed once under clause 17B, further request(s) for extension of time under clause 17 A can also be considered under exceptional circumstances. Such extension(s) of time under clause 17 A shall be without any Liquidated damages, but the Liquidated damages already recovered during extension(s) of time granted previously under clause 17B shall not be waived. However, Price variation during such extension(s) shall be dealt as applicable for extension(s) of time under clause 17B.

17-C **Bonus for Early Completion of Work**: In open tenders having advertised value more than Rs.50 crore and original period of completion 12 months or more, when there is no reduction in original scope of work by more than 10%, and no extension granted on either DFCCIL or Contractor's account, Contractor shall be entitled for a bonus of 1% for each 30 days early completion of work. The period of less than 30 days shall be ignored while working out bonus. The maximum bonus shall be limited to 5% of original contract value. The completion date shall be reckoned as the date of issuance of completion certificate by Engineer.

18. **(1) Illegal Gratification:-** Any bribe, commission, gift or advantage given, promised or offered by or on behalf of the Contractor or his partner or agent or servant or anyone on his behalf, to any officer or employee of the Railway/DFCCIL or to any person on his behalf in relation to obtaining or execution of this or any other contract with the Railway/DFCCIL shall, in addition to any criminal liability which he may incur, subject Contractor to the rescission of the contract and all other contracts with the Railway and to the payment of any loss or damage resulting from such decision and the Railway/DFCCIL shall be entitled to deduct the amounts so payable from the Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India.

18. **(2)** The contractor shall not lend or borrow from or have or enter into any monitory dealings and transactions either directly or indirectly with any employee of the DFCCIL and if he shall do so, the DFCCIL shall be entitled forthwith to rescind the contract and all other contracts with the DFCCIL. Any question or dispute as to the commission or any such offence or compensation payable to the DFCCIL under this clause shall be settled by the *MD/Director of the DFCCIL*, in such a manner as he shall considerfit and sufficient and his decision shall be final and conclusive. In the event of rescission of the contract under this clause, the

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contractor will not be paid any compensation whatsoever except payments for thework done up to the date of rescission.

EXECUTION OF WORKS

19.(1) Contractor's understanding:- It is understood and agreed that the contractor has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the progress of the works, the general and local conditions, the labour conditions prevailing therein and all other matters which can in any way affect the works under the contract.

19.(2) Commencement of works: -The contractor shall commence the works within 15 days from the date of issue of Letter of Acceptance (LOA) in writing to this affect from the Engineer and shall proceed with the same with due expedition and without delay.

19.(3) Accepted Programme of work: - The contractor who has been awarded the work shall as soon as possible but not later than 30 days after the date of receipt of the acceptance letter in respect of contracts with initial completion period of two years or less or not later than 90 days for other contracts have to submit the detailed programme of work indicating the time schedule of various items of works in the form of Bar Chart/PERT/CPM. He shall also submit the details of organization (in terms of labour and supervisors) plant and machinery, that he intends to utilize (from time to time) for execution of the Work within stipulated date of completion. The programme of work amended as necessary by discussions with the Engineer, shall be treated as the agreed programme of the work for the purpose of this contract and the contractor shall endeavour to fulfil this programme of work. The progress of work will be watched accordingly and the liquidated damages will be with reference to the overall completion date. Nothing stated herein shall preclude the contractor in achieving earlier completion of item or whole of the works than indicated in the programme.

19.(4) Setting out of works: - The contractor shall be responsible for the correct setting out of all works in relation to original points, lines and levels of reference at his cost. The contractor shall execute the work true to alignment, grade, levels and dimensions as shown in the drawing and as directed by the Engineer's representative and shall check these at frequent intervals. The contractor provide all facilities like labour and instruments and shall co- operate with the Engineer's representative to check all alignment, grades, levels and dimensions. If, at any time, during the progress of the works any error shallappear or arise in any part of the work, the contractor, on being required so to do by the Engineer's representative shall, at his own cost rectify such errors, to the satisfaction of the Engineer's representative. Such checking shall not absolve the contractor of his own responsibility of maintaining accuracy in the work. The contractor shall carefully protect and preserve all bench marks, sight rails, pegs and other things used in setting out the work.

20.(1) Compliance to Engineer's instructions: -The Engineer shall direct the order in which the several parts of the works shall be executed and the contractor shall execute without delay all orders given by the Engineer from time to time but the contractor shall not be relieved thereby from responsibility for the due performance of the works in all respects.

20.(2) Alterations to be authorized: -No alterations in or additions to or omissions or abandonment of any part of the works shall be deemed authorized, except under instructions from the Engineer, and the contractor shall be responsible to obtain such instructions in each and every case in writing from the Engineer.

20.(3) Extra works: - Should works over and above those included in the contract require to be executed at the site, the contractor shall have no right to be entrusted with the execution of such works which may be carried out by another contractor or contractors or by other means at the option of the DFCCIL.

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20.(4) Separate contracts in connection with works: - The DFCCIL shall have the right to let other contracts in connection with the works. The contractor shall afford other contractor(s) reasonable opportunity for the storage of their materials and the execution of their works and shall properly connect and coordinate his work with theirs. If any part of the contractor's work depends for proper execution or result upon the work of another contractor(s), the contractor shall inspect and promptly report to the Engineer any defects in such works that render it unsuitable for such proper execution and results. The contractor's failure so-to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of his work, except as to defects which may develop in the othercontractor's work after the execution of his work.

21. Instruction of Engineer's Representative: - Any instructions or approval given by the Engineer's representative to contractor in connection with the works shall bind the contractor as though it had been given by the Engineer provided always as follows:

a. Failure of the Engineer's representative to disapprove any work or materials shall not prejudice, the power of the Engineer thereafter to disapprove such work or material and to order the removal or breaking up thereof.

b. If the Contractor shall be dissatisfied by reason of any decision of the Engineer's representative, he shall be entitled to refer the matter to the Engineer who shall there upon confirm or vary suchdecision.

22. (1) Adherence to specifications and drawings: - The whole of the works shall be executed in perfect conformity with the specifications and drawings of the contract. If contractor performs any works in a manner contrary to the specifications or drawings or any of them and without such reference to the Engineer, he shall bear all the costs arising or ensuing therefore and shall be responsible for all loss to the DFCCIL.

22. (2) Drawings and specifications of the works: - The contractor shall keep one copy of drawings and specifications at the site, in good order, and such contract documents as may be necessary available to the Engineer or the Engineer's representative.

22. (3) Ownership of drawings and specifications: - All drawings and specifications and copies thereoffurnished by the DFCCIL to the Contractor are deemed to be the property of the DFCCIL. They shall not be used on other works and with the exception of the signed contract set, shall be returned by the contractor to the DFCCIL on completion of the work or termination of the contract.

22. (4) Compliance with Contractor's request for details: - The Engineer shall furnish with reasonable promptness, after receipt by him of the contractor's request for the same, additional instructions by means of drawings or otherwise, necessary for the proper execution of the works or any part thereof. All such drawing and instructions shall be consistent with the contract Documents and reasonably inferable there from.

22. (5) Meaning and intent of specification and drawings:- If any ambiguity arises as to the meaning and intent of any portion of the specifications and drawings or as to execution or quality of any work or material, or as to the measurements of the works the decision of the Engineer thereon shall be final subject to the appeal (within 7 days of such decision being intimated to the contractor) to the General Manager or CPM/CGM/GM who shall have the power to correct any errors, omissions, or discrepancies in aforementioned items and whose decision in the matter in dispute or doubt shall be final and conclusive.

23. Working during night: - The Contractor shall not carry out any work between sun-set and sun-rise without the previous permission of the Engineer. However, if the Engineer is satisfied that the work is not likely to be completed in time except by resorting to night work, he may order the same without confirming any right on the Contractor for claiming any extra payment for the same.

24. Damage to Railway / DFCCIL property or private life and property:- The contractor shall be responsible forall risk to the work and for trespass and shall make good at his own expense all loss or damage whether to the

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works themselves or to any other property of the Railway /DFCCIL or the lives, persons or property of others from whatsoever cause in connection with the works until they are taken over by the Railway / DFCCIL and this although all reasonable and proper precautions may have been taken by the contractor, and in case the Railway / DFCCIL shall be called upon to make good any costs, loss or damages, or to pay an compensation, including that payable under the provisions of the Workmen's Compensation Act or any statutory amendments thereof to any person or persons sustaining damages as aforesaid by reason of any act, or any negligence or omissions on the part of the contractor the amount of any costs or charges including costs and charges in connection with legal proceedings, which the Railway / DFCCIL may incur in reference thereto, shall be charged to the contractor. The Railway / DFCCIL shall have the power and right to pay or to defend or compromise any claim of threatened legal proceedings or in anticipation of legal proceedings being instituted consequent on the action or default of the contractor, to take such steps as may be considered necessary or desirable to ward off or mitigate the effect of such proceedings, charging to contractor, as aforesaid any sum or sums of money which may be paid and any expenses whether for reinstatement or otherwise which may be incurred and the propriety of any such payment, defence or compromise, and the incurring of any such expenses shall not be called in question by the contractor.

25. **Sheds, stores houses and Yards**:-The contractor shall at his own expense provide himself with sheds, stores houses and yards in such situations and in such numbers as in the opinion of the Engineer is requisite for carrying on the works and the contractor shall keep at each such sheds, stores houses and yard a sufficient quantity of materials and plant in stock as not to delay the carrying out of the works with due expedition and the Engineer and the Engineer's representative shall have free access to the said sheds, store houses and yards at any time for the purpose of inspecting the stock of materials or plant so kept in hand, and any materials or plan which the Engineer may object to shall not be brought upon or used in the works, but shall be forthwith removed from the sheds, store houses or yards by the contractor.The contractor shall at his own expenses provide and maintain suitable mortar mills, soaking vats or any other equipment necessary for the execution of the works.

26. Provision of efficient and competent Staff at work sites by the Contractor:-

26.1 The contractor shall place and keep on the works at all times efficient and competent staff to give the necessary direction to his workmen and to see that they execute their work in sound and proper manner and shall employ only such supervisors, workmen and labourers in or about the execution of any of these works as are careful and skilled in the various trades.

26.2 The contractor shall at once remove from the works any agents, permitted sub-contractor, supervisor, workman or labourer who shall be objected to by the Engineer and if and whenever required by the Engineer, he shall submit a correct return showing the names of all staff and workmen employed by him.

26.3 In the event of the Engineer being of the opinion that the contractor is not employing on the works a sufficient number of staff and workmen as is necessary for the proper completion of the works within the time prescribed, the contractor shall forthwith on receiving intimation to this effect deploy the additional number of staff and labour specified by the Engineer within seven days of being so required and failure on the part of the contractor to comply with such instructions will entitle the DFCCIL to rescind the contract under clause 62 of these conditions.

26A. Deployment of Qualified Engineers at Work Sites by the Contractor: -

26A.1 The contractor shall also employ minimum one Qualified Graduate Engineer & two Qualified Diploma Holder Engineer at site.

26A.2 In case the contractor fails to employ the Engineer, as aforesaid in Para 26A.1, he shall be liable to pay penalty at the rates, as may be prescribed by the Ministry of Railways through separate instructions from time to time for the default period for the provisions, as contained in Para 26A.1.

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26A.3 Deleted

27.(1) Workmanship and testing:- The whole of the works and / or supply of materials specified and provided in the contract or that may be necessary to be done in order to form and complete any part thereof shall be executed in the best and most substantial workman like manner with materials of the best and most approved quality of their respective kinds, agreeable to the particulars contained in or implied by the specifications and as referred to in and represented by the drawings or in such other additional particulars,instructions and drawings may be found requisite to be given during the carrying on of the works and to the entire satisfaction of the Engineer according to the instructions and directions which the contractors may from time to time receive from the Engineer. The materials may be subjected to tests by means of such machines, instruments and appliances as the Engineer may direct and wholly at the expense of the contractor.

27.(2) Removal of improper work and materials: - The Engineer or the Engineer's Representative shall be entitled to order from time to time:

(a) the removal from the site within the time specified in the order of any materials which in his opinion are not in accordance with the specifications or drawings.

(b) the substitution of proper and suitable materials, and

(c) the removal and proper re-execution, notwithstanding any previous tests thereof or on account payments therefore, of any work which in respect of materials or workmanship; is not in his opinion in accordance with the specifications and in case of default on the part of the contractor in carrying out such order the DFCCIL shall be entitled to rescind the contract under clause 62 of these conditions.

(d) The provision of Construction and Demolition Waste Management Rule 2016 issued by Ministry of Environment Forest and Climate Change dated 29.03.2016 and published in the Gazette of India, Part – II, Section -3, Sub-section (ii) are binding upon the Contractor. Contractor shall implement these provisions at worksites, for which no extra payment will be payable.

28. Facilities for inspection:- The contractor shall afford the Engineer and the Engineer's Representative every facility for entering in and upon every portion of the work at all hours for the purpose of inspection or otherwise and shall provide all labour, materials, planks, ladders, pumps, appliances and things of every kind required for the purpose and the Engineer and the Engineer's Representative shall at all times have free access to every part of the works and to all places at which materials for the works are stored or being prepared.

29. Examination of work before covering up:- The contractor shall give7days' notice to the Engineer or the Engineer's representative whenever any work or materials are intended to be covered up in the earth, in bodies or walls or otherwise to be placed beyond the reach of measurements in order that the work may be inspected or that correct dimensions may be taken before being so covered, placed beyond the reach of measurement in default whereof, the same shall at the option of the Engineer or the Engineer's representative be uncovered and measured at the contractor's expense or no allowance shall be made for such work or materials.

30. Temporary Works: -All temporary works necessary for the proper execution of the works shall be provided and maintained by the contractor and subject to the consent of the Engineer shall be removed by him at his expenses when they are no longer required and in such manner as the Engineer shall direct. In the event of failure on the part of the contractor to remove the temporary works, the Engineer will cause them to be removed and cost as increased by supervision and other incidental charges shall be recovered from the contractor. If temporary huts are provided by the contractor on the Railway/DFCCIL land for labour engaged by him for the execution of works, the contractor shall arrange for handing over vacant possession of the said land after the work is completed; if the contractor's labour refuse to vacate, and have to be rejected by

the Railway/DFCCIL necessary expenses incurred by the Railway/DFCCIL in connection therewith shall be borne by the contractor.

31.(1) Contractor to supply water for works: - Unless otherwise provided in the contract, the contractor shall be responsible for the arrangements to obtain supply of water necessary for the works.

31.(2) Deleted

31.(3) Deleted

31.(4) (a) Contractor to arrange supply of Electric power for works:- Unless otherwise provided in the contract, the contractor shall be responsible for arrangements to obtain supply of electric power for the works.

31.(5) (b) Deleted

32. Property in materials and plant:- The materials and plant brought by the Contractor upon the site or on the land occupied by the Contractor in connection with the works and intended to be used for the execution thereof shall immediately, they are brought upon the site of the said land, be deemed to be the property of the Railway / DFCCIL. Such of them as during the progress of the works are rejected by the Engineer under Clause 25 of these conditions or are declared by him not to be needed for the execution of the works or such as on the grant of the certificate of completion remain unused shall immediately on such rejection, declaration or grant cease to be deemed the property of the Railway / DFCCIL and the Contractor may then (but not before) remove them from the site or the said land. This clause shall not in any way diminish the liability of the Contractor nor shall the Railway / DFCCIL be in any way answerable forany loss or damage which may happen to or in respect of any such materials or plant either by the same being lost, stolen, injured or destroyed by fire, tempest or otherwise.

33.(1) Tools, Plant and Materials Supplied by DFCCIL: - The Contractor shall take all reasonable care of all tools, plant and materials or other property whether or a like description or not belonging to the DFCCIL and committed to his charge for the purpose of the works and shall be responsible for all damage or loss caused by him, his agents, permitted subcontractor, or his workmen or others while they are in his charge. The Contractors shall sign accountable receipts for tools, plants and materials made over to him by the engineer and on completion of the works shall hand over the unused balance of the same to the Engineer in good order and repair, fair wear and tear excepted, and shall be responsible for any failure to account for the same or any damage done thereto.

33(2) Hire of DFCCIL / Railway's Plant: - such plant as concrete mixers, compressors and portable engines for use during execution of the works on such terms as may be specified in the special conditions or in a separate agreement for Hire of Plant.

34.(1) Precaution during progress of works: - During the execution of works, unless otherwise specified, the Contractor shall at his own cost provide the materials for and execute all shoring, timbering and strutting works as is necessary for the stability and safety of all structures, excavations and works and shall ensure that no damage, injury or loss is caused or likely to be caused to any person or property.

34.(2) Roads and Water courses: - Existing roads or water courses shall not be blocked, cut through, altered, diverted or obstructed in any way by the Contractor, except with the permission of the Engineer. All compensations claimed for any unauthorized closure, cutting through, alterations, diversion or obstruction to such roads or water courses by the Contractor or his agent or his staff shall be recoverable from the Contractor by deduction from any sums which may become due to him in terms of contract, or otherwise according to law.

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34.(3) Provision of access to premises:- During progress of work in any street or thoroughfare, the Contractor shall make adequate provision for the passage of traffic, for securing safe access to all premises approached from such street or thoroughfare and for any drainage, water supply or means of lighting which may maintain at his own cost barriers, lights and other safeguards as prescribed by the Engineer, forthe regulation of the traffic, and provide watchmen necessary to prevent accidents. The works shall in such cases be executed night and day if so ordered by the Engineer and with such vigour so that the traffic way be impeded for as short a time as possible

34.(4) Safety of Public: - The Contractor shall be responsible to take all precautions to ensure the safety of the public whether on public or railway property and shall post such look out men as may, in the opinion of the Engineer, be required to comply with regulations appertaining to the work. Contractor shall ensure placement of barricading/partitions at the place of work to ensure safety of habitants of adjacent area, failing which Engineer may advise stoppage of work as per his discretion.

35. Deleted.

36.(1) Suspension of works: - The Contractor shall on the order of the Engineer, suspend the progress of the works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary inthe opinion of the Engineer. If such suspension is:-

(a) Provided for in the contract, or Necessary for the proper execution of the works or by the reason of weather conditions or by some default on the part of the Contractor, and/or Necessary for the safety of the works or any part thereof.

36.(2) The Contractor shall not be entitled to the extra costs, if any, incurred by him during the period of suspension of the works, but in the event of any suspension ordered by the Engineer for reasons other than aforementioned and when each such period of suspensions exceeds 14 days, the contractor shall be entitled to such extension of time for completion of the work as the Engineers may consider proper having regard to the period or periods of such suspensions and to such compensations as the Engineer may consider reasonable in respect of salaries or wages paid by the Contractor to his employees during the periods of such suspension.

36.(3) Suspension lasting more than 3 months:- If the progress of the works or any part thereof is suspended on the order of the Engineer for more than three months at a time, the Contractor may serve a written notice on the Engineer requiring permission within 15 days from the receipt thereof to proceed with the works or that part thereof in regard to which progress is suspended and if such permission is not grantedwithin that time the Contractor by further written notice so served may, but is not bound to, elect to treat the suspension where it affects part only of the works as an omission of such part or where it affects the whole of the works, as an abandonment of the contract by the DFCCIL.

37. Rates for items of works:- The rates, entered in the accepted Schedule of Rates of the Contract are intended to provide for works duly and properly completed in accordance with the general and special (if any) conditions of the contract and the specifications and drawings together with such enlargements, extensions, diminutions, reductions, alterations or additions as may be ordered in terms of Clause 42 of these conditions and without prejudice to the generality thereof and shall be deemed to include and cover superintendence and labour, supply, including full freight, of materials, stores, patterns, profiles, moulds, fittings, centring, scaffolding, shoring props, timber, machinery, barracks, tackle, roads, pegs, posts, tools and all apparatus and plant required on the works, except such tools, plant or materials as may be specified in the contract to be supplied to the Contractor by the DFCCIL, the erection, maintenance and removal of all temporary works and, buildings, all watching, lighting, bailing, pumping and draining, all prevention of or compensation for trespass, all barriers and arrangements for the safetyof the public or of employees during the execution of works, all sanitary and medical arrangements for labour camps as may be prescribed by the DFCCIL, the setting of all work and of the

construction, repair and upkeep of all centre lines, bench marks and level pegs thereon, site clearance, all fees duties, royalties, rent and compensation to owners for surface damage or taxes and impositions payable to local authorities in respect of land, structures and all material supplied for the work or other duties of expenses for which the Contractor may become liable or may be put to under any provision of law for the purpose of or in connection with the execution of the contract, and all such other incidental charges or contingencies as may have been specially provided for in the specifications.

However, if rates of existing GST or cess on GST for Works Contract is increased or any new tax /cess on Works Contract is imposed by Statute after the date of opening of tender but within the original date of completion/date of completion extended under clause 17 & 17A and the Contractor thereupon properly pays such taxes/cess, the Contractor shall be reimbursed the amount so paid.

Further, if rates of existing GST or cess on GST for Works Contract is decreased or any tax/cess on Works Contract is decreased / removed by Statute after the date of opening of tender, the reduction in tax amount shall be recovered from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India.

38. Deleted

39.(1) Rates for extra items of works:- Any type of work carried out by the Contractor on the instructions ofthe Engineer which is not included in the accepted schedules of rates shall be executed at the rates set forth in the "Schedule of Rates of Railway" modified by the tender percentage and such items are not contained in the latter, at the rate agreed upon between the Engineer and the Contractor before the execution of such items of work and the Contractors shall be bound to notify the Engineer at least seven days before the necessity arises for the execution of such items of works that the accepted schedule of rates does not include rate or rates for the extra work involved. The rates payable for such items shall bedecided at the meeting to be held between the Engineer and Contractor, in as short a period as possible after the need for the special item has come to the notice. In case the Contractor fails to attend the meeting after being notified to do so or in the event of no settlement being arrived at, the DFCCIL shall be entitled to execute the extra works by other means and the Contractor shall have no claim for loss or damage that may result from such procedure.

The assessment of rates for extra items shall be arrived at based on the prevailing rates and by taking guidance from the following documents in order of priority: -

(i) Analysis of Unified Schedule of Rates of Indian Railways
(ii) Analysis of Delhi Schedule of Rates issued by CPWD
(iii) Market Analysis

39.(2) Provided that if the Contractor commences work or incurs any expenditure in regard thereto before the rates as determined and agreed upon as lastly hereunto fore-mentioned, then and in such a case the Contractor shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of determination of rates as aforesaid according to the rates as shall be fixed by the Engineer. However, if the Contractor is not satisfied with the decision of the Engineer in this respect he may appeal to the CPM/General Manager within 30 days of getting the decision of the Engineer, supported by analysis of the rates claimed. The CGM/CPM's/ General Manager's decision after hearing both the parties in the matter would be final and binding on the Contractor and the DFCCIL.

40.(1) Handing over of works: - The Contractor shall be bound to hand over the works executed under the contract to the DFCCIL complete in all respects to the satisfaction of the Engineer. The Engineer shall determine the date on which the work is considered to have been completed, in support of which his certificate shall be regarded as sufficient evidence for all purposes. The Engineer shall determine from time to time, the date on

which any particular section of the work shall have been completed, and the contractor shall be bound to observe any such determination of the Engineer.

40.(2) Clearance of site on completion: - On completion of works, the Contractor shall clear away and remove from the site all constructional plant, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and works clean and in a workman like condition to the satisfaction of the Engineer. No final payment in settlement of the accounts for the works shall be paid, held to be due or shall be made to the, Contractor till, in addition to any other condition necessary for final payment, site clearance shall have been affected by him, and such clearance may be made by the Engineer at the expense of the Contractor in the event of his failure to comply with this provision within 7 days after receiving notice to that effect. Should it become necessary for the Engineer to have the site cleared at the expenses of the Contractor, the DFCCIL shall not be held liable for any loss or damage to such of the Contractor's property as may be on the site and due to such removal, there from which removal may be affected by means of public sales of such materials and property or in such a way as deemed fit and convenient to the Engineer.

VARIATIONS IN EXTENT OF CONTRACT

41. Modification to contract to be in writing: - In the event of any of the provisions of the contract requiring to be modified after the contract documents have been signed, the modifications shall be made in writing and signed by the DFCCIL and the Contractor and no work shall proceed under such modifications until this has been done. Any verbal or written arrangement abandoning, modifying, extending, reducing or supplementing the contract or any of the terms thereof shall be deemed conditional and shall not be binding on the DFCCIL unless and until the same is incorporated in a formal instrument and signed by the Contractor, and till then the DFCCIL shall have the right repudiate such arrangements.

42.(1) Powers of modification to contract:- The Engineer on behalf of the DFCCIL shall be entitled by order in writing to enlarge or extend, diminish or reduce the works or make any alterations in their design, character position, site, quantities, dimensions or in the method of their execution or in the combination and use of materials for the execution thereof or to order any additional work to be done or any works not to be done and the contractor will not be entitled, to any compensation for any increase/reduction in the quantities of work but will be paid only for the actual amount of work done and for approved materials supplied against a specific order.

42.(2) Variations in Quantities During Execution of Works Contracts: -

(i) Unless otherwise specified in the special conditions of the contract, the accepted variation in quantity of each individual item of the contract would be upto 25% of the quantity originally contracted, except in case of foundation work.

(ii) The Contractor shall be bound to carry out the work at the agreed rates and shall not be entitled to any claim or any compensation whatsoever upto the limit of 25% variation in quantity of individual item of works.

(iii) In case an increase in quantity of an individual item by more than 25% of the agreement quantity is considered unavoidable, then same shall be executed at following rates

(a) Quantities operated in excess of 125% but upto 140% of the agreement quantity of the concerned item, shall be paid at 98% of the rate awarded for that item in that particular tender;

(b) Quantities operated in excess of 140% but upto 150% of the agreement quantity of the concerned item shall be paid at 96% of the rate awarded for that item in that particular tender;

(c) Variation in quantities of individual items beyond 150% will be avoided and would be permitted only in exceptional unavoidable circumstances and shall be paid at 96% of the rate awarded for that item in that particular tender.

Signature of tenderer(s) with seal

(d) Variation to quantities of Minor Value Item:

The limit for varying quantities for minor value items shall be 100% (as against 25% prescribed for other items). A minor value item for this purpose is defined as an item whose original agreement value is less than 1 % of the total original agreement value.

d.(i) Quantities operated upto and including 100% of the agreement quantity of the concerned minor value item, shall be paid at the rate awarded for that item in that particular tender;

d.(ii) Quantities operated in excess of 100% but upto 200% of the agreement quantity of the concerned minor value item, shall be paid at 98% of the rate awarded for that item in that particular tender;

d.(iii) Variation in quantities of individual minor value item beyond 200% will be avoided and would be permitted only in exceptional unavoidable circumstances and shall be paid at 96% of the rate awarded for that item in that particular tender.

(iv) In case of earthwork, the variation limit of 25% shall apply to the gross quantity of earthwork and variation in the quantities of individual classifications of soil shall not be subject to this limit.

(v) As far as Standard Schedule of Rates (SSOR) items are concerned, the limit of 25% would apply to the value of SSOR schedule as a whole and not on individual SSOR items. However, in case of NS items, the limit of 25% would apply on the individual items irrespective of the manner of quoting the rate (single percentage rate or individual item rate).

42.(3) **Valuation of variations:-** The enlargements, extensions, diminution, reduction, alterations or additions referred to in sub-clause (2) of this clause shall in no degree affect the validity of the contract but shall be performed by the Contractor as provided therein and be subject to the same conditions, stipulations and obligations as if they had been originally and expressively included and provided for in the specifications and drawings and the amounts to be paid therefore shall be calculated in accordance withthe accepted schedule of rates. Any extra items / quantities of work falling outside the purview of the provisions of sub-clause (2) above shall be paid for at the rates determined under clause-39 of these conditions.

CLAIMS

43.(1) **Monthly Statement of Claims: -** The Contractor shall prepare and furnish to the Engineer once in every month an account giving full and detailed particulars of all claims for any additional expenses to which the Contractor may consider himself entitled to and of all extra or additional works ordered by the Engineer which he has executed during the preceding month and no claim for payment for and such work will be considered which has not been included in such particulars.

43.(2) **Signing of "No Claim" Certificate: -** The Contractor shall not be entitled to make any claim whatsoever against the DFCCIL under or by virtue of or arising out of this contract, nor shall the DFCCIL entertain or consider any such claim, if made by the Contractor, after he shall have signed a "No Claim" Certificate in favour of the DFCCIL in such form as shall be required by the DFCCIL after the works are finally measured up. The contractor shall be debarred from disputing the correctness of the items covered by "No Claim" Certificate or demanding a clearance to arbitration in respect thereof.

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MEASUREMENTS, CERTIFICATES AND PAYMENTS

44. **Quantities in schedule annexed to Contract: -**The quantities set out in the accepted schedule of rates with items of works quantified are the estimated quantities of the work to be executed by the Contractor in fulfillment of his obligations under the contract.

45.(i) **Measurement of works by DFCCIL: -** The Contractor shall be paid for the works at the rates in the accepted schedule of rates and for extra works at rates determined under Clause 39 of these conditions on the measurements taken by the Engineer or the Engineer's representative in accordance with the rules prescribed for the purpose by the DFCCIL. The quantities for items the unit of which in the accepted schedule of rates is 100 or 1000 shall be calculated to the nearest whole number, any; fraction below half being dropped and half and above being taken as one; for items the unit of which in the accepted schedule of rates is single, the quantities shall be calculated to two places of decimals. Such measurements will be taken of the work in progress from time to time and at such intervals as in the opinion of the Engineer shall be proper having regard to the progress of works. The date and time on which "on account" or final measurements are to be made shall be communicated to the Contractor who shall be present at the site and shall sign the results of the measurements (which shall also be signed by the Engineer or the Engineer's representative) recorded in the official measurementsbook as an acknowledgement of his acceptance of the accuracy of the measures. Failing the Contractor's attendance, the work may be measured up in his absence and such measurements shall, notwithstanding such absence, be binding upon the Contractor whether or not he shall have signed the measurement books provided always that any objection made by him to measurement shall be duly investigated and considered in the manner set out below:

(a) It shall be open to the Contractor to take specific objection to any recorded measurements or Classification on any ground within seven days of the date of such measurements. Any re-measurement taken by the engineer or the Engineer's representative in the presence of the Contractor or in his absence after due notice has been given to him in consequence of objection made by the Contractor shall be final and binding on the Contractor and no claim whatsoever shall thereafter be entertained regarding the accuracy and classification of the measurements.

(b) If an objection raised by the Contractor is found by the Engineer to be incorrect the Contractor shall be liable to pay the actual expenses incurred in measurements.

45. (ii) Measurement of works by Contractor's Authorised Representative (In case the contract provides for the same): -

(a) The Contractor shall be paid for the works at the rates in the accepted schedule of rates and for extra works at rates determined under Clause 39 of these conditions on the measurements taken by the Contractor's Authorised Engineer in accordance with the rules prescribed for the purpose by the DFCCIL. The quantities for items the unit of which in the accepted schedule of rates is 100 or 1000 shall be calculated to the nearest whole number, any; fraction below half being dropped and half and above being taken as one; for items the unit of which in the accepted schedule of rates is single, the quantities shall be calculated to two places of decimals. Such measurements will be taken of the work in progress from time to time. The date and time on which 'on account' or 'final' measurements are to be made shall be communicated to the Engineer.

The date and time of test checks shall be communicated to the contractor who shall be present at the site and shall witness the test checks, failing the contractor's attendance the test check may be conducted in his absence, and such test checks shall not withstanding such absence be binding upon contractor provided always that any objection made by contractor to test check shall be duly investigated and considered in the manner set out below:

(i) It shall be open to the Contractor to take specific objection to test checks of any recorded measurement within 7 days of date of such test checks. Any re-test check done by the concerned Railway's authority in the presence of the Contractor or in his absence after due notice given to him in consequent of objection made by the Contractor shall be final and binding on the Contractor and no claim whatsoever shall thereafter be entertained regarding the accuracy and classification of the measurements.

(ii) If an objection raised by the Contractor is found by the Engineer to be incorrect the Contractor shall be liable to pay the actual expenses incurred in measurements.

(b) Incorrect Measurement, actions to be taken:

If in case during test check or otherwise, it is detected by Engineer that agency has claimed any exaggerated measurement or has claimed any false measurement for the works which have not been executed; amounting to variation of 5% or more of claimed gross bill amount, action shall be taken as following:

(i) On first occasion of noticing exaggerated/false measurement, Engineer shall impose a penalty of 10% of the claimed gross bill value.

(ii) On any next occasion of noticing any exaggerated / false measurement, DFCCIL shall impose penalty of 15% of claimed gross bill value. In addition, the facility of recording of measurements by contractor as well as release of provisional payment shall be withdrawn. Once withdrawn, measurement shall be done by DFCCIL as per Clause 45(i) above.

46.(1) **"On-Account "Payments: -**The Contractor shall be entitled to be paid from time to time by way of "On-Account" payment only for such works as in the opinion of the Engineer he has executed in termsof the contract.

All payments due on the Engineer's/Engineer's Representative's certificates of measurements or Engineer's certified "Contractor's authorized Engineer's measurements" shall be subject to any deductions which may be made under these presents and shall further be subject to, unless otherwise required by Clause 16 of these Conditions, a retention of 6% (Six) by way of Security Deposits, until the amount of Security Deposit by way of such retentions shall amount to 5% of the total value of the contract provided always that the Engineer may by any certificate make any correction or modification in any previous certificate which shall have been issued by him and that the Engineer may withhold any certificate, if the works or any part thereof are not being carried out to his satisfaction.

46.(2) **Rounding off amounts: -** The total amount due on each certificate shall be rounded off to the nearest rupee i.e., sum less than 50 paise shall be omitted and sums of 50 paise and more upto Re. 1/- will be reckoned as Re. 1/-.

46.(3) **On Account Payments not prejudicial to final settlement: -** "On-Account" payments made to the 'Contractor shall be without prejudice to the final making up of the accounts (except where measurements are specifically noted in the Measurement Book as "Final Measurements" and as such have been signed by the Contractor and Engineer's/Engineer's Representative) and shall in no respect be considered or used as evidence of any facts stated in or to be inferred from such accounts nor of any particular quantity of work having been executed nor of the manner of its execution being satisfactory.

46.(4) Advances to the Contractor shall be paid as per Chapter-V Part-I Special Conditions of Contract of the Tender Document.

46.(5) **Manner of payment: -** Unless otherwise specified payments to the Contractor will be made by RTGS/NEFT only.

Signature of tenderer(s) with seal

46.A Price Variation Clause (PVC):

46.A.1 **Applicability:** Price Variation Clause (PVC) shall be applicable only in tender having advertised value above Rs.2 Crore. Provided further that, in a contract where PVC is applicable, following shall be outside the purview of price adjustments (i.e. shall be excluded from the gross value of the work for the purpose of price variation).

a) Materials supplied by DFCCIL to the Contractors, either free or at fixed rate;

b) Any extra item(s) included in subsequent variation falling outside the purview of the Bill(s) of Quantities of tender, under clause 39. (I)(b) of these General Conditions, unless applicability of PVC and 'Base Month' has been specially agreed, while fixing the rates of such extra item(s).

46. A.2 **Base Month:** The Base Month for 'Price Variation Clause' shall be taken as month 28 days prior to opening of tender including extensions, if any, unless otherwise stated elsewhere. The quarter for applicability of PVC shall commence from the month following Base month. The Price Variation shall be based on the average Price Index of the quarter under consideration.

46.A.3 Validity:

Rates accepted by Railway/DFCCIL Administration shall hold good till completion of work and no additional individual claim shall be admissible except:

(a) Payment/recovery for increase/decrease in GST on works contract or imposition/removal of any tax/cess on Works Contract as per Clause 37,
(b) Payment/recovery for overall market situation as per Price Variation Clause given hereunder.

46A.4 Components of various items in a contract on which variation in prices be admissible shall be steel, cement, ferrous material, non-ferrous material, insulators, Zinc and other material, labour, plant & machinery, fuel, explosives, detonators etc.material, labour, fuel, explosives & detonators, steel, cement, concreting, ferrous, nonferrous, insulator, zinc, erection, etc. Adjustment for variation in prices of these items shall be determined in the manner prescribed hereunder.

46A.5 No price variation shall be admissible for fixed component.

46A.6 The percentages of of various component in various type of works shall be as specified for all item (s)/ Bill(s) of Quantities in tender documents and the same shall be fixed as per table & classifications given below :

(I) For Civil Engineering Works

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Sl. No	Classification / Components		1A,2&3A	4A	5A	6A	7	8A	9A	1B,3B,4B,5B,6B,8B & 9B	1C,3C,4C,5C,6C,8C & 9C	3D,4D,5D,6D,8D & 9D	3E,4E,5E,6E,8E & 9E
1	Fixed	*	15	15	15	15	15	15	15	15	15	15	15
2	Labour	Lc	20	25	30	20	50	20	20	0	0	10	25
3	Steel	Sc	0	0	0	0	0	0	0	85	0	50	0
4	Cement	Cc	0	0	15	0	0	0	0	0	85	0	0
5	Plant Machinery & Spares	PMc	30	15	5	20	15	20	30	0	0	10	30
6	Fuel & Lubricants	Fc	25	15	5	15	15	20	15	0	0	10	20
7	Other Materials	Mc	10	15	30	30	5	25	20	0	0	5	10
8	Detonators & Explosive	Ec	0	15	0	0	0	0	0	0	0	0	0
		Total	100	100	100	100	100	100	100	100	100	100	100

* It shall not be considered for any price variation

The classification mentioned in the table above represents following type of item(s) in the work(s)-

1 Earthwork in Formation

1A All item(s) excluding 1B or/and 1C

1B Item(s) for supply of Steel

1C Item(s) for supply of Cement

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2 Ballast Supply Works

3 Tunnelling Works (without explosives)

3A All item(s) excluding 3B or/and 3C or/and 3D or/and 3E

3B Item(s) for supply of Steel

3C Item(s) for supply of Cement or/and grout

3D Item(s) for Fabrication & Erection of Structures including supply of Steel

3E Item(s) for Fabrication & Erection of Structures excluding supply of Steel

4 Tunnelling Works (with explosives)

4A All item(s) excluding 4B or/and 4C or/and 4D or/and 4E

4B Item(s) for supply of Steel

4C Item(s) for supply of Cement or/and grout

4D Item(s) for Fabrication & Erection of Structures including supply of Steel

4E Item(s) for Fabrication & Erection of Structures excluding supply of Steel

5 Building Works

5A All item(s) excluding 5B or/and 5C or/and 5D or/and 5E

5B Item(s) for supply of Steel

5C Item(s) for supply of Cement

5D Item(s) for Fabrication & Erection of Structures including supply of Steel

5E Item(s) for Fabrication & Erection of Structures excluding supply of Steel

6 Bridges & Protection Work

6A All item(s) excluding 6B or/and 6C or/and 6D or/and 6E

6B Item(s) for supply of Steel

6C Item(s) for supply of Cement

6D Item(s) for Fabrication, Assembly, Erection & Launching of Girders including supply of Steel

6E Item(s) for Fabrication, Assembly, Erection & Launching of Girders excluding supply of Steel

7 Permanent Way linking

8 Platform, Passenger Amenities

8A All item(s) excluding 8B or/and 8C or/and 8D or/and 8E

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8B Item(s) for supply of Steel item/fittings

8C Item(s) for supply of Cement item

8D Item(s) for Fabrication & Erection of structures including supply of Steel

8E Item(s) for Fabrication & Erection of structures excluding supply of Steel

9 Any other works not covered in Classification 1 to 8

9A All item(s) excluding 9B or/and 9C or/and 9D or/and 9E

9B Item(s) for supply of Steel

9C Item(s) for supply of Cement or/and Grout

9D Item(s) for Fabrication & Erection of structures including supply of Steel

9E Item(s) for Fabrication & Erection of structures excluding supply of Steel

46A.7 Formulae: The amount of variation in prices in the several components (labour, material etc.) shall be worked out by the following formulae:

(i) $$L = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (L_Q - L_B) \times L_C}{L_B \times 100}$$

(ii) $$M = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (M_Q - M_B) \times M_C}{M_B \times 100}$$

(iii) $$F = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (F_Q - F_B) \times F_C}{F_B \times 100}$$

(iv) $$E = \frac{(W) \times (E_Q - E_B) \times E_C}{E_B \times 100}$$

(v) $$PM = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (PM_Q - PM_B) \times PM_C}{PM_B \times 100}$$

(vi) $$S = \frac{(W \text{ or } W_S \text{ or } W_{SF}) \times (S_Q - S_B) \times S_C}{S_B \times 100}$$

(vii) $$C = \frac{(W \text{ or } W_C) \times (C_Q - C_B) \times C_C}{C_B \times 100}$$

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(II) For Railway Electrification Works:

(viii) $T = [0.4136x(C_Q - C_B) / C_B] \times 85$
(ix) $R = [0.94x(R_T - R_O) / R_O + 0.06x(Z_T - Z_O) / Z_O] \times 85$
(x) $N = [(P_T - P_O) \times P_O] \times 85$
(xi) $I = [(I_T - I_O) \times I_O] \times 85$
(xii) $G = [(M_Q - M_B) / M_B] \times 85$
(xiii) $Er = [(L_Q - L_B) / L_B] \times 85$

Where

T	Percentage variation payable on the gross value of bill of Concreting (Bill(s) of Quantities for concrete items)
R	Percentage variation payable on the gross value of bill of Ferrous Items (Bill(s) of Quantities for ferrous items)
N	Percentage variation payable on the gross value of bill of Non-Ferrous Items (Bill(s) of Quantities for non-ferrous items)
I	Percentage variation payable on the gross value of bill of Insulator (Bill(s) of Quantities for Insulator items)
G	Percentage variation payable on the gross value of bill of General Works (Bill(s) of Quantities for General items)
Er	Percentage variation payable on the gross value of erection (Bill(s) of Quantities for Erection Item)
R_T	IEEMA price index for Steel Blooms (size 150mmx 1 50mm) for the month which is two months prior to date of inspection of material.
R_O	IEEMA price index for Steel Blooms (size 150mmx 15O mm) for the month which is one month prior to date of opening of tender.
P_T	IEEMA price index for Copper wire rods for the month which is two months prior to date of inspection of material.
P_O	IEEMA price index for Copper wire rods for the month which is one month prior to date of opening of tender.
Z_T	IEEMA price index for Zinc for the month which is two months prior to date of inspection of Material
Z_O	IEEMA price index for Zinc for the month which is one month prior to date of opening of tender
I_T	RBI wholesale price index for the sub-group "Insulators" for the month which is two months prior to date of inspection of material
I_O	RBI wholesale price index for the sub-group "Insulators" for the month which is one month prior to date of opening of tender
L	Amount of price variation in Labour
M	Amount of price variation in Materials
F	Amount of price variation in Fuel
E	Amount of price variation in Explosives
PM	Amount of price variation in Manufacture of machinery for mining, Quarrying and Construction
S	Amount of price variation in Steel Supply Item

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C Amount of price variation in Cement Supply Item

L_C % of Labour Component

M_C % of Material Component

F_C % of Fuel Component

E_C % of Explosive Component in the item(s)

S_C % of Steel Supply item Component in the item(s)

C_C % of Cement Supply item Component in the item(s)

PM_C % of Manufacture of machinery for mining, Quarrying and Construction Component

W Gross value of work done by Contractor as per on-account bill(s) excluding the Gross value of work under WS or/and WC or/and WSF or/and WF or/and WSFL or/and WFL and cost of materials supplied by DFCCIL either free or at fixed rate,

W_C Gross value of work done by Contractor for item(s) of supply of cement and /or supply of grout material.

W_S Gross value of work done by Contractor for item(s) of supply of steel.

W_{SF} Gross value of work done by Contractor for item(s) of Fabrication & Erection of Structures including supply of Steel.

W_F Gross value of work done by Contractor for Fabrication & Erection of Structures excluding supply of Steel.

W_{SFL} Gross value of work done by Contractor for item(s) of Fabrication, Assembly, Erection / Launching of Girders including supply of Steel.

W_{FL} Gross value of work done by Contractor for item(s) of Fabrication, Assembly, Erection / Launching of Girders excluding supply of Steel.

L_B Consumer Price Index for Industrial Workers - All India: Published in R.B.I. Bulletin for the base period

L_Q Consumer Price Index for Industrial Workers - All India: Published in R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration

M_B Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the base period M_Q Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the average price

index of the 3 months of the quarter under consideration

F_B Wholesale Price Index for the group Fuel & Power as published in the R.B.I. Bulletin for the base period

F_Q Index Number of Wholesale Price Index – By Groups and Sub-Groups for the group Fuel & Power as published in the R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration

E_B Index number of Monthly Whole Sale Price Index for the category 'Explosive' of (g). Manufacture of other chemical products under (J) MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS, published by Office of

Economic Adviser, Govt. of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP), for the base period.

E_Q Index number of Monthly Whole Sale Price Index for the category 'Explosive' of (g). Manufacture of other chemical products under (J) MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS, published by Office of Economic Adviser, Govt. of India, Govt. of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP), for the average price index of 3 months of the quarter under consideration.

PM_B Index number of Monthly Whole Sale Price Index for the category 'k. Manufacture of machinery for mining, quarrying and construction' under (R) MANUFACTURE OF MACHINERY AND EQUIPMENT, published by Office of Economic Adviser, Govt. of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP), for the base period.

PM_Q Index number of Monthly Whole Sale Price Index for the category 'k. Manufacture of machinery for mining, quarrying and construction' under (R) MANUFACTURE OF MACHINERY AND EQUIPMENT, published by Office of Economic Adviser, Govt. of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP), for the average price index of 3 months of the quarter under consideration.

S_W Gross value of steel supplied by the Contractor as per the 'on-account' bill for the month under consideration

S_B The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9; for the base period.

S_Q The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9; for the 3 months of the quarter under consideration.

C_B Index No. of Wholesale Price Index of sub-group Cement, Lime & Plaster as published in RBI Bulletin for the base period

C_Q No. of Wholesale Price Index of sub-group Cement, Lime & Plaster as publishedin RBI Bulletin for the average price index of the 3 months of the quarter under consideration.

46A.8 The demands for escalation of cost shall be allowed on the basis of provisional indices as mentioned above in Clause 46A.7. Any adjustment needed to be done based on the finally published indices shall be made as and when they become available.

Special Note:

(1) It is clearly indicated that price variation implies both increase as well decrease in input prices and therefore price variation during the currency of the contract may result in extra payment or recovery as the case may be.

(2) General Conditions of Contract shall be applicable in context of Price variation. However, decision of Engineer shall be final & finding, in case of any conflict.

46A.9: (1) Relevant categories of steel for the purpose of operating Price Variation formula as mentioned in this Clause shall be as under:

SL	Classification	Rates to be used for calculating S_Q or S_B

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1.	Reinforcement bars and other rounds	Average of per tonne rates of 10mm dia TMT & 25mmdia TMT; confirming IS1786; Fe 500D
2.	All types and sizes of angles, channels and joists	Average of per tonne rates of 'Angle 75x75x6mm, MildSteel Plate 10mm thickness and Channel 150x75mm; confirming IS2062, E250 Gr "A"
3.	All types and sizes of plates	Average of per tonne rates of 'MS Plates 10mm thickness and 25mm thickness; confirming IS2062, E250 Gr "A"
4.	Any other section of steel not covered in the above categories	Average of price for the 3 categories covered under SL 1, 2 & 3 in this table.

(2). Relevant city for referring "JPC (Joint Plant Committee)"rates of steel items (SQ /SB) in different field unit shall be as under :

SL	City	Field Unit
1.	Delhi	Noida, Jaipur, Ajmer, Ambala, Meerut, Tundla, Prayagraj West, Prayagraj East
2.	Kolkata	Pt. Deen Dayal Upadhyay, Kolkata
3.	Mumbai	Ahmedabad, Vadodara, Mumbai North, Mumbai South

46A.10 Price Variation During Extended Period of Contract

The price adjustment as worked out above, i.e. either increase or decrease shall be applicable upto the stipulated date of completion of work including the extended period of completion where such extension has been granted under Clause 17-A of the General Conditions of Contract. However, where extension of time has been granted due to contractor's failure under Clause 17 -B of the General Conditions of Contract, price adjustment shall be done as follows:

(a) In case the indices increase above the indices applicable to the last month of original completion period or the extended period under Clause 17-A, the price adjustment for the period

of extension granted under Clause 17-B shall be limited to the amount payable as per the Indices applicable to the last month of the original completion period or the extended period under Clause 17-A of the General Conditions of Contract; as the case may be.

(b) In case the indices fall below the indices applicable to the last month of original/extended period of completion under Clause 17-A, as the case may be; then the lower indices shall be adopted for the price adjustment for the period of extension under Clause 17-B of the General Conditions of Contract.

47. **Maintenance of works:-** The Contractor shall at all times during the progress and continuance of the works and also for the period of maintenance specified in the Tender Form after the date of passing of the certificate of completion by the Engineer or any other earlier date subsequent to the completion of the works that **may be fixed by the Engineer** be responsible for and effectively maintain and uphold in good substantial, sound

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and perfect condition all and every part of the works and shall make good from time to time and at all times as often as the Engineer shall require, any damage or defect that may during the above period arise in or be discovered or be in any way connected with the works, provided that such damage or defect is not directly caused by errors in the contract documents, act of providence or insurrection or civil riot, and the contractor shall be liable for and shall pay and make good to the DFCCIL or other persons legally entitled thereto whenever required by the Engineer so to do, all losses, damages, costs and expenses they or any of them may incur or be put or be liable to by reasons or in consequence of the operations of the Contractor or of his failure in any respect.

48. **(1) Certificate of completion of works:** - As soon as in the opinion of the Engineer, the works has been completed and has satisfactorily passed any final test or tests that may be prescribed, the Engineer shall issue a certificate of completion duly indicating the date of completion in respect, of the work and the period of maintenance of the work shall commence from the date of completion mentioned in such certificate. The Engineer may also issue such a certificate indicating date of completion with respect to any part of the work (before the completion of the whole of work), which has been both completed to the satisfaction of the Engineer and occupied or used by the DFCCIL. When any such certificate is given in respect of part of a work, such part shall be considered as completed and the period of maintenance of such part shall commence from the date of completion mentioned in the completion certificate issued for that part of the work.

48.(2) Contractor not absolved by completion Certificate:- The Certificate of completion in respect of the works referred to in sub-clause (1) of this clause shall not absolve the Contractor from his liability to make good any defects imperfections, shrinkages or faults which may appear during the period of maintenance specified in the tender arising in the opinion of the Engineer from materials or workmanship not in accordance with the drawings or specifications or instruction of the Engineer, which defects, imperfections, shrinkages or faults shall upon the direction in writing of the Engineer be amended and made good by the Contractor at his own cost: and in case of default on the part of Contractor the Engineer may employ labour and materials or appoint another Contractor to amend and make good such defects, imperfections, shrinkages and faults and all expenses consequent thereon and incidental thereto shall be borne by the Contractor and shall be recoverable from any moneys due to him under the contract.

49.0 Approval only by maintenance Certificate:- No certificate other than maintenance certificate referred to in Clause 50 of the conditions shall be deemed to constitute approval of any work or other matter in respect of which it is issued or shall be taken as an admission of the due performance of the contract or any part thereof or of the accuracy of any claim or demand made by the Contractor or of additional varied work having been ordered by the Engineer nor shall any other certificate conclude or prejudice any of the powers of the Engineer.

50.(1) Maintenance Certificate: - The Contract shall not be considered as completed until a Maintenance Certificate shall have been signed by the Engineer stating that the works have been completed and maintained to his satisfaction. The Maintenance Certificate shall be given by the Engineer upon the expiration of the period of maintenance or as soon thereafter as any works ordered during such period pursuant to sub clause (2) Clause 48 of these conditions shall have been completed to the satisfaction of the Engineer and full effect shall be given to this Clause notwithstanding the taking possession of or using the works or any part thereof by the DFCCIL.

50.(2) Cessation of DFCCIL Liability: - The DFCCIL shall not be liable to the Contractor for any matter arising out of or in connection with the contract of the execution of the works unless the contractor shall have made a claim in writing in respect thereof before the issue of the Maintenance Certificate under this clause.

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50.(3) Unfulfilled Obligations:- Notwithstanding the issue of the Maintenance certificate the Contractor and (subject to sub-clause 2 of this clause) the DFCCIL shall remain liable for the fulfillment of any obligation incurred under the provision of the contract prior to the issue of the maintenance Certificate which remains unperformed at the time such certificate is issued and for the purposes of determining the nature and extent of any such obligations the contract shall be deemed to remain in force between the parties thereto.

51.(1) Final Payment:- On the Engineer's certificate of completion in respect of the works, adjustment shall be made and the balance of account based on the Engineer or the Engineer's representative's certified measurements or Engineer's certified "Contractor's authorised Engineer's measurements" of the total quantity of work executed by the contractor upto the date of completion and on the accepted schedule or rates and for extra works on rates determined under Clause 39 of these conditions shall be paid to theContractor subject always to any deduction which may be made under these presents and further subject to the Contactor having delivered to the Engineer either a full account in detail of all claims he may have on the DFCCIL in respect of the works or having delivered "No Claim Certificate" and the Engineer having after the receipt of such account given a certificate in writing that such claims are correct, that the whole of the works to be done under the provisions of the Contracts have been completed, that they have been inspected by him since their completion and found to be in good and substantial order, that all properties, works and things, removed, disturbed or injured in consequence of the woks have been properly replaced and made good and all expenses and demands incurred by or made upon the DFCCIL for or in the respect of damage or loss by from or in consequence of the works, have been satisfied agreeably and in conformity with the contract.

51(2) Post Payment Audit:- It is an agreed term of contract that the DFCCIL reserves to itself the right to carry out a post-payment audit and or technical examination of the works and the final bill including all supporting vouchers, abstracts etc. and to make a claim on the contractor for the refund any excess amount paid to him if as a result of such examination any over-payment to him is discovered to have made in respect of any works done or alleged to have been done by him under the contract.

51.A Production of vouchers etc. by the Contractor: -

(I) For a contract of more than one crore of rupees, the contractor shall, whenever required, produce or cause to be produced for examination by the Engineer any quotation, invoice, cost or other account, book of accounts, voucher, receipt, letter, memorandum, paper of writing or any copy of or extract from any such document and also furnish information and returns verified in such manner as may be required in anyway relating to the execution of this contract or relevant for verifying or ascertaining cost of execution of this contract (the decision of the engineer on the question of relevancy of any documents, information or return being final and binding in the parties).The contractor shall similarly produce vouchers; etc., if required to prove to the Engineer, that materials supplied by him, are in accordance with the specifications laid down in the contract.

(i) If any portion of the work in a contract of value more than one crore of rupees be carried out by a sub-contractor or any subsidiary or allied firm or company (as per Clause 7 of the General Conditions of Contract), the Engineer shall have power to secure the books of such sub-contract or any subsidiary or allied firm or company, through the contractor, and such books shall be open to his inspection.

(ii) The obligations imposed by sub clause (i) & (ii) above is without prejudice to the obligations of the contractor under any statute rules or orders binding on the contractor.

52.0 Withholding and lien in respect of sums claimed:- Whenever any claim or claims for payment of a sum of money arises out of or under the contract against the contractor, the DFCCIL shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security, if any, deposited by the contractor and for the purpose aforesaid, the DFCCIL shall be entitled to withhold the said cash security deposit or the security if any, furnished as the case may be and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed

amount or amounts or if no security has been taken from the contractor, the DFCCIL shall be entitled to withhold and have a lien to the extent of the such claimed amount or amounts referredto supra, from any sum or sums found payable or which at any time thereafter may become payable to thecontractor under the same contract or any other contract with this or any other DFCCIL or any Department of the Central Government pending finalization or adjudication of any such claim.

It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above, by the DFCCIL will be kept withheld or retained as such by the DFCCIL till the claim arising out of or under the contract is determined by the arbitrator (if the contract governed by the arbitration clause) or by the competent court as the case may be and that the contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to supra and duly notified as such to the contractor. For the purpose of this clause, where the contractor is a partnership firm or a limited company, the DFCCIL shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner/limited company, as the case may be whether in his individual capacity or otherwise.

52A. Lien in respect of claims in Other Contracts: -

(i) Any sum of money due and payable to the contractor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the DFCCIL, against any claim of this or any other DFCCIL or any other Department of the Central Government in respect of a payment of a sum of money arising out of or under any other contract made by the contractor with this or any other Department of the Central Government.

(ii) However, recovery of claims of DFCCIL in regard to terminated contracts may be made from the Final Bills, Security Deposits and Performance Guarantees of other contract or contracts, executed by the contractor. The Performance Guarantees submitted by the Contractor against other contracts, if required, may be withheld and encashed. In addition, 10% of each subsequent 'on-account bill' may be withheld, if required, for recovery of DFCCIL's dues against the terminated contract.

(iii) It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the DFCCIL will be kept withheld or retained as such by the DFCCIL till the claim arising out of or under any other contract is either mutually settled or determined by arbitration, if the other contract is governed by arbitration clause or by the competent court as the case may be and contractorshall have no claim for interest or damages whatsoever on this account or on any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the contractor.

53.0 Signature on Receipts for Amounts:- Every receipt for money which may become payable or for any security which may become transferable to the Contractors under these presents, shall, if signed in the partnership name by anyone of the partners of a Contractor's firm be a good and sufficient discharge to the DFCCIL in respect of the moneys or security purported to be acknowledged thereby and in the event of death of any of the Contractor, partners during the pendency of the contract it is hereby expressly agreed that every receipt by anyone of the surviving Contractor partners shall if so signed as aforesaid be good a sufficient discharge as aforesaid provided that nothing in this clause contained shall be deemed to prejudice or effect any claim which the DFCCIL may hereafter have against the legalrepresentative of any contractor partner so dying for or in respect to any breach of any of the conditions of the contract, provided also that nothing in this clause contained shall be deemed to prejudice or effect the respective rights or obligations of the Contractor partners and of the legal representatives of any deceased Contractor partners interse.

LABOUR

54.0 Wages to Labour :- The Contractor shall be responsible to ensure compliance with the provision of the Minimum Wages Act, 1948 (hereinafter referred to as the "said Act" and the Rules made there underin

respect of any referred to as the "said Act" and the Rules made there under in respect of any employees directly or through petty contractors or subcontractors employed by him on road construction or in building operations or in stone breaking or stone crushing for the purpose of carrying out this contract. If, in compliance with the terms of the contract, the Contractor supplied any labour to be used wholly or partly under the direct orders and control of the DFCCIL whether in connection with any work being executed by the Contractor or otherwise for the purpose of the DFCCIL such labour shall, for the purpose of this clause, still be deemed to be persons employed by the Contractor.

If any moneys shall, as a result of any claim or application made under the said Act be directed to be paid by the DFCCIL, such money shall be deemed to be moneys paid by it as aforesaid within seven days after the same shall have been demanded, the DFCCIL shall be entitled to recover the same form any moneys due or accruing to the Contractor under this or any other Contract with the Government of India.

54A. Apprentices Act: -The Contractor shall be responsible to ensure compliance with the provisions of the Apprentices Act, 1961 and the Rules and Orders issued there under from time to time in respect of apprentices directly or through petty contractors or sub-contractors employed by him for the purpose of carrying out the Contract.

If the contractor directly or through petty contractors or sub-contractors fails to do so, his failure will be a breach of the contract and the DFCCIL may, in its discretion, rescind the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation of the provisions of the Act.

Note: The contractors are required to engage apprentices when the works undertaken by them last for a period of one year or more and / the cost of works is rupees one lakh or more.

55.0 Provisions of payments of Wages Act: -The Contractor shall comply with the provisions of the Payment of Wages Act, 1936 and the rules made there under in respect of all employees directly or through petty contractors or sub-contractors employed by him in the works. If In compliance with the terms of the contract, the Contractor directly or through petty contractors of sub-contractors shall supply any labour to be used wholly or partly under the direct orders and control of the Engineer whether in connection with the works to be executed hereunder or otherwise for the purpose of the Engineer such labour shall never the less be deemed to comprise persons employed by the contractor and any moneys which may be ordered to be paid by the Engineer shall be deemed to be moneys payable by the Engineer on behalf of the Contractor and the Engineer may on failure of the contractor to repay such money to the DFCCIL deduct the same from moneys due to contractor in the terms of contract. The DFCCIL shall be entitled to deduct from any moneys due to the contractor (whether under this contract or any other contract) all moneys paid or payable by the DFCCIL by the way of compensation of aforesaid or for costs of expenses in connection with any claim thereto and the decision of the Engineer upon any question arising out of the effect or force of this clause shall be final and binding upon the Contractor.

55A. Provisions of Contract labour (Regulation and Abolition) Act, 1970:

55A.(1) The contractor shall comply with the provision of the contract labour (Regulation and Abolition) Act, 1970 and the Contract labour (Regulation and Abolition) Central Rules 1971 as modified from time to time, wherever applicable and shall also indemnify the DFCCIL from and against any claims under the aforesaid Act and the Rules.

55A.(2) The Contractor shall obtain a valid licence under the aforesaid Act as modified from time to time before the commencement of the work and continue to have a valid licence until the completion of the work. Any failure to fulfill the requirement shall attract the penal provision of the Contract arising out of the resultant non-execution of the work.

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55A.(3) The Contractor shall pay to the labour employed by him directly or through subcontractors the wages as per provision of the aforesaid Act and the Rules wherever applicable. The Contractor shall notwithstanding the provisions of the contract to the contrary, cause to be paid the wages to labour indirectly engaged on the works including any engaged by subcontractors in connection with the said work, as if the labour had been immediately employed by him.

55A.(4) In respect of all labour directly or indirectly employed in the work for performance of the contractor's part of, the contract, the Contractor shall comply with or cause to be complied with the provisions of the aforesaid Act and Rules wherever applicable.

55A.(5) In every case in which, by virtue of the provisions of the aforesaid Act or the Rules, the DFCCIL is obliged to pay any amount of wages to a workman employed by the Contractor or his sub-contractor in execution of the work or to incur any expenditure on account of the Contingent, liability of the DFCCIL due to the contractor's failure to fulfil his statutory obligations under the aforesaid Act or the rules the DFCCIL will recover from the Contractor, the amount of wages so paid or the amount of expenditure so incurred, and without prejudice to the rights of the DFCCIL under the section 20, sub-section (2) and section 2, sub-section (4) of the aforesaid Act, the DFCCIL shall be at liberty to recover such amount or part thereof by deducting it from the security deposit and/ or from any sum due by the DFCCIL to the contractor whether under the contract or otherwise. The DFCCIL shall not be bound to contest any claim made against it under sub-section (1) of section 20 and sub-section (4) of section 21 of the aforesaid Act except on the written request of the contractor and upon his giving to the DFCCIL full security for all costs for which the DFCCIL might become liable in contesting such claim. The decision of the DFCCIL regarding the amount actually recoverable from the contractor as stated above shall be final and bindingon the Contractor.

55B. Provisions of Employees Provident Fund and Miscellaneous Provisions Act, 1952 :

The Contractor shall comply with the provisions of Para 30 & 36- B of the Employees Provident Fund Scheme, 1952; Para 3 & 4 of Employees' Pension Scheme, 1995; and Para 7 & 8 of Employees Deposit Linked Insurance Scheme, 1976; as modified from time to time through enactment of" Employees Provident Fund & Miscellaneous Provisions Act, 1952", wherever applicable and shall also indemnify the DFCCIL from and against any claims under the aforesaid Act and the Rules.

55C. Provisions of "The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996" and "The Building and Other Construction Workers' Welfare Cess Act, 1996":

The tenderers, for carrying out any construction work, must 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.). As per this Act, the tenderer shall be levied. "The tenders, for carrying out any construction work, shall get themselves registered with the Registering Officer under Section – 7 of the Building and Other Construction Workers Welfare Cess 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 the contractor's bill as per provision of the Act".

56.0 Reporting of Accidents of Labour: -The Contractor shall be responsible forthe safety of all employees directly or through petty contractors or sub- contractor employed by him on the works and shall report serious accidents to any of them however and wherever occurring on the works to the Engineer or the Engineers Representative and shall made every arrangements to render all possible assistance.

57.0 Provision of Workmen's Compensation Act:- In every case in which by virtue of the provisions of section 12 sub-section (1) of the Workmen's Compensation Act 1923, DFCCIL is obliged to pay compensation to a

workman directly or through petty contractor or subcontractor employed by the Contractor in executing the work, DFCCIL will recover from the Contractor the amount of the compensation so paid, and, without prejudice to the rights of DFCCIL under Section 12 Sub-section (2) of the said Act, DFCCIL shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by DFCCIL to the Contractor whether under these conditions or otherwise, DFCCIL shall not be bound to contest any claim made against it under Section 12 Sub-section (1) of the said Act except on the written request of the Contractor and upon his giving to DFCCIL full security for all costs for which DFCCIL might become liable in consequence of contesting such claim.

57A. Provision of Mines Act:- The contractor shall observe and perform all the provisions of the Mines Act, 1952 or any statutory modifications or re-enactment thereof for the time being in force and any rules and regulations made there under in respect of all the persons directly or through the petty contractors or sub-contractors employed by him under this contract and shall indemnify the DFCCIL from and against any claims under the Mines Act, or the rules and regulations framed there under, by or on behalf of any persons employed by him or otherwise.

58.0 DFCCIL not to provide quarters for Contractors: -No quarters shall normally be provided by the DFCCIL for the accommodation of the contractor or any of his staff employed on the work.

59.(1) Labour Camps: - The contractor shall at his own expense make adequate arrangements for the housing, supply of drinking water and provision of latrines and urinals for his staff and workmen, directly or through the petty contractors or sub-contractors and for temporary crèche (Bal-mandir) where 50 or more women are employed at a time. Suitable sites on DFCCIL land, if available, may be allotted to the contractor for the erection of labour camps, either free of charge or on such terms and conditions that may be prescribed by the DFCCIL. All camp sites shall be maintained in clean and sanitary conditions by the contractor at his own cost.

59.(2) Compliance to rules for employment of labour:- The contractor(s) shall conform to all laws, by-laws rules and regulations for the time being in force pertaining to the employment of local or imported labour and shall take all necessary precautions to ensure and preserve the health and safety of all staff employed directly or through petty contractors or sub-contractors on the works.

59.(3) Preservation of peace: - The contractor shall take requisite precautions and use his best endeavours to prevent any riotous or unlawful behaviour by or amongst his workmen and other employed directly or through the petty contractors or sub-contractors on the works and for the preservation of peace and protection of the inhabitants and security of property in the neighbourhood of the works. In the event of the DFCCIL requiring the maintenance of a special Police Force at or in the vicinity of the site during the tenure of works, the expenses thereof shall be borne by the contractor and if paid by the DFCCIL shall be recoverable from the contractor.

59.(4) Sanitary arrangements: - The contractor shall obey all sanitary rules and carry out all sanitary measures that may from time to time be prescribed by the Railway Medical Authority and permit inspection of all sanitary arrangements at all times by the Engineer, the Engineer's Representative of the Medical staff of the DFCCIL. Should the contractor fail to make the adequate sanitary arrangements, these will be provided by the DFCCIL and the cost therefore recovered from the contractor.

59.(5) Outbreak of infectious disease: - The contractor shall remove from his camp such labour and their families as refuse protective inoculation and vaccination when called upon to do so by the Engineer or the Engineer's representative on the advice of the DFCCIL. Should cholera, plague or other infectious disease break out, the contractor shall burn the huts, beddings, clothes and other belongings of or usedby the infected parties

and promptly erect new huts on health sites as required by the engineer, failing which within the time specified in the Engineer's requisition, the work may be done by the DFCCIL and the cost therefore recovered from the contractor.

59.(6) Deleted

59.(7) Medical facilities at site: - The Contractor shall provide medical facilities at the site as may be prescribed by the Engineer on the advice of the DFCCIL in relation to the strength of the Contractor's resident staff and workmen.

59.(8) Use of intoxicants: - The sale of ardent spirits or other intoxicating beverages upon the work or in any of the buildings, encampments or tenements owned, occupied by or within the control of the contractor or any of his employees shall be forbidden and the Contractor shall exercise his influence and authority to the utmost extent to secure strict compliance with this condition.

59.(9) Non-employment of female labour: - The Contactor shall see that the employment of female labour on /in Cantonment areas, particularly in the neighbourhood of soldier's barracks, should be avoided as far as possible.

59.(10) Restrictions On The Employment Of Retired Engineers Of Railway/DFCCIL Services Within one Year Of Their Retirement : The Contractor shall not, if he is a retired Government Engineer of Gazetted rank, himself engage in or employ or associate a retired Government Engineer of Gazetted rank, who has not completed one year from the date of retirement, in connection with this contract in any manner whatsoever without obtaining prior permission of the President and if the Contractor is found to have contravened this provision it will constitute a breach of contract and administration will be entitled to terminate the contract and forfeit Earnest Money Deposits (EMD), Performance Guarantee (PG)and Security Deposits (SD) of that contract.

60. (1) Non-employment of labours below the age of 15:- The Contractor shall not employ children below the age of 15 as labourers directly or through petty contractors or subcontractors for the execution of work.

(2) Medical Certificate of fitness for labour: - It is agreed that the contractor shall not employ a person above 15 and below 19 years of age for the purpose of execution of work under the contract unless a medical certificate of fitness in the prescribed form (Proforma at Form No.15) granted to him by a certifying surgeon certifying that he is fit to work as an adult is obtained and kept in the custody of the contractor or a person nominated by him in this behalf and the person carries with him, while at work; a token giving a reference to such certificate. It is further agreed that the responsibility for having the adolescent examined medically at the time of appointment or periodically till he attains the age of 19 years shall devolve entirely on the contractor and all the expenses to be incurred on this account shall be borne by him and no fee shall be charged from the adolescent or his parent for such medical examination.

60. (3) Period of validity of medical fitness certificate: - A certificate of fitness granted or renewed for the above said purposes shall be valid only for a period of one year at a time. The certifying surgeon shall revoke a certificate granted or renewed if in his opinion the holder of it is, no longer fit for work in the capacity stated therein. Where a certifying surgeon refuses to grant or renew a certificate or revoke a certificate, he shall, if so required by the person concerned, state his reasons in writing for doing so.

60.(4) Medical re-examination of labourer:- Where any official appointed in this behalf by the Ministry of labour is of the opinion that any person employed in connection with the execution of any work under this contract in the age group 15 to 19 years is without a certificate of fitness or is having a certificate of fitness but no longer fit to work in the capacity stated in the certificate, he may serve on the Contractor, or on the person nominated by him in the regard, a notice requiring that such persons shall be examined by a certifying

surgeon and such person shall not if the concerned official so directs, be employed or permitted to do any work under this contract unless he has been medically examined and certified that he has been granted a certificate of fitness or a fresh certificate of fitness, as the case may be.

EXPLANATIONS: -

(1) Only qualified medical practitioners can be appointed as "Certifying Surgeons" and the term "Qualified Medical Practitioners" means a person holding a qualification granted by an authority specified in the Schedule to the Indian Medical Degrees Act, 1916 (VII to 1916) or in the Schedule to the Indian Medical Council Act, 1933 (XXVII) of 1933.

(2) The Certifying surgeon may be a medical officer in the service of State or Municipal Corporation.

DETERMINATION OF CONTRACT

61.(1) Right of DFCCIL of determine the contract: - The DFCCIL shall be entitled to determine and terminate the contract at any time should, in the DFCCIL's opinion, the cessation of work becomes necessary owing to paucity of funds or from any other cause whatever, in which case the value of approved materials at site and of work done to date by the Contractor will be paid for in full at the rate specified in the contract. Notice in writing from the DFCCIL of such determination and the reasons therefor shall be conclusive evidence thereof.

61.(2) Payment on determination of contract: - Should the contract be determined under sub clause (1) of this clause and the Contractor claims payment for expenditure incurred by him in the expectation of completing the whole of the work, the DFCCIL shall admit and consider such claims as are deemed reasonable and are supported by vouchers to the satisfaction of the Engineer. The DFCCIL's decision on the necessity and propriety of such expenditure shall be final and conclusive.

61.(3) The contractor shall have no claim to any payment of compensation or otherwise, howsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of determination of contract.

62.(1) Determination of contract owing to default of contractor: - If the Contractor should**: -**

(i) Becomes bankrupt or insolvent, or

(ii) Make an arrangement with of assignment in favour of his creditors, or agree to carry out the contract under a Committee of Inspection of his creditors, or

(iii) Being a Company or Corporation, go into liquidation (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), or

(iv) Have an execution levied on his goods or property on the works, or

(v) Assign the contract or any part thereof otherwise than as provided in Clause 7 of these conditions, or

(vi) Abandon the contract, or

(vii) Persistently disregard the instructions of the Engineer, or contravene any provision of the contract, or

(viii) Fail to adhere to the agreed programme of work by a margin of 10% of the stipulated period, or

(ix) Fail to remove materials from the site or to pull down and replace work after receiving from the Engineer notice to the effect that the said materials or works have been condemned or rejected under clause 25 and 27 of these conditions, or

(x) Fail to take steps to employ competent or additional staff and labour as required under clause 26 of the conditions

(xi) Fail to afford the Engineer or Engineer's representative proper facilities for inspecting the work or any part thereof as required under clause 28 of the conditions, or

(xii) Promise, offer or give any bribe, commission, gift or advantage either himself or through his partner, agent or servant to any officer or employee of the DFCCIL or to any person on his or on their behalf in relation to the execution of this or any other contract with this DFCCIL.

Signature of tenderer(s) with seal

(xiii) Submits copy of fake documents/certificates in support of credentials, submitted by the tenderer.

(xiv)(A) At any time after the tender relating to the contract, has been signed and submitted by the Contractor, being a partnership firm admit as one of its partners or employee under it or being an incorporated company elect or nominate or allow to act as one of its directors or employee under it in any capacity whatsoever any retired engineer of the gazetted rank or any other retired gazetted officer working before his retirement, whether in the executive or administrative capacity, or whether holding any pensionable post or not, in the Railway/DFCCIL for the time being owned and administered by the President of India before the expiry of one year from the date of retirement from the said service of such Engineer or Officer unless such Engineer or Officer has obtained permission from the President of India or any officer duly authorized by him in this behalf to become a partner or a director or to take employment under the contract as the case may be.

(xiv) (B) Fail to give at the time of submitting the said tender: -

(a) The correct information as to the date of retirement of such retired engineer or retried officer from the said service, or as to whether any such retired engineer or retired officer was under the employment of the Contractor at the time of submitting the said tender, or

(b) The correct information as to such engineers or officers obtaining permission to take employment under the contractor, or

(c) Being a partnership firm, the correct information as to, whether any of its partners was sucha retired engineer or a retired officer, or

(d) Being in incorporated company, correct information as to whether any of its directors was such a retired engineer or a retired officer, or

(e) Being such a retired engineer or retried officer suppress and not disclose at the time of submitting the said tender the fact of his being such a retired engineer or a retired officer or make at the time of submitting the said tender a wrong statement in relation to his obtaining permission to take the contract or if the contractor be a partnership firm or an incorporated company to be a partner or director of such firm or company as the case may be or to seek employment under the contractor.

Then and in any of the said clause, the Engineer on behalf of the DFCCIL may serve the Contractor with a notice (Proforma at Form No.16) in writing to that effect and if the contractor does not within seven days after the delivery to him such notice proceed to make good his default in so far as thereof being made good and carry on the work or comply with such directions as aforesaid of the entire satisfaction of the Engineer, the DFCCIL shall be entitled after giving 48 hour's notice (Proforma at Form No. 17) in writing under the hand of the Engineer to rescind the contract as a whole or in part or parts (as may be specified in such notice) and after expiry of 48 hour's notice, a final termination notice (Proforma at Form No. 18) should be issued and adopt the following courses:

To measure up or the whole or part of the work from which the contractor has been removed and get it completed by another contractor, the manner and method in which such work is completed shall be in the entire discretion of the Engineer whose decision shall be final.

62.(2) Right of DFCCIL after, rescission of contract owing to default of contractor:
In the event of any or several of the courses, referred to in sub-clause (1) of the clause, being adopted.

(a) The Contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any commitments or made any advances on account of or with a view to the execution of the works or the performance of the contract and Contractor shall not be entitled to recover or be paid any sum for any work thereto for actually performed under the

contract unless and until the Engineer shall have certified the performance of such work and the value payable in respect thereof and the Contractor shall only be entitled to be paid the value so certified.

(b) In the contract which has been rescinded as a whole, the Security Deposit already with railways under the contract shall be encashed/ forfeited and the Performance Guarantee already submitted for the contract shall be encashed. The balance work shall be got done independently without risk & cost of thefailed Contractor. The failed Contractor shall be debarred from participating in the tender for executing the balance work. If the failed Contractor is a JV or a Partnership firm, then every member/partner of such a firm shall be debarred from participating in the tender for the balance work in his/her individual capacity or as a partner of any other JV /partnership firm.

Further the authorized representative of failed Contractor cannot be accepted as authorized representative in new contract.

(c) In the contract rescinded in part or parts,

(i) The full Performance Guarantee for the contract shall be recovered. No additional Performance Guarantee shall be required for balance of work being executed through the part terminated contract. The contract value of part terminated contract stands reduced to the balance value of work under the contract.

(ii) The Security Deposit of part terminated contract shall be dealt as per clause 16(2) of GCC.

(iii) The defaulting Contractor shall not be issued any completion certificate for the contract.

(iv) The balance work shall be got done independently without risk & cost of the failed Contractor. The failed Contractor shall be debarred from participating in the tender for executing the balance work. If the failed Contractor is a JV or a Partnership firm, then every member/partner of such a firm shall be debarred from participating in the tender for the balance work in his/her individual capacity or as a partner of any other JV /partnership firm.

(v) Further the authorized representative of failed Contractor will not be accepted as authorized representative in new contract.

(d) The Engineer or the Engineer's Representative shall be entitled to take possession of any materials, tools, implements, machinery and buildings on the works or on the property on which these are being orought to have been executed, and to retain and employ the same in the further execution of the works or any part thereof until the completion of the works without the Contractor being entitled to any compensation for the use and employment thereof or for wear and tear or destruction thereof.

(e) The Engineer shall as soon as may be practicable after removal of the Contractor fix and determine ex-parte or by or after reference to the parties or after such investigation or enquiries as he may consider fit to make or institute and shall certify what amount (if any) had at the time of rescission of the contract been reasonably earned by or would reasonably accrue to the Contractor in respect of the workthen actually done by him under the contract and what was the value of any unused, or partially used materials, any constructional plant and any temporary works upon the site. The legitimate amount due to the Contractor after making necessary deductions and certified by the Engineer should be released expeditiously.

STATEMENT OF DISPUTES - INDIAN RAILWAY / DFCCIL ARBITRATION RULES

63.0 Reconciliation of disputes: All disputes and differences of any kind whatsoever arising out of or in connection with the contract, whether during the progress of the work or after its completion and whether before or after the determination of the contract, shall be referred by the Contractor to the "Chief Engineer/Chief General Manager" through “Notice of Dispute” for provided that no such notice shall be served later than 30 days after the date of issue of Completion Certificate by the Engineer. Chief Engineer/Chief General Manager shall, within 30 days after receipt of the Contractor’s “Notice of Dispute”, notify the name of Conciliator(s) to the Contractor.

Signature of tenderer(s) with seal

The Conciliator shall assist the parties to reach an amicable settlement in an independent and impartial manner within the terms of contract.

If the parties reach agreement on a settlement of the dispute, they shall draw up and sign a written settlement agreement duly signed by Engineer In-charge, Contractor and conciliator(s). When the parties sign the settlement agreement, it shall be final and binding on the parties.

The parties shall not initiate, during the conciliation proceedings, any arbitral or judicial proceedings in respect of a dispute that is the subject matter of the conciliation proceedings.

For conciliation, 'The Arbitration and Conciliation Act, 1996 as amended from time to time is applicable mutatis mutandis.

64.0 Matters finally determined by the DFCCIL – All disputes and differences of any kind whatsoever arising out of or in connection with the contract, whether during the progress of the work or after its completion and whether before or after the determination of the contract, shall be referred by the contractor to the Managing Director/Director/Chief General Manage/DFCCIL shall within 120 days after receipt of the contractor's representation make and notify decisions on all matters referred to by the contractor in writing provided that matter for which provision has been made in clauses 8, 18, 22.(5), 39, 43.(2), 45.(a), 55, 55A.(5), 57, 57A, 61.(1), 61.(2) and 62.(1) to (xiv)(B) of General Conditions of contract or in any special clause of the conditions of the contract shall be deemed as 'excepted matters' (matters not arbitrable) and decisions of the DFCCIL authority, thereon shall be final and binding on the contractor; provided further that 'excepted matters' shall stand specifically excluded from the purview of the arbitration clause.

64. (1) Demand for Arbitration: -

64. (1) (i) In the event of failure of Conciliation process, any dispute or difference between the parties hereto as to the construction or operation of this contract, or the respective rights and liabilities of the parties on any matter in question, dispute or difference on any account or as to the withholding by the DFCCIL of any certificate to which the contractor may claim to be entitled to, or if the DFCCIL fails to make a decision within 120 days, then and in any such case, but except in any of the 'excepted matters' referred to in clause 63 of these conditions, the contractor, after 120 days but within 180 days of his presenting his final claim on disputed matters shall demand in writing that the dispute or difference be referred to arbitration.

64.(1) (ii) The demand for arbitration shall specify the matters which are in question, or subject of the dispute or difference as also the amount of claim item wise. Only such dispute or difference, in respect of which the demand has been made, together with counter claims or set off, given by the DFCCIL, shall be referred to arbitration and other matters shall not be included in the reference.

64.(1) (iii) (a) The arbitration proceedings shall be assumed to have commenced from the day, a written and valid demand for arbitration is received by the DFCCIL.

(b) The claimant shall submit his claim stating the facts supporting the claims along with all the relevant documents and the relief or remedy sought against each claim within a period of 30 days from the date of appointment of the Arbitral Tribunal.

(c) The DFCCIL shall submit its defence statement and counter claim(s), if any, within a period of 60 days of receipt of copy of claims from Tribunal thereafter, unless otherwise extension has been granted by Tribunal.

Signature of tenderer(s) with seal

(d) Place of Arbitration: The place of arbitration would be within the geographical limits of the DFCCIL unit where the cause of action arose or the Headquarter of the DFCCIL or any other place with the written consent of both the parties.

64.(1)(iv) No new claim shall be added during proceedings by either party. However, a party may amend or supplement the original claim or defence thereof during the course of arbitration proceedings subject to acceptance by Tribunal having due regard to the delay in making it.

64.(1)(v) If the contractor(s) does/do not prefer his/their specific and final claims in writing, within a period of 90 days of receiving the intimation from the DFCCIL that the final bill is ready for payment, he/they will be deemed to have waived his/their claim(s) and the DFCCIL shall be discharged and released of all liabilities under the contract in respect of these claims.

64.(2) Obligation During Pendency of Arbitration: – Work under the contract shall, unless otherwise directed by the Engineer, continue during the arbitration proceedings, and no payment due or payable by the DFCCIL shall be withheld on account of such proceedings, provided, however, it shall be open for ArbitralTribunal to consider and decide whether or not such work should continue during arbitration proceedings.

64.(3) Appointment of arbitrator

64.(3)(a)(i) In cases where the total value of all claims in question added together does not exceed Rs. 1,00,00,000 (Rupees One Crore only), the Arbitral tribunal shall consist of a sole arbitrator nominated by the MD/DFCCIL The sole arbitrator shall be appointed within 60 days from the day when a written and valid demand for arbitrator is received by MD/DFCCIL.

64.(3)(a)(ii) In cases not covered by the clause 64(3)(a)(i), the Arbitral Tribunal shall consist of a Panel of three officials, as the arbitrators. For this purpose, the DFCCIL will send a panel of more than 3 names of DFCCIL officers which may also include the name(s) of Officer(s) empanelled to work as Arbitrator to the contractor within 60 days from the day when a written and valid demand for arbitration is received by the MD/DFCCIL. Contractor will be asked to suggest to MD/DFCCIL at least 2 names out of the panel for appointment as contractor's nominee within 30 days from the date of dispatch of the request by DFCCIL. The MD/DFCCIL shall appoint at least one out of them as the contractor's nominee and will, also simultaneously appoint the balance number of arbitrators either from the panel or from outside the panel, duly indicating the 'presiding arbitrator' from amongst the 3 arbitrators so appointed. MD/DFCCIL shall complete this exercise of appointing the Arbitral Tribunal within 30 days from the receipt of the names of contractor's nominees. While nominating the arbitrators it will be necessary to ensure that one of them is from the Accounts department. An officer of selection grade of accounts department shall be considered of equal status to the officers in SA grade of other department of DFCCIL for the purpose of appointment of arbitrator.

64. (3)(a)(iii) If one or more of the arbitrators appointed as above refuses to act as arbitrator, withdraws from his office as arbitrator, or vacates his/their office/offices or is/are unable or unwilling to perform his functions as arbitrator for any reason whatsoever or dies or in the opinion of the MD/DFCCIL fails to act without undue delay, the MD/DFCCIL shall appoint new arbitrator/arbitrators to act in his/their place in the same manner in which the earlier arbitrator/arbitrators had been appointed. Such re-constituted Tribunal may, at its discretion, proceed with the reference from the stage at which it was left by the previous arbitrator(s).

64.(3)(a)(iv) The arbitral Tribunal shall have power to call for such evidence by way of affidavits or otherwise as the arbitral Tribunal shall think proper, and it shall be the duty of the parties hereto to do or cause to be done all such things as may be necessary to enable the arbitral Tribunal to make the award without any delay.

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The arbitral Tribunal should record day-to-day proceedings. The proceedings shall normally be conducted on the basis of documents and written statements.

64.(3)(a)(v) While appointing arbitrator(s) under sub-clause (i), (ii) & (iii) above, due care shall be taken that he/they is/are not the one/those who had an opportunity to deal with the matters to which the contractrelates or who in the course of his/their duties as DFCCIL servant(s) expressed views on all or any of the matters under dispute or differences. The proceedings of the arbitral Tribunal or the award made by such Tribunal will, however, not be invalid merely for the reason that one or more arbitrator had, in the course of his service, opportunity to deal with the matters to which the contract relates or who in the course of his/their duties expressed views on all or any of the matters under dispute.

64.(3)(b)(i) The arbitral award shall state item wise, the sum and reasons upon which it is based. The analysis and reasons shall be detailed enough so that the award could be inferred there from.

64.(3)(b)(ii) A party may apply for corrections of any computational errors, any, typographical or clerical errors or any other error of similar nature occurring in the award of a tribunal and interpretation of a specific point of award to tribunal within 60 days of receipt of the award.

64.(3)(b)(iii) A party may apply to tribunal within 60 days of receipt of award to make an additional award as to claims presented in the arbitral proceedings but omitted from the arbitral award.

64.(4) In case of the Tribunal, comprising of three Members, any ruling on award shall be made by a majority of Members of Tribunal. In the absence of such a majority, the views of the Presiding Arbitrator shall prevail.

64.(5) Where the arbitral award is for the payment of money, no interest shall be payable on whole or any part of the money for any period till the date on which the award is made.

64.(6) The cost of arbitration shall be borne by the respective parties. The cost shall inter-alia include fee of the arbitrator(s), as per the rates fixed by the DFCCIL from time to time and the fee shall be borne equally by both the parties. Further, the fee payable to the arbitrator(s) would be governed by the instructions issued on the subject by DFCCIL from time to time irrespective of the fact whether the arbitrator(s) is/are appointed by the DFCCIL or by the court of law unless specifically directed by Hon'ble court otherwise on the matter.

64(7) Subject to the provisions of the aforesaid Arbitration and Conciliation Act 1996 (with latest amendments) and the rules there under and any statutory modifications thereof shall apply to the arbitration proceedings under this clause.

64(8) In case arbitration award is challenged by a party in the Court of Law, 75% of award amount, pending adjudication by Court of Law, shall be made by party to other party. In case payment is to bemade by DFCCIL to Contractor, the terms & conditions as incorporated in the DFCCIL Policy as amended from time to time,shall be followed. In case Contractor has to pay to the DFCCIL, then 75% of the award amount shall be deducted by the DFCCIL from the Contractor's bills, Performance Guarantee/ Security Deposit or any other dues of Contractor with the Government of India.

Signature of tenderer(s) with seal

SPECIAL CONDITIONS OF CONTRACT(SCC)

Signature of tenderer(s) with seal

PART - I
CHAPTER V
SPECIAL CONDITIONS OF CONTRACT

1.5.1 This Tender shall be governed by Preamble & General instructions to tenderers, General condition of Contract, Special conditions of contract, Technical Specifications, Additional Technical specifications (if any), Drawings, Forms, Annexures, etc.

1.5.2 If there are varying or conflicting provisions in the documents forming part of the contract, Engineer shall be deciding authority with regard to the intentions of the provision and decision of Engineer will be final and binding on the contractor.

1.5.3 **Scheme of work: -**Within a period of 15 days beginning from the date of issue of Letter of Acceptance of Tender, the Contractor shall submit the detailed time schedule for execution of work and various documents enumerated in tender papers to the employer.

1.5.4 Quality Assurance Plan:

All materials used in the work shall be of the best quality as per codes. Quality Assurance Plan shall include for materials used and for workmanship of work. The contractor shall submit Quality Assurance Plan for the construction/erection. The contractor shall also ensure that the Employer's prescribed Quality Assurance Standards are rigidly followed in for the construction/erection of transmission lines. These are to be approved from the client / DFCCIL

1.5.5 PROCUREMENT OF MATERIALS/QUALITY OF MATERIALS:

All materials used in the work shall be procured from **DVC approved sources** as decided by the Purchaser only and of the best quality and of the class most suited for the purpose specified. It is essential that the manufacturer/s from whom supply is arranged should have long experience of design and manufacture of equipment components, materials and fittings. The requisite facilities for testing prototypes supplied against this contract should be available with the manufacturer. In the case of these equipment components or fittings for which the requisite facilities for testing prototypes are not available with the Manufacturer the manufacturer shall arrange to carry out the prototype tests at his own cost in a testing laboratory approved by the Purchaser. Only tested quality steel shall be used. All erection work carried out shall also be of the best quality, acceptable to the Purchaser.

NOTE:- 1. The supply of all materials shall be from the approved sources only (as mentioned in the DVC's approved list of vendors as decided by the Purchaser). However, items / materials for which DVC's approved sources do not exist, the same may be procured as per relevant BIS/Specifications or from other sources after one time approval of the source by the purchaser(for particular work only).

1.5.6 QUALITY ASSURANCE MATERIALS:

(1) All materials used in the work shall be of the best quality and of the class most suited for the purpose specified and procure d from the sources approved by DVC or as decided by the Purchaser. It is essential that the manufacturer from whom supply is arranged should have long experience of design and manufacture of equipment, components, materials and fittings. The requisite facilities for testing prototypes supplied against this contract should be available with the manufacturer. In the case of those equipment, components or fittings for which the requisite facilities for testing of prototypes are not available with the manufacturer, the manufacturer shall arrange to carry out the prototype test on his own cost in a testing laboratory approved by the Purchaser. Only tested quality steel shall be used. the contractor shall ensure that the Purchaser'sprescribed Quality Assurance

Standards are rigidly followed in the manufacturer and erection/ installation of all the materials/ components and fittings/ equipment required for the work.

(2) ERECTION:

All erection work carried out shall also be of the best quality acceptable to the Purchaser. The work shall be carried out as per latest DVC guidelines / IS specification/as decided by the Purchaser on the date of opening of the tender even if mentioned otherwise elsewhere in the tender. All erection work will also be subjected to the Quality Assurance Programme including inspection by the Purchaser or hisrepresentative to ensure that the work is done in accordance with the specifications and approved drawings and designs and Purchaser's prescribed Quality Assurance Standards.

(3) EXPENSES OF PURCHASER'S REPRESENTATIVE All the expenses of Purchaser's representative shall be borne by the Purchaser whether the inspected material is finally utilised in work or not. (d) The decision of the General Manager or his successor shall be final in respect of acceptability or otherwise of any material, fittings, components or equipment required for the work.

(4) QUALITY ASSURANCE PROGRAMME To ensure that the equipment and services under the scope of this Contract whether manufactured or performed within the Contractor's Works or at his Sub- contractor's premises or at the Purchaser's site or at any other place of Work are in accordance with the specifications, the Contractor shall adopt suitable quality assurance programme to control such activities at all points necessary. Such programme shall be broadly outlined by the contractor and finalised after discussions. The detailed programme shall be submitted by the contractor after the award of contract and finally accepted by Engineer-in-Charge or nominated engineer after discussion. However, in case detailed valid programme approved by Engineer for the equipment already exist, same would be followed till its validity. A quality assurance programme of the contractor shall generally cover the following: (a) His organisation structure for the management and implementation of the proposed quality assurance programme: (b) Documentation control system; (c) Qualification data for bidder's key personnel; (d) The procedure for purchases of materials, parts components and selection of sub-Contractor's services including vendor analysis, source inspection, incoming raw material inspection, verification of material purchases etc. (e) System for shop manufacturing and site erection controls including process controls and fabrication and assembly control; (f) Control of non- conforming items and system for corrective actions (g) Inspection and test procedure both for manufacture and field activities. (h) Control of calibration and testing of measuring in istruments and field activities; (i) System for indication and appraisal of inspection status; (j) System for quality audits; (k) System for authorizing release of manufactured product to the Purchaser. (l) System for maintenance of records; (m) System for handling storage and delivery; and (n) A quality plan detailing out the specific quality control measures and procedures adopted for controlling the quality characteristics relevant to eachtem of equipment furnished and/or services rendered. The Purchaser or his duly authorized representative reserves the right to carry out quality audit and quality surveillance of the system and procedure of the Contractor/his vendor's quality management and control activities. (o) For the purpose of obtaining payment against supply item (as per relevant clause of tender document) Contractor shall submit along with the invoice, the documents indicated in the Prescribed Quality Assurance Standard which should inter-alia cover the following as may be applicable in each case.

i) Material test reports on raw materials used. ii) Material type and routine test report on components specification. iii) Inspection plan with reports of the Inspection plan check points. iv) Routine test report. v) Factory test results as required under the specification. vi) Quality audit report including test check report of Purchaser's representative if any.

Signature of tenderer (s) with seal

1.5.7 TYPE TESTING, INSPECTION, TESTING & INSPECTION CERTIFICATE

All equipment being supplied shall conform to type tests including additional type tests as per latest technical specification of DVC or as decided by the Purchaser and shall be subject to routine tests in accordance with requirements stipulated under respective sections. Inspection has to be conducted by representative of DVC or as decided by the Purchaser. Purchaser/DVC reserves the right to witness any or all the type tests. The Contractor shall intimate the Purchaser the detailed program about the tests atleast three (3) weeks in advance in case of domestic supplies & six (6) weeks in advance in case of foreign supplies. This shall conform to the details provided in the latest technical specifications of DVC for similar type work.

1.5.7.1 TESTS :

a) Pre-commissioning Tests:

On completion of erection of the equipment and before charging, each item of the equipment shall be thoroughly cleaned and then inspected jointly by the Purchaser and the Contractor for correctness and completeness of installation and acceptability for charging, leading to initial pre-commissioning tests at Site. The list of pre-commissioning tests to be performed shall be in reference to latest technical specification of DVC for the same purpose and or as per tender document.

b) Commissioning Tests

i) The available instrumentation and control equipment will be used during such tests and the Purchaser will calibrate, all such measuring equipment and devices as far as practicable. ii) Any special equipment, tools and tackles required for the successful completion of the Commissioning Tests shall be provided by the Contractor, free of cost. iv) The specific tests requirement on equipment shall be in reference to the same available in the respective chapters of the latest technical specification of DVC and or as per tender document. v) The Contractor shall be responsible for obtaining statutory clearances from the concerned authorities for commissioning the equipment and the switchyard.

1.5.7.2 COMMISSIONING:

The contractor shall be responsible for testing and commissioning all materials, equipment, services and any other aspect incorporated in the scope of work. The testing and commissioning of said materials/equipment and any other system shall be carried out in accordance with the requirement of the specification. The purchaser reserves the right to assign purchasers personnel to the Contractor's commissioning team to participate in and witness the commissioning and testing operations at the site. The Contractors obligations and responsibility under the Specification shall, not in any way be diminished, reduced, relieved or otherwise altered due to purchaser's assignment of staff to the commissioning team.

The Contractor shall, in the execution of all the Works required under the specification, depute highly skilled and experienced site supervisors /personnel for all aspects of the works to ensure all site operations to be carried out in a manner so as to provide the Purchaser with a high-quality system.

The contractor's supervisory personnel shall be responsible for the proper construction, Installation, erection. The qualifications and responsibilities of said supervisory staff shall include, but not limited to.

A) INSTALLATION AND ERECTION SUPERVISORS.

Properly qualified and experienced construction and erection supervisors as the various sections of the equipment shall require and who are familiar with civil, structural, mechanical and electrical Equipment and who are also knowledgeable with respect to the proper assembly and installation of the equipment being supplied under the contract. Supervisor shall be responsible for the correct and proper installation of all the equipment and shall test each part of the equipment and notify the Purchaser in writing when

the Equipment is ready for testing, commissioning in accordance with the requirement for successful commissioning of system/equipment.

B) COMMISSIONING SUPERVISORS

Properly qualified and experienced commissioning and start up engineers together with such other qualified engineering/technical staff as shall be necessary for the testing and commissioning of transmission line& bay work. Properly qualified and experienced commissioning and start up engineers together with such other qualified engineering/technical staff as shall be necessary for the testing and commissioning of transmission line.

1.5.8 SUPERVISION OF WORK:-

All works will be executed in the supervision of DVC Authority or DFCCIL representative.

This programme of the Contractor shall generally cover the following:-

1.5.8.1 The organization to manage and implement the Quality Assurance Programme.

1.5.8.2 Inspection and Test Procedure for

i) Manufacture and quality control procedure.

ii) Field activity.

1.5.8.3 System of handling and storage.

1.5.8.4 System of quality audit.

1.5.8.5 System of maintenance of records.

1.5.8.6 For the purpose of obtaining On Account Payment, the Contractor shall submit along with the invoice, thedocuments indicated in the prescribed quality Assurance standards which should inter alia cover the following as may be applicable in each case.

i) Material test reports on raw materials used.

ii) Material type and routine test report on components specification.

iii) Inspection Plan with reports of the inspection Plan check points.

iv) Routine test report.

v) Factory test results as required under the specification.

vi) Quality audit report including test check report of Employer's representative if any.

1.5.9 Deleted.

1.5.10 Work by Other Agencies

1.5.10.1 Any other works undertaken at the same time by the Engineer direct or through some other agency at the same time or section where the contractor is carrying out his work will not entitle the contractor to prefer any claim regarding any delays or hindrances he may have to face on this account but the Employer shall grant a reasonable extension of time to the contractor. The contractor shall comply with any instruction which may be given to him by the Employer in order to permit simultaneous executionof his own works and those undertaken by other contractors or the DFCCIL without being entitled on this account on any extra charge.

1.5.10.2 The contractor shall not be entitled to any extra payment due to hindrance resulting from normal Railway operations, such as delay on account of adequate number of and duration of blocks not being granted, operational delay in movement of work trains extension of time to the contractor.

1.5.11 Infringement of patents:

1.5.11.1 The Contractor is forbidden to use any patents or registered drawings, process or pattern in fulfilling his contract without the previous consent in writing of the owner of such patent, drawing, pattern or trade mark, except where these are specified by the Employer himself. Royalties where payable for the use of such patented processes, registered drawings of patterns

shall be borne exclusively by the Contractor. The contractor shall advise the Employer of any proprietary right that may exist on such processed drawings or patterns which he may use of his own accord.

1.5.11.2 In the case of patent taken out by the Contractor of the drawings or patterns registered by him, or of those patents, drawings, or patents for which he holds a licence, the signing of the Contract automatically gives the Employer the right to repair by himself the purchased articles covered by the patent or by any person or body chosen by him and to obtain from any sources he desires the component parts required by him in carrying out the repair work. In the event of infringement of any patent rights due to above action of the Employer, he shall be entitled to claim damages from the contractor on the grounds of any loss of any nature which he may suffer e.g. in the case of attachment because of counterfeiting.

1.5.11.3 **Indemnification by contractor:-** In the event of any claim or demand being made or action being brought against the Employer for infringement of later patent in respect of any equipment, machine, plant, work or thing used or supplied by the Contractor under this contract or in respect of any methodsof using or working by the Employer of such equipment machine, plant work or thing, the contractor shall indemnify the employer and keep him indemnified and harmless against all claims, costs, charges and expenses arising from or incurred by reason of such claim provided that the Employer shall notify the contractor immediately any claim is made and that the contractor shall be at liberty, if he so desires with the assistance of the Employer if required but at the Contractor's expense, to conduct all negotiations for the settlement of the same or any litigation that may arise there from and provided that no such equipment, machine, plant work or thing, shall be used by the Employer for any purpose or in any manner other than that for which they have been supplied by the Contractor and specified under this contract.

1.5.12 **Insurance:- (CAR policy)**

Before commencing of works, it shall be obligatory for the contractor to obtain, at his own cost, insurance cover in the joint name of the contractor and employer from reputed companies under the following requirements:

1.5.12 (a) Insurance against Injury to Persons and Damage to Property

The Contractor, as insuring Party, shall insure against each Party's liability for any loss, damage, death orbodily injury which may occur to any physical property (except things insured under Sub-Clause 1.5.12

(b) [*Insurance for Works and Contractor's Equipment*]) or to any person / animal (except persons insuredunder Sub-Clause 1.5.12 (c) [*Insurance for Contractor's Personnel*]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.

This insurance shall be for a limit per occurrence of not less than the **Rs. 100 Lakh (Rs Hundred Lakh)**, with no limit on the number of occurrences.

The insurances specified in this Sub-Clause:

a. shall be effected and maintained by the Contractor as insuring Party,
b. shall be in the joint names of the Contractor and Employer,
c. shall be extended to cover liability for all loss and damage to the Employer's property (except things insured under Sub-Clause 1.5.12 (b)) arising out of the Contractor's performance of the Contract

Signature of tenderer (s) with seal

The insurance policy shall include a cross liability clause such that the insurance shall apply to the Employer, the Contractor and Subcontractors (wherever applicable) as separately insured.

The Employer shall not be liable for or in respect of any damages or compensation payable to any workman or other person in the employment of the Contractor or any Sub-Contractor (whether applicable), other than death or injury resulting from any act or default of the Employer, his agents or employees. The Contractor shall indemnify and keep indemnified the Employer against all such damagesand compensation, other than those for which the Employer is liable as aforesaid, and against all claims, proceedings, damages, costs, charges and against all claims, proceedings, damages, costs, charges, and expenses whatsoever in respect thereof or in relation thereto.

1.5.12 (b) Insurance for Works and Contractor's Equipment

The Contractor, as insuring Party, shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the Date of Commencement, until thedate of issue of the Taking-Over Certificate for the Works.

The Contractor shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations.

The Contractor shall insure the Contractor's Equipment for **not less than the full replacement value, including delivery to Site plus 15% of replacement cost**. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

The insurances specified in this Sub-Clause:

(a) shall be effected and maintained by the Contractor as insuring Party,

(b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated between the Parties for the sole purpose of rectifying theloss or damage,

(c) shall cover all loss and damage from any cause not listed as Employer's Risks,

(d) shall also cover loss or damage to a part of the Works which is attributable to the use or occupation by the Employer of another part of the Works, and loss or damage from the Employer's Risks, excluding (in each case) risks which are not insurable at commercially reasonable terms.

(e) may however exclude loss of, damage to, and reinstatement of:

(i) a part of the Works which is in a defective condition due to a defect in its design, Materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below),

(ii) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, Materials or workmanship

(iii) a part of the Works which has been taken over by the Employer, except to the extent that the Contractor is liable for the loss or damage, and

1.5.12 (c) Insurance for Contractor's Personnel

The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.

The Employer and the Engineer shall also be indemnified under the policy of insurance, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel.

The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

1.5.12 (d) Automobile Liability Insurance

The contractor shall effect and maintain an insurance covering use of all vehicle used by the contractor or its sub contractors (whether or not owned by them) in connection with the design, construction, testing and commissioning of the facilities under the contract in accordance with statutory requirements.

1.5.12 (e) Professional Indemnity Insurance

The Contractor shall provide evidence of professional indemnity insurance carried by its Designer for the Works. The professional indemnity insurance shall cover the risk of professional negligence in the design of the Works. This insurance shall be for a limit of not less than **Rs. 50 Lakh** and shall be maintained in full force and effect from the Commencement Date of the Works until 03 years after the date of completion of the Defect Notification period.

The Engineer will not issue any payment certificate until the Contractor has provided evidence of this insurance and its period of effectiveness.

The contractor shall provide evidence to the Employer / Engineer before commencement of work at site that the insurances required under the contract have been effected and shall within 60 days of the commencement date, provide the insurance policies to the Employer/Engineer, the contractor shall, whenever, called upon, produce to the engineer or his representative the evidence of payment of premiums paid by him to ensure that the policies indeed continue to be in force.

The Contractor shall also obtain any additional insurance cover as per the requirements of the Contract or Law of the Country.

The Employer/Engineer shall not be liable for or in respect of any damages or compensation payable to any workman or other person in the employment of the Contractor or his sub-contractor or petty contractor / other contractor working there. The Contractor shall indemnify and keep indemnified the employer / Engineer against all such damages and compensation for which the contractor is liable.

The Policies of the contractor shall remain in force throughout the period of execution of the works and till the expiry of the defect liability period except for any specific insurance covers necessary for shorter period. If the Contractor fails to effect or keep in force or provide

adequate cover as acceptable to the engineer in the insurance policies mentioned above, then in such cases, the engineer may effect and keep in force any such insurance or further insurance on behalf of the Contactor. The recovery shall be made at the rate of 1.5 times the premium/premiums paid by the engineer in this regard from the payment due to the Contractor or from the contractor's Performance security. However, the Contractor shall not be absolved from his responsibility and /or liability in this regard.

1.5.13 Accident:-

1.5.13.1 The contractor shall, in respect of all staff engaged by him or by his sub-contractor, indemnify and keep the employer at all times indemnified and protected against all claims made and liabilities incurred under Workman's Compensation Act, the Factories Act and the Payment of Wages Act, and rules made there under from time to time or under any other labour and Industrial Legislation made from time to time.

1.5.13.2 The contractor shall indemnify and keep the employer indemnified and harmless against all actions, suits, claim demands, costs, charges or expenses arising in connection with any death or injury sustained by any person or persons sustained due to the acts or omission of the contractor, his sub- contractors, his agents or his staff during the executions of this contract irrespective of whether such liability arises under the Workman's Compensation Act, or Fatal Accident Act or any other statute in force for the time being.

1.5.13.3 The contractor' liability to meet third party claims of the type outlined above will be applicable only in cases where accidents have been caused by workmanship, material, execution or negligence on the part of the contractor and further the liability of the contractor will be limited to Rs.50 lakh for any one accident without any limit on the number of accidents.

1.5.13.4 The contractor shall be responsible for all repairs and rectification of damages to completed works or works under execution due to DFCCIL accidents, thefts, pilferage or any other cause, without delay to minimize or to avoid traffic detentions, in a section until the installation are provisionally handed over to the employer.

1.5.14 Safety Measures: -

1.5.14.1 The contractor shall take all precautionary measures in order to ensure the protection of his own personnel moving about or working on the railway premises, but shall then conform to the rules and regulations of the Railway if and when, in the course of the work there is likely to be any danger to persons in the employment of the contractor due to running traffic while working in the Railway siding and premises, the contractor shall provide flagman or look out men for protection of such persons.The employer shall remain indemnified by the contractor in the event of any accident occurring in the normal course of work, arising out of the failure of contractor or his men to exercise reasonable precaution at all places of work.

1.5.14.2 Blasting of rocks for foundation work shall be done only after due notice is given to the employer and time/s and date /s for blasting operations agreed to by the employer. Blasting, if required to be done in the vicinity of the track, shall not be undertaken until the Employer's flagmen on duty t a k e necessary step to protect trains and the track is adequately protected by the contractor against damage by blasted rock .The contractor shall follow detailed instructions which will be issued to him regarding blasting operations in the vicinity of tracks

1.5.14.3 The contractor shall abide by all Railway regulations in force for the time being and ensure that the same are followed by his representatives, Agents or sub -contractors or workmen. He shall give due notice to his employees and workers about provision of this para.

1.5.14.4 The works must be carried out most carefully without any infringement of the Indian Railway Act or the General and Subsidiary Rules in force on the Railway, in such a way that they do not hinder Railway operation or affect the proper functioning of or damage any DFCCIL equipment, structure or rolling stock except as agreed to by the employer, provided that all damage and

disfiguration caused by the contractor at his own cost failing which cost of such repairs shall be recovered from the contractor.

1.5.14.5 If safety of track or track drainage etc. is affected as a consequence of works undertaken by the contractor, the contractor shall take immediate steps to restore normal conditions. In case of delay,the employer shall, after giving due notice to the contractor in writing, take necessary steps and recover the costs from the contractor.

1.5.15 Performance Guarantee:-

(i) The Bank Guarantee for performance Guarantee shall remain valid until a date 60 days (or asspecified in the Contract) after stipulated date of completion.

(ii) The Bank Guarantee for performance Guarantee shall be submitted invariably in the format given inthe bidding document.

(iii)The performance Guarantee shall be released after issue of performance certificate.

1.5.16 Integrity Pact:-

As per office memorandum no F.No DPE/13(12)/11-Fin Dated 09.09.2011 issued by Ministry of Heavy Industries (DPE) all PSU should enter into Integrity pact in the required proforma in their procurement transaction/ Contracts with suitable changes specific to the situation in which the pact is to be used. The pact, entering into which would be a preliminary qualification for any bidder, essentially envisages an agreement between the prospective vendors / bidders and the DFCCIL, committing the persons/ officials on both sides not to resort to any corrupt practices in any aspect / stage of the contract.

A copy of pre contract integrity pact is enclosed as Form No. 20 for signature of bidder as acceptance. The details of Independent External monitor (IEM) shall be collected from the office of **General Manager/Co-Ordination/ Kolkata** whenever required.

1.5.17 PROVISIONAL ACCEPTANCE:

(a) Immediately after completion of works transmission line, the Contractor shall certify and advise the Purchaser in writing that the works are (i) Complete (ii) ready for satisfactory commercial service and (iii) ready to be handed over. He will also place at the disposal of the Purchaser the required staff for checking it and putting it into operation.

(b) The test or tests as stipulated in tender document/ the latest technical specification of DVC excluding power collection tests which would be carried out subsequently in connection with the taking over by the Purchaser, of the equipment and installations shall be carried out jointly by the Purchaser and the Contractor within a month after the receipt of the Contractor's notifications, as stated in sub-para above.

(c) After inspection and satisfactory conclusion of tests and when the Purchaser is satisfied with the satisfactory working of the installations he will issue a `Provisional Acceptance Certificate' which would be signed by both the parties. The Provisional Acceptance Certificate will not be withheld for any minor defects.

(d) Should the result/s of inspection and the test/s be not satisfactory, an extension of one month will be granted to the Contractor to make good the defects and deficiencies pointed out by the Purchaser. Fresh inspection and tests will then be carried out after the Contractor has attended to the defects and deficiencies. If these tests are also not satisfactory, the Purchaser may proceed at the Contractor's expenses by all means deemed expedient, to have the installation made satisfactory until they comply with the specifications and approved drawings and designs.

(e) In such a case, or in case of delay in completing the work under this Contract within the time limit, the Purchaser reserves the right if he deems it possible to use in a reasonable manner

any section or any part of the section even if some installations of the sections are not completely erected. The Purchaser will give to the Contractor for this purpose seven days previous notice. The Contractor shall then take at his own expense all necessary steps to complete the works in accordance with the provisions of the contract. In case it becomes impossible to proceed with the above mentioned taking over tests, for reasons other than for which the Contractor is responsible, the "Provisional Acceptance Certificate" shall be issued at or within a mutually agreed reasonable period not exceeding three months after completion of the relevant sections as indicated in sub-para/s above.

NOTE:

1) Provisional Acceptance Certificate will be issued immediately after all tests (excluding power collection tests) are completed to the satisfaction of the Purchaser. Should the Purchaser be unable to complete the tests and energisation of the line within a reasonable time which shall not exceed one month from the date of Contractor's notification, the issue of Provisional Acceptance Certificate shall not be delayed and shall be issued within a maximum time of three months after notification under para 1.2.46.(a) has been given.

2)The issue of Provisional Acceptance Certificate shall not be withheld for rectification of minor defects which may reasonably be considered not essential for introduction of commercial service and operation of installation. In such cases, only the value of materials and cost of rectification of minor defects shall be withheld from the payments of Provisional Acceptance until rectification is completed.

(2) Break down maintenance shall continue to be done by the contractor even after issue of PAC till the installations commercially put in service. Payments for materials (contractor supply) used during Break down maintenance done after issue of PAC shall be made at accepted rates for materials of the contract. Rly supply materials shall be given by Rly. For this purpose, payments shall continue to be made even after PAC payments. Damaged materials during break down shall be handed over by the contractor to Rly.

1.5.18 Guarantee / Defect Liability Period :

(a) **For Transmission Line Works**:-

The Contractor shall guarantee satisfactory working of the installations erected by him for a period of 12 months from the date of commercial operation or from the date of provisional Acceptance by the Purchaser whichever is later. The guarantee for spares should be coincident with the guarantee for erected equipment.

(b) During the period of guarantee the Contractor shall keep available an experienced engineer and necessary equipment to attend to any defective installations resulting from defective erection and/or defects in the equipment supplied by the Contractor. This engineer shall not attend to rectification of defects which arise out of normal wear and tear and come within the purview of routine maintenance work. The Contractor shall bear the cost of modifications, additions or substitutions that may be considered necessary due to faulty materials, design or workmanship for the satisfactory working of the equipment. The final decision shall rest with the General Manager/Chief Administrative officer or his successor(s)/ Nominee.

(c)During the period of Guarantee the Contractor shall be liable for the replacement at site of any parts which may be found defective in the equipment whether such equipment be of his

own manufacture or those of his sub contractor, whether arising from faulty design, materials, workmanship or negligence in any manner on the part of the Contractor provided always that such defective parts as are not repairable at site are promptly returned to the Contractor if so required by him at his (Contractor's) own expenses. In case of type defects in Contractor's equipment and components detected during guarantee period, Contractor should replace all such items irrespective of the fact whether all such items have failed or not. The Contractor shall bear the cost of repairs carried out on his behalf by the Purchaser at site. In such a case, the Contractor shall be informed in advance of the works propose to be carried out by the Purchaser.

(d) If it becomes necessary for the Contractor to replace or renew any defective portion of the equipment under the para aforesaid then the provisions of the said para shall also apply to theportions of the equipment so replaced or renewed until the expiration of six months from the date of such replacement or renewal or until the end of the above mentioned period whichever is later. Such extension shall not apply in case of defects of a minor nature, the decision of the General Manager or his successor/nominee being final in the matter. If any

defect be not remedied within a reasonable time during the aforesaid period the Purchaser may proceed to do work at the Contractor's risk and expense, but without prejudice to any other rights and remedies which the Purchaser may have against the Contractor in respect of such defects or faults.

(e) The repaired or renewed parts shall be delivered and erected on site free of charge to the Purchaser.

(f) Any materials, fittings, components or equipment supplied shall also be covered by the provisions of this paragraph. The liability of the Contractor under the guarantee will be limited to re-supply of equipments, components and fittings. Such re-supply shall be effected at the Contractor's depot or, in the event of closure of the depot, at the stores depot of the Engineer-in-charge of maintenance of overhead equipment of the section covered by the contract.

(g) In the case of materials, components, fittings and equipments supplied by the Purchaser, no liability will rest on the Contractor for failures on account of defective materials or workmanship and for any consequential damages. Such defective materials, if not yet erected on line, will be returned by the Contractor to the Purchaser and such quantities will be considered for the purpose of final reconciliation over and above allowance.

1.5.19

FINAL ACCEPTANCE:

(a) The final acceptance of the entire equipment installed shall take effect from the date of expiry of the period of guarantee of the expiry of the last of the respective periods of guarantee of various sections for which provisional Acceptance Certificates are issued or brought into commercial operation, provided in any case that the Contractor has complied fully with his obligations in respect of each work, provided also that the attention has been paid by way of maintenance by the Purchaser.

(b) If on the other hand the contractor has not so complied with his obligation in respect of any section, the Purchaser may either extend the period of guarantee in respect of that section until the necessary works are carried out by the Contractor or carry out those works orbeing them carried out suomoto on behalf of the Contractor at the Contractor's expenses. After expiry of the period of guarantee for each section, a certificate of final acceptance for the section shall be issued by the Purchaser and the last of such certificate will be called the

last and final acceptance certificate. The contract shall not be considered as completed until the issue of final acceptance certificate by the Purchaser.

(c) The Purchaser shall not be liable to the Contractor for any matter arising out of or in connection with the contract or execution of the work unless the Contractor shall have made a claim in writing in respect thereof before the issue of final acceptance certificate under this clause.

(d) Notwithstanding the issue of final acceptance certificate, the Contractor and the Purchaser (subject to subclause as above) shall remain liable for fulfillment of any obligation incurred under the provision of the contract prior to the issue of final acceptance certificate which remains unperformed at the time such certificate is issued and for determining the nature and extent of such obligation the contract shall be deemed to remain in force between the parties hereto.

1.5.20 PAYMENT:

Payments will be governed by the terms specified in Part-I, Chapter VI/V (GCC/SCC), Chapter VI, and Part III , Chapter I and in accordance with accepted Schedule of Prices, read with relevant paras of the other parts and Chapters of the Tender Papers. The Purchaser retains the right to withhold money due to the Contractor arising out of this contract for any default of the Contractor from other contracts which the Contractor may have with the Government of India.

(i) The Contractor shall, whenever required, produce or cause to be produced for examination by the Purchaser any quotation/ invoice, cost of other account, book of account, voucher, receipt letter, memorandum paper or writing or any copy of or extract from any such document and also furnish information and returns verified in such manner as may be required in any-wise relating to the execution of this contract or relevant for verifying or ascertaining the cost of the execution of this Contract (the decision of the Purchaser on the question of relevancy of any documents, information or return being final and binding on the parties). The Contractor shall similarly produce vouchers etc., if required, to prove to the Purchaser, that materials supplied by him are in accordance with the specifications laid down in the contract.

(ii) If any portion of the work be carried out by a sub-contractor or any subsidiary or allied firm or company the Purchaser shall have power to secure the books of such Sub-contractor or any subsidiary or allied firm or company, through the Contractor, and such books shall be open to his inspection. The Contractor should seek prior permission from the Purchaser for subletting whole and/or part of the work to any sub-contractor.

(iii) The obligations imposed by sub-clauses (i) and (ii) above are without prejudice to the obligation of the Contractor under any statute, rules or order binding to the Contractor or other conditions of the Contract.

(iv) It is an agreed term of the contract that the Purchaser reserves to itself the right to carry out post-payment Audit and/or technical examination of the works and the final bill, including all supporting vouchers, abstracts etc. and to make a claim on the Contractor for the refund of any excess amount paid to him if as a result of such examination any overpayment to him is discovered to have been made in respect of any work done or alleged to have been done by him under the contract.

(v)(a) QUARTERLY STATEMENT OF CLAIMS

The Contractor shall prepare and furnish to the Engineer once in every quarter commencing from the month following the month of issue of Letter of Acceptance an account giving full

and detailed particulars of all claims for any additional expense to which the Contractor may consider himself entitled and of all extra or additional works ordered by the Engineer which hehas executed during the preceding quarter and no claim for payment for any such work will beconsidered which has not been included in such particular

(b) SIGNING OF NO CLAIM CERTIFICATE

The Contractor shall not be entitled to make any claim whatsoever against the Railway under or by virtue of arising out of this contract, nor shall the Railway entertain or consider any such claim, if made by the Contractor, after he shall have signed a " No claim certificate "in favour of the Railway in such forms as shall be required by the Railway, after the works are finally measured up. The Contractor shall be debarred from disputing the correctness of the items covered by the "No claim certificate "or demanding a reference to arbitration in respect thereof.

1.5.21 All payments in respect of the contract during the currency of the contract shall be made through Electronic Clearing System (ECS) / National Electronic Funds Transfer (NEFT/RTGS). The successful tenderer on award of contract must submit ECS/NEFT/RTGS Mandate Form complete in all respects as detailed at Form No. 8 of the tender document. However, if the facility of ECS/NEFT/RTGS is not available at a particular location, the payments shall be made by cheque.

1.5.22 Advances to Contractor: - Not Applicable in this Contract

1.5.22 Statement of Dispute: - Refer to clause 63 and 64 of GCC.

Signature of tenderer (s) with seal

PART- I

CHAPTER- VI

SCHEDULE OF PRICES AND EXPLANATORY NOTES

Relocation of 132 KV Double Circuit Koderma S/s - Koderma R/s transmission lines of DVC					
SL No	**Description of work**	**Unit**	**Qty**	**Rate**	**Amount**
	Schedule 'A' Supply				
1	Galvanized Stranded Steel Wire as Earth wire (7/3.15 mm) as per the Specification.	Km	1.47	111091.58	163304.62
2	AAA Panther Conductor (37/3.15 mm) as per the Specification.	Km	9.68	188343.55	1823165.56
3	132KV(E), 400 sq. mm Copper Cable as per specification.	Mtr	5330	11161.06	59488449.80
4	132KV(E), 400Sq. mm Copper Cable end termination kit as per specification.	No.	15	307561.49	4613422.35
5	70 KN Disc Insulator as per the specification.	No	330	547.22	180582.60
6	120 KN Disc Insulator as per the specification.	No	1680	722.34	1213531.20
7	Single Suspension Hardware set with Armour grip suspension clamp and Performed Armour rods suitable for AAA Panther Conductor (37/3.15mm) /ACSR Lark Conductor (30/2.92 mm & 7/2.92 mm) and suitable for fixing on 132 KV Tower (failing load 70 KN) (Including for Pilot Hardware).	No.	33	919.54	30344.82
8	Single Tension Hardware set with compression type tension clamp suitable for AAA Panther Conductor (37/3.15mm) /ACSR Lark Conductor (30/2.92 mm & 7/2.92 mm) and suitable for fixing on 132 KV Tower (Failing load 120 KN).	No.	66	3575.52	235984.32
9	Double Suspension Hardware set with Armour grip suspension clamp and Performed Armour rods suitable for AAA Panther Conductor (37/3.15mm) /ACSR Lark Conductor (30/2.92 mm & 7/2.92 mm) and suitable for fixing on 132 KV Tower (failing load 70 KN)	No.	33	2553.30	84258.90
10	Double Tension Hardware set with compression type tension clamp suitable for AAA Panther Conductor (37/3.15mm) /ACSR Lark Conductor (30/2.92 mm & 7/2.92 mm) and suitable for fixing on 132 KV Tower (Falling load 120 KN).	No.	66	7714.23	509139.18
11	Vibration damper suitable for AAA Panther Conductor (37/3.15 mm)	No.	132	803.28	106032.96

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12	Mid span compression joint for AAA Panther Conductor (37/3.15 mm)	No.	5	747.41	3737.05
13	Repair sleeve suitable for AAA Panther Conductor (37/3.15 mm).	No.	5	279.33	1396.65
14	Tension hardware set compression type with complete tension clamp and flexible copper bond for Galvanized standard steel wire (7/3.15 mm) and suitable for fixing on 132 KV tower.	Set	66	1171.70	77332.20
15	Vibration damper suitable for Galvanized Standard Steel Wire (7/3.15 mm) .	No.	66	747.41	49329.06
16	Mid span compression joint for Galvanized Standard Steel Wire (7/3.15 mm) .	No.	5	403.14	2015.70
17	Repair sleeve suitable for Galvanized Standard Steel Wire (7/3.15 mm).	No.	5	193.27	966.35
18	Earthing Material - Pipe type Earthing Materials (galvanized).	Set	22	2581.98	56803.56
19	Danger Plate for tower	No.	11	190.25	2092.75
20	Number Plate for tower	No.	11	173.65	1910.15
21	Phase Plate (Set of 3) for tower	Set	33	326.14	10762.62
22	Circuit Plate (Set of 2) for tower	Set	11	185.72	2042.92
23	Bird Guard (Set of 3) for tower	Set	11	178.17	1959.87
24	Anti climbing Device for tower	Set	11	7292.96	80222.56
25	Barbed Wire for tower	MT	0.37	125550.67	46453.75
26	Supplying, Fabricating & Galvanizing various tower members/structures/gantries/extensions etc. including supply of pack washers, Hangers, D-Shackles, Extension links, U-bolts etc complete at shop/site with contractor own tools & tackles crane and labor complete bolted and/or welded connections with GI bolts, nuts, washers etc. complete as per drgs/ specification and directions (supply of GI bolts, nuts, step bolts and spring washers will be paid separately)-(a) Mild steel as per Grade Designation E250A (Fe410W)	MT	88	84990.48	7479162.24
27	Supplying, Fabricating & Galvanizing stub & cleat members of various type of tower members/structures etc. including supply of pack washers etc complete at shop/site with contractor own tools & tackles crane & labor complete as per drgs/specification & directions (supply of GI bolts, nuts & spring washers will be paid separately)- (a) Painted Mild steel as per Grade Designation E250A (Fe410W).	MT	3.00	84990.48	254971.44
28	Supplying & Fabricating holding down/foundation steel bolts including threading as required etc. complete with all necessary nut	MT	5.00	81696.82	408484.10

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	plate washers etc. complete the 200mm top portion of bolt is to be Galvanized.				
29	Supply of GI Bolts, nuts (Grade-5.6) with spring washers of assorted sizes for towers including step bolts etc complete as per drgs. Specification & directions.	MT	3.00	117567.64	352702.92
30	120KV Lightning Arrestor	No.	12	65113.25	781359.00
	Total Schedule ' A '				**78061921.20**
	Schedule 'B' Erection and dismantling Work (Civil)				
1	Earth work in excavation in foundation trenches, drains etc. including dressing of sides & ramming of bottoms, lift up to 3.0 meter, including pit marking, dewatering, getting out the excavated soil & disposal of surplus excavated soils as directed within a lead of 50 meter complete as per specification, drawing & instruction of Engineer in Charge. Earth work as mentioned in Item No.1 - (a) for Ordinary soil.	Cum	175.00	366.09	64065.75
2	Earth work as mentioned in Item No.1 -(b) For Slushy soil.	Cum	175.00	1232.29	215650.75
3	Earth work as mentioned in Item No.1 - (c) Hard soil mixed with gravel & moorum.	Cum	700.00	366.09	256263.00
4	Earth work as mentioned in Item No.1 -(d) for Soft rock.	Cum	1400.00	651.90	912660.00
5	Earth work as mentioned in Item No.1 -(e) For Hard rock (requiring blasting).	Cum	525.00	951.93	499763.25
6	Earth work as mentioned in Item No.1 - (f) Hard rock (blasting prohibited).	Cum	525.00	1327.48	696927.00
7	Extra over item (1) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter.- (a) for Ordinary soil.	Cum	26.25	96.57	2534.96
8	Extra over item (2) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter. - (b) for Slushy soil	Cum	26.25	96.57	2534.96
9	Extra over item (3) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter. - (c) for Hard soil mixed with gravel & moorum.	Cum	105.00	96.57	10139.85
10	Extra over item (4) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter. - (d) for Soft rock.	Cum	210.00	173.17	36365.70

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11	Extra over item (5) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter. -(e) for Hard rock (requiring blasting).	Cum	78.75	173.17	13637.14
12	Extra over item (6) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter. (f) for Hard rock (blasting prohibited)	Cum	78.75	173.17	13637.14
13	Earthwork in filling in excavated pits, trenches, plinth & sides of foundation etc. in layers not exceeding 200 mm in depth, consolidating & dressing each deposited layer by ramming & watering, including cost of supply & carriage of materials etc. complete as per drgs. , specifications & directions.- (a) with earth obtained from excavation of foundation (excluding rock).	Cum	2450.00	234.64	574868.00
14	Earthwork as mentioned in Item No. 13 -(b) with sand including cost of material & transportation of material to site.	Cum	10.00	2086.36	20863.60
15	Earthwork as mentioned in Item No. 13 - (c) with earth obtained from borrow pits within a lead of 500m. inclusive of excavation & carriage / haulage / transportation. (No extra claim will be entertained for each obtained beyond a lead of 200 M).	Cum	1040.00	248.47	258408.80
16	Fitting of template (SST) & setting of stub, 4 stubs / tower - stubs & SST as supplied - (a) 132 KV D/C B type angle tower (maximum deviation 30 degree). One set consists of number of SST, Setting stub and Stubs per tower.	Set	2	12594.35	25188.70
17	Fitting of template (SST) & setting of stub, 4 stubs / tower - (b) stubs & SST as supplied -(b)132KV D/C C type angle tower (maximum deviation 60 degree). One set consists of number of SST, Setting stub and Stubs per tower.	Set	9	13689.51	123205.59
18	Supplying, straightening, cutting, bending, cranking, hooking, fixing, binding & placing at any position in superstructure, fdn., & plinth with MS / Tor steel reinforcements in all works of concrete, masonry etc, including supply of binding wire with 18 SWG (1.05mm) galvanized wire twisted tight and / or welding the splices where necessary as per IS codes or direction and holding in position with steel rod spacer / chairs / horses etc. complete.	MT	17.00	89199.67	1516394.39
19	Hiring, erecting, centering, supporting, striking, cleaning etc. of framework of approved design with staging, props and supports for plain & RCC works with all accessories and at all heights including removal of forms as per drawings, specifications & directions with:	Sqm	1000.00	304.30	304300.00
20	Charges for shoring & strutting of pits including cost of materials required for this purpose & fixing in position during excavation and/or crating works as per specifications and directions.	Sqm	300.00	650.89	195267.00

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21	Providing & laying in position Plain cement concrete (PCC) in foundation & plinth with coarse sand & 20 mm. & down stone aggregates of approved quality, well graded, washed and screened including supply of all materials, cost of transport of all materials to site, mixing, laying, vibrating, curing etc. complete but excluding centering & shuttering as per drawings, specifications & direction with- (a) Mix 1:4:8.	Cum	1.00	6184.79	6184.79
22	Providing & laying in position Plain cement concrete (PCC) as mentioned in Item No.21- (b) Mix 1:3:6.	Cum	1.00	6686.34	6686.34
23	Providing & laying in position Plain cement concrete (PCC) as mentioned in Item No.21- (c) Mix 1:2:4.	Cum	30.00	7251.98	217559.40
24	Providing & laying in position Reinforced Cement concrete (RCC) work in pyramid & chimney of tower foundation & plinth, with coarse sand & 20 mm. & down stone aggregates of approved quality, well graded, washed and screened including cost of supply of all materials and cost of transport of all materials to site., mixing, laying, vibrating, curing etc. complete & also including erection, supporting, striking out, cleaning etc. of steel muff-boxes, but excluding the cost of reinforcement and framework, specifications & directions with- (a) Concrete mix 1: 1.5 : 3.	Cum	1	8245.09	8245.09
25	Providing & laying in position Reinforced Cement concrete (RCC) work as mentioned in Item No. 24 - (b) Concrete mix 1: 1 : 2.	Cum	200	9755.51	1951102.00
26	Providing & laying in position Reinforced Cement concrete work (RCC) in stepped foundation & plinth, with coarse sand & 20 mm. & down stone aggregates of approved quality, well graded, washed and screened including cost of supply of all materials and cost of transport of all materials to site., mixing, laying, vibrating, curing etc. complete but excluding the cost of reinforcement and framework as per drgs., specifications & directions with- (a) Concrete mix 1: 1.5 : 3.	Cum	1	8245.09	8245.09
27	Providing & laying in position Reinforced Cement concrete work (RCC) as mentioned in Item No.26 - (b) Concrete mix 1: 1 : 2.	Cum	100	9755.51	975551.00
28	Providing & laying in position Reinforced Cement concrete (RCC) work with coarse sand& 20 mm. & down stone aggregates of approved quality, well graded, washed and screened including cost of supply of all materials and cost of transport of all materials	Cum	1	9941.22	9941.22

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	to site., mixing, laying, vibrating, curing etc. complete but excluding the cost of reinforcement and framework as per drgs., specifications & directions in superstructure with:- (a) Concrete mix 1: 1.5 : 3.				
29	Providing & laying in position Reinforced Cement concrete (RCC) work as mentioned in Item No. 28 - (b) Concrete mix 1: 1 : 2.	Cum	10	11450.78	114507.80
30	Transporting, Handling, Assembling & Erecting of tower members (HT & MS) / structures / gantries / body extensions of all types of tower etc from stores & /or site with contractor's own tools & tackles, crane & labour, including fitting, checking, punching & tack welding of bolts & nuts and / or connections up to bottom cross arm including aluminum painting of tack welded bolt & nuts but excluding fitting & fixing of Number Plates, Danger Plates, Phase Plates, Circuit Plates, Bird Guards, Anti Climbing Devices etc. complete as per drawing, specifications & direction.	MT	83.00	24888.33	2065731.39
31	Providing, supplying and laying of 20cm thick second class brick pitching (brick on edge over one brick flat pitching) on slopes of embankment canal etc. in 1:4 cement mortar in both layers, curing, preparing base to proper level of slope, with weep holes at a spacing of 1.8 meter hoizontally and 0.9 meter vertically or as shown in the drawing complete (with pointing 1:3).	Sqm	100.00	745.00	74500.00
32	Providing, supplying and laying of rubble pitching (thickness varying from 150mm to 300mm) with stone boulder including hand packing and caulking with cement concrete (1:3:6), 0.15 cu.m. per cum of boulder pitching with 20mm and down stone chips including making weep holes at a spacing of 180 cm. horizontally and 90 cm. vertically including rough dressing of the slope for pitching, packing of the back of weep hole etc. complete.	Cum	50.00	4448.55	222427.50
33	Providing, supplying and laying of random rubble pitching with stone boulder of approved quality and size and packed as per direction etc. complete.	Cum	50.00	3466.85	173342.50
34	Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items to designated stores (DVC/DFCCIL), including loading / unloading etc. all complete at all elevations as per direction of Engineer-in-Charge- (a) R.C.C. work including stacking of reinforcement.	Cum	5.00	2707.71	13538.55
35	Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items as mentioned in Item No. 34 - (b) 1:3:6 or richer mix Cement concrete work.	Cum	5.00	1856.05	9280.25
36	Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items as	Cum	5.00	1146.02	5730.10

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	mentioned in Item No. 34 -(c) 1:4:8 or leaner mix Cement concrete work.				
37	Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items as mentioned in Item No. 34 -(d) Masonry work in cement mortar.	Cum	5.00	1570.24	7851.20
38	Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items as mentioned in Item No. 34 - (e)Steel work in built-up sections including dismembering.	MT	32.00	4433.27	141864.64
39	Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items as mentioned in Item No. 34 -(f) Fencing post / Strut including concrete dismantling & Earthwork .	Each	5.00	195.06	975.30
40	Carrying out necessary field test for soil samples, preparation and submission of soil testing report in triplicate giving results of investigation and related reasons qualitatively, expected settlement and recommendation for bearing capacity at different level by conducting laboratory test on soil samples as per relevant practice - (a) for determination crushing strength of soil samples.	Nos.	2.00	17075.51	34151.02
41	Carrying out necessary field test for soil samples as mentioned in Item No. 40 - (b) for determination Modulus of sub- grade reaction(k), Modulus of elasticity (E), Poisson's Ratio (μ).	Nos.	2.00	73792.96	147585.92
42	Carrying out necessary field test for soil samples as mentioned in Item No. 40 -(c) for Determination of Moisture absorption test and porosity.	Nos.	2.00	3526.05	7052.10
43	Carrying out necessary field test for soil samples as mentioned in Item No. 40 - (d) Determination of Bulk density, natural moisture content, dry density, relative density and specific gravity.	Nos.	2.00	3775.40	7550.80
44	Carrying out necessary field test for soil samples as mentioned in Item No. 40 - (e) for Determination of- (e)Standard Penetration Test (SPT).	Nos.	2.00	12937.43	25874.86
45	Supplying & providing 25 mm thick. grouting by using ready mix grout like SHRINKKOMP, CONBEXTRA GP2, SIKA GROUT 214 or equivalent for miscellaneous base plates, foundation bolts, pipe sleeves, pockets, holes etc. at all heights, location etc, complete as per drawings.	Sqm	5	2109.84	10549.20
46	Providing, Transporting, assembling, placing & fixing in position steel holding down/foundation bolts including threading as required etc. with all necessary nuts and plate washer etc. per bolt complete as	MT	5.00	17551.50	87757.50

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	per drawing and direction of Engineer-in-charge. The 200 mm top portion of the bolt is to be galvanized.				
	Total Schedule ' B '				**12076461.14**
	Schedule 'C ' Erection & dismantling work (Electrical)				
	Survey				
1	Check survey including preparation and submission of survey chart, line chart, Route profile & Tower spotting etc with all details as specified along with completion of page marking and submission of approval report along with profile drawings, line chart, tower schedule etc. all complete for approval.	KM	2.21	27043.83	59766.86
2	**Grounding of Tower with** : GI Pipe, GI flats etc. as per drawing, including excavation, back filling, leveling and cost of storing, handling & transportation of materials to site complete as per drawing, specification and directions.	Set	16	8320.74	133131.84
3	Counter poise earthing including excavation, back filling, leveling and cost of storing, handling & transportation of materials to site complete as per drawing, specification and directions.	Per Set	6	5148.42	30890.52
4	Stringing and sagging of 06 numbers power conductors including hoisting and fixing of insulators on the 132KV towers/gantries, erections of hardware sets, running out and laying out of contractors, tensioning and clipping in with clamps, erection of jumpers at the section/angle towers jointing & repairing of contractors, fixing of vibration dumpers, preformed armor rods, bird guards and including erections of number plates, danger plates, Phase plates, circuit plate, step bolts and anti climbing devices with barbed wire etc. on each tower keeping other circuit in charged/shutdown condition at the same time complete in all respect and as per specification & directions including transportation of all materials to the site per route Kilometer of the line with :-(a) 06 (Six) nos. power conductors (AAA Panther Conductor).	Km	1.61	199172.62	320667.92
5	Stringing and sagging of 01 (one) no galvanized stranded steel wire as earth wire (7/3.15mm) including laying, stringing, tensioning, climbing, jointing etc. complete in all respect including cost of storing, handling, transporting of all materials to site per route Kilometer of the line including fixing of hardware, vibration damper and/or armour rods etc.	Km	1.47	67564.23	99319.42
6	Laying of 132KV XLPE 1cX400sqmm copper power cable including dressing, cleating, clamping of cable along the excavated earth, cable trench, RCC Hume pipe, metal pipe, structure / pole etc including	Km	5.33	126575.56	674647.73

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	dewatering & cleaning as required and supplying & providing of cable tags.				
7	Termination of 132KV XLPE cable with outdoor heat shrinkable type cable sealing end termination kit / straight through joints suitably to Terminal Isolator Pad/Power conductor (ACSR/AAAC) .	Nos	15	38666.01	579990.15
8	Erection testing and commissioning of 120KV Lightning arrester along with all accessories, connectors etc.	Nos	12	5988.41	71860.92
9	Dismantling & De-stringing of power conductors 06 numbers (ACSR Lark/AAAC Panther) in circuit of existing double-circuit transmission line of DVC keeping other circuit in charged condition/shutdown condition at the same time including release of all insulators, hardware & accessories without any jerk and damage to the cross arm and if required, recoiling, transportation of all dismantled conductors & line materials to specified store all complete as per direction of Engineer-in-charge.	Km	2	99451.26	198902.52
10	De-stringing of Earth wire in one circuit of existing double-circuit transmission line of DVC keeping other circuit in charged condition/shutdown condition at the same time including release of all hardware & accessories and transportation of all dismantled conductors & line materials to specified store all complete as per direction of Engineer-in-charge.	Km	2	46002.22	92004.44
	Schedule 'C ' Erection & Dismantling work (Electrical)				**2261182.32**
	Schedule 'D ' Forest Clearance, PTCC clearance and Compensatory Afforestation (CA) Work				
1	Service charges to get forest proposal cleared as mentioned in specification.	LS	1	145108.84	145108.84
2	Service charges to get PTCC proposal cleared as mentioned in specification.	LS	1	114073.00	114073.00
3	Survey and preparation of KML file, DGPS maps and Topo sheet for Compensatory Afforestation (CA) as required for forest clearance .	Sqm	115340	1.35	155709.00
4	Demarcation of boundary. Supply and erection of RCC M20 pillars of size 150X150X1800 mm (6 ft) along ROW of forest land.	Nos.	50	4235.02	211751.00
5	Tree Felling, Cutting, trimming, transplantation as required for ROW clearance including forest land and successful commissioning of complete line in all respect.	LS	1	186212.50	186212.50
	Total Schedule 'D ' Forest Clearance, PTCC and Compensatory Afforestation Work				**812854.34**

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Grand Total (Schedule A + Schedule B + Schedule C+ Schedule D) including GST @18% in	**₹**	**93212419.00**
Say	**₹**	**9,32,12,419/-**

(Rupees Nine crore thirty two lakh twelve thousand four hundred and nineteen only.)

Note :

1. The above price is inclusive of GST @ 18% unless otherwise specified in the tender document.

2. The Tenderer is required to quote a single flat percentage (%) **Below/At par/ Above**, both in word and figure for the rate in schedule(s) /section(s). This flat percentage will be applicable for all the items in the particular schedule(s)/section(s). In case of discrepancy, rate quoted in words shall prevail.

3. The decision of competent authority will be final.

I/We offer and agree to execute the above work at rate uploaded online at www.ireps.gov.in through digital Signature

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EXPLANATORY NOTES OF SCHEDULE OF PRICES

Schedule -' A '- Supply

Item No. 1 : Supply of AAAC Panther (37/3.15mm) Conductor

The price shall cover supply of AAAC Panther conductor suitable for 132KV transmission line. The AAA/Panther conductor will be used in 132 KV transmission line crossing modification, transmission line crossing modification. The material offered shall be of best quality and workmanship as per the specification of DVC mention at Part II Chapter II and/or as directed by DVC/Employer's engineer.

Item No. 2 : Supply of Earth-wire size 7/3.15 mm galvanized stranded steel

The price shall cover supply of Earth wire size 7/3.15 mm galvanized stranded steel compatible with proposed conductors and as per DVC standard practices. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications and as directed by Employer's engineer. The material shall be purchased from DVC approved firms as per the specification of DVC mentioned at Part II Chapter V and/or as directed by DVC/Employer's engineer.

Item No. 3 : Supply of 132KV(E), 400 sq. mm Copper Cable as per specification

The price shall cover the supply of cable suitable for laying underground with uncontrolled back fill and chances of flooding by water and suitably designed by the addition of chemicals in the outer sheath to be protected against rodent and termite attack. Cross-linked polyethylene insulated thermoplastic sheathedcables for working voltage from 66KV up to and including 220KV. The cable having continuous length of 800 mtr (approx) preferably in one drum along with 02 (two) nos 132KV termination kit and 01(one) no 132KV straight through joint as spare at DVC's Koderma S/s. The material offered shall be of best quality and workmanship as per the specification of DVC mention at Part II Chapter I and/or as directed by DVC/Employer's engineer.

Item No. 4 : Supply of 132KV(E), 400Sq. mm Copper Cable end termination kit

The price shall cover the supply of suitable 400 Sq. mm Copper Cable end termination kit. The works and material offered should covered by the designed, engineered, manufactured, tested and commissioned in accordance with the Standards as specified at Part II Chapter I and/or as directed by DVC/Employer's engineer.

Item No. 5 & 6 : Supply of Disc Insulator 70/90/120 KN

The price shall cover supply of Disc Insulator 70/90/120 KN of light weight according to the DVC standard practices. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications at Part II Chapter III and as directed by DVC/Employer's engineer. The Supplier shall not be eligible for any extra charges for such fittings, etc and/or as directed by DVC/Employer's engineer.

Item No. 7 : Supply of Single Suspension Hardware set with all accessories

The price shall cover supply of Single Suspension Pilot Fittings suitable for proposed conductors and as per DVC standard practices. The price shall include galvanized small parts steel work if any, for fixing to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications at Part II Chapter IV and/or as directed by DVC/Employer's engineer.

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Item No. 8 : Supply of Single Tension Hardware set with all accessories

The price shall cover supply of Single Tension Fittings suitable for proposed conductors and as per RDSO /DVC standard practices. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications at Part II Chapter IV and as directed by DVC/Employer's engineer.

Item No. 9 : Supply of Double Suspension Hardware set with accessories

The price shall cover supply of Single Tension Fittings suitable for proposed conductors and as per RDSO /DVC standard practices. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications at Part II Chapter IV and/or as directed by DVC/Employer's engineer.

Item No. 10 : Supply of Double tension Hardware set with accessories

The price shall cover supply of Single Tension Fittings suitable for proposed conductors and as per RDSO /DVC standard practices. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications at Part II Chapter IV and/or as directed by DVC/Employer's engineer.

Item No. 11 : Supply of Vibration damper suitable for AAA Panther Conductor

The price shall cover supply of Vibration Damper for Conductor suitable for proposed conductors and as per DVC standard practices . The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications at Part II Chapter IV and as directed by DVC/Employer's engineer.

Item No. 12 : Supply of Mid span compression joint for AAA Panther Conductor

The price shall cover supply of MSCJ suitable for proposed conductors and as per DVC standard practices. The price shall include galvanized small parts steel work ifany, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications at Part II Chapter IV and as directed by DVC/Employer's engineer.

Item No. 13 : Supply of Repair sleeve suitable for AAA Panther Conductor

The price shall cover supply of Repair Sleeve for Conductor for proposed conductors and as per DVC standard practices. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications at Part II Chapter IV and as directed by DVC/Employer's engineer.

Item No. 14 : Supply of Tension hardware set compression type with accessories for Earth wire

The price shall cover supply of Single Tension Fittings suitable for proposed Earth wire and as per RDSO /DVC standard practices. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications at Part II Chapter IV and as directed by DVC/Employer's engineer.

Item No. 15 : Supply of Vibration damper suitable for Earth wire

The price shall cover supply of Vibration Damper for Conductor suitable for proposed conductors and as per DVC standard practices. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications at Part II Chapter IV and/or as directed by DVC/Employer's engineer.

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Item No. 16 : Supply of Mid span compression joint suitable for Earth wire

The price shall cover supply of MSCJ suitable for proposed Earth wire and as per DVC standard practices. The price shall include galvanized small parts steel work ifany, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications at Part II Chapter IV and as directed by DVC/Employer's engineer.

Item No. 17 : Supply of Repair sleeve suitable for Earth wire

The price shall cover supply of Repair Sleeve for Earth wire for proposed conductors and as per DVC standard practices. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications at Part II Chapter IV and/or as directed by DVC/Employer's engineer.

Item No. 18 : Supply of Earthing

The price shall cover on a flat rate basis supply of Pipe type earthing latest as per DVC standard specifications and/or as directed by DVC/Employer's engineer.

Item No. 19 : Supply of Danger Plate

The price shall cover supply of danger plate according to the typical DVC standard specifications. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications and/or as directed by DVC/Employer's engineer.

Item No. 20 : Supply of Number Plate

The price shall cover supply of number plate according to the typical DVC standard specifications. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants , lead and lift as a complete job as per DVC standard specifications and/or as directed by DVC/Employer's engineer.

Item No. 21 : Supply of Phase Plate

The price shall cover supply of phase plate (set of 3 nos.) according to the typical DVC standard specifications. The price shall include galvanized small parts steel work ifany, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications and/or as directed by DVC/Employer's engineer.

Item No. 22 : Supply of Circuit Plate

The price shall cover supply of phase plate (set of 3 nos.) according to the DVC standard specifications. The price shall include galvanized small parts steel work ifany, for fixing the number plate to the structure with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and/or as directed by DVC/Employer's engineer.

Item No. 23 : Supply of Bird Guard

The price shall cover supply of Bird Guard according to the typical D V C standard specifications. The price shall include galvanized small parts steel work if any, for fixing the number plate to the structure with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications and/or as directed by DVC/Employer's engineer.

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Item No. 24 : Supply of Anti Climbing Device

The price shall cover on a flat rate basis supply of an Anti Climbing Device to be provided on towers as the case may be according to the DVC specifications. Anti climbing should be provided at a height of 3.60 Mtrs. from ground level with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and/or as directed by Employer's engineer DVC/Employer's engineer.

Item No. 25 : Supply of Barbed wire for tower

The price shall cover on a flat rate basis supply of Barbed wire to be provided on towers as per DVC standard specifications. The price shall include with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications and/or as directed by Employer's engineer DVC/Employer's engineer.

Item No. 26, 27, 28 & 29 Supply of High Tensile Steel/Mild Steel/Hexagonal bolts and nuts

The price shall cover on per tonne basis the cost of supply of entire structural steel, fabrication, galvanization of steel work, pained steel work for various parts of towers and it's body and leg extensions (complete) including stubs, nuts , bolts, washers, hangers of 20 mm rod, U-bolt etc for complete towers complete in all respects as per standard specifications of DVC and/or as directed by Employer's engineer DVC/Employer's engineer. The price shall also include the cost of clearing, handling and transporting as required. Payments will be made on actual weight.

Item No. 30 : Supply of 120 KV lightning Arrester

The price shall cover supply of 120KV lightning arrester as per DVC standard specifications. The price shall include all small parts steel work and fittings if any, for fixing the lightening Arrester to the structure with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and/or as directed by DVC/Employer's engineer.

EXPLANATORY NOTES OF SCHEDULE OF PRICES

Schedule -'B '- Erection and Dismantling work (Civil)

Item No. 1 to 6 : Earth work in excavation in foundation trenches, drains etc. including dressing of sides & ramming of bottoms, lift upto 3.0 meter, including pit marking, dewatering, getting out the excavated soil & disposal of surplus excavated soils as directed within a lead of 50 meter complete as per specification, drawing & instruction of Engineer in Charge.

The price shall cover on a per cubic meter of Earth work in excavation in foundation trenches, drains etc. in Ordinary/Slushy/Hard mixed with Garvel & Moorum/Soft rock/hard rock including dressing of sides & ramming of bottoms, lift upto 3.0 meter, including pit marking, dewatering, getting out the excavated soil & disposal of surplus excavated soils with all contractors material, labour, tools and plants, lead and lift as directed within a lead of 50 meter complete as per specifications, drawing and/or as directed by DVC/Employer's engineer.

Item No. 7 to 12 : Extra over item (1) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter.

The price shall cover on a per cubic meter of Earth work in excavation in foundation trenches, drains etc. in Ordinary/Slushy/Hard mixed with Garvel & Moorum/Soft rock/hard rock including dressing of sides & ramming of bottoms, lift for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter, including pit marking, dewatering, getting out the excavated soil & disposal of surplus excavated soils, with all contractors material, labour, tools and plants, lead and lift as directed within a lead of 50 meter complete as per specifications, drawing and/or as directed by DVC/Employer's engineer.

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Item No. 13 to 15 : Earthwork in filling in excavated pits, trenches, plinth & sides of foundation etc. in layers not exceeding 200 mm in depth, consolidating & dressing each deposited layer by ramming & watering, including cost of supply & carriage of materials etc. complete as per drgs., specifications & directions.

The price shall cover on a per cubic meter of Earth work in in excavated pits, trenches, plinth & sides of foundation etc. in layers not exceeding 200 mm in depth, consolidating & dressing each deposited layer by ramming & watering, including cost of supply & carriage of materials etc with earth obtained from excavation(excluding rock)/ with sand including cost of material & transportation to site. complete as per drgs., specifications and/or as directed by DVC/Employer's engineer.

Item No.16 to 17 : Fitting of template (SST) & setting of stub, 4 stubs / tower (Stubs & SST as supplied) :

The price shall cover setting of stubs including fixing & erection of template hoisting of slabs etc all complete as per drawing & design and/or as directed by DVC/Employer's engineer. **One set** consists of number of SST, Setting stub and Stubs required **per tower**.

Item No. 18: Supplying, straightening, cutting, bending, cranking, hooking, fixing, binding & placing at any position in superstructure, fdn., & plinth with MS / Torsteel reinforcements in all works of concrete, masonry etc, including supply of binding wire with 18 SWG (1.05mm) galvanised wire twisted tight and / or welding the splices where necessary as per IS codes or direction and holding in position with steel rod spacer / chairs / horses etc. Complete

The price shall cover on per tonne basis the cost of erection of steel work for the superstructures, foundation and plinth, stubs and extensions of all types of the towers complete in all respect with MS / Tor steel reinforcements in all works of concrete, masonry etc, including supply of binding wire with 18 SWG (1.05mm) galvanized wire twisted tight and / or welding the splices where necessary as per IS codes or direction and holding in position with steel rod spacer / chairs / horses etc. complete as per drawing & design and/or as directed by DVC/Employer's engineer.

Item No. 19 : Hiring, erecting, centering, supporting, striking, cleaning etc. of framework of approved design with staging, props and supports for plain & RCC works with all accessories and at all heights including removal of forms as per drawings, specifications & directions.

The price shall cover Sqm. basis the cost of hiring, erecting, centering, supporting, striking, cleaning etc. of framework of approved design with staging, props and supports for plain & RCC works with all accessories and at all heights including removal of forms as per drawings, specifications and/or as directed by DVC/Employer's engineer.

Item No. 20 : Charges for shoring & strutting of pits including cost of materials required for this purpose & fixing in position during excavation and/or creting works as per specifications and directions.

The price shall cover Sqm. basis the cost for shoring & strutting of pits including cost of materials required for this purpose & fixing in position during excavation and/or creting works with all contractors material, labour, tools and plants, lead and lift as per drawings, specifications and/or as directed by DVC/Employer's engineer.

Item No. 21 to 23 : **Providing & laying in position Plain cement concrete (PCC) in foundation & plinth with coarse sand & 20 mm. & down stone aggregates of approved quality, well graded, washed and screened including supply of all materials, cost of transport of all materials to site, mixing, laying, vibrating, curing etc. complete but excluding centering & shuttering as per drawings, specifications & direction with.**

The price shall cover all works related concreting (1:4:8/1:3:6/1:2:4) with approved quality of stone chips 20 mm & down for base as lean concreting and clean coarse sand of approved quality including curing, shoring with all contractors material, labour, tools and plants ,lead and lift, dewatering as a complete job as per design & drawing/specifications and/or as directed by DVC/Employer's engineer.

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Item No. 24 & 25 : Providing & laying in position Reinforced Cement concrete (RCC) work in pyramid & chimney of tower foundation & plinth, with coarse sand & 20 mm. & down stone aggregates of approved quality, well graded, washed and screened including cost of supply of all materials and cost of transport of all materials to site., mixing, laying, vibrating, curing etc. complete & also including erection, supporting, striking out, cleaning etc. of steel muff-boxes, but excluding the cost of reinforcement and framework as per drgs., specifications & directions with.

The price shall cover all works related concreting (1:1.5:3/1:1:2) with approved quality of stone chips 20 mm & down for base as lean concreting and clean coarse sand of approved quality including curing, shoring with all contractors material, labour, tools and plants ,lead and lift , dewatering as a complete job as per design & drawing/specifications and/or as directed by DVC/Employer's engineer.

Item No. 26 & 27 : Providing & laying in position Reinforced Cement concrete work in stepped foundation & plinth, with coarse sand & 20 mm. & down stone aggregates of approved quality, well graded, washed and screened including cost of supply of all materials and cost of transport of all materials to site., mixing, laying, vibrating, curing etc. complete but excluding the cost of reinforcement and framework as per drgs., specifications & directions with

The price shall cover all works related concreting (1:1.5:3/1:1:2) with approved quality of stone chips 20 mm & down for base as lean concreting and clean coarse sand of approved quality including curing, shoring with all contractors material, labour, tools and plants ,lead and lift, dewatering as a complete job as per design & drawing/specifications and/or as directed by DVC/Employer's engineer.

Item No. 28 & 29 :Providing & laying in position Reinforced Cement concrete work with coarse sand & 20 mm. & down stone aggregates of approved quality, well graded, washed and screened including cost of supply of all materials and cost of transport of all materials to site., mixing, laying, vibrating, curing etc. complete but excluding the cost of reinforcement and framework as per drgs., specifications & directions in superstructure with.

The price shall cover all works related concreting (1:1.5:3/1:1:2) with approved quality of stone chips 20 mm & down for base as lean concreting and clean coarse sand of approved quality including curing, shoring with all contractors material, labour, tools and plants ,lead and lift , dewatering as a complete job as per design & drawing/specifications and/or as directed by DVC/Employer's engineer.

Item No. 30 : Transporting, Handling, Assembling & Erecting of tower members (HT & MS) / structures / gantries / body extensions of all types of tower etc from stores & /or site with contactors' own tools & tackles, crane & labour, including fitting, checking, punching & tack welding of bolts & nuts and / or connections upto bottom cross arm including aluminium painting of tack welded bolt & nuts but excluding fitting & fixing of Number Plates, Danger Plates, Phase Plates, Circuit Plates, Bird Guards, Anti Climbing Devices etc. complete as per drg., specifications & direction.

The price shall cover the cost of erection of steel work (HT/MS) per tonne basis for the superstructures, gantries / body extension of all types of the towers complete in all respect above ground level. The price shall include tightening and punching of bolts, U bolts and hangers etc. The price shall also include the cost of clearing, handling and transporting as required with all contractors material, labour, tools and plants, lead and lift as a complete job as per specifications and/or as directed by DVC/Employer's engineer.

Item No. 31 : Providing, supplying and laying of 20cm thick second class brick pitching (brick on edge over one brick flat pitching) on slopes of embankment canal etc. in 1:4 cement mortar in both layers, curing,

preparing base to proper level of slope, with weep holes at a spacing of 1.8 meter horizontally and 0.9 meter vertically or as shown in the drawing complete (with pointing 1:3)

The price shall cover Sqm. basis the cost for supplying and laying of 20cm thick second class brick pitching (brick on edge over one brick flat pitching) on slopes of embankment canal etc. in 1:4 cement mortar in both layers, curing, preparing base to proper level of slope, with weep holes at a spacing of 1.8 meter horizontally and 0.9 meter vertically or as shown in the drawing complete (with pointing 1:3 with all contractors material, labour, tools and plants, lead and lift as per drawings, specifications and/or as directed by DVC/Employer's engineer.

Item No. 32 : Providing, supplying and laying of rubble pitching (thickness varying from 150mm to 300mm) with stone boulder including hand packing and caulking with cement concrete (1:3:6), 0.15 cu.m. per cum of boulder pitching with 20mm and down stone chips including making weep holes at a spacing of 180 cm. horizontally and 90 cm. vertically including rough dressing of the slope for pitching, packing of the back of weep hole etc. Complete.

The price shall cover the cost for supplying and laying of rubble pitching (thickness varying from 150mm to 300mm) with stone boulder Cum. basis including hand packing and caulking with cement concrete (1:3:6), 0.15 cu.m. per cum of boulder pitching with 20mm and down stone chips including making weep holes at a spacing of 180 cm. horizontally and 90 cm. vertically including rough dressing of the slope for pitching, packing of the back of weep hole etc. Complete with all contractors material, labour, tools and plants, lead and lift as per drawings, specifications and/or as directed by DVC/Employer's engineer.

Item No. 33 : Providing, supplying and laying of random rubble pitching with stone boulder of approved quality and size and packed as per direction etc. Complete

The price shall cover Cum. basis the cost for supplying and laying of random pitching with approved quality stone boulder Complete with all contractors material, labour, tools and plants, lead and lift as per drawings, specifications and/or as directed by DVC/Employer's engineer.

Item No. 34 to 39 : Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items to designated stores (DVC/DFCCIL), including loading / unloading etc. all complete at all elevations as per direction of Engineer-in- Charge.

The price shall cover dismantling of 132 KV old TR Line towers along with all other materials including cutting of welded bolts by gas cutter and proper staking of thereof in DVC/DFCCIL designated stores with all contractors material, labour, security, tools and plants, lead and lift as a complete job as per specifications and/or as directed by DVC/Employer's engineer.

Item No. 40 to 44 : Carrying out necessary field test for soil samples, preparation and submission of soil testing report in triplicate giving results of investigation and related reasons qualitatively, expected settlement and recommendation for bearing capacity at different level by conducting laboratory test on soil samples as per relevant practice for determination of crushing strength, Modulus of sub-grade reaction(k), Poission's ratio (μ), Moisture absorption test and porosity, Bulk density, specific gravity and SPT.

The price shall cover soil investigation in all kinds of soil on a flat rate basis per location. Design of foundation and tower structure type will be based on the soil type etc., all complete Complete with all contractors material, labour, tools and plants, lead and lift as per specifications and/or as directed by DVC/Employer's engineer.

Item No. 45 : Supplying & providing 25 mm thick. grouting by using ready mix grout like SHRINKKOMP, CONBEXTRA GP2, SIKA GROUT 214 or equivalent for miscellaneous base plates, foundation bolts, pipe sleeves, pockets, holes etc. at all heights, location etc, complete as per drg.

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The price shall cover Sqm. basis the cost for providing 25 mm thick grouting by using ready mix grout like SHRINKKOMP, CONBEXTRA GP2, SIKA GROUT 214 or equivalent for miscellaneous base plates, foundation bolts, pipe sleeves, pockets, holes etc. at all heights, location etc, complete with all contractors material, labour, tools and plants, lead and lift as per drawings, specifications and/or as directed by DVC/Employer's engineer.

Item No. 46 : Providing, Transporting, assembling, placing & fixing in position steel holding down/foundation bolts including threading as required etc. with all necessary nuts and plate washer etc. per bolt complete as per drawing and direction of Engineer-in-charge. The 200 mm top portion of the bolt is to be galvanized.

The price shall cover on per tonne basis the cost of assembling, placing & fixing in position steel holding down/foundation bolts including threading as required etc. with all necessary nuts and plate washer etc. per bolt complete as per drawing and direction of Engineer-in-charge. The 200 mm top portion of the bolt is to be galvanized complete with all contractors material, labour, tools and plants , lead and lift as a complete job as per specifications and/or as directed by DVC/Employer's engineer.

EXPLANATORY NOTES OF SCHEDULE OF PRICES

Schedule -' C '

Erection and Dismantling work (Electrical)

Item No. 1 : Check survey including route alignment, profiling & tower spotting.

The price shall cover Check survey including preliminary survey (plotting on route in toppo sheet), plotting of towers in the rotate profile, preparation and submission of profile drawing, line chart, tower schedule etc all complete for approval and survey including preparation and submission of survey chart, line chart, Route profile & Tower spotting etc with all details as specified along with completion of page marking and submission of approval report along with profile drawings, line chart, tower schedule etc. all complete including forest survey as per direction of of DVC/Employer's engineer.

The contractor will furnish all relevant drawing/design required for carrying out works. The contractor shall however prepare detail drawing and get approved by Engineer before commencement of work. Such approval however will not absolve the contractor of their responsibility for correctness of drawing furnished and work executed by them. The contractor shall responsible for any alterations/modifications necessitates due to discrepancies/errors or omission in their drawing or other details furnished by them even if these have been approved by the Engineer.

Item No. 2 & 3 : Grounding of Tower

The price shall cover for erection of GI Pipe, GI flats etc.for pipe and counterpoise type earthing as per drawing/specifications, including excavation, back filling, leveling and cost of storing, handling & transportation of materials to site complete as per specifications and/or as directed by DVC/Employer's engineer.

Item No. 4 : Stringing and sagging of Power conductor (AAAC panther) conductor with all hardware fitting etc.

The price shall cover Stringing and sagging of 06 nos power conductors (AAA Panther) for double circuit (D/C) transmission lines including hoisting and fixing of insulators on the 132KV towers/gantries, erections of hardware sets, running out and laying out of contractors, tensioning and clipping in with clamps, erection of jumpers at the section/angle towers jointing & repairing of contractors, fixing of vibration dumpers, preformed amour rods, bird guards and including erections of number plates, danger plates, Phase plates, circuit plate, step bolts and anti climbing devices with barbed wire etc. **on each tower keeping other circuit in charged/shutdown condition** at the same time complete in all respect complete with all contractors material, labour, tools and plants , lead and lift and as per specification at Part II and/or as directed by DVC/Employer's engineer.

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Item No. 5 : Stringing and sagging of Earth wire (7/3.15mm) with all hardware fitting etc.

The price shall cover stringing and sagging of 01 (one) no galvanised stranded steel wire as earth wire (7/3.15mm) including laying, stringing, tensioning, climbing, jointing etc. complete in all request including cost of storing, handling, transporting of all materials to site per route Kilometer of the line including fixing of hard wares, vibration damper and Armour rods etc.with all contractors material, labour, tools and plants, lead and lift as a complete job as per specification at Part II and/or as directed by DVC/Employer's engineer.

Item No. 6 : Laying of 132KV XLPE 1cX400sqmm copper power cable.

The price shall cover laying of under ground 132KV XLPE 1cX400 sqmm copper power cable including dressing, cleating, clamping of cable along the excavated earth, cable trench, RCC Hume pipe, metal pipe, structure / pole etc including dewatering & cleaning as required and supplying & providing of cable tags.as per specifications of DVC specified at **Part II Chapter I** complete with all contractors material, labour, tools and plants , lead and lift as per DVC specifications and/or as directed by DVC/Employer's engineer.

Item No. 7 : Termination of 132KV XLPE cable with outdoor heat shrinkable type cable sealing end termination kit / straight through joints suitably to Terminal Isolator Pad/Power conductor (ACSR/AAAC) .

The price shall cover Termination of 132KV XLPE cable with outdoor heat shrinkable type cable sealing end termination kit / straight through joints suitably to Terminal Isolator Pad/Power conductor (ACSR/AAAC) as per DVC specification (Part II Chapter I) complete with all contractors material, labour, tools and plants , lead and lift as per DVC specifications and/or as directed by DVC/Employer's engineer.

Item No. 8 : Erection testing and commissioning of 120KV Lightning Arresters

The price shall cover outdoor type 120KV lightning arresters for each cable of both the circuits are to be provided at cable-conductor junction point along with all hardware and accessories, connectors etc complete with all contractors material, labour, tools and plants, lead and lift as per DVC specifications and/or as directed by DVC/Employer's engineer.

Item No. 9 : De-stringing of 6 (six) nos. power conductors (AAAC Panther)

The price shall cover de-stringing of 6(six) nos. power conductors (ACSR Lark/AAAC Panther) in existing double-circuit transmission line of DVC keeping other circuit in charged condition/shutdown condition at the same time including release of all insulators, hardware & accessories without any jerk and damage to the cross arm and if required, recoiling, transportation of all dismantled conductors & line materials to DVC/DFCC specified store all complete with all contractors material, labour, tools and plants, security lead and lift as per DVC specifications and/or as directed by DVC/Employer's engineer.

Item No. 10 : De-stringing of Earth wire

The price shall cover de-stringing of Earth wire in one circuit of existing double-circuit transmission line of DVC keeping other circuit in charged condition/shutdown condition at the same time including release of all insulators, hardware & accessories without any jerk and damage to the cross arm and if required, recoiling, transportation of all dismantled conductors & line materials to DVC/DFCC specified store all complete with all contractors material, labour, tools and plants, security, lead and lift as per DVC specifications and/or as directed by DVC/Employer's engineer.

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EXPLANATORY NOTES OF SCHEDULE OF PRICES
Schedule -'D '

Forest Clearance, PTCC and Compensatory Afforestation (CA) work

Item No. 1 : Service charges to get forest proposal cleared.

The price shall cover the service charges for obtaining the involved forest land within ROW cleared from the Forest Authority complete in all respect. All formalities including preparation of documents, drawings and pursue for the approval from civil authorities and other agencies/ Government as required shall be arranged by the contractor. Also the price shall cover for liaising, chasing, visit to Forest and other statutory authority and coordinating joint inspection with forest authority and DVC complete with all contractors material, labour, tools and plants, security, lead and lift as per directive from Forest authority and/or as directed by DVC/Employer's engineer.

Item No. 2 : Service charges to get PTCC proposal cleared.

The price shall cover the service charges for obtaining applicable PTCC and wireless clearance from the statutory authority complete in all respect. The contractor shall prepare all drawings including route map, obtain soil resistivity data as per requirement of PTCC and submit PTCC proposal to PTCC authority at appropriate time. The cost of compensation, if required for strengthening, protection of telecom lines from inductive interference from power lines will however be paid by DVC to appropriate authorities at actual.The price shall cover for liaising, chasing, visit to statutory authority and coordinating joint inspection with PTCC clearance authority and DVC with all contractors material, labour, tools and plants, security, lead and lift as per directives and/or as directed by DVC/Employer's engineer.

Item No. 3 : Survey, preparation of KML file, DGPS maps, Topo sheet for Compensatory Afforestation (CA) as required for forest clearance.

The price shall cover cost for scanning and digitizing of supplied hard copy of mouza maps, Geo referencing of digitized map using appropriate software & Ground control points 04 nos, survey and preparation of polygonal shape file of Compensatory Afforestation (CA) land for Simlong project shape file, Kml file etc, Printing 1 sheet/each 10 copy, detail survey report in soft and hard copy 02 nos, complete with all contractors material, labour, tools and plants, security, lead and lift as per directive from Forest authority and/or as directed by DVC/Employer's engineer.

Item No. 4 : Demarcation of boundary. Supply and erection of RCC M 20 (size 150X150X1800 mm) along ROW of forest land.

The price shall cover the supply and erection of pillars pre-cast RCC M20 size 150X150X1800 mm with " DVC" letter in RED paint and serial No. at site for boundary of diverted forest land within ROW. Survey work for demarcation on the ground by erecting pillars, embedded underground in 450X450X650 mm hole with M 15 plain cement concrete in each inscribed with its serial number, DGPS coordinated, forward and back bearing and distance from adjoining pillars, spaced at about 50 meters etc. with all contractors material, labour, tools and plants, security, lead and lift as per specifications and/or as directed by DVC/Employer's engineer.

Item No. 5 : Tree felling, Cutting, Trimming and Transplantation for ROW clearance.

The price shall cover for felling/cutting, Pruning/trimming, of trees and transplantation of trees falling within the corridor area/tower footing area as required for successful commissioning of transmission line. Felling of trees include cutting of trunks, removing of roots, disposal unserviceable material, stacking of serviceable timber and transportation of timber to the DFCC/Forest specified store, complete with all contractors material, labour, tools

and plants, security lead and lifts etc. The felling, trimming and transplantation is to be done as per the direction/guidelines of Ministry of Environment, Forest and Climate Change and/or as directed by DVC/Employer's engineer.

Note : (i) All material shall be as per DVC specification and procured from DVC's approved list of vendors and/or as decided by the Employer.

(ii) Warranty of material used during construction work and given by the manufactures is to be passed on DVC after commissioning of the infrastructure so constructed.

(iii) During diversion of work, every effort should be taken to keep one circuit in service in temporary mode to avoid total power failure in Koderma Receiving station in any occasion..

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PART – II

TECHNICAL SPECIFICATIONS

CHAPTER-I

GENERAL TECHNICAL REQUIREMENTS FOR 132 KV XLPE CABLE

SL	Technical Parameters	Values
1	Cable description	1C x 400 sq.mm (Cu), 132KV (E),XLPE
2	Construction and testing standard	IEC 60840
3	Rated voltage	132 KV (E)
4	Impulse withstand voltage (1.2/50 microsec wave)	650 KVp
5	Power frequency withstand voltage	190 KV for 30 minutes
6	Short circuit rating of conductor (min.)	40 KA for 1 sec.
7	Short circuit rating of metallic sheath and Cu. Screen combined (min)	40 KA for 1 sec.
8	Maximum dielectric stress at conductor screen	6.67 KV/mm
9	Conductor material	Copper conductor as per IEC 60288
10	Material grade	Annealed, electrolytic grade
11	Nominal cross sectional area	400 sq.mm
12	Number and dia of wires before stranding	59/3.09 mm
13	Flexibility class as per IEC 6022	Class 2
14	Shape of conductor	Compacted circular
15	Max. DC resistance of conductor at 20 deg C	0.047 ohms/km
16	Separator over conductor	Semi conducting tape
17	Screen Material & type for conductor	Extruded semi-conducting layer
18	Screen nominal thickness	1.5 mm
19	XLPE insulation nominal thickness & minimum thickness at any point	Nom: 18.0, Min: 16:2
20	Minimum insulation resistance at 90 degC conductor temperature	1.36 M ohms/km
21	Designed maximum dielectric strength	30 kv/mm
22	Approx dia over XLPE insulation	63.1 mm
23	Insulation screen material and type	Extruded semi-conducting layer
24	Thickness of insulation screen	1.2 mm

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25	Material of moisture over insulation screen	Semi-conducting water swellabletape
26	Nominal thickness of moisture barrier	0.3 mm
27	Concentric metallic screen material	Helically applied uncoated copperwires
28	Nominal dia of metallic screen wire	1.64 mm
29	Number of metallic screen wire	75 (approx)
30	Material and type of binder	Open helix of uncoated coppertape over copper wire screen followed by semi-conducting water swellable tape
31	Nominal thickness of binder	0.1 mm
32	Material of moisture barrier over copper screen	Semi-conducting water swellabletape
33	Thickness of water swellable tape	0.1 mm
34	Minimum radial thickness of metal sheath	2.9 mm
35	Composition of metal sheath	Lead alloy 'E' to BS 801
36	Maximum working stress of metal sheath	3.5 N/mm2
37	Nominal dia over metal sheath	76 mm
38	Protective outer sheath type and composition	Black HDPE type ST7 to IEC 60840with graphite coating
39	Nominal thickness and minimum thickness of outer sheath	Nominal : 3.6 mm, Minimum. 2.96mm
40	Overall dia of complete single core cable	83.5 mm (approx)
41	Material of drum	Steel
42	Documents to be submitted	1. Type test of offered cable 2. Guaranteed Technical Particulars 3. Short Circuit rating calculations 4. Cross section drawing 5. Recommended earthing connection 6. Drum drawing

TECHNICAL SPECIFICATION OF 132KV XLPE CABLE AND TERMINATION

1.0 SCOPE

The specification covers Design, Engineering, Construction, Supply & Delivery, Erection, Laying, Testing & Commissioning including Transportation & Insurance, Storage of XLPE Cable of different ratings and their associated works.

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2.0 STANDARD & CODES

The works covered by the specification shall be designed, engineered, manufactured, tested and commissioned in accordance with the Standards as specified in the table below.

Other internationally accepted standards which ensure equivalent or better performance than that specified in the standards referred shall also be accepted. Copies of such standards shall be submitted by the bidder along with the bid.

IS 7098 : Part 3 : 1993	Cross-linked polyethylene insulated thermoplastic sheathedcables: For working voltage from 66KV up to and including 220KV.
IS 8130 : 1984	Conductors for insulated electric cables and flexible cords
IS 5831 : 1984	PVC insulation and sheath of electric cable
IS 1255: 1983	Code of practice for installation and maintenance of power cables upto and including 33KV rating.
IS 3975 : 1999	Mild steel wires, formed wires and tapes for armouring of cables.
IS 5831 : 1984	PVC insulation and sheath of electric cables.
IS 6380 : 1984	Elastomeric insulation and sheath of electric cables.
IS 8130 : 1984	Conductors for insulated electric cables and flexible cords.
IS 10418 : 1982	Drums for electric cables
IS 3975:1999	Mild steel wires, formed wires and tapes for armouring of cables.
IS 5 : 1994	Colours for ready mixed paints and enamels.
IS 617:1994	Aluminum and aluminium alloy ingots and castings for general engineering purposes (Superseded IS 20 : 1977)
IS 3043:1987	Code of practice for earthing.
IS 5578 : 1984	Guide for marking of insulated conductors.
IS 11353 : 1985	Guide for Uniform System of Marking and Identification of Conductors and Apparatus Terminals.
IS 5216 : PART I : 1982	Recommendations on Safety Procedures and Practices in Electrical Work.

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IS 2071 : 1993	High voltage test techniques.
IEC -60540	Power cables with extruded insulation and their accessories and cords
EC 60060 : 1989	High Voltage Test Techniques.
IEC -60502	Extruded solid dielectric insulated power cables for rated voltages from 1KV up to 30KV
IEC -60754 :1991	Tests on gases evolved during combustion of electric cables
IEC-60183 :1990	Guide to the Selection of High Voltage Cables.
IEC 60230 : 1996	Impulse tests on cables and their accessories.
IEC-60840/IEC-62067	Testing
IEC-60287 : 1995	Calculation of the continuous current rating of cables (100% load factor).
IEC-60304:1982	Standard colours for insulation for low-frequency cable and wires
IEC-60331 : 1970	Fire resisting characteristics of Electric cables.
IEC-60332:1992	Tests on electric cables under fire conditions.
BS -5468	Cross-linked polyethylene insulation of electric cables
IEC-60228 : 1978	Conductors of insulated cables
IEC -60332 : 1993	Test on electric cables under fire conditions
IEC-60066	Environmental Test
IEC -60117	Graphical Symbols
IEC -60270 : 20000	Partial Discharge Measurements
CSA-Z299.1-1978h	Quality Assurance Program Requirements
CSA-Z299.2-1979h	Quality Control Program Requirements
CSA-Z299.3-1979H	Quality Verification Program Requirements
CSA-Z299.4-1979H	Inspection Program Requirements
ASTMD-2863	Measuring the minimum oxygen concentration to support candle like combustion of plastics (oxygen index)

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3.0 COMPLIANCE TO SPECIFICATION &DEVIATION:

Normally the offer should be as per Technical Specification without any deviation. But any deviation felt necessary to improve performance, efficiency and utility of equipment must be mentioned in the Deviation Schedule with reasons duly supported by documentary evidence. Such deviations suggested may or may not be accepted by the purchaser.

As a mark of technical conformance, all sheets of the specification shall be furnished by each bidder with the signature and company seal affixed thereon. In case of any deviations, the same shall be carried out in the deviation schedule only. Deviations not mentioned in Deviation schedule will not be considered.

The bidder shall also submit the GTP as per Annexure -1 duly signed with date &

company seal for acceptance of the Technical Bid unless which the bid may be considered as non responsive.

4.0 SYSTEM PARAMETERS

SL NO	TECHNICAL PARAMETERS	400KV SYSTEM	220 KV SYSTEM	132 KV SYSTEM	033 KV SYSTEM
1	Rated Maximum Voltage	420 KV (rms)	245 KV (rms)	145 KV (rms)	36 KV(rms)
2	Rated Frequency	50 Hz	50 Hz	50 Hz	50 Hz
3	Grounding	Effectively Earthed	Effectively Earthed	Effectively Earthed	Effectively Earthed
4	Rated Power Frequency Withstand Voltage (1 min)	610 KV (rms)	460 KV (rms)	275 KV (rms)	70 KV (ms)
5	Impulse withstand BIL (1.2/50/micro Sec) Line to earth	±1425 kVp	±1050 kVp	±650 kVp	±170kVp
6	Switching impulse voltage (250/2500 micro- sec)	±1050 kVp	×	×	×
7	Rated short time withstand current (1 sec)	40 kA(rms) for 1 sec	40 kA(rms) for 1 sec	31.5 kA (rms)for 1sec	20 kA (rms) for3sec

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8	Rated peak withstand current (1 sec)	100 KA (peak)	100 KA (peak)	80 KA (peak)	50 KA
9	Rated current	Normal (at 50 degree C design ambient temperature)	As per price schedule	As per price schedule	As per price schedule
10	Seismic level	Zone- IV, as per IS-1893 Year-2002	Zone- IV, as per IS-1893 Year-2002	Zone- IV, asper IS-1893 Year- 2002	Zone- IV, asper IS-1893 Year-2002

5.0 CONSTRUCTION

1. The cable shall be of applicable ENV grade as per requirement according to price schedule single core, unarmoured stranded compacted circular Copper conductor in case of cross section is less than or equals to 800 sq.mm or segmental compacted circular(Miliken) Copper conductor in case of cross section is over than 800 sq.mm, core screening by a layer of semiconducting tape followed by a layer of semiconducting compound, cross linked polyethylene (XLPE) dry cured insulation, insulation screening with semiconducting compound extruded directly over the insulation, longitudinal sealing by a layer of non woven tape with water swellable absorbent over insulation screen, followed by radial sealing of meta1 sheath of Lead alloy 'E' as per IS 7098 part-III & metallic screening by concentric layer of plain copper wire followed by an open helix of copper & overall PE sheathed & graphite coated and conforming to the technical particulars of specification.
Cables used earlier or repaired after damaged shall not be accepted.

2. The construction of cable shall generally conform to the description mentioned above. Bidder may offer necessary layers such as separation tape, binder tapes etc additionally as per their manufacturing practices for meeting required performance of the offered cable. The bidder shall enclose with the bid, drawing showing cross section of the cable.

3. The cable shall be suitable for laying underground with uncontrolled back fill and chances of flooding by water and suitably designed by the addition of chemicals in the outer sheath to be protected against rodent and termite attack.

4. The cables shall be designed to withstand all mechanical, electrical and thermal stresses under steady state and transient operating conditions.

5. Progressive sequential marking of the length of cable in meters at every one meter shall be provided on the outer sheath of the cable.

6. The cables shall have outer sheath of a material with an Oxygen Index of not less than 29 and a Temperature index of not less than 250°C.

7. Allowable tolerance on the overall diameter of the cables shall be plus or minus 2 mm

6.0 COMPOSITIONS OF CABLES

6.1 CONDUCTOR

The conductor shall consist of annealed copper stranded wires. The compacted circular conductor shall consist of segments wounded up and then compacted. For the cable sizes having cross section over than 800 sq. mm the segmental compacted circular conductor having four (4) segments should be constructed for the supply under the scope of bid. When the conductor's cross-section is less than 800 sq. mm, the compacted circular is applied generally.

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6.2 CONDUCTOR SCREEN

The conductor screen shall consist of extruded semi-conducting XLPE. Semi- conducting separator tapes may be applied between conductor and the extruded semi-conductor XLPE.

6.3 INSULATION

The insulation material shall be extruded cross-linked polyethylene. In order to ensure that the screen and insulation are intimately bonded together and free from all possibilities of voids between layers, the conductor screen, the insulation and the insulation screen should be extruded simultaneously in one process. The extrusion process should be carried out under strictly controlled atmospheric conditions.

The thickness of the insulation layer should be maintained as the maximum value figured out from the design of the impulse voltage and A.C. voltage. The cross-linking process by N2 gas should be preferred instead of conventional cross-linking process by saturated steam.

6.4 INSULATION SCREEN

The insulation screen shall consist of extruded semi-conducting XLPE. Suitable bedding tapes shall be applied over the extruded semi-conducting XLPE.

6.5 MOISTURE BARRIER

The longitudinal water barrier shall be applied over insulation screen by a layer of non woven synthetic tape with suitable water swellable absorbent.

6.6 METALLIC SCREEN:

The metallic screen shall be of metal sheath of Lead alloy 'E' as per IS 7098 part- III. The metallic screen shall be designed to meet the requirement of the system short circuit rating of 31.5 KA for 1 sec for 145 KV grade considering parallel path between lead sheath and copper screen.

6.7 OUTER SHEATH

The outer sheath shall consist of extruded black coloured PE having the grade as indicated below:

a) ST7 grade while inside substation or buried underground running along/across/aside the road etc., or passing over Bridge etc. for any considerable length. The outer sheath shall be designed for protection against termite and rodent attack and shall be coated with graphite.

7.0 RATING

The bidder shall declare current rating of cable for maximum conductor temperature of 90 degree C under continuous operation. A complete set of calculation made in arriving at the current rating shall be furnished for laying condition under present.

8.0 CABLE DRUMS

8.1 Cables shall be supplied in wooden or steel drums of heavy construction of suitable size and packed conforming to IS 10418 or applicable internationally accepted standards. Wooden drum shall be properly seasoned sound and free from defects. Wood preservative shall be applied to the entire drum. A layer of waterproof paper shall be applied to the surface of the drums and over the outer most cable layer. Minimum 800 meter (approx.) preferably inone drum to be supplied by firm to reduce no. of jointing.

8.2 Each drum shall carry the manufacturer's name, the purchaser's name, address and contract number and type, size and length of the cable, net and gross weight stencilled on both sides of drum. A tag containing the same information shall be attached to the leading end of the cable. An arrow and suitable accompanying wording shall be marked on one end of the reel indicating the direction in which it should be rolled.

8.3 Packing shall be sturdy and adequate to protect the cables, from any injury due to mishandling or other conditions encountered during transportation, handling and storage. Both cable ends shall be sealed with

hermetically sealed by means of water blocking compound followed by heat shrinkable caps totally coated inside with mastic so as to prevent to cable for moisture penetration during transit, storage and laying.

8.4 The bidder shall consider supply of cable on returnable drums basis. Contractor shall take back all the cable drums from site after successful laying, testing and commissioning of cables. The bidder may quote the prices accordingly.

8.5 Embossing of outer sheet: the following details on the other sheet of cable at a regular interval of 1(one) meter.

(a) Name of Customer i.e. DFCCIL

(b) Conductor size, type of insulation and voltage grade.

(c) Manufacturer's name.

9.0 TESTS

All routine and acceptance tests shall be conducted as per IEC 60840/IEC 62067.All type tests conducted during last five years from the date of NIT as per IEC 60840:1999/IEC 62067:2001 including its amendments on the XLPE insulated HT cable should be submitted. The diameter of test cylinder during bending test shall be as per IS: 7098 (Part 3) or the diameter of drum barrel to be used for dispatch of cables whichever is lower. For accessories type test reports should be submitted as per Clause 11.3.2 IEC 60840:1999/ Clause 12.4.2 IEC 62067:2001 & including amendments.

TESTS AFTER INSTALLATION

All tests as prescribed in IEC-60840:1999/IEC 62067:2001 shall be performed after installation of cable.

10.0 A) ROUTE SURVEY

The bidder shall fully familiarize himself with the site and route conditions etc. The bidders are advised to visit the site and acquaint themselves with the topography, infrastructure etc. The contractor shall be fully responsible for providing all equipment, materials, system and services specified or otherwise which are required to complete the erection and successful commissioning of cable in all respects. All materials required for the Civil and construction/installation work shall be supplied by the Contractor. The complete design and detailed engineering shall be done by the Contractor. The survey shall be conducted for underground routes to finalize the route and paths for the underground cable.

The survey shall inter alia include the following minimum activities:

B) (i) RIGHT OF WAY (ROW), PTCC, Forest & Other statutory clearance :

(a) The necessary charges from Govt authorities i.r.o forest land / forest clearance/ Govt vested land/Govt land clearance on entire ROW will be paid directly by the Employerto the concerned authorities. The compensation for land value will be paid by the employer to concern authority directly. However, all formalities including preparation of documents, drawings and pursue for the approval from civil authorities and other agencies/ Government as required shall be arranged by the contractor. Access road to the work site shall be arranged by the contractor at his own cost. Any compensation if needed for this purpose will be from the contractors account.

(b) Felling/cutting, Pruning/trimming of trees, transplantation of trees falling within the corridor area/tower footing area as required for successful commissioning of transmission lines. clearing, security and transportation of trees to designated stores for entire land including forest and Govt land on ROW shall be arranged by Contractor.

(c) For PTCC clearance, the contractor shall prepare all drawings including route map, obtain soil resistivity data as per requirement of PTCC and submit PTCC proposal to PTCC authority at appropriate time. The cost of compensation, if required for strengthening, protection of telecom lines from inductive interference from power lines will however be paid by DVC to appropriate authorities at actual.

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(d) Compensation for trees, crops (Except Govt & forest) if required to be paid to execute the erection of the line and for getting corridor clearance shall be paid by the contractor.

(e) Identification and demarcation of forest land plotting and preparation of necessary drawing / schedule is the responsible of the contractor. Supply and erection of pre caste RCC M20 pillars along boundary shall be done by contractor. Preparation of drawing and requisite document for submission of the proposal to the state Govt. authorities shall be done by contractor under sole responsibilities of the DVC.

(f) Statutory signature of DVC officers for PTCC, forest and other clearance shall have to be obtained by the contractor at appropriate time. Obtaining approval of the above proposal is the contractor's responsibility.

11.0 SOIL DATA

The bidder shall be responsible for carrying out the required survey and should fully satisfy himself about the nature of soil expected to be encountered prior to the submission of bid.

The unit rate quoted by the Bidder shall be irrespective of soil type such as normal soil, soft rock, hard rock and crossings such as pavements, all types of roads, rivers, canals, drains, culverts, rail track etc. encountered during the actual installation. The bidders are required to make their own estimates and offer a single uniform rate applicable for all kinds of soil strata and crossings. The Employer shall not entertain any additional claims. Payments for any type of soil/crossings encountered during installation. Employer strongly recommends site visits/investigation by the Bidders (at their own cost) before submission of the bid for proper estimations. The contractor shall be required to carry out excavation and back filling in accordance with this specification and provide all additional items required at its own cost for proper installation not limited to those described in this specifications.

Unit rate for construction of buried cable trench and Back filling shall interalia include all related work/activities such as excavation, blasting of rocks and backfilling of trenches, fixing of gradient of trench, excavation of trial pits if required, clearing of bushes, roots of trees along the trenches, cutting of bushes, trees, shoring, dewatering, excavation and backfilling of any temporary manhole, support of the existing facilities/plant, removal of let out materials, breaking of pavement, clearing of obstacles, temporary reinstatement of footpath wherever required, providing all types of markers, warning bricks and tapes etc., suitable structure/techniques material for crossings (road, rail culvert, river, canal etc.) for installation of HDPE pipe and other installation materials etc.

An unit rate of laying of cable will be considered in all type of trenches, trench less laying, through air, through hangers while negotiating existing overhead road bridges etc. No separate rate for specified type of lying of cable will be considered. The BOQ in the bid proposal sheets indicates the total route length to be implemented under subject package.

(a) Map Study: The Contractor shall arrange topographical maps and other maps of the concerned area in proper scale. All links shall then carefully be studied using maps. Various feasible alternative routes shall be identified on the maps and the Contractor shall shortlist most suitable route.

(b) Collection of details of other utilities: Contractor shall arrange information about existing underground facilities for the proposed rotes. To do so as built drawing or route index diagram for various services viz. water works, electric supply utilities, telecom services providers, public health, gas/oil authorities etc. may be collected from the concerned authorities. In case details are not available, the Contractor shall assess suitably by conducting enquiries and surveys.

(c) Identification of underground cable route: The Contractor shall propose most suitable route for link keeping in view the following broad criteria:

1) The route shall be as straight and as short as possible.
2) The route shall have minimum obstacle in order to minimize reinstatement cost.

3) Minimum clearances are required from other authorities/bodies and that the clearances can be obtained expeditiously.
4) Wet or unstable ground shall be avoided to the extent possible.
5) The route for the cables shall be away from the carriage-way of the road to the extent possible.
6) The route shall be suitable for placing manholes wherever required.
7) Future expansion of roads shall be taken into consideration.
8) Road, rail, canal, drain culvert crossing, and trenchless digging shall be minimum.
9) As far as possible underground cable route shall be on the opposite side of the existing cables laid by DOT/BSNL or other utilities. Wherever both routes fall on the same side of the road, a spacing of about 2.0 m. is to be maintained to the extent possible.
10) Care must be taken to avoid choosing routes, roads, areas that are prone to floods etc.

After finalizing the best alternative route, some trial pits shall be dug at suitably selected locations to assess the obstacles. It is necessary to locate the trial pits at proposed manhole locations. They shall be dug carefully keeping watch for the existing underground facilities. The presence of each type of facilities shall be recorded in the inspection note of the trial pit along with their sites sketch are kept in record for future reference. These details shall be enclosed along with the survey report.

(d) The Contractor shall submit the survey report with the most suitable route for cable link along with details above.Contractor shall submit the final survey report for approval before implementation. The final survey report shall include at least the following:-

1) A drawing of the proposed route indicating all details of the route including relevant details of soil strata, bridges, culverts, causeways, rail over under bridges, canal, defence area, underground gas/oil/water pipes line, power and communication cable routes, other important landmarks etc.
2) The distance of the cable route from the centre of the road/rail/canal/river/bridge/culvert etc. shall be indicated on the route maps as well as documented in table.
3) City/town/village/forest/defence etc. area coverage.
4) Sections of the links where Trenchless Digging may be required.
5) Location and number of permanent and temporary manholes.
6) Location of all turns, bends and major landmarks.
7) List of authorities from which clearance shall be required to be obtained from each relevant section.

The final survey report shall have to be approved by the Employer and requisite clearances need to be obtained before the cable installation work is commenced.

The contractor shall prepare and submit for approval by the Employer, specific construction drawings for all types of soil strata/crossings taking into consideration the guidelines given in this specification. The construction/implementation shall be carried out as per the approved drawings.

The construction drawings shall inter-alia include the longitudinal sectional diagram of the trench for different soil strata and detail arrangement of crossings, number of pipes, size of pipes, location and position of manholes, other details as per the Technical specification.

Any other items not specifically mentioned in the specification but which are required for installation, testing, commissioning and satisfactory operation of the cable as per Indian Standards/IE Rules/IE Act and concerned authority regulations are deemed to be included in the scope of the specification and no deviation in this regard shall be accepted.

The contractor shall also be responsible for the overall co-ordination with internal/external agencies, project management, manpower, loading unloading, handling, moving to final destination for successful erection, testing and Commissioning of the 132KV cable.

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12.0 TRENCHING

The cable trench work involves earth excavation for cable trench, back filling and removal of excess earth from site. The work site shall be left as clean as possible. The trench shall be excavated using manual/mechanical modes as per field conditions.

Where paved footpaths are encountered, the pavement slabs shall be properly stored and reinstated. Identification markers of other services shall be properly stored and restored.

The sides of the excavated trenches shall wherever required be well shored up.

Suitable barriers should be erected between the cable trench and pedestrian/motorway to prevent accidents. The barriers shall be painted with yellow and black or red and white coloured cross stripes. Warning and caution boards should be consciously displayed. Red lights as warning signal should be placed along the trench during the nights.

The excavated material shall be properly stored to avoid obstruction to public and traffic movement.

The bottom of the excavated trench should be levelled flat and from any object which would damage the cable. Any gradient encountered shall be gradual.

13.0 LAYING OUT

The excavated cable trench shall be drained of all water and the bed surface shall be smooth, uniform and fairly hard before paying out the cable. The cable shall be rolled in the trench on cable rollers, spaced out of uniform intervals. The paying out process must be smooth and steady without subjecting the cable to abnormal tension. The cable on being paid out shall be smoothly and evenly transferred to the ground after providing the cushion. The cables shall never be dropped. All snake bends shall be straightened. Suitable size cable stocking pulling eye shall be used for pulling the cable. While pulling the cable by winches or machines, the tension loading shall be by tension indicator and shall not exceed the permissible value for the cable. The cable laying shall be performed continuously at a speed not exceeding 600 to 1000 meters per hour.

The cable end seals shall be checked after laying and if found damaged shall immediately be resealed. Sufficient number of heat shrinkable cable end sealing caps shall be stocked at site stores for testing and jointing work. The integrity of the outer sheath shall be checked after the cable is laid in position.

14.0 LAYING OF CABLES

The installation, testing and commissioning work for laying of cable in the entire route within the substation, through the outside cable laying corridor as per designated approved route shall mainly consist of:

a) Route survey for the entire route length under the scope of work. This is also to finalize drum wise cable length with their tolerances.

b) Clearances from relevant authorities for lying of cables.

c) Formation of buried cable trenches for cables as per specification including supply and installation of warning tape, protective tiles/ bricklayer of minimum class designation 50 (50 kg./sq. cm.) cable protection covers for entire route, construction of jointing bays, backfilling of trenches and restoration as per specification.

d) Road, rail and canal crossings through HDPE pipe for each cable and restoration as per specification.

e) Cable markers as per statutory requirements shall be provided all along the route at a maximum distance of

500 meters and other important locations. Also the location of underground cable shall be clearly indicated on the marker.

f) Supply and installation of straight through joints for complete route.

g) Design supply and installation of suitable hangers and other necessary structures for running the cable at overhead road bridge.

h) Supply and installation of all critical installation materials like trefoil clamps, neoprene cushions, support brackets etc. as required for complete route to avoid damages of the cable. Neoprene cushion shall be provided at road and rail bridge crossing to avoid damage of cable due to vibrations during movement of trains and vehicles.

i) Termination of cables, bonding of screen/sheath to the earth station through disconnecting type link boxes and SVL (sheath voltage limiter) at cable conductor junction-point etc. Bidder shall adopt ends bending for route under scope as per STP or as per detailed Engineering. Earthing stations/Earthing pits, earthing materials and earthing conductors wherever applicable for complete route including outdoor equipment, structure, cable terminating structure and earth link box at the locations mentioned above shall be in contractors scope.

j) Design, fabrication, supply and erection of galvanized steel structures (including its civil foundation) for cable end terminations (with all necessary accessories) for cables at cable – conductor junction point. At cable- conductor junction point terminal connectors offered by bidder shall be suitable to terminate with ACSR conductors.

k) For termination at GIS substation end the cable should be laid up to GIS building. Necessary design of cable duct etc. in the GIS Sub-Station including all supply is within the scope of this contract.

l) Design, supply and installation of Las at cable-conductor junction point for both the circuits including its mounting structure and Las & Isolators at Sub-Station.

m) Termination, bonding, earthing etc. at GIS sub-station end is not within the scope of this work.

15.0 LAYING OVERPRE CONSTRUCTERD TRENCH

For lay of the cable on a pre-constructed trench below the road in any planned township area, Bridge, switch yards etc., cable shall have to be accommodated in the space allotted in the trench for laying the cables. Sufficient clamping arrangement shall have to be done for fixing the cable properly. Cables may be placed in trefoil arrangements or flat arrangements as per allotted width of the trench. Any damages occurred in the trench during lay of the cable shall have to be repaired properly.

16.0 CLAMPS

Clamps shall be pressure die cast aluminium (LM-6) or Nylon-6 or fibre glass and shall include neoprene rubber lining wherever the cable touches the clamps and below the clamp base and necessary fixing nonmagnetic nuts, bolts, washer etc. The thickness of neoprene rubber shall not be less than 10mm inside around the inner surface of the trefoil clamp and minimum 20mm thick below the base of trefoil clamp. The neoprene shall be tested as per IS III49-1984. Clamps shall be provided at every one meter of cable runs. The contractor shall submit drawings of trefoil clamps and arrangements for Employer approval.

17.0 CABLE HANDLING

The inspection of cable on receipt, handling of cables, paying out, flaking, cushioning with sand or sieved compacted soil, back-filling, reinstatement of road surface, providing and fixing joint markers, route indications, precautions of joint holes, sump holes and all necessary precautions that are required shall be carefully planned and in general conform to IS 1255 or its equivalent.

18.0 DAMAGE TO PROPERTY

The contractor shall take all precautions while excavation of trench, trial pits etc., to protect the public and private properties and to avoid accidental damage. Any damage so caused shall be immediately repaired and brought to thenotice of the concerned and to the Employer.

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The contractor shall bear all responsibilities and liabilities and shall bear all costs of the damages so caused by him or by his workman or agents.At places where the cables cross private roads, railways, gates of residential houses or buildings, the cables shall be laid in HDPE pipes of adequate strength.

19.0 CABLE ROUTE MARKERS/CABLE JOINT MARKERS

Permanent means of including the position of joints and cable route shall be fabricated supplied and erected as per drawings supplied by Employer.

Markers provided shall be as per the field requirement, if the route passes through open fields, markers should be conspicuously visible above ground surface.The marker should incorporate the relevant information, the name of the owner voltage, circuit and distance of cable from the marker.

20.0 DEPTH OF LAYING CABLES

Depth of lay shall be normally at 1.5m. below ground but variation of depth of lay to 1 meter may be considered at the time of detailed engineering on the characteristics of the laying zone.

21.0 SAND BEDDING

The cable shall be completely surrounded by well-compacted cable sand to such a thickness and of such size that the cable is protected against damage. The thickness of the cable sand should normally be a minimum of 10cm in all directions from the cable surface.

22.0 THERMAL BACKFILL

Based on the evaluation of soil thermal resistivity along the cable route and after approval from the Employer the contractor shall design, specify, supply, lay and monitor the installation of thermal backfill surrounding the cables.

23.0 IMMEDIATE ENVELOPE TO CABLE

The option on the use of the materials that immediately envelops the cable viz., thermal backfill or sand or sieved native soil rests with the Employer. The contractor shall seek prior approval on the use of the envelope material from the Employer before execution of the works.

24.0 BACK FILLING

Normally back filling shall consist of the materials earliest excavated. However, bigger stones or pieces of rock should be removed.

25.0 WARNING TAPE

A pre-warning, Red colour plastic/PVC tape, 250mm vide 100 microns thick, shall be laid at approx. 0.4 m above the cable specified depth, throughout the cable route. The tape shall carry the legend printed in black continuously as under CAUTION:

DFCCIL xxxxxxCABLES.

26.0 PREVENTION OF DAMAGE DUE TO SHARP EDGES

After the cables have been laid in the trench and until the cables are covered with protective covering, no sharp metal tool shall be used in the trench or placed in such a position that may fall into the trench.

Straight and curved rollers used shall have no sharp projecting parts liable to damage the cable.

While pulling through pipes and ducts, the cable shall be protected to avoid damage due to sharp edges. The cables shall never be bent, beyond the specified bending radius.

27.0 ROAD, RAIL & CANAL CROSSINGS

The road cutting, whether cement concrete asphalt or macadam road surface, raid crossing and canal crossing shall be taken after obtaining approval from the concerned authorities i.e. Railway authorities, irrigation dept., civic authorities traffic police, telephone authorities etc. and work should be planned to be

completed in the shortest possible time. Where necessary, the work shall be planned during night or light traffic periods. HDPE pipes shallbe used for cable. HDPE pipes diameter should not be less than 1.5 times the cable diameter.

28.0 TRENCHLESS DIGGING

It is envisaged that trench less digging shall be used for crossing National highways, Rail line and canal and this shall be in the scope of bidder. Trench less digging shall also be used where the concerned authorities do not permit opencut method and it is essentially required to carry out for installation of underground cables. The trench less digging methods shall generally conform to ITU-T 1.38. The various methods of trench less digging such as hand/manual auguring (up to 15m.) impact moulding (from 16m to about 40-50m.). HDD (above 40-50m shall be adopted based on the soil/site conditions and the requirement and exact method for trench less digging shall be finalized during detail engineering as per actual site/soil condition. The equipment used for HDD shall be capable of drilling at least 100m at one go. The contractor shall propose the exact methods and procedures for implementation of trench less digging at various crossings taking into consideration the following guidelines, for approval by the Employer.

a) Excavation and back filling of trial pits and verification of soil condition.
b) Excavation of entry and Exist pits.
c) Erection of drill machined. Drilling pilot hole
d) Placement and driving hand augur
e) Placement and carrying out impact rolling.
f) Reaming and widening of bore hole in steps (if required).
g) Pulling of product pipe.

28.0 FOOTPATH CUTTING

The slabs, curb stones, on the roads shall be removed and reinstated without damage.

29.0 REINSTATEMENT

After the cables and pipes have been laid and before the trench is back filled all joints and cable positions should be carefully plotted and preserved till such time the cable is energized and taken over by the Employer. The protective covers shall then be provided the excavated soil riddled, sieved and replaced. It is advisable to leave a crown of earth not less than 50mm and not more than 100mm in the center and tapering towards the sides of the trench.

The temporary reinstatement of roadways should be inspected at regular intervals more frequently in rainy season and immediately after overnight rain for checking settlement and if required if temporary reinstatement should be done.

After the subsidence has ceased the trench may be permanently reinstated and the surface restored to the best possible condition.

30.0 MANHOLES

Manholes shall be provided at every proposed joint location for jointing bays. The bidder shall identity the location of the joint bays after carrying out detailed survey of the cable route and excavation of the trial pits. The delivery lengths of the cables shall match the location.

The contractor shall get inspected by a representative of the Employer, all manholes before carrying out the backing. Pipe and cable sealing, installation of joint bus and cable service loops as per approve drawings shall be visually inspected and checked for tightness.

The contractor shall submit design and drawing of Jointing bay including manholes in the buried cable trench portion for withstanding a live load of 20 tons vehicle plus 30% for impact from moving vehicle. The contractor shall

propose a suitable procedure for testing the manhole for approval by the Employer. Manholes type approved by theEmployer only shall be acceptable. The manhole shall include sufficient number of suitable entries.

All works shall be carried out under supervision of the engineer in charge of his representative.

31.0 TOOLS AND PLANTS

The successful bidder shall have all necessary tools, plant and equipment to carry out the survey and cable installation work.

The bidders are instructed to give all the details of equipment at their disposal to carry out the work successfully andspeedily

32.0 BENDING RADIUS:

The minimum bending radius of XLE insulated cables are as follows:

33.0 CABLE END TERMIATIONS & JOINTING

The minimum bending radius of XLPE insulated cables are as follows:

Cable	Bending radius
Single Core	25xD
"D" means the overall diameter of the completed cable.	

33.1 The cable jointing accessories shall include Outdoor & Indoor the end terminating kits as per price schedule, straight through joints and als0 any special tools and tackles required for making these joints.

33.2 The straight through joint

It shall be either pre-moulded type or heat shrinkable type complete with accessories he joint shall preferably be built up from the same material as the main and shall have electric and mechanical withstand capabilities same as or better than the main cable. The joints shall be suitable for tropical climatic conditions.

33.3 The outdoor end termination

a) It shall be anti-fog, pre-fabricated type based on the EPR-based stress relief cone with an Epoxy Housing or pre- moulded type silicon based stress relief cone. He termination base plate and the cable's metallic sheath shall be electrically insulated from the supporting structure by means of self-supporting stand- off insulators or any other self-supporting' means designed to withstand both mechanical and elect cal stresses in services.

b) For OD Termination at substation, the termination shall be oil filled type within polymeric or porcelain hollow insulator in brown or grey colour as per standard practice of manufacturing in addition upon, arcing horn and shield ring shall have to be supplied.

c) For OD Termination at composite Tower the termination shall be polymer housed in addition upon, arcing horn and shield ring shall have to be supplied. The termination may be dry type polymer housed without mechanical/coldshrink installation technology.

d) The outdoor termination for 400kV shall be based on the EPR-based stress relief cone with the epoxy housing andthe oil-impregnated cylindrical capacitor cone condenser cone type to secure the uniform longitudinal voltage distribution along the termination.

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e) The outdoor terminal should be suitable for heavily polluted atmospheric conditions with total creepage distance of 31 mm/ kv and protected creepage distance of not more than 50% of the total Creepage distance. The cable end terminal terminating the cables shall be fully compatible with the cable to be supplied.

33.4 The Indoor Termination at GlS SF6 Housing

It shall be based on the EPR (Ethylene-Propylene Rubber) –based stress relief cone with the epoxy resin housing, dry type without insulating oil. There Shall be mechanical devices to maintain the interface pressure. Stress relief cone and mechanical shall be devices shall be designed to fit with controlled interference over the cable insulation and shall follow the cable's diameter variations still guaranteeing under any service condition a sufficient positive pressure to control the electric field concentration. There shall be epoxy insulating plate to isolate between cable sheath and GIS chamber. The SVLs (Sheath Voltage Limiter) shall installed to protect epoxy insulting plate from switching impulse. Plug-in type leading conductors shall be supplied though at the time of detailed engineering confirmation shall be given or selector of normal type, blind type or plug-in type. Design and scope of delivery shall be fully complying with IEC-60859, IEC-62271-209 and possibly adjusted to various needs of project. The main insulation components and shall be fully examined and tested in the factory.

The bidder shall furnish the detailed description on jointing Procedures during detailed engineering.

33.5 The cable jointing accessories shall include Outdoor & Indoor the end terminating kits as per price schedule, straight through joints and also any special tools and tackles required for making these joints.

33.6 The straight through joints

It shall be either pre-moulded type or heat shrinkable type complete with accessories The joint shall preferably be built up from the same materials the main cable and shall have electrical and mechanical withstand capabilities same as or better than the main cable. The joints shall be Suitable for tropical climatic conditions.

33.7 PERFORMANCE OF TERMINATION KITS

The details the offered end termination/ straight through joints with the period in service shall have to be furnished.

33.8 WOREING PROCEDURE FOR TERMINATION

(i) At cable terminating end Sufficient length of spare cable shall be left in the ground and at cable tray also at GIS, for future needs.

(ii) The rise of the cable immediately from the ground shall be enclosed in PVC/PE pipe o suitable diameter to protectagainst direct exposure to the sun.

(iii) The cable shall be properly fastened using non-metallic clamps.

(iv) Appropriate labels shall be fixed identifying the phase circuit, voltage and date of commissioning etc., on the cable supporting structure.

(v) The sealing end shall be mounted on pedestal insulators to isolate them from their supporting steel work.

(vi) Protection from contact with the exposed metal work at the termination shall be provided by resin bonded glassfibre shroud

(vii) Providing earth stations with all required materials, like leads, connectors etc. Earth pits shall conform to IS- 3043:1987 (Code of practice for earthling).

33.9WORKING PROCEDURE FOR JOINTING

i. The cable jointing personnel and his crew shall have good experience in the type of jointing and terminations that are used. The jointing works shall commence as soon as two or three lengths of cable

have been laid. All care should be taken to protect the factory-plumbed caps/seals on the cable ends and the cable end shall be sealed whenever the end is exposed for tests.

ii. Jointing of cables in carriage ways, drive ways under costly paving, under concrete or asphalt surfaces and in proximity to telephone cables and was mains should be avoided wherever possible.

iii. Sufficient over lap of cables shall be allowed for making the joints.

iv. The joint bay should be sufficient dimensions to allow the jointers to work with as much freedom of movement and comfort as possible. Sufficient space should be kept below the cableto be jointed.

v. The joints of different phases shall be staggered in the jointing bay.

vi. Comprehensive jointing instructions should be obtained from the manufacture ofjointing kits and meticulously followed.

vii. The materials used in the joints like ferrules, screen/sheath continuity bonds, lugs etc. shall beof good quality and conform to standards.

viii. The jointing tools shall be appropriate and as per the requirement of jointing HV XLPE cables.

(ix) SUMPHOLES When jointing cables in water logged ground or under unforeseen rainy conditions, a sump hole should be made at one end of the joint bay, in such a position so that the accumulated water can be pumped or drained out by buckets, without causing interference to the jointing operation.

(x) TENTS/COVERS

An enclosure or suitable protection cover shall be used in all circumstances wherever jointing work is carried out in the open irrespective of the weather conditions. The joint shall be made in dust free, moisture free and clean atmosphere.

(xi) PRECAUTIONS BEFORE MAKING A JOINT

The cable end seals should not be opened until all necessary precautions have been taken to prevent circumstances arising out of rainy/inclement weather conditions which might become uncontrollable.

If the cable end seals of cable ends are found to have suffered damage the cables should not be jointed, without tests and rectification.

(xii) MEASUREMENT OF INSULATION RESISTANCE

Before joining, the insulation resistance of both sections of cables shall be checked.

(xiii) The identification of each phase shall be clearly and properly noted. The cables shall be jointed as perthe approved design. Each cable shall have identification for phase at joint bays.

34 BONDING OF SCREEN/SHEATH

The screens at both ends, shall be brought out and bonded to the earth station through disconnecting type link boxes or through SVL wherever applicable.

On the basis of the length of the cable and rise of sheath Voltage the bonding may be required as follows:

1. Single End Bonding
2. Double End Bonding
3. Cross Bonding

All accessories and consumables used in the termination should be of good quality and compatible with the cable. At the time of single end bonding parallel copper conductor along the length of the cable shall have to be provided between the two ends of the cable. Bonding cable of 6.6 KV copper shall be provided for bonding of metallic sheath/screen.

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35 CONNECTIONS OF RADIAL WATER BARRIER AND CABLE SCREEN

If the metallic radial water barrier is insulated from the metallic wire screen a connection suitable to carry the currents occurring during operation must be installed between metallic radial water barrier of the cable and metallic wire screen in joints and sealing ends.

36 ENGINEERING DATA AND DRAWINGS

The Bidder shall necessarily submit all the drawings/documents unless anything is waived. The Bidder shall submit 4(four) sets of drawings/design documents/data/test reports as may be required for the approval of the Employer.

All drawings submitted by the Bidder including those submitted at the time of bid shall be in sufficient detail to indicate the type, size, arrangement, material description, Bill of Materials, weight of each component, break-up for packing and shipment, dimensions, internal and the external connections, fixing arrangement required and any other information specifically requested in the specifications.

All engineering data submitted by the Bidder after final process including review and approval by the Employer shall form part of the Contract Document and the entire works performed under these specifications shall be performed in strict conformity, unless otherwise expressly requested by the Employer in Writing.

37 INSTRUCTION MANUAL

(i) The instruction Manuals shall contain full details of drawings of all equipment being supplied under this contract, their exploded diagrams with complete instructions for storage, handling, erection, commissioning, testing, operation, trouble shooting, servicing and overhauling procedures.
(ii) If after the commissioning and initial operation, the instruction manuals require any modifications/additions/changes, the same shall be incorporated by the bidder in the final submission.
(iii) The Bidder shall furnish to the Employer catalogues of spare parts.

38 (a) QUALITY ASSURANCE PROGRAMME

To ensure that the equipment and services under the scope of this Contract whether manufactured or performed within the Bidder's Works or at his sub-bidder's premises or at the Employer's site or at any other place of work are in accordance with the specifications, the Bidder shall adopt suitable quality assurance programme to control such activities at all points necessary. Such programme shall be outlined by the Bidder and shall be finally accepted by the Employer after discussions before the award of Contract.

38 (b) Quality Assurance Documents

The Bidder shall be required to submit the following Quality Assurance Documents within three weeksbefore laying/erection of the equipment.

(i) All No-Destructive Examination procedures, stress relief and weld repair procedure actuallyused during fabrication and reports including radiography interpretation reports.
(ii) Welder and welding operator qualification certificates.
(iii) Welder's identification list, listing welders and welding operator's qualification procedureand welding identification symbols.
(iv) Raw material test reports on components as specified by the specification and/or agreed toin the quality plan.
(v) Stress relief time temperature charts/oil impregnation time temperature charts.
(vi) Factory test results for testing required as per applicable codes/mutually agreed qualityplan/standards referred in the technical specification.
(vii) The quality plan with verification of various customer inspection points (CIP) as mutually agreed and methods used to verify the inspection and testing points in the quality plan were performed satisfactorily.

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39. *ADITIONAL EQUIPMENTS & STRUCTURES FOR CABLE TERMINATION*

39.1 The termination structure being provided should be designed as per the requirement of the cable end sealing, porcelain bushing etc. The mounting structure shall be fixed on the cement concrete foundation, the design and drawings of which shall be submitted to Employer for review and acceptance during the course of detailed engineering.

39.2 After fixing the end termination, the cable shall be fixed to the support, with non-magnetic material clamps to the required height security. The mounting structure includes the supports for cable end boxes, link boxes and any other structure required for the intent of the contract. All steel sections used shall be free from all imperfections, mill scales, slag intrusions, laminations, fillings, rust etc. that may impair their strength, durability and appearance. All materials shall be of tested quality only unless otherwise permitted by the Employer.

39.3 Suitable fencing should be provided at the cable terminating yard at cable conductor junction point. The fencing will consist of galvanized steel XPM structure over a brick wall of 2(two) feet meeting electrical requirement (IE). A suitable entry point (gate has to be provided.

39.4 Outdoor type 120KV lightning arresters for each cable of both the circuits are to be provided at cable-conductor junction point. The technical specification of lightning arresters is given separately in this volume.

39.5 It is recognized that the Bidder may have standardized on the use of certain components, materials, processes or procedures different from those specified herein. Alternate proposals offering similar equipment based on the manufacturer's standard practice will also be considered provided such proposals meet the specified designs, standard and performance requirements and are acceptable to the Employer. Unless brought out clearly, the Bidder shall be deemed to conform to this specification scrupulously. All deviations from the specification shall be clearly brought out in the respective schedule of deviations. Any discrepancy between the specification and the catalogues or the bid, if not clearly brought out in the specific requisite schedule will not be considered as valid deviation.

39.6 Equipment furnished shall be complete in every respect with all mountings, fittings, fixtures and standard accessories normally provided with such equipment and/or needed for election, completion and safe operation of the equipment as required by applicable codes though they may not have been specifically detailed in the Technical Specifications unless included in the list of exclusions. Materials and components not specifically stated in the specification but which are necessary for commissioning and satisfactory operation of the work unless specifically excluded shall be deemed to be included in the scope of the specification and shall be supplied without any extra cost. All similar standard components/parts of similar standard equipment provided shall be inter-changeable with one another.

39.7 *STEEL STRUCTURES (GANTRY, EQUPMENTS ETC.):*

A) The contractor shall assume full responsibility for supply, fabrication and detailing, if required of the steel structures and for their satisfactory performance. All detail drawing for the structures shall be supplied to the successful bidder by the Employer/Engineer. However, the contractor shall have to submit the construction drawings to the Engineer/Employer solely prepared on the basis of these supplied drawings. Equipment Structure drawings, supplied by the employer, shall have to be modified to suit to the approved GA drawings of the equipment and electrical layout drg. and to be submitted to Engineer for approval. Employer /Engineer shall have the right to instruct the contractor to make any changes in details necessary to make the construction conform to the requirement of the Contract Document.

B) The contractor shall supply all materials, deliver the same to site, and provide all labour, erection plant and equipment, fixtures, fitting and all temporary and permanent works necessary for satisfactory completion of the job in all respects.

C) No omissions or ambiguities on the drawings or in specifications will relieve the contractor from furnishing best quality of materials and workmanship. Should any inaccuracies be found, the contractor shall promptly notify the Employer/Engineer without carrying out the job and no further work shall be done

before these discrepancies are corrected. Continuation of further work shall be done only after such discrepancies are rectified at contractor's risk and responsibility.

D) MATERIALS: The materials shall conform to the following requirements:

D.1. All Structural Steel Materials to be used in construction within the purview of the Specification shall comply with: IS: 2062 – Structural Steel (Grade-A) (fusion welding quality) and manufactured by Prime Rollers e.g. SAIL/TISCO/IISCO/RINL. In case of MS sections not Manufactured by prime rollers or such sections are not available with prime rollers the same is to be procured from approved conversion agents of prime manufacturer(s). In such case, Prior approval of the Engineer is to be obtained by the contractor.

D.2 Successful bidder on receipt of structural drawing from department shall submit within 15 days, a detailed raw material procurement plan indicating MS section wise producers name to the Engineer for approval. On according approval in this aspect, work for fabrication protos shall be taken up in hands.

D.3 Entire fabrication job of MS structural shall not be entrusted to more than two sub-vendors. Further, a list of bonafide fabricators, not exceeding 6(six) shall be furnished to the Engineer for according approval within 15(fifteen) days from the date of handing over of drawings.

D.4 All electrodes to be used under the contract shall comply with any of the following India Standard Specifications as may be applicable.

i) IS:814 : Covered electrodes for metal arc welding of Structural Steel.

ii) IS:815 : Classification and coding of covered electrodes for metal are welding ofmild steel and low alloy high tensile steel.

iii) IS:144 : Covered electrodes for the metal arc welding of high tensile structural steel.

D.5 All bolts and nuts shall be of grade 5.6 HRH and shall conform to the requirements of IS:6639 and IS:1367 and galvanizing quality shall be as per IS:1367. All bolts and nuts shall be of minimum diameter of 16 mm unless otherwise state. All mild steel for bolts and nuts when tested in accordance with the following Indian Standard specification shall have a tensile strength of not less than 44 Kg/Sq.mm. and a minimum elongation of 23 percent on a gauge length of 5.6 A, where 'A' is the cross sectional area of the test specimen –

i) IS:1367 : Technical supply conditions for threaded fasteners.

ii) IS:1608 : Method for tensile testing of steel products other than sheet, strip, wire and tube.

Washers shall be made of steel confirming to IS:226, IS:961 as may be applicable under the provisionsof the contract and shall be electro galvanized.

40. *FASTNERS & CONNECTIONS:*

a. BOLTS: All connections shall be bolted with 16 mm bolts.

b. SPLICES: Splicing shall be avoided unless the length of a member exceeds 6.0m or so. The member of splices shall limited to a practical minimum. No credit shall be allowed for bearing on abutting areas. Lap joints in leg members shall be preferred to butt joints.

c. STEP BOLTS: Step bolts shall be of 16 mm diameter and shall have round or hexagonal head. Each step bolt shall be provided with two hexagonal nuts. The minimum bolt length and length of unthreaded portion shall be 180 and 125 mm respectively. Step bolts shall not be used as connection bolts. The step bolts shall be spaced alternately on the inner gauge line on each face of the angle about 40 cm centers. They shall be furnished for one leg of each steel structure column from its base elevation.

d. U-BOLTS: U-Bolts shall be suitable furnished or steel structures to suspend or terminate insulator strings or ground wire assemblies. Size of U- bolt shall withstand all loads acting on it.

e. BILL OF MATERIAL: Bill of material shall give the size, length and weight of each member and the totalweights of steel structures. It shall also include the number of bolts, nuts and washers per structure.

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41. *MATERIALS/ WORKMANSHIP*

1. Where the specification does not contain references to workmanship, equipment, materials and components of the covered equipment, it is essential that the same must be new of highest grade of the best quality of their kind conforming to best engineering practice and suitable for the purpose for which they are intended.

2. In case where the equipment, materials or components are indicated in the specification as "similar" to any special standard, the Employer shall decide upon the question of similarity. When required by the specification or when required by the Employer the Bidder shall submit, for approval, all the information concerning the materials or components to be used in manufacture, Machinery, equipment, materials and components supplied, installed or used without such approval shall run the risk of subsequent rejection, it being understood that the cost as well as the time delay associated with the rejection shall be borne by the Bidder.

3. The design of the Works shall be such that installation, future expansions, replacements and general maintenance may be undertaken with a minimum of time and expenses. Each component shall be designed to be consistent with its duty and suitable factors of safety, subject to mutual agreements.All joints and fastenings shall be devised, constructed and documented so that the component parts shall be accurately positioned and restrained to fulfil their required function. In general, screw threadsshall be standard metric threads. The use of other threads forms will only be permitted when prior approval has been obtained from the Employer.

4. Whenever possible, all similar part of the Works shall be made to gauge and shall also be made interchangeable with similar parts. All spare parts shall also be interchangeable and shall be made of the same materials and workmanship as the corresponding parts of the Equipment supplied under the Specification. Where feasible, common component units shall be employed in different pieces of equipment in order to minimize spare parts stocking requirements. All equipment of the same type and rating shall be physically and electrically interchangeable.

5. All materials and equipment shall be installed in strict accordance with the manufacturer's recommendation(s). Only first-class work in accordance with the best modern practices will be accepted. Installation shall be considered as being the erection of equipment at its permanent location. This, unless otherwise specified, shall include unpacking, cleaning and lifting into position, grouting, leveling, aligning, coupling of or bolting down to previously installed equipment bases/foundations, performing the alignment check and final adjustment prior to initial operation, testing and commissioning in accordance with the manufacturer's tolerances, instructions and the Specification.

6. Provision for Exposure to Hot and Humid climate: Outdoor equipment supplied under the specification shall be suitable for service and storage under tropical conditions of high temperature, high humidity , heavy rainfall and environment favorable to the growth of fungi and mildew.

42. *PACKAGING & PROTECTION*

a. All the equipment shall be suitable protected, coated, covered or boxed and crated to prevent damaged, deterioration during transit, handling and storage at Site till the time of erection. On request of the Employer, the Bidder shall also submit packing details/associated drawing for any equipment/material at a later date, in case the need arises. While packing al the materials, the limitation from the point of viewof availability of Railway wagon sizes in India should be taken into account. The Bidder shall be responsible for any loss or damage during transportation, handling and storage due to improper packing. Any demurrage, wharfage and other such charges claimed by the transporters, railway etc. shall be to the account of the Bidder. Employer takes no responsibility of the availability of the wagons.

b. All coated surfaces shall be protected against abrasion, impact, discoloration and any other damages. All exposed threaded portions shall be suitably protected with either a metallic or a non-metallicprotecting

device. All ends of all valves and piping and conduit equipment connections shall be properly sealed with suitable devices to protect them from damaged. The parts which are likely to get rusted, due to exposure to weather should also be properly treated and protected in suitable manner.

43. FINISHING OF METAL SURFACES

All metal surfaces shall be subjected to treatment for anti-corrosion protection. All ferrous surfacesfor external use unless otherwise stated elsewhere in the specification or specifically agreed shall be hot-dip galvanized after fabrication. High tensile steel nuts and bolts and spring washers shall be electro galvanized to service condition. All steel conductors including those used forearthing/grounding (above ground level) shall also be galvanized according to IS: 2629.

43.1 HOT DIP GALVANISHING

The minimum weight of the zinc coating shall be 610 gm/sq.m and minimum thickness of coating shall be 85 microns for all items thicker than 6 mm. For items lower than 6 mm thickness requirement of coating thickness shall be as per relevant ASTM. For surface, which shall be embedded in concrete the zinc coating shall be 610 gm/sp m minimum.

The galvanized surfaces shall consist of a continuous and uniform thick coating of zinc firmly adhering to the surface of steel. The finished surface shall be clean and smooth and shall be free from defects like discoloured patches bare spots unevenness of coating, spelter which is loosely attached to the steel globules, spiky deposits, blistered surface, flaking or peeling off etc. The presence of any these defects noticed on visual or microscopic inspection shall render the material liable to rejection.

After galvanizing no drilling or welding shall be performed on the galvanize parts of the equipment excepting that ruts may be threaded after galvanizing. Sodium dichromate treatment shall be provided to avoid formation of white rust after hot dip galvanization.

The galvanized steel shall be subjected to six one minute dips in copper sulphate solution as per IS-2633.

Sharp edges with radii less than 2.5 mm shall be able to withstand four immersion of the Standard Preece test. All other coatings shall withstand six immersions. The following galvanizing tests should essentially be performed as per relevant Indian Standard.

- Coating thickness
- Uniformity of zinc
- Adhesion test
- Mass of zinc coating

Galvanized material must be transported properly to ensure that galvanized surfaces are not damaged during transit. Application of zinc rich paint at site shall not be allowed.

43.2 PAINTING

All sheet steel work shall be degreased, pickled, phosphate in accordance with the IS-16005 “Code of practice or phosphating iron and sheet”. All surfaces which will not be easily accessible after shop assembly shall beforehand be treated and protected for the life of the equipment.

The surfaces, which are to be finished painted after installation or require corrosion protection until installation shall be shop painted with at least two coats of primer Oil, grease, dirt an swaf shall be thoroughly removed by emulsion cleaning. Rust and scale shall be removed by pickling with dilute acid followed by washing with running water, rinsing with slightly alkaline hot water and drying.

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After phosphating, through rinsing shall be carried out with clean water followed by final rinsing with dilute dichromate solution and oven drying. The phosphate coating shall be sealed with application of two coats of ready mixed, shoving type zinc chromate primer. The first coat may be "flash dried" while the second coat shall be stoved.

After application of the primer, two coats of finishing synthetic enamel paint shall be applied each coat followed by stoving. The second finishing coat shall be applied after inspection of first coat of painting.

The exterior colour of the paint shall be as per shade no : 697 of IS-5 and inside shall be glossy white for all equipment, marshalling boxes, junction boxes, control cabinets, panels etc. unless specifically mentioned under respective sections of the equipment. Each coat of primer and finishing paint shall be slightly different shade to enable inspection of the painting. A small quantity of finishing paint shall be supplied forminor touching up required at site after installation of the equipment. In case the Bidder proposes of follow his own standard surface finish and protection procedures or any other established painting procedures like electrostatic painting etc. the procedure shall be submitted along with the Bids of Employer's review and approval.

44. HANDLING, STORING AND INSTALLATION

a. In accordance with the specific installation instructions as shown on manufacturer's drawings or as directed by the Employer or his representative, the Bidder shall unload, store, erect, install, wire, test and place into commercial use all the equipment included in the contract. Equipment shall be installed in a neat, workmanlike manner so that it is level, plumb, square and properly aligned and oriented. Commercial use of switchyard equipment means completion of all site tests specified and energisation at rated voltage.

b. Bidder may engage manufacturer's Engineers to supervise the unloading, transportation to site, storing, testing and commissioning of the various equipment being procured by them separately. Bidder shall unload, transport, store, erect, test and commission the equipment as per instructions of the manufacturer's supervisory Engineer(s) and shall extend full cooperation to them.

c. In case of any doubt/misunderstanding as to the correct interpretation of manufacturer's drawings or instruction, necessary clarifications shall be obtained from the Employer. Bidder shall be held responsible for any damage to the equipment consequent to not following manufacturer's drawings/instructions correctly.

d. Where material/equipment is unloaded by Employer before the Bidder arrives at site or even when he is at site. Employer by right can hand over the same to Bidder and `there upon it will be the responsibility of Bidder to store the material in an orderly and proper manner.

e. The Bidder shall be responsible for making suitable indoor storage facilities to store all equipment which require indoor storage.

f. The words 'erection' and 'installation' used in the specification are synonymous.

g. Exposed live parts shall be placed high enough above ground to meet the requirements of electricaland other statutory safety codes.

h. The design and workmanship shall be in accordance with the best engineering practices to ensure satisfactory performance throughout the service life. If at any stage during the execution of the Contract, it is observed that the erected equipment(s) do not meet the above minimum clearances as given in clause4.7.1 the Bidder shall immediately proceed to correct the discrepancy at his risks and 132KV Suspension and Tension Insulator Hardware Fittings with insulators: will be as per standard technical specification of DVC.

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45. QUALITY CONTROL

The contractor shall establish and maintain quality control procedures for different items of work and materials to ensure that all work is performed in according with the specifications and best modern practice.

In addition to the Contractor's quality control procedures, material and workmanship at all times shall be subjected to inspection by the Engineer. As far as possible all inspection by the Engineer or Engineer's representative shall be made at the Contractor's fabrication shop whether located at site or elsewhere. The contractor shall cooperate with the Engineer in permitting access for inspection to all places where work is being done an in providing free of cost of all necessary help in respect of tools and plants, instrument, labour and material required to carry out the provisions of this specification may be rejected at any time during the progress of the work.

The quality control procedure shall cover but not be limited to the following items of work:

i. Steel: Quality, manufacturer's test certificates, test reports including procurement in-voice of representative samples of materials from unidentified stocks if permitted to be used.
ii. Bolt, nuts & Washers: Manufacturer's certificate, dimension check, material testing
iii. Electrodes: Manufacturer's certificate, thickness and quality of flux coating
iv. Welds: Inspection, X-ray, ultrasonic test, magnetic particle tests as required
v. Paints: Manufacturer's certificate, physical inspection reports.
vi. Galvanizing : Tests in accordance with IS:2633 – Method of testing uniformity of coating on zinc coated articles and IS: 2629 Recommended practice for hot-dip galvanizing of iron and steel. Raw zinc & samples collected from bath shall be tested at third party laboratory as per direction of the Engineer.

The contractor shall submit a detailed material inspection plan on the basis of various IS codes & standard practices in respect of structural fabrication, galvanization, bolts, nuts, anchor bolts etc. much prior to commencement of the job.

46. FABRICATION WORKMANSHIP:

All workmanship shall be equal to the best practice in modern structural shop and shall conform to the provisions of IS:800 / IS:802.

Rolled materials before laid off or worked, must be clean free from sharp kinks, bends, or twists and straight within the tolerances allowed by IS: 1852. If straightening is necessary it may be done by mechanical means or by the application of a limited amount of localised heat not exceeding 600 ?C . Cutting shall be effected by shearing, cropping or sawing. Us of mechanically controlled Gas Cutting Torch may be permitted for mild steel provided special care is taken to leave sufficient metal to be removed by machining, so that all metal that has been hardened by flame is removed. To determine the effective size of members cut by gas, 3mm shall be deducted from each cut edge.

The erection clearance for cleated ends of members connecting steel to steel shall preferably be not greater than 2mm at each end. The erection clearance at ends of beams without cleats shall not be more than 3 mm at each end, but where for practical reasons greater clearance is necessary, suitably designed clearance shall be provided.

All members shall consist of rolled steel sections.

Holes for bolts shall not be more than 1.5 mm larger than the diameter of the bolt passing through them unless otherwise stated.

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All members shall be cut to jig and all holes shall be punched and drilled to jig. All parts shall be carefully cut and holes accurately located after the members are assembled and tightly clamped or bolted together.

Drifting or rimming of holes shall not be allowed. Holes for bolts shall not be formed by gas cutting process.

Punching of holes will not be permitted for M.S. members upto 8 mm thick and in no case shall a hole be punched where the thickness of the material exceed the diameter of the punched hole.

Minimum bolt spacing and distances from edges of members shall in accordance with the provisions in the relevant Indian Standard Specification.

Built members shall, when finished, be true and free from all kinds of twists and open joints and the materialshall not be defective or strained in anyway.

All bolts shall be galvanized including the threaded portion except the foundation bolts for which galvanizing work shall be done for a length of 100mm (min) to 175mm (max) measured from the tip of the treaded portion. The threads of all bolts shall be cleared of smelter by spinning or brushing. A die shall not be used for cleaning the threads unless specially approved by the Engineer. All nuts shall be galvanized with the exception of the threads which shall be oiled. In case of foundation bolts the same shall be galvanized excepting the length of embedment.

When in position all bolts shall project through the corresponding nuts but not exceeding 10 mm. The nuts ofall bolts attaching insulator sets and earth conductor clamps to the structure shall be carefully positioned as directedby the Engineer.

Bolts and nuts shall be placed in such a way so that they are accessible by means of an ordinary spanner.

Foundation bolts shall be fitted with washer plates or anchor angles and flats, nuts etc. and shall be manufactured from mild or special steel.

Washers shall be tapered or otherwise suitably shaped, where necessary to give the heads and nuts of bolts a satisfactory bearing. The threaded portion of each bolt shall project out through the nut at least by 3 mm. In all cases the bolt shall be provided with a washer of sufficient thickness under the nut. In addition to the normal washer, one spring washer or lock nut shall be provided for each bolt for connections subjected to vibrating forces or otherwise as may be specified in the drawings.

The thickness of spring washer shall be 3.5 mm for bolt diameter 16 mm and 4 mm for bolt diameter 20mm.

47 CLEANING &GALVANIZING:

47.1 CLEANING:

After fabrication has been completed and accepted, all materials shall be cleared off rust, loose scale, dirt, oil grease and other foreign substances.

47.2 GALVANIZING:

All materials shall be hot-dip galvanized after fabrication and cleaning. Retapping of nuts after galvanizing is not permitted.

Galvanizing for structural mild steel products shall meet the requirements of IS: 4759. All holes in materials shall be free of excess spelter after galvanizing.

Galvanizing for fasteners shall meet the requirements of IS: 1367. The spring washers shall be electro galvanized as per IS: 1573.

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Finished materials shall be dipped into the solution of dichromate after galvanizing for white rust protection during transportation.

All galvanizing shall be uniform and standard quality. Quality of Zinc shall meet the requirement of IS:209

47.2.1 Mass of Zinc Coating:

The mass of zinc coating for different class of materials, as given in Table below, shall be followed:

MASS OF ZINC COATING

Sl. No	Product	Electro meter reading (micron)	Minimum Value of Average Mass of Coating
i)	Casting – gray iron, malleable iron		610 (gm/m2)
ii)	Fabricated steel articles:		
a)	5 mm thick and over	86	610
b)	Under 5mm,but not less than 2 mm	65	460
c)	Under 2 mm,but not less than 1.2mm	48	340
iii)	Threaded work other thantubes and tube fittings:		
a)	10 mm dia and over	43	300
b)	Under 10 mm dia	39	270

47.2.2 STRAIGHTENING AFTER GALVANIZING:

All plates and shapes which have been warped by the galvanizing process shall be straightened by being rerolled or pressed. The materials shall not be hammered or otherwise straightened in a manner that will injure the protective coating. If, in the opinion of Employer / Engineer the material has been forcibly bent or warped in the process of galvanizing of fabrication, such defects shall be cause for rejection.

48. **REPAIR OF GALVANIZING:**

Materials on which galvanizing has been damaged shall be acid stripped and re- galvanized, unless, in the opinion of Engineer, the damage is local and can be repaired by zinc spraying or by applying a coating of galvanizing repair compound. Where re-galvanizing is required, any member which becomes damaged after having been dipped twice shall be rejected.

49. SHOP ASSEMBLY:

One of each type of steel structures shall be assembled in the shop to such an extent as to ensure proper field erection in order to facilitate inspection by the Engineer.

49.1 SHOP TEST:

The following shop tests shall be performed with relevant provisions of I.S.Codes :

a) General Inspection
b) Material test.
c) Assembly test.
d) Galvanizing test.

The contractor shall furnish four certified copies of reports of all tests to the Engineer.

50. FOUNDATION WORKS:

GENERAL REQUIREMENT:

The design of RCC foundation for gantry and other equipment structures to be constructed shall be the responsibility of the contractor. All design of RCC foundation works shall conform to IS: 456 (2000) unless otherwise mentioned herein. All designs and details shall be subject to approval of the Engineer. Effect of additional surcharge due to earth filling shall duly be taken into account during design.

However, detailed foundation design shall be based on the actual soil parameters which shall be ascertained by the intending bidder. Any variation in design of foundations due to change in soil parameters during execution of work shall not affect the terms of the Contract. No extra payment on account of any change whatsoever in soil parameters will be entertained.

51. DESIGN OF FOUNDATIONS:

A) STEEL STRUCTURE FOUNDATIONS :

The foundations shall be designed such that the upper structure shall be securely supported. Any unequal displacement that may cause harmful effect to the upper structures shall not be allowed. The safety factors for strength and stability of the foundations shall be as per relevant code.

The overload factor shall be taken as 1.1 for designing foundations of all gantry and equipment. The loads, shear and moment values shall be multiplied with this overload factor, so as to obtain the design values.

B) ELCTRCO-MECHANICAL EQUIPMENT FOUNDATIONS:

The foundation shall be so designed that the upper equipment shall be securely supported. The effect of vibration of the equipment, impact load when in operation and overturning force due to abnormal condition of equipment shall be considered in foundation design. The safety factor for stability of the foundations shall be as per relevant code with an overload factor of 1.1.

Following minimum values shall be used while designing foundations

i) Minimum base slab thickness of footings : 200 mm
ii) Minimum bar dia for foundation : 10 mm TOR
iii) Minimum bar dia for columns : 12 mm TOR with binder spacing limited to 190 mm c/c

iv) Clear cover to : Main bars in base slab : 50 mm

Main bars in columns : 40 mmMain bars of beams : 40 mm

v) Minimum reinforcement for base slab shall be 0.2 percent of cross sectional area, depthto be considered as effective depth and where beam slab mechanism will be deployed 0.12 percent of gross cross sectional area shall be considered.

iii) Plinth height for structures & equipment's foundation a) 132 kV —200 mm

52. OTHER DETAILS

52.1 DETAIL DESIGN CALCULATION:

Detail design calculations for each type of foundation shall be submitted for approval of Engineer. Such details shall show the following requirements.

I. Detailed calculation of loads acting on foundation under different loading conditions.
II. Calculated safety factor for each type of stability and other conditions.
III. Maximum stresses in concrete and in steel reinforcement at any critical section.

52.2 LINE AND GRADE:

The contractor shall set all lines and grades or elevation of the ground at all footings and set the necessary stakes that are required for the work and will be responsible for their accuracy. Employer/Engineer may check lines and levels set by the Contractor form time to time, and inadequacies if any, shall be rectified by the contractor as per the direction of the Engineer, but the responsibility for their accuracy shall rest entirely with the Contractor.

53. SPECIFIC TECHNICAL PARTICULARS FOR 132 KV XLPE CABLE

SL	ITEMS	PARTICULARS
1	Description of Cable	Stranded single core compacted copper core screening by a layer of semi conducting tape followed by a layer of semiconducting compound as conductor screen, XLPE insulation, insulation screening with semiconducting compound extruded directly over the insulation,(semiconducting conductor screen, XLPE insulation, semiconducting insulation screen- all in one triple extrusion process), longitudinal sealing by a layer of water swell able semi conducting non woven tape over insulation screen, Metal sheath of Lead alloy 'E' as per IS 7098 part- III, metallic screening by concentric layer of plain copper wire followed by an open helix of copper and over all extruded black HDPE Sheathed (Type ST 7).
2	Highest system voltage	145KV
3	Voltage Grade	76/132KV
4	Voltage variation	+10% and -12.5%
5	Frequency	50 Hz
6	Frequency variation	**±3%**
7	Power frequency withstand voltage	190 KV rms for 30 minutes
8	Lightning impulse withstand voltage	±650 KV peak

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10	No of phase per Ckt	3
11	Earthing system	Effectively earthed
12	Size of Cable	As per requirement
13	Max. in Conductor Temp.	90°C at maximum continuous current.
14	Fault level	31.5 KA for 1 second.
15	Maximum permissible short ckt temperature.	250°C for one second
16	**CABLE DETAILS: CONDUCTORS**	
16.1	Conductor material	Plain un-tinned annealed copper
16.2	Conductor Shape	Compacted circular
16.3	Conductor Screen	Extruded, Cross-linked, semi conducting compound of suitable thickness. Semi conducting separator tapes with 50% overlap to be applied between conductor and conductor screen.
16.4	Resistivity of the semiconducting screen	Maximum 1000 ohm-meter
16.5	Insulation	
	material	XLPE
	specified insulation resistance at 90 degree C	1x10 to the power 12 ohm cm
16.6	Insulation Screen : Type & Material	Extruded semi conducting compound
16.7	Resistivity of the semiconducting compound	Max 500 Ohm-meter
16.8	Longitudinal water barrier Material	Layer of semi conducting tape with suitable water swellable absorbent with 50% overlap.
16.9	Radial moisture barrier Material	Metal sheath of Lead alloy 'E' as per IS 7098
		part-III.
16.10	Overall sheath	Extruded black HDPE (Type ST 7) withanti termiteand anti rodent treatment.
16.11	Coating of outer sheath	A hard baked layer of graphite shall be Applied over the outer sheath as outer electrode for testing the sheath.
17	Approximate Length of cable in a drum	500metres with a tolerance range of ± 5%.

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18	Bending Radius	The minimum bending radius of XLPE insulatedcables as follows:Cable: Bending radius Single Core: 25xD D — diameter of overall conductor.
19	**TESTS** Applicable standards	IEC 60840
19.1	Type Test a) whether previous test reports will be sufficient whether sample to be Type tested against this order.	All tests as per specifications IEC Standards Yes, ifdone on identical cable. No, if done on identical cable.
19.2	Routine Test	All tests as per specifications IEC Standards.
19.3	Acceptance Test	All tests as per specifications IEC Standards.
19.4	Whether test will be witnessed by purchaser or his representative	Yes. Acceptance test will be witnessed.
20	INSTALLATION, TERMINATION AND JOINTS	
21	Ambient temperature Ground temperature Thermal resistivity of soil	50°C 35° C 150°C Cm/Km
22	Laying Configuration	Trefoil formation. Ckt to Ckt distance 800mm.
23	Depth	1.5 m below ground level
24	Termination	
25	Type	As per requirement
26	Joints Required	As per requirement
27	Earth Link Boxes Required	One at each end for each end earthing for each Ckt.
28	Surge Suppressor Required	As per requirement
29	Type Bonding	As per requirement

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PART - II

CHAPTER II

GENERAL TECHNICAL REQUIREMENTS FOR AAAC PANTHER (37/3.15mm) CONDUCTOR

This specification covers design, engineering, type testing, manufacturing, testing at manufacturer's works, supply and delivery of AAA Panther (37/3.15mm) conductor to Purchasers' store by road on door delivery basis.

MATERIAL & QUANTITY REQUIRED

AAAC Panther (Size 37/3.15mm), quantity as mentioned in the supply schedule. STANDARDS:

All standards hereinafter stipulated or equivalents specified by the bidder shall be of the latest issue.

AAA Conductor shall conform to IS – 398 (Part – IV). A copy of the standard followed by the manufacturer of the Conductors shall be submitted along with the tender. The conductor shall have BIS standard mark.

If the materials conform to a standard other than the Indian Standard specification then an English version of the Standard in addition to the original standard if written in a language other than English should be submitted indicating clearly the advantage, if any, that would be obtained by the Purchaser for adopting this standard instead of the said Indian Standard.

The standard proposed to be adopted, shall clearly be stated in the Tender.

Any deviations from this specification will be considered provided they are necessary either to improve the utility, performance, efficiency and / or durability of the equipment or to secure an overall economy consistent with the purchaser's requirements hereinafter specified. All deviations shall be clearly spelt out by the Tenderer in the appropriate Schedule so that individual merits of such deviations can be correctly assessed.

TECHNICAL PARTICULARS OF CONDUCTORS:

All Aluminium Alloy conductor shall satisfy all the parameters as furnished in Annexure-A of this specification.

The conductors shall be of following size.

(a) AAAC PANTHER : 37/3.15mm, OD = 22.05 mm

All Aluminium Alloy conductor shall be stranded consisting of heat treated aluminium magnesium silicon alloy wires (Strands) containing approximately 0.5% magnesium and approximately 0.5% silicon and having the mechanical & electrical properties as specified in this specification.

All strands of AAA Conductor shall be reasonably uniform and shall be free from all defects, die marks and scratches after drawings and also after stranding.

The length of any piece of finished conductor shall not vary from the specified length guaranteed by the Bidders in the concerned GTP by more than ±5%. Conductor of random length having less than 50% of standard length shall not be acceptable. The total length of random lengths of conductor shall not exceed

2% of the ordered quantity. The same shall have to be supplied in separate drums which marked clearly for proper identification.

Sundry Miscellaneous Items:

The sundry items and consumable stores as considered adequate for complete installation of the Conductor and accessories shall deem to be included in the Tender for supply without extra costs.

Tests:

Following Type Test reports of Conductor as indicated in the NIT are required to be furnished with the offer. Type test reports submitted shall not be older than 5 years on the date of opening of bid.

i) Ultimate Breaking Load on Stranded Conductor.
ii) DC Resistance test on stranded conductor OR individual strand of complete conductor.
iii) Lay ratio
iv) Elongation

Type test reports shall be from CPRI/ERDA /TAG Corporation

Tests on conductors and raw materials: Within two weeks of receipt of each consignment of the raw materials viz. Aluminium alloy rods at works of the Conductor manufacturer, the contractor shall furnish to the Purchaser, in duplicate, the following:

a) Manufacturer's test certificates on raw materials
b) Conductor Manufacturer's test report of tests carried out at their works on raw materials.

All the tests shall be carried out on the required number of samples as stipulated in the IS- 398 (Part- IV)-1994.

During acceptance test, finished conductor shall also be checked for length verification and surface finish on separate rewinding machine at reduced speed (variable from 8 to 16 meters per minute). The rewinding facilities shall have appropriate clutch system and free of vibrations, jerks etc. with traverse laying facilities. At least ten percent (10%) drums from each lot shall be rewound in presence of the Owner's representative. The manufacturer must have the above facilities for rewinding of conductor drums.

Similar test reports, in triplicate, for test carried out on hard drawn Aluminium wires employed in the manufacture of conductor shall also be submitted. These reports shall contain results of all the tests on the required number of samples as stipulated in the relevant approved standard.

Records of conductor Production i.e. copies of works Log sheets giving identification number of the Aluminium wire spools, aluminium Alloy wire spool shall be submitted in duplicate and Purchasers approval obtained prior to dispatch.

The method of tests and the number of samples tested may be in accordance with the standard practice of the manufacturers who shall clearly certify that the full quantity of the equipment supplied will be identical to the sample or samples tested. No dispatch shall be effected prior to the Purchaser's written approval on the Test Certificates.

A schedule of various routine and type tests to be carried out on raw materials and accessories etc. shall be submitted by the Contractor for the Purchaser's approval, within two weeks of the date of acceptance of the L.O.A. No change in the schedule of tests shall be subsequently made by the contractor, his sub-contractors or the manufacturers without the prior consent of the Purchaser.

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The purchaser may at any time call for any tests that are laid down in the specification as optional test. The contractor shall arrange to carry-out such tests expeditiously for which payment will be made. The reports for such optional test shall also be submitted to the Purchaser, in triplicate for approval.

Selection of samples, conditions of repetitive tests and rejection of materials if any, shall strictly be in accordance with the requirements of the approved Standard or as per the standard practice of the manufacturers and in the later case, full details of the standard practice shall be stated in the tender. The relevant test reports for the repetitive tests including the results of the tests in which the equipment failed to satisfy the requirements of the approved standard, shall also be submitted in triplicate. All costs for tests/ retests shall be borne by the Contractor.

The tenderer shall submit full particulars of the testing facilities available in the manufacturer's works and shall confirm that the same will be readily available, when required for testing of all the equipment offered by him.

Along with the tender the bidder shall furnish all the acceptance test reports as per IS, carried out previously on similar item and witnessed by customer.

Test Procedure:
DC Resistance test on stranded conductor:

On a conductor sample of minimum 5m length two contact-clamps shall be fixed with a predetermined bolt torque. The resistance shall be measured by a Kelvin double bridge by placing the clamps initially zero meter and subsequently one meter apart. The test shall be repeated at least five times and the average value recorded. The value obtained shall be

corrected to the value at 20ºC as per the relevant IS. The resistance corrected at 20ºC shall conformto the requirements of this specification.

Circles perpendicular to the axis of the conductor shall be marked at two places on a sample of conductor of minimum 5m length between fixing arrangement suitably fixed on a tensile testing machine. The load shall be increased at steady rate upto 50% of minimum specified UTS and held for one minute. The circles drawn shall not be distorted due to relative movement of strands. Thereafter the load shall be increased at steady rate to minimum UTS and held for one minute. The conductor sample shall not fail during this period. The applied load shall then be increased until the failing load is reached and the value recorded.

The other type tests shall be conducted as per the relevant IS.

PACKING AND PACKING SPECIFICATION:

The conductor shall be supplied in non-returnable, strong, wooden drums provided with lagging of adequate strength, constructed to protect the conductor against all damage and displacement during transit, storage and subsequent handling and stringing operations in the field. The Supplier shall be responsible for any loss or damage during transportation handling and storage due to improper packing. The drums shall generally conform to IS:1778, except as otherwise specified hereinafter.

The drums shall be suitable for wheel mounting and for letting off the conductor under a minimum controlled tension of the order of 5 KN.

There shall be one standard length of Conductor in each drum.

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All wooden components shall be manufactured out of seasoned soft wood free from defects that may materially weaken the component parts of the drums. Preservative treatment shall be applied to the entire drum with preservatives of a quality which is not harmful to the conductor.

The flanges shall be of two ply construction with each ply at right angles to the adjacent ply and nailed together. The nails shall be driven from the inside face flange, punched and then clenched on the outer face. The thickness of each ply shall not vary by more than 3 mm from that indicated in the figure. There shall be at least 3 nails per plank of ply with maximum nail spacing of 75 mm. Where a slot is cut in the flange to receive the inner end of the conductor the entrance shall be in line with the periphery of the barrel.

The wooden battens used for making the barrel of the conductor shall be of segmental type. These shall be nailed to the barrel supports with at least two nails. The battens shall be closely butted and shall provide a round barrel with smooth external surface. The edges of the battens shall be rounded or chamfered to avoid damage to the conductor.

Barrel studs shall be used for the construction of drums. The flanges shall be holed and the barrel supports slotted to receive them. The barrel studs shall be threaded over a length on either end, sufficient to accommodate washers, spindle plates and nuts for fixing flanges at the required spacing.

Normally, the nuts on the studs shall stand protruded of the flanges. All the nails used on the inner surface of the flanges and the drum barrel shall be counter sunk. The ends of barrel shall generally be flushed with the top of the nuts.

The inner cheek of the flanges and drum barrel surface shall be painted with bitumen based paint.

Before reeling, card board or double corrugated or thick bituminised water-proof bamboo paper shall be secured to the drum barrel and inside of flanges of the drum by means of a suitable commercial adhesive material. After reeling the conductor, the exposed surface of the outer layer of conductor shall be wrapped with water proof thick bituminised bamboo paper to preserve the conductor from dirt, grit and damage during transport and handling.

A minimum space of 75 mm for conductor shall be provided between the inner surface of the external protective tagging and outer layer of the conductor.

Each batten shall be securely nailed across grains as far as possible to the flange, edges with at least 2 nails per end. The length of the nails shall not be less than twice the thickness of the battens. The nails shall not protrude above the general surface and shall not have exposed sharp, edges or allow the battens to be released due to corrosion.

The nuts on the barrel studs shall be tack welded on the one side in order to fully secure them. On the second end, a spring washer shall be used.

A steel collar shall be used to secure all barrel studs. This collar shall be located between the washers and the steal drum and secured to the central steel plate by welding.

Outside the protective lagging, there shall be minimum of two binder consisting of hoop iron/galvanised steel wire. Each protective lagging shall have two recesses to accommodate the binders.

The conductor ends shall be properly sealed and secured on the side of one of the flanges to avoid loosening of the conductor layers during transit and handling.

As an alternative to wooden drum Bidder may also supply the conductors in non-returnable painted steel drums. After preparation of steel surface according to IS:9954, synthetic enamel paint shall be applied after application of one coat of primer. Wooden/Steel drum will be treated at par for

evaluation purpose and accordingly the Bidder should quote in the package.

MARKING OF DRUMS AND PACKAGE:

Each drum/package shall be marked on the sides as follows:

(a) Name, designation & address of the consignee to be furnished by the purchaser.
(b) Ultimate destination and/or the port of discharge as required by the Purchaser.
(c) The items and the respective quantities contained in it.
(d) Contract/Award letter number.
(e) Manufacturer's name and address.
(f) Drum number
(g) Size of conductor
(h) Length of conductor in meters
(i) Arrow marking for unwinding
(j) Position of the conductor ends
(k) Gross weight of drum after putting lagging.
(l) Tear weight of the drum without lagging.
(m) Net weight of the conductor in the drum.
(n) Consignment No.

The indelible ink markings shall be on each package/drum. Alongwith GTP of Conductor, the drum drawing is to be approved.

DELIVERY

Time of completion of delivery shall be as per NIT.INSPECTION AND TESTING

The purchaser and / or his authorised representative(s) shall be present at the time of Acceptance Tests and the Bidder shall provide all necessary facilities to them.

No material shall be dispatched from its point of manufacture before it has been satisfactorily inspected and tested.

The purchaser and / or his authorised representative(s) shall also be entitled to access to the Manufacturer's

Works for the purpose of inspecting the manufacture and testing of the materials and equipments.

The Bidder shall give Purchaser at least fifteen days advance notice of any equipment being ready for inspection.

The acceptance of any quantity of material shall in no way relieve the Supplier of any of his responsibilities for meeting all requirements of the Specification, and shall not prevent subsequent rejection if such material is later found to be defective.

INSTRUCTION TO THE BIDDERS

Bidder must submit the following documents related to Technical Parameters with the offer as instructed in the NIT :

i) The Bidder must submit the type test report as indicated in the NIT.

ii) The Bidder must submit the previous acceptance test reports carried out on similar item & witnessed by customer.

iii) Past Supply list as per enclosed format of this specification shall be furnished.

iv) All documents duly signed related to Qualifying Requirements.

v) Drawings, if any, of offered item.

vi) Routine & Acceptance test facilities as per IS including rewinding of conductor drums at Manufacturer's Works.

vii) Performance certificate as indicated in the NIT.

5.000 **DOCUMENTATION**

Successful tenderer shall submit the necessary drawings / documents, QAP & detailed GTP as per format of this specification etc. for Purchaser's approval within fifteen days from the date of issuance of purchase order. Six (6) sets of approved drawings with a permanent Velograph along with soft copy for the respective Equipment / Material shall be supplied to the Purchaser as contract drawings before dispatch of the equipment.

Design Data of Conductor and Atmospheric Condition
AAAC PANTHER (37/3.15mm)

I	Conductor Details:		
(i)	Conductor Name	:	AAAC PANTHER
(ii)	Stranding	:	37/3.15 mm
(iii)	Total sectional area	:	288 sq.mm.
(iv)	Approx. weight	:	794.05 Kg/Km
(v)	Minimum UTS	:	84.71 kN
(vi)	Modulus of Elasticity (Final)	:	5814 Kg/sq.mm
(vii)	Coefficient of linear expansion	:	23X10-6/ C
(viii)	Maximum allowable Conductor temperature	:	75 C
(ix)	Conductor diameter	:	22.05 mm
(x)	Calculated maximum resistance/Km of Conductor at 20°C	:	0.1182 ohm
II	Climatic Condition :		
(i)	Maximum Temp.	:	50 C
(ii)	Minimum Temp.	:	04 C
(iii)	Everyday Temp.	:	32 C
(iv)	Snow incidence	:	nil

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(v)	Relative humidity		
	(a)Maximum	:	100%
(vi)	(b)Minimum	:	50%
	Average rainfall per annum	:	2500mm
(vii)	No.of rainy day per year	:	120
III	Wind Speed	:	47 m/sec. (Wind Zone - 4)
IV	Specific Technical Particulars:		
(i)	Line voltage	:	132kV
(ii)	No. of circuits	:	Two
V	Details of aluminium wires :		

(i) Physical Constants for hard drawnAluminium wires :	
a) Resistivity of wire	0.0325 Ohm- mm2 / m at 200C
b) Density	2.70 kg/dm3 at 20°C
c) Co-efficient of Linear expansion	23.0 X 10-6/°C
d) The wires shall be of heat treatedaluminium, magnesium silicon alloy.	
(ii) Cross Sectional area of Aluminium wire	7.793 mm2
(iii) Approximate Total weight of each strand	21.04 kg/km
(iv) Calculated resistance at 20°C(D.C.)	4.290 Ohm/km
(v) Diameter of each strand Standard Minimum Maximum	 3.15 mm 3.12 mm 3.18 mm
(vi) Minimum Breaking Load of eachstrand	2.41KN (before stranding) 2.29KN (after stranding)

VI Lay Ratios of the conductor:

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6 wire Layers :

Maximum : 17

Minimum : 10

12 wire Layers :

Maximum : 16

Minimum : 10

18 wire Layers :

Maximum : 14

Minimum : 10

VII Normal length without joint and weld: 1.4 km and shall not vary by more than ± 5%

VIII Conductor drum drawing should be as per IS: 1778-1980 & revisions, if any.

GUARANTEED TECHNICAL PARTICULARS FOR AAAC PANTHER CONDUCTOR

Sl. No.	Description	Unit	AAAC Panther (37/3.15 mm)
1.	Name of manufacturer and address for: a) Aluminium Alloy rods: b) AAA Conductor:		
2.	Manufacturing specification for: a) Aluminium Alloy rods: b) AAA Conductor:		
3.	Particulars of Aluminium Alloy wire: a) Material		
	b) Density at 20°C	Kg/dm3	
	c) Coefficient of Linear Expansion per ºC		
	d) Diameter of wire: i) Standard ii) Maximum iii) Minimum	mm	

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	e) Standard Sectional Area:	mm2	
	f) Weight of each strand:		
	g) Maximum Resistance of wire at 20ºC	Ohms/ KM	
	h) Minimum ultimate tensile stress i) Before Stranding ii) After Stranding	Kg/mm 2	
	i) Minimum breaking load of wire i) Before Stranding ii) After Stranding	KN	
	j) Minimum elongation on a gauge length of 200mm i) Before Stranding ii) After Stranding	%	
4.	Particulars of All Alloy Aluminium Conductor: a) Stranding and wire diameter:	mm	
	b) Cross-sectional area:	mm2	
	c) Nominal Overall diameter:	mm	
	f) Lay ratio: i) 6 wire Layer (min./max): ii) 12 wire layer (min./max): ii) 18 wire layer (min./max.): iii) 24 wire layer (min./max.):		
	g) Final modulus of Elasticity	Kg/cm2	
	h) Co-efficient of linear expansion per ºC :		
	i) Approximate ultimate strength ofconductor:	KN	
	j) Approximate total weight per KM:	Kg/KM	
	k) Calculated resistance per KM of conductor, when corrected to standard strand weight, at20oC :	Ohms/K M	

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	l) Continuous maximum current rating ofconductor in still air at 40oC ambient temperature:	Amp	
	m) Temperature rise for the above current inoC:	oC	
	n) Standard unit length of conductor withoutjoint, weld:	KM	
	o) Number of length per Drum (Reel):	No.	
	p) Net weight of conductor per reel:	Kg.	
5.	Packing specification of conductor: a) Diameter of reel without lagging:	mm	
	b) Width of reel:	mm	
	c) Width of lagging:	mm	
	d) Thickness of lagging:	mm	
	e) Gross weight of conductor on reel:	Kg.	
	f) Net weight of conductor on reel:	Kg.	

Signature: .....

Name: .....

Designation: .....

Seal: .....

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PART - II
CHAPTER III

GENERAL TECHNICAL REQUIREMENTS FOR INSULATORS (160KN, 120KN & 70KN DISC)

SPECIFICATION FOR DISC INSULATORS

1.00 Scope

This specification covers design, engineering, type testing, manufacturing, testing at manufacturer's works, supply and delivery of 160KN, 120KN & 70KN Disc Insulators.
The materials covered here under this specification shall be supplied complete in all respects, including all components, fittings and accessories which are necessary or are usual for their efficient performance and satisfactory maintenance under the various operating and atmospheric conditions. Such parts shall be deemed to be within the scope of the Contract, whether specifically included or not in the Specification or in the Contract Schedules. The Supplier shall not be eligible for any extra charges for such fittings, etc.

2.00 Standard

The insulator strings and its components shall conform to the latest edition of the following Indian/International Standards.
Where the equipment offered conforms to any other standard, the salient points of difference between the standards adopted and IS/IEC recommendation shall be clearly indicated and the English version of the proposed standard shall be furnished.

Sl. No.	Indian Standard	Title	International Standard
1.	IS:209	Specification for zinc	BS:3436
2.	IS:406	Method of Chemical Analysis of Slab Zinc	BS:3436
3.	IS:731	Porcelain insulators for overhead Power lines with a nominal voltage greater than 1000 V	BS:137 –(I&II) IEC:60383
4.	IS:2071 Part- I Part- II Part-III	Methods of High Voltage Testing	IEC:60060-1
5.	IS:2486 Part- I Part- II Part-III Part-IV	Specification for Insulator fittings for Overhead Power Lines with a nominal voltage greater than 1000V General Requirements and Tests Dimensional Requirements Locking Devices Tests for Locking Device	 BS:3288 IEC:60120 IEC:60372

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6.	IS:2629	Recommended Practice for Hot Dip Galvanisation of iron and steel	ISO: 1461 (E)
7		Methods for testing uniformity of coating of zinc coated articles	
8.	IS:3188	Dimensions for Disc Insulators	IEC:60305
9.	IS:6745	Determination of Weight of Zinc Coating on Zinc coated iron and steel articles	BS:433 ISO:1460
10.	IS:8263	Methods of RI Test of HV insulators	IEC:60437
11.	IS:8269	Methods for Switching Impulse Test of HV insulators	IEC:60506
12.		Thermal Mechanical Performance test and mechanical performance test on string insulator units	IEC:60575
13.		Salt Fog pollution Voltage Withstand Test	IEC:60507
14.		Residual Strength of String Insulator Units of Glass or Ceramic Material for Overhead Lines after Mechanical Damage of the Dielectric	IEC:60797
15.		Guide for the selection of insulators in respect of polluted conditions	IEC:60815
16.		Tests on insulators of Ceramic material or glass for overhead lines with a nominal voltage greater than 1000V	IEC:60383
17.		Characteristics of string insulator units of the long rod type	IEC:60433
18.		American National Standard for Insulators wet process porcelain and toughened glass suspension type	ANSI C29.2
19.		Standard Test Method for Autoclave expansion of Portland Cement	ASTM C151-93a

3.00 Quantities

The quantities are indicated in the Price Schedule.

4.00 Technical Details of DiscInsulators String Insulator Requirements

- 220 KV: Insulator string suitable for 220 KV voltage shall consist of standard (255 mm x 145

mm) discs & (280 mm x 170 mm) discs ball and socket type, for suspension & tension string respectively. The exposed porcelain parts shall be glazed brown.

For application in lines, 15 Units shall be used on all 220 KV strain string and 14 Units for suspension having ultimate tensile strength of 160 KN and 70 KN respectively.

For application within substation, 16 Units shall be used on all 220 KV strain string and 15 Units for suspension having ultimate tensile strength of 160 KN and 70 KN respectively.

- 132 KV: Insulator string suitable for 132 KV voltage shall consist of standard (255 mm x 145 mm) discs & (255 mm x 145 mm) discs ball and socket type, for suspension & tension string respectively. The exposed porcelain parts shall be glazed brown.

For application in lines, 10 Units shall be used on all 132 KV strain string and 9 Units for suspension having ultimate tensile strength of 120 KN and 70 KN respectively.

For application within substation, 11 Units shall be used on all 132 KV strain string and 10 Units for suspension having ultimate tensile strength of 120KN / 160 KN and 70 KN respectively.

- 33 KV: Insulator string suitable for 33 KV voltage shall consist of standard (255 mm x 145 mm) discs & (255 mm x 145 mm) discs ball and socket type, for suspension & tension string respectively. The exposed porcelain parts shall be glazed brown.

Unless otherwise specified 4 units shall be used for 33KV strain strings and 3 units for 33KV suspension string having ultimate tensile strength of 70kN.

Strain insulator discs shall have suitable differentiating marks from suspension discs to facilitate easy identification and to ensure against wrong use. Such marks shall be permanent and either glazed or stamped on insulator discs or embossed on cemented hardware.

To ensure against spot loading cap-sockets shall be machined properly for correct ball studseats.

"W" or "R" shaped security clip for locking the ball head of the stud in the socket of the cap conforming to relevant B.S. or I.S. specification shall be supplied. Ball and socket parts refer to 20 mm designation conforming to specification No. BS-137-1960 or IS-2486 (Part – II) – 1974 or IEC-120.

Design ratings

Type : Conventional ball and socket type.

Diameter : 255 mm (for 70 KN Disc) – for 33KV, 132 & 220 KV 255 mm (for 120 KN disc) – for 132 KV

280 mm (for 160 KN Disc) – for 132KV & 220 KV

Spacing : 145 mm (for 70 KN Disc) – for 33KV, 132 & 220 KV 145 mm (for 120 KN disc) – for 132 KV 170 mm (for 160 KN Disc) – for 132KV & 220 KV

Color : Brown

Surface : Glaze.

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String arrangement

Sl	String arrangement	No of Discs (for 132KV)	Electro-mechanical strength (for132 KV)	No of Discs (for 220 KV)	Electro-mechanical strength (for220 KV)
a)	Suspension Strings for normal suspension locations suitable for 16 mm B & S dia.	9	70 KN	14	70 KN
b)	Tension Strings for normal tension locations suitable for	10	120 KN / 160 KN	15	160 KN
	20 mm B & S dia.				
c)	Double suspension for special location (crossing) suitable for 16 mm B & S dia.	2 x 9	70 KN	2 x 14	70 KN
d)	Double tension for special location (crossing) suitable for20 mm B & S dia.	2 x 10	120 KN / 160 KN	2 x 15	160 KN
e)	Minimum failing load	Shall be equal to electro mechanical strength as stated above			

5.00 Electrical system data

			132 KV system	220 KV system
a.	Nominal Voltage	:	132 KV	220 KV
b.	Maximum system voltage	:	145 KV	245 KV
c.	BIL (Impulse)	:	650 KV (Peak)	1050 KV (Peak)
d.	Power frequency withstand voltage (Wet)	:	275 KV (rms)	460 KV (rms)
e.	Corona extinction voltage at 50 Hz AC system under dry condition	:	105 KV(rms) Phaseto earth.	154 KV(rms) Phaseto earth.
f.	Radio interference	:	500 Micro volts at	Less than 1000 Micro

	voltage (Max.)		one MHz & 105 KV under dry condition	volts at one MHz & 154KV under dry condition

6.00 Technical Particulars Of Each Disc Insulator:

Sl.No.	Description		Parameter
a)	Diameter		255 mm for 70 KN Disc 255 mm for 120 KN Disc 280 mm for 160 KN Disc
b)	Spacing		145 mm for 70 KN Disc 145 mm for 120 KN Disc 170 mm for 160 KN Disc
c)	Minimum creepage distance		320 mm for 70 KN Disc 320 mm for 120 KN Disc 330 mm for 160 KN Disc
d)	Minimum Protected creepage(90º)		160 mm for 70 KN Disc 160 mm for 120 KN Disc 165 mm for 160 KN Disc
e)	Visible discharge voltage		9 KV for 70 KN Disc 18 KV for 120 KN Disc 18 KV for 160 KN Disc
f)	Flashover / withstand test voltage		
	i)	Power frequency (dry) withstand, KV(r.m.s.), 60 Sec.	70 KV for 70 KN Disc 70 KV for 120 KN Disc 72 KV for 160 KN Disc
	ii)	Power frequency (wet) withstand, KV(r.m.s.), 60 Sec.	40 KV for 70 KN Disc 40 KV for 120 KN Disc 42 KV for 160 KN Disc
	iii)	Power frequency dry flashover voltage, KV(r.m.s.)	75 KV for 70 KN Disc

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			75 KV for 120 KN Disc 78 KV for 160 KN Disc
	iv)	Power frequency wet flashover voltage, KV(r.m.s.)	45 KV for 70 KN Disc 45 KV for 120 KN Disc 48 KV for 160 KN Disc
	v)	Power frequency puncture voltage, KV(r.m.s.)	110 KV for 70 KN Disc 120 KV for 120 KN Disc 125 KV for 160 KN Disc
	vi)	Impulse withstand voltage (+ve)	110 KVp for 70 KN Disc 110 KVp for 120 KN Disc 115 KVp for 160 KN Disc
	vii)	Impulse flashover voltage (+ve)	115 KVp for 70 KN Disc 115 KVp for 120 KN Disc 120 KVp for 160 KN Disc

7.00 Detailed design requirements

Only porcelain insulator will be acceptable.

7.1 Porcelain

The porcelain shall be of the best electrical quality made by wet process, homogeneous, free from any laminations cavities, flaws or imperfections and shall be vitreous and impervious to moisture. Glazing shall be uniform brown colour, smooth surface, free from any blisters, burns or other defects. Its co- efficient of Thermal expansion shall be identical with the porcelain body. The glaze shall not crack or chip due to ageing under weather conditions or while handling during shipment and erection.

7.2 Cementing

The quality of cement and cementing shall ensure exact spacing, alignment and free from cracks and deterioration due to chemical action. The co-efficient of expansion shall be very near that of porcelain/steel.

Cement used in the manufacture of the insulator shall not cause fracture by expansion or loosening by contraction. The cement shall not give rise to chemical reaction with metal fittings and its thickness shall be as small and uniform as possible. Proper care shall be taken to correctly centre and locate individual parts during cementing.

7.3 Pins and Caps

Pins and Caps shall be made of drop forged steel and malleable cast iron/spheroid graphite iron/drop forges steel respectively, duly hot dip galvanized and shall not be made by jointing, welding, shrink fitting or any other process from more than one piece of material.

7.4 Security Clips

Security clips shall be made of good quality stainless steel or phosphor bronze as per IS: 1385. 2.5% extra Security Clip shall be provided.

7.5 Galvanizing

All ferrous parts shall be hot dip galvanized to conform to IS-2633.

8.00 Marking / Embossing of the Insulators

Each Disc Insulator shall be legibly and indelibly marked with the name of the manufacturer, month & year of manufacture and country of manufacture. The guaranteed Electro-mechanical strength shall be indicated in Kilo Newton followed by the word 'KN' to facilitate easy identification and to ensure proper use. Markings on porcelain shall be printed and shall be applied before firing. A very good quality adhesive sticker mentioning the name of purchaser i.e. DFCCIL is to be provided in each disc. The said adhesive sticker can not be removed easily from the Disc by scratching it.

One 10mm thick ring of suitable quality of paint (weather proof) shall be marked on the cap of each insulator porcelain disc of particular strength for easy identification of the type of insulator. The paint shall not have any deteriorating effect on the insulator performance.

Following colour codes shall be used as identification mark:

For 160 KN DISC: GREEN For 120 KN DISC: YELLOWFor 70 KN DISC : BLUE

9.00 Tests

The bidder shall have sufficient testing facilities at his works to conduct all acceptance and routine tests stipulated in the indicated standards. The bidder shall submit full particulars of the testing facilities available to him.

Complete Type Test Reports shall be submitted along with the offer as per indicated standard from an accredited laboratory. Accreditation should be from the national accreditation body of the country in which the laboratory is located. Type test reports submitted shall not be older than 5 years on the date of opening of bid.

The following constitute the type test:

i) On unit disc Insulators

a)	Verification of dimensions	:As per IEC :60383
b)	Thermal mechanical performance test	:As per Annexure-A
c)	Power frequency voltage withstand and flashover test under (i) dry & (ii) wet condition	:As per IEC : 60383
d)	Impulse voltage withstand and flashover test (dry)	:As per IEC : 60383

e)	Visible Discharge test (dry)	:As per IS:731
f)	RIV test (dry)	:As per IEC:60437
g)	Residual strength Test	:As per Annexure-A
h)	Steep wave front Test	:As per Annexure-A
i)	Impact Test	:As per Annexure-A

ii) On the complete Disc Insulator String with Hardware Fittings

a)	Power frequency voltage withstand test with arcing horns under wet condition	:As per IEC : 60383
b)	Impulse voltage withstand test under dry condition	:As per IEC: 60383
c)	Impulse voltage flash over test under dry condition	:As per IEC : 60383
d)	Voltage distribution test	:As per Annexure-A
e)	Corona and RIV test under dry condition (for 220 KV only)	:As per Annexure-A
f)	Mechanical Strength test	:As per Annexure-A
g)	Vibration test	:As per Annexure-A

(iii) The following constitute the Acceptance Test :

a)	Visual examination	:As per IEC : 60383
b)	Verification of dimensions	:As per IEC : 60383
c)	Temperature cycle test	:As per IEC : 60383
d)	Galvanizing test	:As per IEC : 60383
e)	Mechanical performance test	:As per IEC:60575 Cl 4.0
f)	Test on locking device for ball and socket coupling	:As per IEC:60372
g)	Eccentricity test	:As per IEC:60383
h)	IR Measurement	:As per Annexure-A
i)	Electro-mechanical strength test	:As per Annexure-A

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j)	Porosity test	:As per IEC : 60383
k)	Puncture test	:As per IEC : 60383

(iv) The following constitute the Routine Test:

a) Visual Examination : As per IS: 731
b) Mechanical routine test : As per IS: 731
c) Electrical routine test : As per IS: 731

(v) Tests during Manufacture:

On all components as applicable

a) Chemical analysis of zinc used for galvanising : As per Annexure-A
b) Chemical analysis, mechanical, metallographic : As per Annexure-Atest and magnetic particle inspection for malleable castings.
c) Chemical analysis hardness tests and magnetic particle : As per Annexure-Ainspection for forgings.
d) Hydraulic Internal Pressure tests on disc insulator shells : As per Annexure-A
e) Autoclave Test on Cement : As per Annexure-ATest Reports:

Copies of acceptance test reports shall be furnished in at least six copies. One copy shall be returned duly certified by the Owner, only after which the material shall be dispatched.

Record of routine test reports shall be maintained by the Supplier at his works for periodic inspection by the Owner's representative.

Test certificates of test during manufacture shall be maintained by the Supplier. These shall be produced for verification as and when desired by the Owner.

10.00 **Packing and Marking**

All insulators shall be packed in strong seasoned wooden crates. The gross weight of the crates along with the material shall not normally exceed 200Kg to avoid handling problem. For marine transportation crates shall be palleted.

The packing shall be of sufficient strength to withstand rough handling during transit, storage at site and subsequent handling in the field.

Suitable cushioning, protective padding, or dunnage or spacers shall be provided to prevent damage or deformation during transit and handling.

All packing cases shall be marked legibly and correctly so as to ensure safe arrival at their destination and to avoid the possibility of goods being lost or wrongly dispatched on account of faulty or legible markings. Each wooden case/crate shall have all the markings stenciled on it in indelible ink.

11.00 **Delivery**

Time of completion of delivery shall be as per NIT.

12.00 **Inspection and Testing**

The purchaser and / or his authorised representative(s) shall be present at the time of Acceptance Tests and the Bidder shall provide all necessary facilities to them.

No material shall be dispatched from its point of manufacture before it has been satisfactorily inspected and tested.

The purchaser and / or his authorised representative(s) shall also be entitled to access to the Manufacturer's Works for the purpose of inspecting the manufacture and testing of the materials and equipments.

The Bidder shall give Purchaser at least fifteen days advance notice of any equipment being ready for inspection.

The acceptance of any quantity of material shall in no way relieve the Supplier of any of his responsibilities for meeting all requirements of the Specification, and shall not prevent subsequent rejection if such material is later found to be defective.

13.00 Instruction to Bidders

Bidder must submit the following documents related to Technical Parameters with the offer as instructed in the NIT :

i) The Bidder must submit the type test report as indicated in the specification.
ii) All schedules duly filled and signed. The Bidder shall not left blank any item in the Guaranteed Technical Particulars.
iii) All documents duly signed related to Qualifying Requirements indicated in the Specification.
iv) Drawings of offered item.
v) Testing facilities at Manufacturer's Works.
vi) Performance certificates of 70KN, 120KN and 160KN disc insulators.
vii) List of past supplies as indicated in the relevant schedule.

14.00 Documentation

Successful tenderer shall submit the necessary drawings / documents, QAP etc. for Purchaser's approval within fifteen days from the date of issuance of purchase order.

Ten (10) sets of approved drawings with a permanent Velograph along with soft copy for the respective Equipment / Material shall be supplied to the Purchaser as contract drawings before dispatch of the equipment.

For 132 KV Line

1. Tests on Complete Strings with Hardware Fittings:

Voltage Distribution Test

The voltage across each insulator unit shall be measured by sphere gap method. The result obtained shall be converted into percentage. The voltage across any disc shall not exceed 20% for suspension insulator strings and tension insulator strings.

Mechanical Strength Test

The complete insulator string along with its hardware fitting excluding arcing horn, corona control ring, grading ring and suspension assembly/dead end assembly shall be subjected to a load equal to 50% of the specified minimum ultimate tensile strength (UTS) which shall be increased at a steady rate to 67% of the minimum UTS specified. The load shall be held for five minutes and then removed. After removal of the load, the string components shall not show any visual deformation and it shall be possible to disassemble them by hand. Hand tools may be used to, remove cotter pins and loosen the nuts initially. The string shall then be reassembled and loaded to 50% of UTS and the load shall be further increased at a steady rate till the specified minimum UTS and held for one minute. No fracture should occur during this period. The applied load shall then be increased until the failing load is reached and the value recorded.

Vibration Test

The suspension string shall be tested in suspension mode, and tension string in tension mode itself in laboratory span of minimum 30 metres. In the case of suspension string a load equal to 600 kg shall be applied along the axis of the suspension string by means of turn buckle. The insulator string along with hardware fittings and conductor tensioned at 1850 kg in case of ACSR Panther conductor shall be secured with clamps. The system shall be suitable to maintain constant tension conductor throughout the duration of the test. Vibration dampers shall not be used on the test span. The conductor shall be vertically vibrated simultaneously at one of the resonance frequencies of the insulators string (more than 10 Hz) by means of vibration inducing equipment. The peak to peak displacement in mm of vibration at the antinode point, nearest to the string, shall be measured and the same shall not be less than 1000/f1.8 where f is the frequency of vibration in cycles/sec. The insulator string shall be vibrated for not less than 10 million cycles without any failure. After the test the insulators shall be examined for looseness of pins and cap or any crack in the cement. The hardware shall be examined for looseness, fatigue failure and mechanical strength test. There shall be no deterioration of properties of hardware components and insulators after the vibration test. The insulators shall be subjected to the following tests as per relevant standards :

	Tests Percentage of	Percentage of units to be tested
a)	Temperature cycle test followed by mechanical performance test	60
b)	Puncture test/steep wave front test	40

2. On Disc Insulator Units Steep Wave Front Test

Test following test shall be performed on 10 insulator units in case of disc insulators selected at random from the lot offered for selection of sample for type test.

a) Each insulator unit shall be subjected to five successive positive and negative impulse flashovers with a wave having minimum effective rate of rise of 2500 KV per microseconds.

b) Each unit shall then be subjected to three dry power frequency voltage flashovers.

Acceptance Criteria

An insulator shall be deemed to have met the requirement of this test if, having been successfully subjected to the ten impulse flashovers, the arithmetic mean of the three subsequent dry/power frequency voltage flashover values equals or exceeds 95% of the rated dry power frequency flashover voltage.

An insulator shall be deemed to have failed to meet the requirement of above testing if,

(a) It has not flash over when the oscillogram or peak voltage indicator shows a marked reduction in voltage. or
(b) Any one of the subsequent three dry power frequency voltage flashover value is less than 80% of the value specified.

Failure of any one unit either in the steep wave front or subsequent low frequency voltage test shall cause for testing on double number of units.

Thermal Mechanical Performance Test

Thermal Mechanical Performance Test shall be performed in accordance with IEC-60383-1 Clause 20 with the following modifications :

(1) The applied mechanical load during this test shall be 70% of the rated electromechanical or mechanical value.
(2) The acceptance criteria shall be
(a) X greater than or equal to R + 3S.Where

X = Mean value of the individual mechanical failing load. R =Rated electro-Mechanical / mechanical failing load. S = Standard deviation.

The minimum sample size shall be taken as 20 for disc insulator units.

(b) The individual electromechanical failing load shall be at least equal to the ratedvalue. Also uncture shall not occur before the ultimate fracture. Electromechanical/Mechanical Failing Load Test

This test shall be performed in accordance with clause 18 and 19 of IEC 60383 with the following acceptance

(i) X greater than or equal to R + 3SWhere

X = Mean value of the electro-mechanical/mechanical/ failing load. R =Rated electro-mechanical / mechanical failing load.

S = Standard deviation.

(ii) The minimum sample size shall be taken as 20 for disc insulators units. However,for larger lot size, IEC 60591 shall be applicable.
(iii) The individual electro-mechanical/mechanical failing load shall be at least equal tothe rated value. Also electrical puncture shall not occur before the ultimate fracture. Residual Strength Test

The above test shall be performed as per clause 4.4 and 4.5 of IEC 60797 preceded by the temperature cycle test, on both glass and porcelain disc insulators. The Sample size shall be 25 and the evaluation of the results and acceptance criteria shall be as per clause No. 4.6 of IEC 60797.

IR Measurements

IR measurement shall be carried out by the instrument operating at 1 KV DC. IR value when measured under fair weather condition, shall not be less than 1000 M-ohm.

Impact Test The Impact Test shall be carried out in accordance with ANSI-C-29.2 Clause

8.2.8 with the following modification.

The breaking point of the pendulum shall be so adjusted that, when released the copper nose will strike the outer rim of the shell or the most protruded rim of the shell squarely in a direction parallel to the axis of the unit and towards the cap.

The test specimen shall receive an impact of 7 N-m for 70 KN and 120 kN Disc by releasing the pendulum.

3. **Tests on all components (As applicable**) Chemical Analysis of Zinc used for Galvanizing

Samples taken from the zinc ingot shall be chemically analyzed as per IS: 209. The purity of zinc shall not be less than 99.95%.

Tests for Forgings

The chemical analysis hardness tests and magnetic particle inspection for forgings, will be as per the internationally recognized procedures for these tests. The sampling willbe based on heat number and heat treatment batch. The details regarding test will be as discussed and mutually agreed to by the Supplier and Employer in Quality Assurance Programme.

Tests on Castings

The chemical analysis, mechanical and metallographic tests and magnetic, particle inspection for castings will be as per the internationally recognized procedures for these tests. The samplings will be based on heat number and heat treatment batch. The details regarding test will be as discussed and mutually agreed to by the Supplier and Employer in Quality Assurance Programme.

Autoclave Test

For cement used in the assembly of the insulators six samples from different batches shall be tested in accordance with ASTM C-151. The cement shall have an expansion less than 0.12%.Hydraulic Internal Pressure Test on Disc Insulator Shell.The test shall be carried out on 100% shells before assembly. The details regarding test will be as discussed and mutually agreed to by the Supplier and Employer in Quality Assurance Programme.

GUARANTEED TECHNICAL PARTICULARS FOR DISC INSULATOR

(To be submitted along with Techno-commercial bid)

Sl. No.	Description	Unit	70KN Disc Insulator	120KN Disc Insulator	160KN Disc Insulator
1.	Name of Manufacturer	-			
2.	Address of Manufacturer	-			
3.	Standard Applicable	-			
4.	Type of Insulator Disc	-			
5.	Diameter of Disc	mm			
6.	Ball diameter	mm			
7.	Distance between center of discs when assembled	mm			
8.	Minimum nominal creepage distance of single disc	mm			
9.	Protected creepage distance	mm			
10.	Head thickness of shell	mm			
11.	Electromechanical strength of disc	KN			
12.	Breaking strength of disc	KN			
13.	Impact strength of disc	N-M			
14.	50 cycles dry flashover voltage of disc	KV(r.m.s.)			
15.	50 cycles dry withstand voltage of disc	KV(r.m.s.)			
16.	50 cycles wet flashover voltage of disc	KV(r.m.s.)			
17.	50 cycles wet withstand voltage of disc	KV(r.m.s.)			
18.	Puncture voltage of disc	KV(r.m.s.)			
19.	Dry impulse flashover voltage of discs (+ve)	KVp			
20.	Dry impulse withstand voltage of discs (+ve)	KVp			

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21.	Visible discharge voltage of single disc (dry)	KV(r.m.s.)			
22.	Radio Influence voltage of Disc a) Test voltage to Ground b) Max. R.I.V. at 1MHz	 KV(r.m.s.) Micro-Volt			
23.	Purity of Zinc used for galvanising	%			
24.	Mass of Zinc coating (Min)	gm/m2			
25.	Weight a) Net weight of Unit Disc b) Net weight of Socket Cap c) Net weight of Ball Pin	 Kg. Kg. Kg.			
26.	Axial and Radial run out (according to IEC) a) As per pointer A b) As per pointer B	 mm mm			
27.	Steepness of impulse voltage which the disc insulators can withstand in steep wave front test.	KV/µSec			
28.	No. of dips in standard preece test a) Socket b) Ball Pin	-			
29. (a)	Breaking strength of complete insulator assembly Suspension (i) 220KV System (ii) 132KV System	KN			

(b)	Tension (i) 220KV System (ii) 132KV System				
30.	50 cycles dry flashover voltage of strings with arcing horn (i) 220KV System (ii) 132KV System	KV(r.m.s.)			
31.	50 cycles dry flashover voltage of strings without arcing horn (i) 220KV System (ii) 132KV System	KV(r.m.s.)			
32.	50 cycles dry withstand voltage of strings with arcing horn (i) 220KV System (ii) 132KV System	KV(r.m.s.)			
33.	50 cycles dry withstand voltage of strings without arcing horn (i) 220KV System (ii) 132KV System	KV(r.m.s.)			
34.	50 cycles wet flashover voltage of strings with arcing horn (i) 220KV System (ii) 132KV System	KV(r.m.s.)			
35.	50 cycles wet flashover voltage of strings without arcing horn (i) 220KV System	KV(r.m.s.)			

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	(ii) 132KV System				
36.	50 cycles wet withstand voltage of strings with arcing horn (i) 220KV System (ii) 132KV System	KV(r.m.s.)			
37.	50 cycles wet withstand voltage of strings without arcing horn (i) 220KV System (ii) 132KV System	KV(r.m.s.)			
38.	Dry impulse flashover voltage of strings without arcing horn +ve (i) 220KV System (ii) 132KV System	KVp			
39.	Dry impulse flashover voltage of strings with arcing horn (i) 220KV System (ii) 132KV System	KVp			
40.	Dry impulse withstand voltage of strings without arcing horn +ve (i) 220KV System (ii) 132KV System	KVp			
41.	Dry impulse withstand voltage of strings with arcing horn (i) 220KV System (ii) 132KV System	KVp			

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42.	Corona formation voltage of strings (i) 220KV System (ii) 132KV System	KV(r.m.s.)			
43.	Radio Influence voltage of strings a) Test voltage to Ground b) Max. R.I.V. at 1MHz	KV(r.m.s.) Micro-Volt			
44.	Net weight of complete string	Kg.			
(a)	Suspension (i) 220KV System (ii) 132KV System				
(b)	Tension (i) 220KV System (ii) 132KV System				
45.	Length of complete string	mm			
(a)	Suspension (i) 220KV System (ii) 132KV System				
(b)	Tension (i) 220KV System (ii) 132KV System				

Signature of the Tenderer : .....

Date : ....

Seal : .....

Signature of tenderer (s) with seal

PART-II

CHAPTER-IV

GENERAL TECHNICAL REQUIREMENTS OF HARDWARE AND ACCESSORIES

1 Scope

This specification covers design, manufacture, testing at manufacturer's works before despatch

supply and delivery of Hardware and accessories for 220/132/33KV substations switch yard.

2 Standards

The materials covered under this specification shall comply with the requirements of the latest edition of the following standard.

IS 2486, (all relevant parts): Metal fittings for Insulator for overhead power lines with nominal voltage greater than 1,000V.

IS 2629: Recommended practice for hot dip galvanising of iron and steel.

IS 2633: Method of testing uniformity of coating of zinc coated articles.

IS 6745: Method for determination of mass of zinc coating on zinc coated iron and steel articles

IS 5561: Specification for Electric power connectors.

The materials conforming to any other national standards which ensure equal or better performance shall also be acceptable. The salient point of these specification and points of difference between these and the above specification shall clearly brought out in the bid and English version of the standard shall be submitted.

3 Construction

The material offered shall be of best quality, workmanship, well finished and of approved design. All casting shall be free from blow-holes, flaws, cracks or other defects and shall be smooth, close grained and of true forms and dimension. All mechanical surface shall be true, smooth and finished. Metal fittings of specified materials for string hardware are required to have excellent mechanical properties such as strength, toughness and high corrosion resistance and free from corona formation. All current carrying parts shall be so designed and manufactured that contact resistance is reduced to the minimum

Compression areas shall be clearly marked on each accessory designed for continuous die compression shall bear the word 'COMPRESS FIRST' near the point of each Accessory where het compression begin. Accessories designed for intermittent die compression shall bear the identification marks 'COMPRESSION ZONE' and ' NON-COMPRESSION ZONE' distinctly compression. The letters, numerals and other marking on finished accessories shall be distinct and legible.

All bolts, nuts, bolt-heads shall be white worth standard thread. Bolts heads and nuts shall be locked in an approved manner. The threads in nuts and tapped holes shall be cut after galvanising shall be well lubricated or greased. All other threads shall undercut to take care of increase in diameter due to galvanising. Bolts and nuts should be of approved make. 2.5% extra bolts, nuts, washers shall be supplied.

The general design of Hardware and Accessories shall be such as to ensure uniformity, high strength, free from corona formation and high resistance against corrosion even in high level of atmosphere, pollution.

All hooks, eyes pins, bolts, suspension clamps and other fittings for attaching insulator to the tower or to the line conductor, shall be so designed as to reduce damage to the conductor, insulator or the fitting arising from the conductor vibration.

Special attention must be paid to ensure smooth finished surface throughout. Adequate bearing area

between fittings shall be provided and 'point' or 'line' contacts shall be avoided.

All fittings shall be free from cracks, shrinks, slender, air holes, burrs or rough edges. All current carrying parts shall be designed to have minimum contact resistance.

The design of the fittings shall be such as to avoid local corona formation or discharges that likely tocause interference to tele-transmission of signals of any kind.

The tenderer shall offer tinned copper bonding pieces for connecting the ground wire suspension and tension clamp with tower body suitable for earthing. Each bond pieces shall have suitable compression type connecting leg or thimble on either side for making connections to clamps andtower body. The connecting socket should be made of tinned copper.

3.1 Galvanisation

All ferrous parts of hardware shall be galvanized in accordance with the latest edition of IS-2629 or any other equivalent authoritative standards. The weight of zinc coating shall be determined asuniformity of coating of hot dip galvanized articles or any other equivalent authoritative standard. The zinc used for galvanization shall conform to grade Zn 99.95% of IS-209. The galvanized parts shall withstand six(6) dip for 1 minute each time while testing uniform of Zinc coating as per IS-2633. Spring washers shall be electro galvanized.

4 Hardware Requirement

Materials for the various components of the Hardware shall be as follows:

4.1 Single tension set for conductor

1. Anchor Shackle
2. Ball eye, ball link (H.H)
3. Tower side arcing horn (for line hardware only)
4. Socket clevis, socket eye with R type security clips
5. Line side arcing horn (for line hardware only)
6. Compression type dead end clamp with jumper for 132KV and 220KV or bolted type deadend clamp for 33KV
7. Bolts, nuts, washers, spring washer and split pin for the above

4.2 Double tension set for conductor

1. Anchor Shackle
2. Chain link
3. Yoke plate
4. Tower side arcing horn
5. Ball clevis
6. Socket clevis with R type security clips
7. Line side arcing horn (for line hardware only)
8. Compression type dead end clamp with jumper for 132kv and 220 kv or bolted typedead end clamp for 33kv
9. Bolts, nuts, washes, spring washes and split pin for the above.

4.3 Single tension set for twin conductor

For 220 KV and 132 KV substations only.

1. Anchor Shackle
2. Ball eye, ball link (H.H)
3. Socket clevis, socket eye with R type security clips
4. Yoke plate
5. Turn buckle
6. Compression type dead end clamp with jumper for 132 KV and 220 KV or boltedtype dead end clamp for 33KV
7. Bolts, nuts, washers, spring washer and split pin for the above

4.4 Single suspension set for conductor

1. Ball hook
2. Tower side arcing horn

3. Socket clevis, socket eye with R type security clips
4. Line side arcing horn (for line hardware only)
5. Anchor shackle
6. Armour grip suspension clamp with armour rods (for 33KV without armour rod)
7. Compression type dead end clamp with jumper for 132KV and 220KV or boltedtype dead end clamp for 33KV
8. Bolts, nuts, washers, spring washer and split pin for the above

4.5 Double suspension set for conductor

1. Ball hook
2. Yoke plate
3. Tower side arcing horn (for line hardware only)
4. Socket clevis, socket eye with R type security clips
5. Ball clevis
6. Line side arcing horn (for line hardware only)
7. Anchor shackle
8. Armour grip suspension clamp with armour rods (for 33KV without armour rod)

4.6 Suspension set for earth wire

1. Eye hook
2. Suspension clamp
3. Flexible copper bond
4. Bolts, nuts, washers, spring washer and split pin for the above

4.7 Tension set for earth wire

1. Anchor Shackle
2. Compression type dead end clamp with jumper sleeve with Aluminium casing
3. Bolts, nuts, washers, spring washer and split pin for the above

4.8 String set details

1. <u>132KV single suspension set</u>

Number of discs per string	9
Electro-mechanical strength	: 70kN
Ball diameter	: 16mm
Spacing between discs	: 145mm

2. <u>132KV double suspension set</u>

Number of discs per string : 2 x 9

Electro-mechanical strength : 70kN

Ball diameter : 16mm

Spacing between discs : 145mm

3. 132KV single tension set

Number of discs per string 10

Electro-mechanical strength : 120kN

Ball diameter : 20mm

Spacing between discs : 145mm

4. 132KV double tension set

Number of discs per string : 2 x 10

Electro-mechanical strength : 120kN

Ball diameter : 20mm

Spacing between discs : 145mm

Above nos. of disc in the string are for Transmission Lines. For 132KV system, one extra disc shall be provided (both for tension and suspension) when the string is used inside Sub- station Switchyard.

4.9 Mechanical Strength

The ultimate mechanical strength of the hardware should in no case be lower than thefollowing:

1. 132KV suspension set for AAAC Panther : 70kN
2. 132KV tension set for AAAC Panther :120 kN
3. 132KV tension set for twin Panther / single Moose :160 kN

4.10 Material

1. Anchor Shackle : Forged steel
2. Chain Link : Forged steel
3. Ball hook or ball hook (HH) : Forged steel
4. Socket eye (HH) : Forged steel
5. Ball clevis: Forged steel : Forged steel
6. Socket clevis : Forged steel
7. Yoke plate : Mild steel
8. Arching horn : Mild steel
9. Suspension clamp : Aluminium alloy
10. Dead end/cross-arm strap : MS Flat
11. Tension clamp (compression) : Aluminium alloy (steel for ACSR)
12. Tension clamp (bolted type) : Aluminium alloy
13. Tension clamps and sleeves for earth wire : HDG steel with Aluminium encasing

5. Dimensions

The minimum length of the different hardware string sets shall be as detailed below

1. Single Suspension set for ACSR Panther : 1600mm for 132kv

2. PG clamp for AAAC Panther conductor (3 bolted type): (1500 X 85 X 15)mm for 132 KV

6. Suspension / Tension assembly

6.1 Tension clamps

Compression type tension clamps shall be made of high strength extruded Aluminium alloy and suitable for ACSR Moose / Zebra / Panther conductor in 220 KV and 132 KV system. Bolted type hardware (4 bolts type) / compression type shall be used in 33KV system suitable for AAAC Panther / ACSR Moose Conductor as per requirement.

The clamps shall also be designed, manufactured and finished to have a suitable shape without sharp angles at the end and to hold the respective conductor properly. It should however have sufficient contact surface to minimize damage due to fault current. The clamp shall have slipping strength of not less than 95% UTS of respective conducts.

Compression type tension clamps shall be made of high strength aluminium alloy and suitable for respective conductor. The tension clamps shall not permit slipping of or damage to or failure of the complete conductor at any part there of at a load less than 95% of the ultimate strength of the conductor. The electrical conductively of tension clamps shall the same value as the conductor and shall be of such design as will ensure unrestricted flow of current without use of parallel grove clamps.

6.2 Suspension Clamps for conductor

Suspension clamps for 220KV line and 132KV system shall be suitable for supporting the respective conductor wrapped with armour rods. Suspension clamp for 33KV shall be without armour rods. T ne clamp body and keeper shall be high strength aluminium alloy. The suspension clamp shall consist of neoprene Insert tor armour grip. The suspension clamp shall be provided with galvanized steel U bolt, nut, Washer etc.

The suspension clamp shall be so designed manufactured and finished to have a suitable shape without sharp angles at the end and to hold the respective conductor properly. It should now ever nave sufficient contact surface to minimize damage due to fault current. The clamp for 33KV shall bee of envelope type (SAlL VI design) and shall have ease of oscillation around the horizontal axespassing through the center line of Conductor.

The suspension clamp shall permit the conductor to slip before failure of the conductor occurs and shall have sufficient slipping strength to resist the conductor tension under broken wire condition.

The conductor should not slip at a load of 8% of the breaking load of the conductor. The slip strengthshall not exceed 15% of breaking load of the conductor. For 33 KV suspension string the clamp shall of envelope type suitable for AAAC Panther/ twin Panther / ACSR Moose as applicable with 3 Nos. Disc Insulators.

6.3 Suspension clamp for ground wire

Suspension clamps of suitable size are required for holding the galvanized stranded steel wire a suspension points. The suspension set shall be suspended from tower hanger. The clamp shall be sodesigned that the effect of vibration both on ground wire and the fitting is minimum. The clamp shall permit the ground wire to slip before the failure of ground wire occurs. One leg of the U-bolt hold in the keeper piece of clamps shall be kept sufficiently long and shall be provided with threaded nuts and locking nut tor fixing the flexible earthing bond between the suspension clamp and the tower structure.

5 Dead end assembly

7.1 Dead end assembly for conductor

Compression type dead-end assemblies for galvanized stranded steel wire shall be required for use on tension towers. 1he dead end assemblies shall be supplied complete with jumper terminals, nutsbolts, suitable bind

pieces between the steel clevis and tower strain plates so as to provide sufficient flexibility to the attachment. Dead end assembly shall have conductivity not less than GSS Broun wire and tensile strength not less than 909% that of the UTS of the ground wire. The tension clamp should be made of forged steel with Aluminium encasement over lt.

One of the bolt holding jumper terminal of dead end assemblies shall be kept sufficiently 1ong and threaded and shall be provided with washers, nuts and locking nuts for fixing the flexible earthing bond between the dead end assembly and tower structure. The earthing bond shall be made of tinned copper having at least 500mm length and should be compressed with two sockets made of tinned copper at both ends. All ferrous parts shall be hot dip galvanized.

7.2 Dead end assembly for earthwire

All tension towers shall be fitted with suitable compression type tension clamps to support 7/3.15mm earthwire. Anchor shackle shall be supplied which shall be suitable for attaching the tension clamp to strain plates. The clamps shall have adequate area of bearing surface to ensure positive electrical and mechanical contact and shall not permit any slip to the earthwire under working tension and vibration conditions. The angle of jumper terminal to be mounted should be 30deg from the vertical. The complete assembly shall be so designed as to avoid undue bending in anypart of the clamp and shall not produce any hindrance to the movements of the clamps in the horizontal or vertical directions. The slip strength of the assembly shall not be less than 95% of the ultimate strength of the earthwire. The clamps shall be complete with all the components including anchor shackle, bolts, nuts, washers, split pin, jumper arrangement etc.

6 Requirement of accessories

8.1 Mid-span straight joint

Material: Aluminium alloy for AAAC conductor, Mild steel for steel wire in ACSR conductor, HDG steel with Aluminium encasing tor earthwire. Minimum failing load: 95% of UTs of conductor or earthwire. Electrical resistance at 20oC: 75% of measured resistance of the equivalent length of Conductor or earthwire.

The mid span joints tor conductor and earthwire shall be of compression type. The mid span joints tor ACSK shall comprise of outer Aluminium sleeve made of Aluminium (99.5% purity), inner SIeeveof HDG steel and two filler plugs. The mid span joints for AAAC shall comprise of Aluminium sleeve made of Aluminium alloy. The ground wire mid span joints shall be of HDG steel with aluminium encasement over it. The sleeves shall be of circular shape suitable for compression into hexagonal shape. the inner and outer diameters and lengths of these joints before and after compression be clearly shown on the drawing.

8.2 Repair sleeve

Material: Aluminium alloy for conductor and HDG steel with Aluminium casing tor earthwire. Minimum failing load: 95% of UTS of conductor or earthwire. The repair sleeve of conductor shall be in two halves (one body and one keeper) and this should be extruded Aluminium (99.5% purity).The repair sleeve of ground wire shall be of HDG steel with Aluminium encasing. The repair sleeve shall be of circular shape suitable for compression into hexagonal shape.

8.3 Vibration damper

Clamp shall be made from gravity die cast Aluminium alloy; messenger cable from high strength galvanized stranded steel wire and weight from galvanized cast iron. The 4R (4 frequency) type vibration dampers shall effectively damp out the vibrations of the conductors and galvanized stranded steel wire. The tenderers shall give full details of damping characteristics and energy dissipation curves of the dampers and guarantee their effectiveness. The number of vibration dampers required to damp out the conductor vibration effectively and their points of fixation shall be indicated.

The clamp of vibration dampers shall be made of Aluminium alloy. The clamp shall have sufficient grip to maintain the damper in position on the conductor without damaging the strands, premature 1atigue of the

clamp body and clamp cap shall be smooth, tree or Projection, Brit whichcould cause damage to the conductor when the clamp 1s installed.

The messenger cable shall be made of high strength steel galvanised strands and performed in order to prevent subsequent drop in weights in service. Clamping bolts shall be provided with self locking nuts designed to prevent corrosion of the threads or loosening during service, ensuring thatno Seepage occurs. All ferrous parts shall be hot dip galvanized. The spring washers should be electro galvanized. The ends of the messenger cable shall be effectively sealed to prevent corrosion and also to ensure that the balancing weights of the damper can stand mechanical fly off pull of S00 Kgs.

The vibration damper shall be capable of being installed and removed from energised line by means or hot line tools without completely separating components. In addition, the clamp shall be capable or being removed and reinstalled on the line of the design torque without shearing or damaging b01ts, nuts or caps crews. The damper assembly shall be electrically conductive.

4. Tests

The bidder shall have sufficient testing facilities at his works to conduct all acceptance and routine tests stipulated in the indicated standards.

All type test reports except Heating cycle test as per IS:2486 (Part-) of line hardware and accessories shall be submitted from an accredited laboratory. Heating cycle test may be done from laboratories depending upon availability. Accreditation should be from the national accreditation body of the country in which the laboratory is located.

Similarly, the type tests of Vibration dampers viz. a) Dynamic characteristic test, b) Dampingefficiency test, c) Fatigue test shall be submitted from an accredited laboratory. Balance type tests as per 1S:9708 of vibration damper may be done from Govt. laboratory/ IT Lab/ IISC Lab etc. Accreditation should be from the national accreditation body of the country in which the laboratory is located.

10 Packing and Marking

All accessories shall be supplied in strong wooden boxes or crates of approved design with steel loop and band for strength and durability to withstand rough handling during storage.

Each package shall be marked on the sides as follows:

1. Name or designation of the consignee to be furnished by the purchaser
2. Ultimate destination as required by the purchaser.
3. The items and the respective quantities contained in it (packing list in weather proof envelope)
4. The net and gross weights of the materials.

The marking shall be stencilled indelible ink on each package.

11. Specific Requirements

The type and quantity of various hardware of 132 KV system will be finalized during detailengineering stage.

1.	Description	Data
1	132kv single tension hardware & clamp (120kn,20mm dis b & s) with singleanchoring point with all hardware and accessories, u bolts-suitable for single acsr moose without turnbuckle	

2	132kv single tension hardware & clamp (120kn,20mm dis b & s) with singleanchoring point with all hardware and accessories, u bolts-suitable for single acsr moose -with turnbuckle	
3	132kv single tension hardware & clamp (120kn,20mm dis b & s) with singleanchoring point with all hardware and accessories, u bolts-suitable for twin acsr moose (200mm sub conductor spacing) without turnbuckle	
4	132kv single tension hardware & clamp (120kn,20mm dis b & s) with singleanchoring point with all hardware and accessories, u bolts-suitable for twin acsr moose (200mm sub conductor spacing) without turnbuckle	
5	132kv single tension hardware & clamp (70kn,16mm dis b & s) with single anchoring point –through type suitable for twin acsr moose	
6	132kv single tension hardware & clamp (70kn,16mm dis b & s) with single anchoring point –through type suitable for twin acsr moose	
7	132kv single tension hardware & compression type clamp (120kn,20mm dia b & s) with suitable for transmission line with single anchoring point with all hardware and accessories, u bolts-suitable for single aac panther- with sag adjuster plate	
8	132kv single tension hardware & compression type clamp (120kn,20mm dia b & s) suitable for transmission line with single anchoring point with all hardware and accessories, u bolts-suitable for twin aac panther-with sag adjuster plate	

Signature of tenderer (s) with seal

PART II

CHAPTER-V

GENERAL TECHNICAL REQUIREMENTS OF EARTHWIRE

1. **Scope :**

This specification covers design, manufacture, testing at manufacturer's works, supply and delivery at site of Galvanized Earth wire

1. Standards

The equipment covered by this specification shall, unless otherwise specified, conform to the latest edition/revision of the following:

1) IS 2363 :Glossary of terms relating to wire ropes
2) IS 2629 :Recommended Practice for Hot-Dip Galvanizing of Iron and Steel
3) IS 2633 :Methods for testing uniformity of coating of zinc coated articles
4) IS 4826 :Specification for Hot-Dipped Galvanized Coatings on Round Steel Wires
5) IS 12776 :Galvanized Strand For Earthing –Specification

2. Technical Particulars

2.1 Material

The conductors shall be Galvanized stranded Steel Wire for Ground wires. The material of steel wire shall conformto IS 12776.

2.2 Construction

The conductors shall be of the size 7/3.15 mm galvanized stranded steel wire of 1100N/mm^2 quality.

All steel galvanized steel earth strand shall be smooth, uniform and free from all imperfections such as spills, die-marks, scratches, abrasion and kinks after drawing and also after stranding. Standard length of each coil shall be 1.5 KM.

4 Dimension and Tolerances

The dimension and manufacturing tolerances in diameter of individual wires and lay length of galvanized steel earth strand has been indicated in the 'Specific Requirement' of this specification.

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5. Standard Length

Standard length of each coil without joint or weld shall be 1.5 KM.

6. . Galvanizing

The wire shall be galvanized in accordance with IS 2629. Galvanizing shall be uniform, free from blisters and shall not peel off due to abrasion. Uniformity of zinc coating shall be determined as per IS 2633.

Number of dips shall be in accordance with Annexure-A of IS 12776 and as indicated in the 'Specific Requirement' of this specification.

7. Tests

The following tests shall be conducted on the complete strand.

7.1 Breaking Force

Shall be as per IS 12776 .

7.2 Elongation

The elongation of individual wires when measured on a gauge length of 200 mm after breakage shall meet the requirements as given in Annexure-A of IS 12776 .

7.3 D.C. Resistance Test

The galvanized steel earth strand shall be tested according to clause 8.3.2 of IS 12776.The value of d.c. resistance shall be as per Annexure-A of IS 12776.

7.4 4 Wrapping Test

The test shall be conducted by wrapping the wire around a mandrel of diameter equal to four times the wire diameter to form a close helix of eight turns. Six turns then be unwrapped and finally closely wrapped again, in the same direction as before. The wire shall not break during the test (applicable for wires before stranding).

7.5 Galvanising Test

The zinc coating on the individual wires shall be tested as per IS 2633 and shall meet the requirement of IS 12776

7.6 Torsion Test

Torsion value of the individual wires shall meet the requirements as given in Annexure-A of IS 12776.

8. Sampling

The sampling plan shall be in accordance with the standard practice of the manufacturers who shall clearly certify that the full sample or samples tested. No dispatch shall be effected prior to the Purchaser's written approval of the test certificates.

The purchaser may, at any time, call for any tests, that are laid down in the specification as optional test. The Contractor shall arrange to carry out such tests expeditiously at extra cost. Test reports for such optional tests, shall also be submitted to the purchaser, in triplicate for approval.

Selection of sample, conditions of respective tests and rejection of materials if any, shall strictly be in accordance with the requirements of the approved standard or as per the standard practice of the manufactures and in the latter case, full details of the standard practice shall be stated in the tender. The relevant test reports for the repetitive tests including the results of the tests in which the equipment failed to satisfy the requirements of the approved standards shall also be submitted in triplicate. All cost for tests / retests shall be borne by the contractor. The bidder shall submit full particulars of the testing

facilities available in Govt./approved laboratory and shall confirm that the laboratory will be readily available when required, for testing of all the material offered by him.

9. Packing

All reels shall be of dimension approved by the Purchaser and made of seasoned wood sufficiently strong to ensure safe arrival at site, withstanding normal handing and hazards inland transit. The reels shall be such size as to proved at least 1/2" clearance at all points from the cable to the inner surface of the laggings. It shall conform to IS - 1778.

All reels shall have two coats of aluminium paint on both inside and outside surfaces and shall be seated with malleable iron Hub-bushings each having a 90 mm diameter hole.

All reels shall have a layer of waterproof paper around the hub under the cable and another layer over the outermost layer of the cable, that is, next to the lagging.

The reels shall be properly reinforced with galvanised steel wires or iron straps, over the laggings in two places, in an approved manner.

The wooden drum shall preferably be given a protective coating of a reliable organic wood preservative before painting with aluminium paint and the laggings shall also be given a similar treatment before, being fixed on the drum.

10. Marking of Drums & Packages

Each drum / package shall be marked on the sides as follows :

a) Name or designation of the consignee - to be furnished by the Purchaser.
b) Ultimate destination as required by the Purchaser.
c) The number of pieces of cable and the respective lengths, as the case may be (packing list in the weather-proof envelope).
d) The net and gross weights of the materials. The markings shall be stencilled in indelible ink on each package / drum.

11. Specific Requirements

GROUND WIRE(1100N/ mm² grade)

Sl	Description	Parameter
1	Material	Carbon Steel as per IS 12776
2	Construction	7 X 3.15
3	Wire diameter (mm)	
(a)	Nominal	3.15
(b)	Maximum	3.25
(c)	Minimum	3.07
4	Minimum Tensile Strength (N/mm²)	
(a)	After Stranding	1050
5	Torsion of wire on 100 X D	

(a)	After Stranding	18 (Min)
6	Wrap Test on wire as per Sec 8.4 of IS 12776	No wire breakage during the test
7	Elongation of wire(on 200 mm gauge length)	
(a)	After Stranding	3.5% (Min)
8	Zn-coating on wires	

PART-II
CHAPTER-VI
GENERAL TECHNICAL REQUIREMENTS FOR 120 KV LIGHTNING ARRESTER

1 Scope

This specification covers the design, manufacture, testing and supply of 120 KV heavy duty station class Zinc Oxide gapless Lightning Arresters for 132 KV neutral grounded system complete with insulating base, surge monitors, surge counters, current meters and other connecting accessories including terminal connectors.

2 Standards

The equipment shall conform to the latest edition/revision of the following standards:

Lightning Arrestor :

a) IEC 60099-4, Metal-oxide surge arresters without gaps for A. C. systems.
b) IS : 3070(Part-III) - Metal-oxide surge arresters without gaps

Hollow Insulator :

a) IS : 5621 - Specification of Hollow Insulators for Use in Electrical Equipment.

Connector :

a) IS-5561 - Electrical Power Connectors
b) IS-2629 - Recommended practice for Hot Dip Galvanising of Iron and Steel.
c) IS-2633 - Method of testing uniformity of coating on Zinc coated article.

Where the equipment offered conforms to any other standard, the salient points of difference between the standards adopted and IS/IEC recommendations shall be clearly indicated and theEnglish version of the proposed standard shall be submitted with the offer.

Wherever the stipulations in this specification are at variance with the indicated standards, thestipulations made herein shall be binding.

3 System Data

- Nominal System Voltage (KV rms) - 132 KV.
- Highest system voltage (KV rms) - 145 KV.
- No. of Phases - 3.
- Operating frequency (Hz) - 50.
- System neutral connection - Solidly earthed

- Isokeraunic level - 70.
- Shielding - Overhead ground wires provided.
- Shield angle - 30 deg
- B.I.L. of the equipment to be protected (KVp) - 650 KVp

4 Construction

Construction requirements shall conform to IEC 60099-4.

a) Each dismountable unit of the single pole arrester assembly shall have its characteristic elements hermetically sealed under dry inert gas and fully protected against ingress of moisture. The seal shall be very stable, designed and tested to last for the equitable servicelength of the arrester under the tropical weather conditions viz. large variations in day temperature and humidity in air.

b) The Zinc Oxide blocks shall be made of materials which even when subjected to extreme weather conditions encountered in tropics will have non-ageing characteristics and stable thermal properties. The block shall be metalised on the flat surfaces for proper interfacial electrical contact and insulated on the cylindrical side to prevent surface flashover.

c) Each section of the arrester shall be fitted with pressure relief devices to prevent shutteringof the porcelain in case excessive internal gas pressure builds up. This should be so designedas to vent the ionized gases caused by surge current are, to the atmosphere.

d) The leakage distance shall be large to ensure that the resulting surface contamination in thespecified weather conditions do not adversely affect the arrester gap voltage grading and reduces the 50cps. gap break down voltage.

e) The radio interference level for the arresters shall be negligible.

f) All cemented and detachable ferrous hardware shall be hot dip galvanised. Galvanising shallconform to IS:2629. The Bushing shall conform to IS : 5621.The bushing shall be of porcelain type suitable for outdoor use and mounted upright on Steel Structure. The porcelain shall be made by wet process, and shall be homogeneous thoroughly vitrified and impervious to moisture. The glazing shall be uniform brown color, free from blisters, burns and other similar defects. Theoil filled bushing shall have ample insulation and mechanical strength for the duty involvedand shall be designed to prevent accumulation of explosive gases and to provide adequate oilcirculation to remove internal heat. There shall be no undue stressing due to temperature changes and adequate means shall be provided to accommodate conductor expansion.

g) Each Lightning Arrestor shall be complete with all fittings and accessories like grading rings,discharge counter, leakage current detector, connecting conductor, clamp type terminal connectors, porcelain base, two (2) clamp type ground terminal connectors suitable for G.I.Strip (50mm x 6mm) and necessary hardware such as nuts, bolts, spring washers etc. with20% spare hardware.

h) The connector for Lightning Arrester to Surge Monitor shall be of 1.5 meter, at least 50 sq. mm PVC insulated stranded copper cable with suitable lugs.

5 Construction of Connectors

a) The connectors shall be of best quality and workmanship and in line with all the requirements laid out in the adopted standards.

b) All bolts, nuts and washers should have a bright finish. The holes of plain washers shall be reasonably concentric with the outer periphery. All sharp edges should be rounded off. Springwashers shall be supplied in natural finish and conforming to relevant IS specification and shall be Electro galvanised.

Bolts, nuts, plain washers shall be Hot dip galvanised mild steelfor size M12 and above and Electro galvanised mild steel for size below M12.

c) The current carrying parts shall be so designed, manufactured that contact resistance is reduced to the minimum.

d) All connectors should be so designed and manufactured so as to offer ease of installation asthese are to be used in overhead installations. Design should be such that full tightening of nuts and bolts is possible with the ordinary tools.

e) The connectors shall be designed so as to avoid local corona, sound and visible discharge.

f) The connectors shall be suitable for conductor size of 54/3.53 ACSR Moose (Overall Diameter: 31.77 mm); 37/3.15 AAAC Panther(Overall Diameter : 22.05 mm) and 19/2.89 AAAC Dog(Overall Diameter :14.45 mm) as the case may be with horizontal and vertical take-off arrangement.

6 Climatic Condition at Site

The Lightning Arresters shall be suitable for installation in heavily polluted atmosphere at site.Detailed climatic conditions at site are stated below.

a)	Atmosphere	:	Industrial, foggy, smoky and acidic
b)	Altitude	:	Not exceeding 1000 Meters above MSL
c)	Ambient air temperature (summer)	:	50deg C (Peak)
d)	Ambient air temperature (winter)	:	4deg C
e)	Maximum humidity	:	96%
f)	Lightning	:	Heavy during monsoon
g)	Maximum wind pressure	:	200 Kg/Sq. Meter
h)	Seismic Loads	:	Seismic Zone-3,as per Seismic Zone map of India
i)	Rainfall : Tropical in character. Average 1270 mm to 2000 mm per annum.		
j)	Number of rainy days per year on which rainfall exceeds 12.5 mm		: 41 (average)
k)	Average number of thunder stormy days per annum		: 70
l)	Average number of dust storm days per annum		: 15 to 20
m)	Number of months of tropical monsoon conditions per annum		: 5 (June to October)

7 Tests Type Test

Complete Type Test Reports for each type of Lightning Arresters shall be submitted as per IEC60099-4.

Routine Test

Routine tests as stipulated in IEC 60099-4 shall be carried out by the manufacturer on all complete arrestors and also on each section as per their standard practice. The resistive currentdrawn by the arrestor at rated voltage shall be indicated in the routine test report. A schedule ofthe standard tests carried out by the manufacturers along with test procedures shall be submitted along with the drawings.

Acceptance Test

Acceptance Tests shall be carried out in the presence of Purchaser's representative and the Bidder shall provide all necessary facilities to them. The Bidder shall give the Purchaser at leastfifteen (15) days advance intimation in writing along with the routine test reports for inspectionand acceptance test of the equipment.

All tests indicated in IEC 60099-4 shall constitute Acceptance Tests.

Tests shall be carried out on minimum of next highest integer of (3√of offered quantity) or on thequantity desired by the Purchaser's representative during Acceptance Tests.

8 Documentation

a) Guaranteed Technical Particulars
b) Dimensioned drawing of complete arrester and fixing details.
c) Sectional view of the arrester.
d) Diagram of minimum clearances in relation to adjacent grounded metallic structures.
e) Dimensioned drawing of terminal and ground connector giving details of materials used.
f) Dimensioned drawing of the surge monitor and counter and current meter.
g) Dimensioned drawing of the insulating base.
h) Drawing of ZnO block.
i) Drawing of Terminal Connector.
j) Name Plate Details Diagram.
k) Manuals containing erection, assembly, operation and maintenance instruction beforeissuance of dispatch clearance.

9 Specific Requirements

Sl.	Instrument	Value
120 KV LA		
1	Type of installation	Outdoor, pedestal mounted
2	Arrester type and class	Metal oxide, heavy duty, gapless,single column, single phase, station class
3	Rated arrester voltage in KV	120
4	Maximum continuous operating voltage at 50 ^{O}C (MCOV)	102 KV
5	Nominal discharge current in KA with 8/20 µsec wave	10
6	Insulation withstand voltage (Dry, Wet and Impulse)	Test as per IEC 60099-4
7	Steep current impulse residual voltage at 10 KA of 1 µsecfront time	Test as per IEC 60099-4
8	Lightning Impulse residual Voltage (KVp) (8x20 µsec wave)	Test as per IEC 60099-4
	i) 5000 A	
	ii) 10000 A	
	iii) 20000 A	

9	Long duration discharge class	Class 3
10	Switching impulse withstand voltage of arrester housing	Test as per IEC 60099-4
11	High current impulse withstand value (4x10 µsec)	100 KA peak
12	Pressure relief rated current **i)** High Current Low Current	As per IEC 60099-4
13	BIL (KVp)	650
14	Minimum creepage distance	25mm/KV
15	Partial discharge level	< 10pC

Part III

Chapter VII

PRECAUTIONS WHILE WORKING IN CLOSE PROXIMITY OF EXISTING INDIAN RAILWAY OR DFCCIL TRACK

3.4 PRECAUTIONS WHILE WORKING IN CLOSE PROXIMITY OF EXISTING INDIAN RAILWAY OR DFCCIL TRACK

3.4.1 General

Any construction activity involving the existing embankment/formation/running track of the Indian Railways or DFCCIL shall be carried out only with the prior specific authorization of the Engineer.

3.4.2 Works being executed outside running lines are further divided into following 3 sub groups depending upon their distance from the IR tracks /DFCCIL Running Tracks

a) works being done within 3.5 meters from centre of track.
b) works being done between 3.5 meters and 6 meters from centre of track.
c) works being done beyond 6 meters from centre of track.

It a work site is located for away from the existing track but the vehicles in connection with the work are required to ply within the distance from centre of track as mentioned above, it will be constructed that the work in being executed under above classification.

3.5.2.1 Works being done within 3.5 meters from centre of track

All works planned within 3.5 meters from centre of running line or which involve working of machineries and vehicles within this zone, are to be done essentially under block protection and necessary safety precautions for protection of track as per para 806 and 807 of IRPWM be taken.This includes even occasional plying of vehicles/machineries for short durations.

3.5.2.2 Works being done between 3.5 meters and 6 meters from centre of track.

Following precautions be taken when works are required to be done between 3.5 meters to 6 metersfrom track centre or machines/vehicles are required to work/ply within this zone:

(i) Before start of work demarcation should be done parallel to running track at a distance of 3.5 meters from centre of track in advance, as per sketch B, by 150 mm wide white line of lime. Any work or movement of machinery infringing this line will need block protection. Rail barricading should be put up at such locations, as per sketch C, to ensure that even by carelessness or over sight, vehicles do not infringe fixed dimensions. Barricading design shall be approved by the Engineer.

(ii) In case vehicles have to ply or machineries have to work within this zone, DFCCIL's and contractor's supervisors be positioned as shown in sketch D except for the following:

a. Instead of a DFCCIL supervisor it would be a responsible and trained staff of the Contractor. Additional trained staff of the Contractor, shall be posted where turning of vehicles is required during working e.g. earth work bridge work, ballasting etc. Location for reversing vehicles should be nominated and it should be selected in such away that thereis no danger to running trains at such location. Such trained staff of the Contractor should be available with hand flags so that vehicles do not come closer to track by 3.5 meters.

b. Wherever vehicles have to take turn, it should be done in such a way that the driver is invariably facing the running track at all times.

(iii) Look out men should be posted along the track at a distance of 800 meters from location of work with red flag and to whistle in face of road vehicles and approaching trains. Look out men shall also be suitably trained staff of Contractor as mentioned in para 3.5.2.2 (ii) above.

(iv) In additional to look out men, caution order needs to be issued to trains and speed restrictions imposed wherever considered necessary through Employer.

(v) Arrangements should be made to protect the track in case of emergency at work site.

(vi) All temporary arrangements required during execution should be done in a manner that moving dimension is not fringed.

(vii) Individual vehicle/machinery shall not be left unattended at site of work. If it is unavoidable and essential to stable it near running track, it shall be properly secured and manned even during non working hours with all arrangements to protect the track from infringement.

(viii) Any material unloaded or shifted along the track should be kept clear of moving dimensions and stacked at a specified distance from running track.

(ix) Movement of vehicle/working of machineries should be prohibited at night. However, in case of emergency when night working unavoidable, adequate lighting shall be provided with all protection measured as mentioned above in full force. All night working near IR track shall require Engineer's prior approval.

(x) The work site should be suitably demarcated to keep public and passengers away. Necessary signages , boards, such as "work in progress" etc should be provided at appropriate location to warn public/passengers.

(xi) Contractor's drivers/operators handling vehicles/machineries shall be issued a fitness certificateby the safety officer of the Contractor after educating them about safety norms and after taking assurance in writing for working within vicinity of railway's track.

(xii) While working on cuttings with machineries or when there is movement of vehicles above cutting,if there is possibility of any of the following circumstances, work has to be done under block protection:

(a) Any possibility exists for machinery/vehicle after toppling/due to loss of control comeover track of infringe it.

(b) Chance of machineries/vehicles to come within 3.5 meters from track centre though working beyond it.

3.5.2.3 Works being beyond 6 meters from centre of IR/DFC track.

No precautions are needed except in cuttings or where the work can affect train running in anyway.

3.4.3 Procedure to be followed for cutting of existing IR formation

Locations where it is necessary to cut the existing IR formation for the construction of theconstruction of the DFC formation are classified into the following two categories:

(a) Where the distance between the centre line of existing IR track and the proposed DFCtrack is less than 8 m

(b) Where the distance between the centre line of existing IR track and the proposed DFCtrack is greater than or equal to 8 m

3.5.3.1 Distance between centerlines of IR DFC track is less than 8 m.

Such a situation may arise while working in existing IR yards. In such cases, if is agreed with IR

a. Wherever vehicles have to take turn, it should be done in such a way that the driver is invariably facing the running track at all times.

(ii) Look out men should be posted along the track at a distance of 800 meters from location of work with red flag and to whistle in face of road vehicles and approaching trains. Look out men shall also

be suitably trained staff of Contractor as mentioned in para 3.5.2.2 (ii) above.

(iii) In additional to look out men, caution order needs to be issued to trains and speed restrictions imposed wherever considered necessary through Employer.

(iv) Arrangements should be made to protect the track in case of emergency at work site.

(v) All temporary arrangements required during execution should be done in a manner that moving dimension is not fringed.

(vi) Individual vehicle/machinery shall not be left unattended at site of work. If it is unavoidable and essential to stable it near running track, it shall be properly secured and manned even during non working hours with all arrangements to protect the track from infringement.

(vii) Any material unloaded or shifted along the track should be kept clear of moving dimensions and stacked at a specified distance from running track.

(viii) Movement of vehicle/working of machineries should be prohibited at night. However, in case of emergency when night working unavoidable, adequate lighting shall be provided with all protection measured as mentioned above in full force. All night working near IR track shall require Engineer's prior approval.

(ix) The work site should be suitably demarcated to keep public and passengers away. Necessary signages , boards, such as "work in progress" etc should be provided at appropriate location to warn public/passengers.

(x) Contractor's drivers/operators handling vehicles/machineries shall be issued a fitness certificateby the safety officer of the Contractor after educating them about safety norms and after taking assurance in writing for working within vicinity of railway's track.

(xi) While working on cuttings with machineries or when there is movement of vehicles above cutting,if there is possibility of any of the following circumstances, work has to be done under block protection:

(c) Any possibility exists for machinery/vehicle after toppling/due to loss of control comeover track of infringe it.

(d) Chance of machineries/vehicles to come within 3.5 meters from track centre though working beyond it.

3.5.2.4 Works being beyond 6 meters from centre of IR/DFC track.

No precautions are needed except in cuttings or where the work can affect train running in anyway.

3.4.4 Procedure to be followed for cutting of existing IR formation

Locations where it is necessary to cut the existing IR formation for the construction of theconstruction of the DFC formation are classified into the following two categories:

(a) Where the distance between the centre line of existing IR track and the proposed DFCtrack is less than 8 m

(b) Where the distance between the centre line of existing IR track and the proposed DFCtrack is greater than or equal to 8 m

3.5.3.2 Distance between centerlines of IR DFC track is less than 8 m.

(i) Such a situation may arise while working in existing IR yards. In such cases, if is agreed with IR to suspend the nearest IR line for the traffic, the existing IR formation can be cut vertically at a distance of 3.8 m from the centre line of the proposed DFC track for the depth required to providethe formation layers (blanket and prepared sub grade) of the DFC track as per specifications. In case it is not agreed to suspend the traffic on nearest IR line, detailed methodology for the work will be submitted by contractor to the Engineer for the approval and work will be executed accordingly following all safety precautions.

(ii) Due care and precautions shall be taken to avoid any slippage of the cut. In case of any slippage, damage of disturbance of the IR track an formation, the Contractor shall rectify and restore the some

to its original configuration at his own cost to the satisfaction of the Engineer.

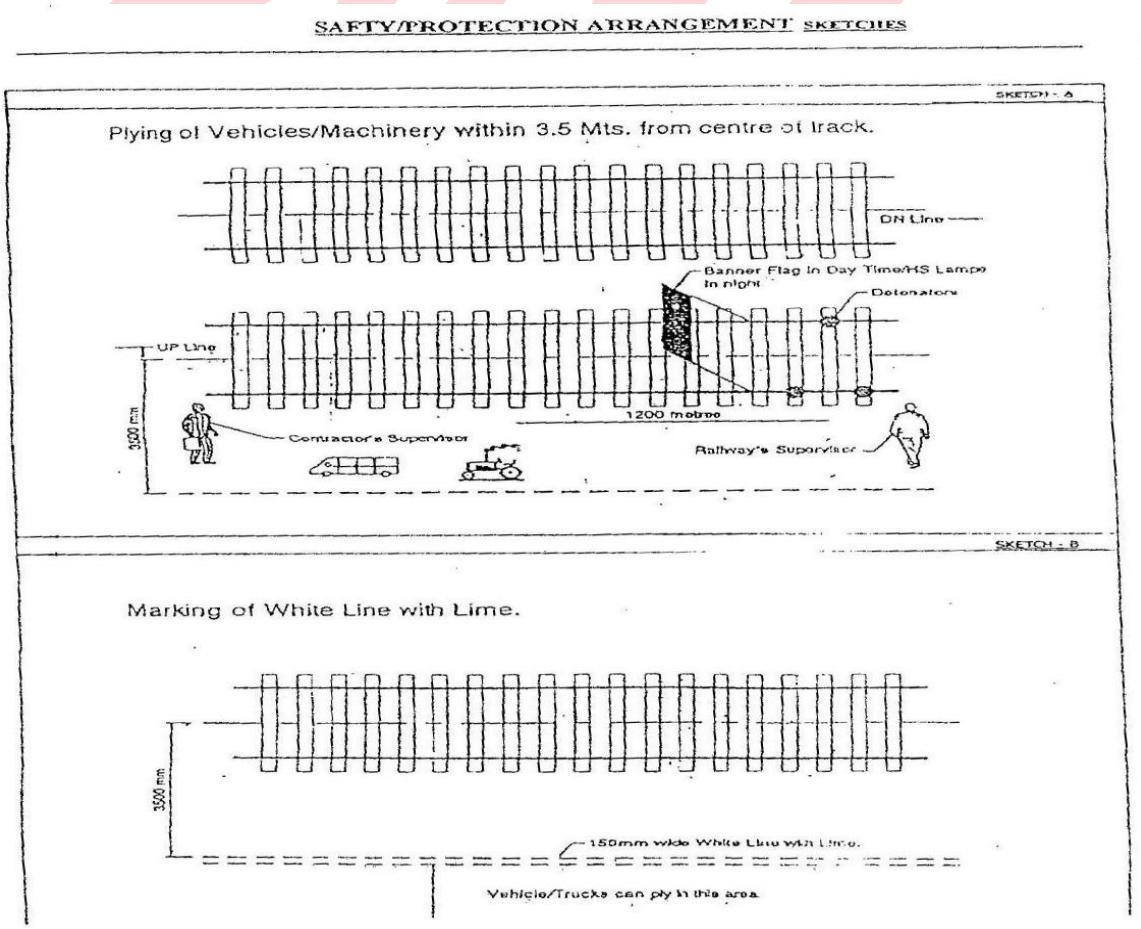
(iii) The suspension of the IR line will not be more than two weeks and this portion of the earthwork shall be completed within this period.

(iv) This work shall not be carried out during monsoon, during rainy days or when the IR formation is in a saturated condition.

3.5.3.3 Distance between centerlines of IR and DFC track is greater than or equal to 8 m.

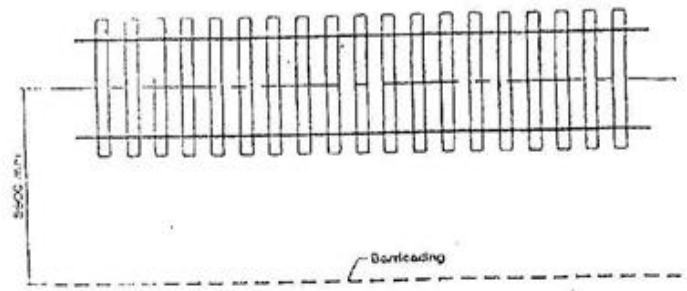
a. While constructing the bank by the side IR running track, benching of existing slope shall be done, before new earthwork is taken up, to provide proper bonding between old and new earthworks, It should be ensured that there is no humus material left on the benched slope. Care need to be taken to avoid entry of rain water into the formation from this weak junction to avoid development of weakness in formation, slope failure, maintenance problems due to uneven settlement.

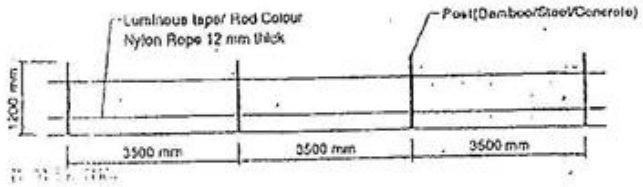
b. Starting from the toe, benching at every 30 cm height shall be done on the sloped surfaceof existing IR bank as in sketch below, so as to provide proper amalgamation between old and new earthwork.



SKETCH-C

Provision of Barricading.

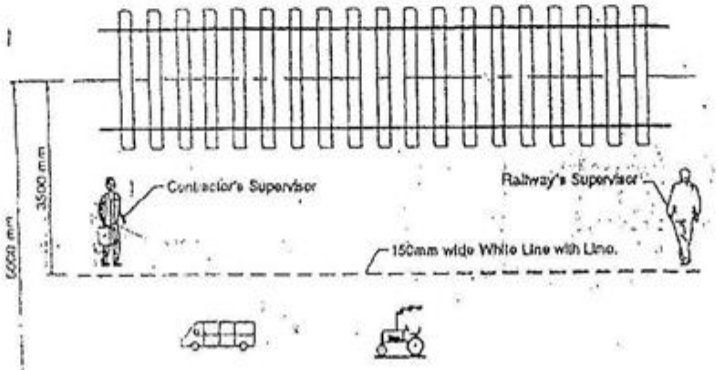




Elevation of Barricading

SKETCH-D

Plying of Vehicles/Machinery between 3.5 Mts. to 6.0 Mts. from centre of track.



PART - III

CHAPTER – I

PAYMENT TERMS

1.0 PRICES AND PAYMENT FOR TRANSMISSION LINE:

(a) SCOPE:

This Chapter deals with prices to be paid for supply and/or erection of various items of work or for supplies and other amounts payable in accordance with accepted schedules of prices and rates and terms and conditions of payment mentioned herein. This is a composite works contract. The total pricesfor the completed items of work are the actual prices payable to the Contractor as per the terms and condition of the Contract.

2.0 SCHEDULE OF PRICES:

a) PRICES FOR ITEM FOR TRANSMISSION LINE WORK:

The rates given against various items of works of the tender paper are the estimated cost (NON SOR-Non Standard Schedule of Rates). The tenderers are required to quote a single percentage below/at par/above against the estimated cost of each section separately while quoting the offered prices **on IREPS site.** The actual payment to be made against any item of schedule shall be derived after loading the estimated cost of that sections with the tenderer's quoted percentage for the same section. The prices so obtained shall be the unit prices for the various items of work given in Schedule.

b) UNIT PRICES FOR MATERIALS:

The unit prices indicated in concerned column of Schedule are inclusive of the prices of materials including all incidental charges for transport, loading/ unloading and handling of materials, Insurance commission for arranging dispatch by rail direct from manufacturer's factory and completing all necessary formalities in this respect, such as submission of forwarding notes, arranging placement of wagon, collection of railway receipts, all insurance premia, bankers charges for bank guarantee, indemnity bonds inclusive of cost of stamps etc. as also siding or shunting charges, if any, levied by the DFCCIL.

The prices shall include all taxes, duties and levies (including Octroi etc.) applicable on this works contract. Therefore, they should quote their prices taking into account the rate of taxes as leviable in the event of sale through works contract to the Central Government Organization in that state. It is clarified that required forms applicable for this purpose will be supplied to the contractor as applicable in the state where the contract is being executed.

The price shall also include provision for losses and wastages in transit and erection.

c) FOR ERECTION:

The unit prices indicated in concerned column of Schedule (for Transmission line erection work) are inclusive of cost of erection and testing to be done by the Contractor to the extent and also cover all cost of administration of the contractor, insurance premium, banker's charges for guarantees, cost of stamps, cost of storage, loading and unloading and handling of materials, and for any road transport which the Contractor may use for carriage of materials between his depot and depot/s and site of work. The unit prices shall include cost of works and adjustments necessary to be done by the Contractor during or after the tests carried out by the Purchaser.

However, if the rates for existing GST or cess on GST for Works Contract is increased or any new tax/cess on Works Contract is imposed by Statute after the date of opening of tender but within the original date of completion/ date of completion extended under clause 17 & 17(A) of GCC and the Contractor thereupon properly pays such taxes/cess, the Contractor shall be reimbursed the amount so paid.

Further, if the rates of existing GST or cess on GST for Works Contract is decreased or any new tax/cess on Works Contract is decreased/removed by Statute after the date of opening of tender, the reduction in tax amount shall be recovered from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India.

3.0 OTHER PRICE ADJUSTMENTS: -

Price variation on account of variation in the prices of various materials required for supply of various equipment/ fittings/components used in the tendered work will be reimbursable/ recoverable on basic price on each bill submitted by the contractor as per the following formulae: -

3.1 For General items :

(For item no. 1,3,4, 11,12,13,15,16,17,18 and 30 of Schedule 'A', item no. 40 to 44 of Schedule 'B' & item no 3 , 4 of Schedule 'D')

Percentage variation payable on the net amount of material bill of this section

Adjustment for variation in prices of these items shall be determined as per GCC 2022- 46A 7 (II) -(Xii)

3.2 For Concreting of Transmission Line Tower Foundation:

(For item no. 21 to 29,32,33 of Schedule 'B')

Percentage variation on the net amount of material bill of this Section

Adjustment for variation in prices of these items shall be determined as per GCC 2022- 46A 7 (II) -(Viii)

3.3 For Ferrous items only:

(For item no. 19 to 29 of Schedule 'A')

Percentage variation on the net amount of material bill of this section

Adjustment for variation in prices of these items shall be determined as per GCC April 2022 - 46A 7 (II) -(iX)

3.4 For Non-Ferrous items only:

(For item no. 2,7 to 10 and 14 of Schedule 'A')

Percentage variation on the net amount of material bill of this section

Adjustment for variation in prices of these items shall be determined as per GCC Apr 2022 46A 7 (II) -(X)

3.5 For Insulators only: -

(For item no. 5 & 6 of Schedule 'A')

Percentage variation on the net amount of material bill of this section

Adjustment for variation in prices of these items shall be determined as per GCC Apr 2022 - 46A 7 (II) -(Xi)

3.6 Price variation on erection: -

(For item no. 1 to 20, 30, 31, 34 to 37, 38, 39, 45 and 46 of Schedule 'B'. For Item No. 1 to 10 of Schedule 'C')

Price variation on erection will be reimbursable/recoverable on each monthly bill submitted by the contractor as per the following formula:-

The percentage variation on the net amount of erection bill

Adjustment for variation in prices of these items shall be determined as per GCC Apr 2022-46A 7 (II) -(Xiii)

3.7 NOTE:

(i) No price variation will be applicable on fixed/Lumsum component of items I.e Schedule D 1, 2 & 5

(ii) Rates accepted by Railway Administration shall hold good till completion of work and no additional individual claim shall be admissible except: -

(a) payment/recovery for increase/decrease in GST on works contract or imposition/removal of any tax/cess on Works Contract.

(b) payment/recovery for overall market situation shall be made as per Price Variation Clause given here under.

(iii) No cognizance will be given for any sort of fluctuations in taxes and other market conditions etc. for any individual items for the purpose of making adjustments in payment except as provided for in the under noted clauses.

(iv) Price Variation clause (PVC) shall be applicable only for contracts of value (contract agreement value) Rs. 2 crore and more, irrespective of the contract completion period.

(v) Materials supplied free of cost by Railway to the Contractors and any extra NS item(s) included in subsequent variation falling outside the purview of the Schedule of Items of tender shall fall outside the purview of Price Variation Clause. If, in any case, accepted offer includes some specific payment to be made to consultants or some materials supplied by Railway free or at fixed rate, such payments shall be excluded from the gross value of the work for the purpose of payment/recovery of price variation.

(vi) Price Variation during Extended Period of Contract:

The price adjustment as worked out above, i.e. either increase or decrease shall be applicable upto the stipulated date of completion of work including the extended period of completion where such extension has been granted under Clause 17-A of the General Conditions of Contract. However, where extension of time has been granted due to contractor's failure under Clause 17-B of the General Conditions of Contract, price adjustment shall be done as follows :

(a) In case the indices increase above the indices applicable to the last month of original completion period or the extended period under Clause 17-A of the General Conditions of Contract , the price adjustment for the period of extension granted under Clause 17-B shall be limited to the amount payable as per Indices applicable to the last month of the original completion period or the extended period under Clause 17-A of the General Conditions of Contract; as the case may be.

(b) In case the indices fall below the Indices applicable to the last month of original/extended period of completion under Clause 17-A of the General Conditions of Contract, as the case may be; then the lower indices shall be adopted for the price adjustment for the period of extension under Clause 17-B of the General Conditions of Contract.

(vii) The **Base Month** for 'Price Variation Clause' shall be taken as month 28 days prior to opening of tender including extensions, if any, unless otherwise stated elsewhere. The quarter for applicabilityof PVC shall

commence from the month following base month. The Price Variation shall be based on the average Price Index of the quarter under consideration.

Base month for applicability of PVC shall be only from the date of opening of the tender and not from the date of negotiation, if any.

(viii) The price variation as calculated for materials other than concreting materials will be calculated to the extent of 85% only of the total under supply column of Schedule-1 for respective sections (for which on account payment is admissible). The value of price variation shall be increased on pro-rata basis for the remaining 15% of such materials for which on account payment is not admissible. Similarly, the value of price variation shall be reduced pro-rata in case of unused materials, but for which ONA payment has already been made.

(ix) Adjustment for variation in prices of material, labour, fuel, explosives, detonators, steel, concreting, ferrous, non-ferrous, insulators, zinc, and cement shall be determined in the manner prescribed.

(x) Components of various items in a contract on which variation in prices be admissible, shall be Material, Labour, Fuel, Steel, Cement, Concreting, Ferrous, Non-ferrous, Insulator, Zinc, Erection etc. However, for fixed components, no price variation shall be admissible.

(xi) The demands for escalation of cost shall be allowed on the basis of provisional indices made available by Reverse Bank of India. Any adjustment needed to be done based on the finally published indices shall be made as and when they become available.

(xii) The Price Variation Clause (PVC) of General Conditions of Contract (GCC) shall not apply to such a works contract which is either on Annual Maintenance Contract (AMC) or a Zonal contract.

4.0 NEW ITEMS OF WORK:

i) During the execution of the work, if the Contractor is called upon to carry out any new item of worknot included in Schedule, the Contractor shall execute such works at such prices as may be mutually agreed upon with the Purchaser before commencement and these will be based on the rate analysis as per the current market / prevalent rates of such or similar items available with the Rly Administration in that or nearby areas.

ii) Provided that if the Contractor commence work or incurs any expenditure in regard there to before the rates are determined and agreed upon as lastly hereon-to-fore mentioned, then and in such a case the Contractor shall only entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of determination of the rates as aforesaid according to the rates as shall be by the Purchaser. However, if the contractor is not satisfied with the decision of the Purchaser in this respect he may appeal to General Manager/Co-Ordination/DFCCIL/KKK within 30 days of getting the decision of the Purchaser, supported by analysis of the rates claimed. The General Manager/Co-Ordination/DFCCIL/KKK decision after hearing both the parties in the matter would be final and binding on the contractor and the Railway Electrification.

5.0 PRICE OF EQUIPMENTS, COMPONENTS & MATERIALS:

The rates given in any sections of Schedules of the tender paper loaded by same percentage increase/decrease quoted by the tenderer against estimated. rates for the corresponding section of Schedules, items shall be the effective "On account" rates for items given in the above mentioned Schedules.

5.1 PRICE OF ADDITIONAL SUPPLIES:

The additional supplies may be taken over from the Contractor at the prices indicated in Schedule as accepted rates

5.2 PAYMENTS AND RECOVERIES:

Subject to any deduction or recoveries which the Purchaser may be entitled to make under the contract, the Contractor shall, unless otherwise agreed to, be entitled to get the following payments subject to the conditions stipulated in subsequent paragraphs:

i) Payment of mobilization advance
ii) Payment for Supply items
iii) Progress payments for erection.
iv) Payments for additional supplies.
v) Reimbursement on account of price variation.
vi) Payment for provisional acceptance.
vii) Payment for surplus materials taken over.
viii) Final settlement.

6.0 INVOICING PROCEDURE:

(a) The contractor shall submit his invoicing procedure for approval by the purchaser within 2 months from the date of receipt of Letter of Acceptance of tender. Separate bills will be submitted by the contractor for different activities as being done presently. However, all these bills will normally be submitted once in a month only. More than one bill for one type of payment in a month can be allowedas agreed by the Purchaser. Separate invoices shall be submitted for different type of payments. Each invoice of the bill shall be submitted with original supporting documents wherever these are acceptableto the Purchaser's Engineer, where copies of original documents are required in support of several invoices included in the bill, true certified copies of the original documents may be forwarded to the Purchaser's Engineer with his consent.

(b) Invoices shall be submitted only on the basis of agreed principles and prices, quantities and measurement of works completed and shall be approved by the Purchaser's Engineer prior to the submission of invoices. For this purpose, the Schedule of quantities and measurements submitted by the Contractor for approval of the

Purchaser's Engineer may be only up to the extent of work completed except in the case of payments on provisional acceptance.

PAYMENTS FOR SUPPLY ITEMS:

Payment to the extent of 90% (Ninety Percent) for supplied items (material cost) as per accepted rates of respective schedule/ section shall be done after receipt of the material in good condition by the Purchaser’s representative after inspection. If for any item of work, price of material and erection is not separately available, 80% cost of the item will be considered as material cost.

The above payment is subject to submission of the following documents along with the invoice

i) Material test reports on raw materials used.
ii) Material type and routine test report on components specification.
iii) Inspection plan with reports of the Inspection plan check points.
iv) Routine test report.
v) Factory test results as required under the specification.
vi) Quality audit report including test check report of Purchaser's representative if any.
vii) Supplier's challans
viii) Inspection Certificate granted by the Purchaser's representative
ix) Certificate of receipt of materials at Contractor's Depot/s duly accepted by the Purchaser's Engineers
x) Certificate that the stores have been insured

NOTE– No Supply payment shall be done against the supply of concrete materials.

7.0 PROGRESS PAYMENTS FOR ERECTION WORK:

Payment to the extent of 90% (Ninety Percent) for erection work (erection cost) as per accepted rates of respective schedule/ section shall be done after successful erection at site and as per actual measurement done by Railway engineer/ representative.

8.0 RECOVERIES FROM THE CONTRACTOR:

PAYMENT FOR ADDITIONAL SUPPLIES:

(a) The contractor shall receive payment for additional supplies ordered in para 1.2.34, if any, in accordance with the prices included in various Schedules/Sections, on delivery of such supplies to the purchaser after due adjustment against payment made.

(a) 10.0 TAX:All the recoveries for materials supplied and services rendered by the Purchaser to the Contractor and other refunds due from the Contractor shall, unless otherwise specified, ordinarily be made by deductions from payments due to the Contractor covering the value of supply and erection and from payment on provisional Acceptance.

(b) The cost of materials supplied by the Purchaser will be recovered in full by the Purchaser at relevant accepted price in respective schedule/section or book rate or last purchase rate whichever is higher, to the extent of requirement of such materials, from the payments to be made.

(c) The cost of materials if supplied. Will be recovered in the manner indicated in sub-para (a) above.

(d) The materials supplied along with the materials whose 'Supply Payment' has been done to the

Contractor, shall be covered by the standing indemnity bond.

9.0 PAYMENT FOR ADDITIONAL SUPPLY

(a) All applicable tax, duties & levies (including Octroi etc.) arising out of the transactions between the Contractor and his sub-Contractors/Suppliers for this work will be included in the rates quoted by the Contractor in the relevant schedules.

(b) Wherever the law makes it statutory for the Purchaser to deduct any amount towards applicable tax on works contract, the same will be deducted and remitted to the concerned authority

(c) However, if rates of existing GST or cess on GST for Works Contract is increased or any new tax

/cess on Works Contract is imposed by Statute after the date of opening of tender but within the original date of completion/date of completion extended under clause 17 & 17A of GCC and the Contractor thereupon properly pays such taxes/cess, the Contractor shall be reimbursed the amount so paid.

(d) Further, if rates of existing GST or cess on GST for Works Contract is decreased or any tax/cess on Works Contract is decreased / removed by Statute after the date of opening of tender, the reductionin tax amount shall be recovered from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India.

11.0 PAYMENTS ON PROVISIONAL ACCEPTANCE:

On issue of Provisional Acceptance Certificate for any section of work and on fulfillment of testing commissioning and submission all relevant documents/ drawings/designs, the Contractor shall receive payment of balance 10% of the price for supply and/or erection against the various schedules/sections, for the quantities for which payments under para 1.3.7 & 1.3.8 have already been made.

12.0 PAYMENTS FOR SURPLUS MATERIALS:

The Contractor shall receive payment on prices included in respective schedule for the surplus materials taken over by the Purchaser (if the Purchaser intended to) on delivery of such materials to thePurchaser.

13.0 FINAL SETTLEMENT:

On expiry of the guarantee period and issue of the certificate of final acceptance of the entire installations, the security deposit will be refunded or Bank Guarantee released to the Contractor afteradjustment of any dues payable by the Contractor.

14.0 MEASUREMENTS:

(a) Payments for field work shall be made in accordance with approved designs and drawings and measured in relevant units except where provided or other wise. In case the dimensions of the work are more than those shown in approved designs and drawings, the Contractor will not be entitled to any extra payment unless dimensions were increased on account of physical impossibility of carrying out the work in accordance with approved drawings and designs. In case the dimensions of work are less than those shown in the approved designs and drawings and the work is accepted withoutbeing rejected, payment will be made as per work actually done.

(b) The measurements will be made generally in accordance with standard engineering practice and in conformity with the specifications of the work.

(i) It shall be open to the Contractor and the Railway to take specific objection to any recorded measurement or classification on any ground within seven days of the date of such measurements. Any re-measurements taken by the Engineer or the Engineer's representative in the presence of the Contractor or in his absence after due notice has been given to him in consequence of objection made by the contractor shall be final and binding on the contractor and no claim whatsoever shall thereafter be entertained regarding the accuracy and classification of the measurements.

(ii) If an objection raised by the Contractor is found by the Engineer to be incorrect the Contractor shall be liable to pay the actual expenses incurred in measurements.

15.0 MOBILISATION ADVANCE:

If required by the Contractor, mobilisation advance limited to 10% of contract value shall be payable if estimated value of the tender exceeds 25 (Twenty five) Crore. This advance shall be payable in two stages as indicated below:-

STAGE I- 5% of the contract value on signing of the contract **agreement**.

STAGE II -5% on mobilization of site – establishment, setting up offices, bringing in equipment and actual commencement of work.The 1st stage of advance shall be payable immediately after signing of contract documents. The 2nd stage of advance shall be payable at the time of mobilization, after submission of a utilization certificate by the contractor that the stage 1 advance has been properly utilized in the contract.

The Mobilization Advance shall be against an irrevocable guarantee (Bank Guarantee, FDRs, KVPs/NSCs) of at least 110% of the value of the sanctioned advance amount (Covering principal plus interest). The Bank Guarantee shall be from a Nationalised Bank in India or State Bank of India in a form acceptable to Railways. This BG will be released after recovery/adjustment of the mobilisation amount from Supply and/or progress/erection payments. Alternatively, contractor may initially submit the BG in four parts each of value 25% of the total Mob. Adv. claimed by them plus estimated interest during recovery period. Each part will be released to the contractor after adjusting the amount to the extent of that particular BG. Initially, interest calculation shall be done for one half of contract completion period on the Mob Adv claimed by the contractor. A watch shall be kept on interest accrual and if principal plus interest are likely to exceed the amount of BG submitted by the contractor, contractor shall submit additional BG to that extent. Initial validity of BG shall also not be less than one half of contract completion period.

16.0 INREREST :-

(a) The mobilisation advance shall carry an interest at the rate of 10% (Ten percent) per annum and recovery of the mobilisation advance along with its interest shall be made from Supply and progress bills on pro-rata basis.

Interest shall be recovered on the advance outstanding for the period commencing from the date of payment of advance till date of particular Invoice/ bill (through which recovery of principal is effected) and adjusted fully against Invoice/ bill along with pro-rata principal recovery. In the event of any shortfall, the same shall be carried forward to the next Invoice/ bill and shall attract interest.

The recovery of the advance shall commence when the value of contract executed reaches 15% of original contract value and shall be completed when the value of work executed reaches 85% of the original contract value. The installments on each "Invoice/ bills" will be on pro-rata basis.

(b) In case principal and interest could not be deducted progressively from progress/supply bills during the course of the year, the interest on mobilisation advance as accrued in the end of an year will be recovered within the first 30 days of the next year from the progress/ supply bills or any other bills which may be made by the Railways to the Contractor. If, for any reason whatsoever, no progress/supply bill or any other amount is paid to the Contractor, he will still pay to the Railways the accrued interest in full within the said 30 days of the next year. Otherwise, the unpaid interest will be added on to the principal and interest for the next year will be charged on the balance comprising Principal as well as unpaid interest.

(c) In case of extension of the date of completion due to any reason whatsoever the interest on the mobilisation advance outstanding would continue to accrue as specified earlier and the Contractor/firm would make the payment against the advance in the same manner as specified in para (b) above.

(d) No advance/extra payment other than stated above shall be payable against the works.

(e) The tenderers shall specifically indicate in their offer whether mobilisation advance is required by them. In case no specific demand has been made in the offer, grant of mobilisation advance shall not be considered subsequently.

Part III

Chapter II

PRIORITY OF DOCUMENTS

PRIORITY OF DOCUMENTS

The several documents forming the contract are to be taken as mutually explanatory as one another. If any inconsistency or discrepancy is found in the documents the Client/Employer shall issue any necessary Clarification or instruction. For the purpose of interpretation, the priority of documents shall be in accordance with the following sequence.

1. The Contract agreement
2. The Letter of Award
3. The Preamble & General Instructions to Tenderers
4. The Schedules
5. Special Conditions of Contract (SCC)
6. General Conditions of Contract (GCC)
7. Technical Specifications and Additional Technical Specifications as part ofSpecial Conditions
8. Any other documents forming part of Contract

PART-IV

CHAPTER - I

TIME SCHEDULE

4.1.1 Time Schedule:

4.1.1.1 Time of start and completion:

The time allowed for execution of the works is 18 (Eighteen Months) from the date of issue of Letter of Acceptance (LOA) from DFCCIL.

The contractor shall be expected to mobilize to the site of works and commence execution of the works within 15 (days) from issue of Letter of Acceptance by DFCCIL. The contractor shall be expected to complete the whole work ordered on the contractor within stipulated completion date from the date of issue of Acceptance Letter by DFCCIL.

If the contractor commits defaults in commencing execution of the works as afore stated, DFCCIL shall without prejudice to any other right to remedy, be at liberty to take action for termination of contract as per GCC.

4.1.1.2 Progress of works:

Within a period of 15 days from the issue of Letter of Acceptance, the contract shall submit a schedule for completion / program for execution of all works withing the completion period stipulated in the LOA. All schedules and schedule submittals under this Contract shall be computerized by the Contractor utilizing the latest version of ORACLE PRIMAVERA P6 PROFESSIONAL PROJECT MANAGEMENT SOFTWARE, hereinafter referred to as ORACLE PRIMAVERA P6. The contractor shall submit the programme of work in the form on Primavera P6 duly identifying the resource requirement i.e., resource loaded for all the activities in consistence with milestone target envisaged below. The chart shall be prepared in direct relation to the time stated as 12 months for the completion of the work. The program shall also indicate the dates by which the inputs required from Employer is expected and same shall be communicated to Employer for timely arrangement. The issues to be addressed and inputs required from the Employer shall be flagged and intimated to Employer well ahead of time, preferably 7 days before these are required as per program.

4.1.1.3 Monthly Progress Update:

The Contractor shall ensure that the schedule is current and accurate and is properly and timely monitored, updated and revised as project conditions may require and as required by the Contract documents. There shall be monthly update of Schedule which shall show up-to date and accurate progress of the Works, and shall forecast the completion date for activities in progress based on the contract baseline schedule. The monthly schedule update shall be prepared by the Contractor and report shall be submitted to Employer on Monthly basis by the 5th of each month indicating progress made against each activity, resources deployed, recovery plan, if any, assistance requirement from Employer, if any.

TENDER FORMS (INCLUDING SCHEDULE OF PRICES)

Signature of tenderer (s) with seal

PART- IV

CHAPTER II

TENDER FORMS

FORM No.	SUBJECT
Form No. 1	Offer Letter
Form No. 2	Tenderer's Credentials
Form No. 2A	Technical Eligibility Criteria Details
Form No. 2B	Financial Eligibility Criteria Details
Form No. 2C	Bid Capacity
Form No. 2D	Applicant's Party Information Form
Form No. 3	Schedule of Prices
Form No. 4	Schedule of Prices and Total Prices
Form No. 5	Contract Agreement
Form No. 6	Performance Guarantee Bond
Form No. 7	Standing indemnity bond for on account payment.
Form No. 8	ECS / NEFT / RTGS
Form No. 9	Draft MOU for Joint Venture Participation
Form No.10	Draft Agreement for JV
Form No.11	Pro-forma of Participation from each partner of JV
FormNo.12	Power of Attorney for authorized signatory of JV Partners
FormNo.13	Power of Attorney to lead partner of JV
Form No. 14	Proforma for Time Extension
Form No. 15	Certificate of Fitness
Form No. 16	Proforma of 7 days Notice
Form No. 17	Proforma of 48 Hours Notice for whole work
Form No. 17A	Proforma of 48 Hours Notice for part work
Form No. 18	Proforma of Termination Notice for whole work
Form No. 18A	Proforma of Termination Notice for part work
Form No. 19	Format of Bank Guarantee for Mobilization
Form No. 20	Format of Integrity pact
Form No. 21	Summary of Insurances
Form No. 22	Format for Affidavit
Form No. 23	Format for Guarantee Bonds
Form No. 24	Format for Bank Guarantee for Bid security
Form No. 25	Proforma for 14 days notice
Form No. 25A	Statement of Works in Progress for Bid Capacity
Form No. 26	Proforma for part of contract work offloaded
Form No. 27	Certification by Arbitrator appointed under clause 63 &64 of GCC
Form No. 28	Format for bank Guarantee for Security Deposit

Signature of tenderer (s) with seal

FORM No. 1

OFFER LETTER

Tender No……

Name of work…….

To,

The General Manager/Co-Ordination
DFCCIL, Kolkata

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Documents, including Amendments.;

(b) We offer to execute the Works in conformity with the Bidding Documents;

(c) Our bid shall be valid for a period of **90 days** from the date of opening of Technical Bid in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(d) We have not been blacklisted/banned in accordance with para.1.3.6.2 of Preamble & General Instructions to tenderers.

(e) We are neither Bankrupt/Insolvent nor in the process of winding-up nor there is a case pending before any Court on deadline of submission of the Bid in accordance with para. 1.3.13 (iii) (v) (b) of Preamble & General Instructions to tenderers.

(f) If our bid is accepted, we commit to obtain a Performance Guarantee in accordance with the Bidding Documents;

(g) If our bid is accepted, we commit to deploy key equipment and key personnel consistent with the requirements of the work.

(h) We understand that this bid, together with your written acceptance thereof included in your notification of award/Letter of Acceptance (LOA), shall constitute a binding contract between us, until a formal contract is prepared and executed; and

(i) All information, statements and description in this bid are in all respect true, correct and complete to the best of our knowledge and belief and we have not made any tampering or changes in the bidding documents on which the bid is being submitted and if any tampering or changes/incorrect information are detected at any stage, we understand the bid will invite summarily rejection and forfeiture of bid security, the contract will be liable to be terminated along with forfeiture of performance security, even if LOA has been issued.

(j) We understand that you are not bound to accept the lowest bid or any other bid that you may receive.

Name ……
In the capacity of ……

Signed ……
Duly authorized to sign the Bid for and on behalf of ……

Date ……

Signature of tenderer (s) with seal

FORM No. 2

TENDERER'S CREDENTIALS

S. No.	Description
1	For technical experience/competence, give details of similar completed works during the last 07 (Seven) financial years (i.e. current Financial year and three previous Financial Years) in the proforma given in Form-2A
2	For financial capacity and organizational resources, give details of contractual payments received for the last three financial years (i.e current Financial year and three previous financial years) as per audited balance sheet certified by Chartered Accountant in the proforma given in Form-2B
3	Give constitution of your firm. Attach certified copies of legal documents in support thereof. Form-2C

Signature of tenderer (s) with seal

FORM No. 2A

TECHNICAL ELIGIBILITY CRITERIA DETAILS

Details of the similar works completed (as per Para1.3.13 (i) (A) of

'Preamble & General Instructions to Tenderers')

S. No.	Description	Details to be filled by Tenderer	
1	Contract Identification/ Contract AgreementNo.		
2	Award date		
3	Date of Completion		
4	Role in Contract (This criterion must be fulfilled by the JV or Lead Member of JVONLY)	Prime Contractor ☐	Member in JV ☐
5	If member in a JV, specify share of each JV member		
6	Total Contract Value of **COMPLETED** Single works as defined in requirement of Para 1.3.13(i)(A)		
7	Total payment received against this contract before Tender Opening Date		
8	Value of completed work of Transmission Line above 66KV as defined in requirement of para 1.3.13(i)(A)read along with Note, by the tenderer/ JV member.		
9	If member in a JV, specify qualifying amount against Item-	*[insert percentage]*	*[insert amount]*
10	Employer's Name: Address: Telephone/fax numberE-mail:		

Signature of tenderer (s) with seal

11	**Description of the similarity in accordancewith Criteria 1.3.13(i)(A)**	

The bidder shall upload Certified completion certificates issued by the client duly signed and scanned/ digitally signed as per Eligibility Criteria of the tender documents.

Signature of the
Tenderer with Seal

Note: Use separate sheet for each work submitted in support of this criterion.

FORM No. 2B

Reference -Para 1.3.13 (i)(B) of 'Preamble & General Instructions to Tenderers'

FINANCIAL ELIGIBILITY CRITERIA DETAILS

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

Name of Bidder/ JV Partner :

Annual Contractual Turnover Data for the Previous 3/4 Years(Contractual Payment only)			
Year	**Amount Currency**	**ExchangeRate**	**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)

Signature of tenderer (s) with seal

FORM 2C

Reference -Para 1.3.13 (i)(C) of 'Preamble & General Instructions to Tenderers'

BID CAPACITY- DETAILS OF EXISTING COMMITMENT AND BALANCE WORK

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

Name of Tenderer/JV partner:

S.N.	Name of work	LOA no./ CA no.	Employer's Name/ Address/ Contact Details	Date of Award	Stipulated date of Completion	Expected Date of Completion	Value of work completed up to date of NIT	Balance value of work to be completed in 'N'	Remarks

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) = **Rs……..**

N (Number of years prescribed for completion of work for which bids has been invited) = **……Years**

B (Existing commitments and balance amount of ongoing works with the tenderer as per the above format for statement of all works in progress and also the works which are awarded to tenderer but yet not started up to the date of inviting of tender) = **Rs. ……..**

Calculated Bid Capacity of the Tenderer / JV Partner [AxNx2 - 0.33xNxB] = Rs……..

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)

Signature of tenderer (s) with seal

FORM No.2D

APPLICANT'S PARTY INFORMATION FORM

Applicant name:

[insert full name]

Applicant's Party name:

[insert full name of Applicant's Party]

Applicant's Party country of registration:

[indicate country of registration]

Applicant Party's year of constitution:

[indicate year of constitution]

Applicant Party's legal address in country of constitution:

[insert street/ number/ town or city/ country]

Applicant Party's authorized representative information

Name: *[insert full name]*

Address: *[insert street/ number/ town or city/ country]*

Telephone/Fax numbers: *[insert telephone/fax numbers, including country and city codes]*

E-mail address: *[indicate e-mail address]*

1. Attached are copies of original documents of

Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above.

In case of a Government-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and absence of dependent status.

2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

Signature of the
Tenderer with Seal

From No -3

SUMMARY OF PRICES

Name of work: Relocation of 132 KV D/C transmission line Koderma S/s to Koderma R/s of DVC near Koderma Railway station for construction of EDFC Project under Jurisdiction of General Manager/Co-Ordination/DFCCIL/Kolkata.

OFFER SHEET						
S.N.	**Desctiption of Work (Schedule)**	**Estimated cost (Rs.)**	**Rate quoted by bidder**			**Total Cost (Rs.)**
			Above/ Below/ At par)	**% quoted by bidder (in figure)**	**% quoted by bidder (in words)**	
Col-1	Col-2	Col-3	Col-4	Col-5	Col-6	Col-7
1	Supply items **(Schedule -A)**	78061921.20				
2	Erection and dismantling Work (Civil) **(Schedule-B)**	12076461.14				
3	Erection and dismantling Work (Electrical) **(Schedule-C)**	2261182.32				
4	Forest Clearance, PTCC and Compensatory Afforestation Work **(Schedule-D)**	812854.34				

Total Estimated Amount **Rs. 9,32,12,419.00** (Rupees Nine Crore Thirty-two Lakh Twelve Thousand Four Hundred and Nineteen only) including GST @18%.

Quoting of rates

1. The above price is inclusive of GST @ 18% unless otherwise specified in the tender document.
2. The tenderer is to quote for individual schedule(s)/section(s).
3. Tenderer should offer rate in above table in **% below, above and at par** in **figures** as well as in **words**. This flat percentage will be applicable for all the items in the particular schedule(s)/Section(s). In case of discrepancy, rate quoted in **words** shall prevail.
4. The decision of competent authority will be final.

Signature of tenderer with seal

Signature of tenderer (s) with seal

FORM No. 4

SCHEDULE OF PRICES AND TOTAL PRICES

Name of the work : Relocation of 132 KV D/C transmission line Koderma S/s to Koderma R/s of DVC near Koderma Railway station for construction of EDFC Project under Jurisdiction of General Manager/Co-Ordination/DFCCIL/Kolkata.

Relocation of 132 KV Double Circuit Koderma S/s - Koderma R/s transmission lines of DVC					
SL No	**Description of work**	**Unit**	**Qty**	**Rate**	**Amount**
	Schedule 'A' Supply				
1	Galvanized Stranded Steel Wire as Earth wire (7/3.15 mm) as per the Specification.	Km	1.47	111091.58	163304.62
2	AAA Panther Conductor (37/3.15 mm) as per the Specification.	Km	9.68	188343.55	1823165.56
3	132KV(E), 400 sq. mm Copper Cable as per specification.	Mtr	5330	11161.06	59488449.80
4	132KV(E), 400Sq. mm Copper Cable end termination kit as per specification.	No.	15	307561.49	4613422.35
5	70 KN Disc Insulator as per the specification.	No	330	547.22	180582.60
6	120 KN Disc Insulator as per the specification.	No	1680	722.34	1213531.20
7	Single Suspension Hardware set with Armour grip suspension clamp and Performed Armour rods suitable for AAA Panther Conductor (37/3.15mm) /ACSR Lark Conductor (30/2.92 mm & 7/2.92 mm) and suitable for fixing on 132 KV Tower (failing load 70 KN) (Including for Pilot Hardware).	No.	33	919.54	30344.82
8	Single Tension Hardware set with compression type tension clamp suitable for AAA Panther Conductor (37/3.15mm) /ACSR Lark Conductor (30/2.92 mm & 7/2.92 mm) and suitable for fixing on 132 KV Tower (Failing load 120 KN).	No.	66	3575.52	235984.32
9	Double Suspension Hardware set with Armour grip suspension clamp and Performed Armour rods suitable for AAA Panther Conductor (37/3.15mm) /ACSR Lark Conductor (30/2.92 mm & 7/2.92 mm) and suitable for fixing on 132 KV Tower (failing load 70 KN)	No.	33	2553.30	84258.90
10	Double Tension Hardware set with compression type tension clamp suitable for AAA Panther Conductor (37/3.15mm) /ACSR Lark Conductor (30/2.92 mm & 7/2.92 mm) and suitable for fixing on 132 KV Tower (Falling load 120 KN).	No.	66	7714.23	509139.18

Signature of tenderer (s) with seal

11	Vibration damper suitable for AAA Panther Conductor (37/3.15 mm)	No.	132	803.28	106032.96
12	Mid span compression joint for AAA Panther Conductor (37/3.15 mm)	No.	5	747.41	3737.05
13	Repair sleeve suitable for AAA Panther Conductor (37/3.15 mm).	No.	5	279.33	1396.65
14	Tension hardware set compression type with complete tension clamp and flexible copper bond for Galvanized standard steel wire (7/3.15 mm) and suitable for fixing on 132 KV tower.	Set	66	1171.70	77332.20
15	Vibration damper suitable for Galvanized Standard Steel Wire (7/3.15 mm) .	No.	66	747.41	49329.06
16	Mid span compression joint for Galvanized Standard Steel Wire (7/3.15 mm) .	No.	5	403.14	2015.70
17	Repair sleeve suitable for Galvanized Standard Steel Wire (7/3.15 mm).	No.	5	193.27	966.35
18	Earthing Material - Pipe type Earthing Materials (galvanized).	Set	22	2581.98	56803.56
19	Danger Plate for tower	No.	11	190.25	2092.75
20	Number Plate for tower	No.	11	173.65	1910.15
21	Phase Plate (Set of 3) for tower	Set	33	326.14	10762.62
22	Circuit Plate (Set of 2) for tower	Set	11	185.72	2042.92
23	Bird Guard (Set of 3) for tower	Set	11	178.17	1959.87
24	Anti climbing Device for tower	Set	11	7292.96	80222.56
25	Barbed Wire for tower	MT	0.37	125550.67	46453.75

Signature of tenderer (s) with seal

26	Supplying, Fabricating & Galvanizing various tower members/structures/gantries/extensions etc. including supply of pack washers, Hangers, D-Shackles, Extension links, U-bolts etc complete at shop/site with contractor own tools & tackles crane and labor complete bolted and/or welded connections with GI bolts, nuts, washers etc. complete as per drgs/ specification and directions (supply of GI bolts, nuts, step bolts and spring washers will be paid separately)-(a) Mild steel as per Grade Designation E250A (Fe410W)	MT	88.00	84990.48	7479162.24
27	Supplying, Fabricating & Galvanizing stub & cleat members of various type of tower members/structures etc. including supply of pack washers etc complete at shop/site with contractor own tools & tackles crane & labor complete as per drgs/specification & directions (supply of GI bolts, nuts & spring washers will be paid separately)- (a) Painted Mild steel as per Grade Designation E250A (Fe410W).	MT	3.00	84990.48	254971.44
28	Supplying & Fabricating holding down/foundation steel bolts including threading as required etc. complete with all necessary nut plate washers etc. complete the 200mm top portion of bolt is to be Galvanized.	MT	5.00	81696.82	408484.10
29	Supply of GI Bolts, nuts (Grade-5.6) with spring washers of assorted sizes for towers including step bolts etc complete as per drgs. Specification & directions.	MT	3.00	117567.64	352702.92
30	120KV Lightning Arrestor	No.	12	65113.25	781359.00
	Total Schedule ' A '				**78061921.20**
	Schedule 'B' Erection and dismantling Work (Civil)				
1	Earth work in excavation in foundation trenches, drains etc. including dressing of sides & ramming of bottoms, lift up to 3.0 meter, including pit marking, dewatering, getting out the excavated soil & disposal of surplus excavated soils as directed within a lead of 50 meter complete as per specification, drawing & instruction of Engineer in Charge. Earth work as mentioned in Item No.1 - (a) for Ordinary soil.	Cum	175.00	366.09	64065.75
2	Earth work as mentioned in Item No.1 -(b) For Slushy soil.	Cum	175.00	1232.29	215650.75
3	Earth work as mentioned in Item No.1 - (c) Hard soil mixed with gravel & moorum.	Cum	700.00	366.09	256263.00
4	Earth work as mentioned in Item No.1 -(d) for Soft rock.	Cum	1400.00	651.90	912660.00

5	Earth work as mentioned in Item No.1 -(e) For Hard rock (requiring blasting).	Cum	525.00	951.93	499763.25
6	Earth work as mentioned in Item No.1 - (f) Hard rock (blasting prohibited).	Cum	525.00	1327.48	696927.00
7	Extra over item (1) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter.- (a) for Ordinary soil.	Cum	26.25	96.57	2534.96
8	Extra over item (2) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter. - (b) for Slushy soil	Cum	26.25	96.57	2534.96
9	Extra over item (3) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter. - (c) for Hard soil mixed with gravel & moorum.	Cum	105.00	96.57	10139.85
10	Extra over item (4) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter. - (d) for Soft rock.	Cum	210.00	173.17	36365.70
11	Extra over item (5) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter. -(e) for Hard rock (requiring blasting).	Cum	78.75	173.17	13637.14
12	Extra over item (6) above for excavation in foundation for every additional lift of 1.5 meter or part thereof over the initial lift of 3.0 meter. (f) for Hard rock (blasting prohibited)	Cum	78.75	173.17	13637.14
13	Earthwork in filling in excavated pits, trenches, plinth & sides of foundation etc. in layers not exceeding 200 mm in depth, consolidating & dressing each deposited layer by ramming & watering, including cost of supply & carriage of materials etc. complete as per drgs., specifications & directions.- (a) with earth obtained from excavation of foundation (excluding rock).	Cum	2450.00	234.64	574868.00
14	Earthwork as mentioned in Item No. 13 -(b) with sand including cost of material & transportation of material to site.	Cum	10.00	2086.36	20863.60
15	Earthwork as mentioned in Item No. 13 - (c) with earth obtained from borrow pits within a lead of 500m. inclusive of excavation & carriage / haulage / transportation. (No extra claim will be entertained for each obtained beyond a lead of 200 M).	Cum	1040.00	248.47	258408.80
16	Fitting of template (SST) & setting of stub, 4 stubs / tower - stubs & SST as supplied - (a) 132 KV D/C B type angle tower (maximum deviation 30 degree). One set consists of number of SST, Setting stub and Stubs per tower.	Set	2	12594.35	25188.70

17	Fitting of template (SST) & setting of stub, 4 stubs / tower - (b) stubs & SST as supplied -(b)132KV D/C C type angle tower (maximum deviation 60 degree). One set consists of number of SST, Setting stub and Stubs per tower.	Set	9	13689.51	123205.59
18	Supplying, straightening, cutting, bending, cranking, hooking, fixing, binding & placing at any position in superstructure, fdn., & plinth with MS / Tor steel reinforcements in all works of concrete, masonry etc, including supply of binding wire with 18 SWG (1.05mm) galvanized wire twisted tight and / or welding the splices where necessary as per IS codes or direction and holding in position with steel rod spacer / chairs / horses etc. complete.	MT	17.00	89199.67	1516394.39
19	Hiring, erecting, centering, supporting, striking, cleaning etc. of framework of approved design with staging, props and supports for plain & RCC works with all accessories and at all heights including removal of forms as per drawings, specifications & directions with:	Sqm	1000.00	304.30	304300.00
20	Charges for shoring & strutting of pits including cost of materials required for this purpose & fixing in position during excavation and/or crating works as per specifications and directions.	Sqm	300.00	650.89	195267.00
21	Providing & laying in position Plain cement concrete (PCC) in foundation & plinth with coarse sand & 20 mm. & down stone aggregates of approved quality, well graded, washed and screened including supply of all materials, cost of transport of all materials to site, mixing, laying, vibrating, curing etc. complete but excluding centering & shuttering as per drawings, specifications & direction with- (a) Mix 1:4:8.	Cum	1.00	6184.79	6184.79
22	Providing & laying in position Plain cement concrete (PCC) as mentioned in Item No.21- (b) Mix 1:3:6.	Cum	1.00	6686.34	6686.34
23	Providing & laying in position Plain cement concrete (PCC) as mentioned in Item No.21- (c) Mix 1:2:4.	Cum	30.00	7251.98	217559.40
24	Providing & laying in position Reinforced Cement concrete (RCC) work in pyramid & chimney of tower foundation & plinth, with coarse sand & 20 mm. & down stone aggregates of approved quality, well graded, washed and screened including cost of supply of all materials and cost of transport of all materials to site., mixing, laying, vibrating, curing etc. complete & also including erection, supporting, striking out, cleaning etc. of steel muff-boxes, but	Cum	1	8245.09	8245.09

	excluding the cost of reinforcement and framework, specifications & directions with- (a) Concrete mix 1: 1.5 : 3.				
25	Providing & laying in position Reinforced Cement concrete (RCC) work as mentioned in Item No. 24 - (b) Concrete mix 1: 1 : 2.	Cum	200	9755.51	1951102.00
26	Providing & laying in position Reinforced Cement concrete work (RCC) in stepped foundation & plinth, with coarse sand & 20 mm. & down stone aggregates of approved quality, well graded, washed and screened including cost of supply of all materials and cost of transport of all materials to site., mixing, laying, vibrating, curing etc. complete but excluding the cost of reinforcement and framework as per drgs., specifications & directions with- (a) Concrete mix 1: 1.5 : 3.	Cum	1	8245.09	8245.09
27	Providing & laying in position Reinforced Cement concrete work (RCC) as mentioned in Item No.26 - (b) Concrete mix 1: 1 : 2.	Cum	100	9755.51	975551.00
28	Providing & laying in position Reinforced Cement concrete (RCC) work with coarse sand& 20 mm. & down stone aggregates of approved quality, well graded, washed and screened including cost of supply of all materials and cost of transport of all materials to site., mixing, laying, vibrating, curing etc. complete but excluding the cost of reinforcement and framework as per drgs., specifications & directions in superstructure with:- (a) Concrete mix 1: 1.5 : 3.	Cum	1	9941.22	9941.22
29	Providing & laying in position Reinforced Cement concrete (RCC) work as mentioned in Item No. 28 - (b) Concrete mix 1: 1 : 2.	Cum	10	11450.78	114507.80
30	Transporting, Handling, Assembling & Erecting of tower members (HT & MS) / structures / gantries / body extensions of all types of tower etc from stores & /or site with contractor's own tools & tackles, crane & labour, including fitting, checking, punching & tack welding of bolts & nuts and / or connections up to bottom cross arm including aluminum painting of tack welded bolt & nuts but excluding fitting & fixing of Number Plates, Danger Plates, Phase Plates, Circuit Plates, Bird Guards, Anti Climbing Devices etc. complete as per drawing, specifications & direction.	MT	83.00	24888.33	2065731.39
31	Providing, supplying and laying of 20cm thick second class brick pitching (brick on edge over one brick flat pitching) on slopes of embankment canal etc. in 1:4 cement mortar in both layers, curing, preparing base to proper level of slope, with weep holes at a spacing of 1.8 meter hoizontally and 0.9 meter vertically or as shown in the drawing complete (with pointing 1:3).	Sqm	100.00	745.00	74500.00
32	Providing, supplying and laying of rubble pitching (thickness varying from 150mm to 300mm) with stone boulder including hand	Cum	50.00	4448.55	222427.50

	packing and caulking with cement concrete (1:3:6), 0.15 cu.m. per cum of boulder pitching with 20mm and down stone chips including making weep holes at a spacing of 180 cm. horizontally and 90 cm. vertically including rough dressing of the slope for pitching, packing of the back of weep hole etc. complete.				
33	Providing, supplying and laying of random rubble pitching with stone boulder of approved quality and size and packed as per direction etc. complete.	Cum	50.00	3466.85	173342.50
34	Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items to designated stores (DVC/DFCCIL), including loading / unloading etc. all complete at all elevations as per direction of Engineer-in-Charge- (a) R.C.C. work including stacking of reinforcement.	Cum	5.00	2707.71	13538.55
35	Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items as mentioned in Item No. 34 - (b) 1:3:6 or richer mix Cement concrete work.	Cum	5.00	1856.05	9280.25
36	Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items as mentioned in Item No. 34 -(c) 1:4:8 or leaner mix Cement concrete work.	Cum	5.00	1146.02	5730.10
37	Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items as mentioned in Item No. 34 -(d) Masonry work in cement mortar.	Cum	5.00	1570.24	7851.20
38	Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items as mentioned in Item No. 34 - (e)Steel work in built-up sections including dismembering.	MT	32.00	4433.27	141864.64
39	Dismantling, taking out, removing, stacking, disposal of unserviceable materials and transportation of salvaged items as mentioned in Item No. 34 -(f) Fencing post / Strut including concrete dismantling & Earthwork .	Nos	5.00	195.06	975.30
40	Carrying out necessary field test for soil samples, preparation and submission of soil testing report in triplicate giving results of investigation and related reasons qualitatively, expected settlement and recommendation for bearing capacity at different level by conducting laboratory test on soil samples as per relevant practice - (a) for determination crushing strength of soil samples.	Nos.	2.00	17075.51	34151.02

41	Carrying out necessary field test for soil samples as mentioned in Item No. 40 - (b) for determination Modulus of sub- grade reaction(k), Modulus of elasticity (E), Poisson's Ratio (μ).	Nos.	2.00	73792.96	147585.92
42	Carrying out necessary field test for soil samples as mentioned in Item No. 40 -(c) for Determination of Moisture absorption test and porosity.	Nos.	2.00	3526.05	7052.10
43	Carrying out necessary field test for soil samples as mentioned in Item No. 40 - (d) Determination of Bulk density, natural moisture content, dry density, relative density and specific gravity.	Nos.	2.00	3775.40	7550.80
44	Carrying out necessary field test for soil samples as mentioned in Item No. 40 - (e) for Determination of- (e)Standard Penetration Test (SPT).	Nos.	2.00	12937.43	25874.86
45	Supplying & providing 25 mm thick. grouting by using ready mix grout like SHRINKKOMP, CONBEXTRA GP2, SIKA GROUT 214 or equivalent for miscellaneous base plates, foundation bolts, pipe sleeves, pockets, holes etc. at all heights, location etc, complete as per drawings.	Sqm	5	2109.84	10549.20
46	Providing, Transporting, assembling, placing & fixing in position steel holding down/foundation bolts including threading as required etc. with all necessary nuts and plate washer etc. per bolt complete as per drawing and direction of Engineer-in-charge. The 200 mm top portion of the bolt is to be galvanized.	MT	5.00	17551.50	87757.50
	Total Schedule ' B '				**1,20,76,461.14**
	Schedule 'C ' Erection & dismantling work (Electrical)				
	Survey				
1	Check survey including preparation and submission of survey chart, line chart, Route profile & Tower spotting etc with all details as specified along with completion of page marking and submission of approval report along with profile drawings, line chart, tower schedule etc. all complete for approval.	KM	2.21	27043.83	59766.86
2	**Grounding of Tower with** : GI Pipe, GI flats etc. as per drawing, including excavation, back filling, leveling and cost of storing,				

	handling & transportation of materials to site complete as per drawing, specification and directions.	Set	16	8320.74	133131.84
3	Counter poise earthing including excavation, back filling, leveling and cost of storing, handling & transportation of materials to site complete as per drawing, specification and directions.	Per Set	6	5148.42	30890.52
4	Stringing and sagging of 06 numbers power conductors including hoisting and fixing of insulators on the 132KV towers/gantries, erections of hardware sets, running out and laying out of contractors, tensioning and clipping in with clamps, erection of jumpers at the section/angle towers jointing & repairing of contractors, fixing of vibration dumpers, preformed armor rods, bird guards and including erections of number plates, danger plates, Phase plates, circuit plate, step bolts and anti climbing devices with barbed wire etc. on each tower keeping other circuit in charged/shutdown condition at the same time complete in all respect and as per specification & directions including transportation of all materials to the site per route Kilometer of the line with :-(a) 06 (Six) nos. power conductors (AAA Panther Conductor).	Km	1.61	199172.62	320667.92
5	Stringing and sagging of 01 (one) no galvanized stranded steel wire as earth wire (7/3.15mm) including laying, stringing, tensioning, climbing, jointing etc. complete in all respect including cost of storing, handling, transporting of all materials to site per route Kilometer of the line including fixing of hardware, vibration damper and/or armour rods etc.	Km	1.47	67564.23	99319.42
6	Laying of 132KV XLPE 1cX400sqmm copper power cable including dressing, cleating, clamping of cable along the excavated earth, cable trench, RCC Hume pipe, metal pipe, structure / pole etc including dewatering & cleaning as required and supplying & providing of cable tags.	Km	5.33	126575.56	674647.73
7	Termination of 132KV XLPE cable with outdoor heat shrinkable type cable sealing end termination kit / straight through joints suitably to Terminal Isolator Pad/Power conductor (ACSR/AAAC) .	Nos	15	38666.01	579990.15
8	Erection testing and commissioning of 120KV Lightning arrester along with all accessories, connectors etc.	Nos	12	5988.41	71860.92
9	Dismantling & De-stringing of power conductors 06 numbers (ACSR Lark/AAAC Panther) in circuit of existing double-circuit transmission line of DVC keeping other circuit in charged condition/shutdown condition at the same time including release of all insulators, hardware & accessories without any jerk and damage to the cross arm and if required, recoiling, transportation of all dismantled	Km	2	99451.26	198902.52

	conductors & line materials to specified store all complete as per direction of Engineer-in-charge.				
10	De-stringing of Earth wire in one circuit of existing double-circuit transmission line of DVC keeping other circuit in charged condition/shutdown condition at the same time including release of all hardware & accessories and transportation of all dismantled conductors & line materials to specified store all complete as per direction of Engineer-in-charge.	Km	2	46002.22	92004.44
	Schedule 'C ' Erection & Dismantling work (Electrical)				**22,61,182.32**
	Schedule 'D ' Forest Clearance, PTCC clearance and Compensatory Afforestation (CA) Work				
1	Service charges to get forest proposal cleared as mentioned in specification.	LS	1	145108.84	145108.84
2	Service charges to get PTCC proposal cleared as mentioned in specification.	LS	1	114073.00	114073.00
3	Survey and preparation of KML file, DGPS maps and Topo sheet for Compensatory Afforestation (CA) as required for forest clearance .	Sqm	115340	1.35	155709.00
4	Demarcation of boundary. Supply and erection of RCC M20 pillars of size 150X150X1800 mm (6 ft) along ROW of forest land.	Nos.	50	4235.02	211751.00
5	Tree Felling, Cutting, trimming, transplantation as required for ROW clearance including forest land and successful commissioning of complete line in all respect.	LS	1	186212.50	186212.50
	Total Schedule 'D ' Forest Clearance, PTCC and Compensatory Afforestation Work				**8,12,854.34**
Grand Total (Schedule A + Schedule B + Schedule C+ Schedule D) including GST @18% in				**₹**	**93212419.00**
	Say			**₹**	**9,32,12,419/-**

(Rupees Nine crore thirty two lakh twelve thousand four hundred and nineteen only.)

Note :

1. The above price is inclusive of GST @ 18% unless otherwise specified in the tender document.
2. The tenderer is to quote for individual schedule(s)/section(s).
3. Tenderer should offer rate in above table in % below, above and at par in figures as well as in words. This flat percentage will be applicable for all the items in the particular schedule(s)/section(s). In case of discrepancy, rate quoted in words shall prevail.
4. The decision of competent authority will be final.

I/We offer and agree to execute the above work at rate uploaded online at www.ireps.gov.in through digital Signature.

Signature of tenderer with seal

Signature of tenderer (s) with seal

FORM No. 5

SAMPLE AGREEMENT

CONTRACT AGREEMENT

(To be executed on requisite value of stamp papers) AGREEMENT

This agreement is made on this …….. Day of ..... 2023 BY AND

BETWEEN Dedicated Freight Corridor Corporation of India Limited (DFCCIL), a company incorporated under the companies Act, 1956 and having its office at Supreme Court Metro Station Building, Pragati Maidan, New Delhi 110001 (hereinafter referred to as "EMPLOYER" which expression shall, where the context admits, include its successors and assigns) OF THE ONE PART

AND

M/s …… having its office at.....(hereinafter referred to as " the Contractor" which expression shall, where the context admits, include their legal heirs, executors, administrators, successors and assigns in business) OF THE OTHER PART.

WHEREAS: -

1. The Employer is desirous that certain works should be executed by the Contractor viz. Tender No. ……(hereinafter called "the works", and has accepted a Bid by the Contractor for the execution and completion of such works and the remedying of any defects therein.

NOW THIS AGREEMENT WITNESSETH as follows: -

1. In this Agreement, words and expressions shall have the same meaning as are respectively assigned to them in the Conditions of Contract hereinafter referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement in the following order of priority:

(a) The Contract agreement
(a) The Letter of Award /Acceptance

(b) The Preamble & General Instructions to Tenderers

(c) The Schedules (Bill of Quantities)

(d) Special Conditions of Contract (SCC)

(e) General Conditions of Contract (GCC)

(f) Technical Specifications and Additional Technical Specifications as part of SpecialConditions

(g) Any other documents forming part of Contract

1. In consideration of the payment to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respect with the provision of the contract.

Signature of tenderer (s) with seal

2. The Employer hereby covenant to pay the Contractor in consideration of the execution and completion of the works and the remedying of defects therein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

3. Both the parties shall hereby submit to the jurisdiction of the courts situated at New Delhi for the purpose of actions and proceedings arising out of the contract and the courts at Delhi shall have the sole and exclusive jurisdiction to hear and decide such actions and proceedings.

4. In case any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement, but this Agreement shall be construed as if such invalid or illegal or unenforceable provision had never been contained herein.

IN WITNESS

Where of the parties hereto have caused this Agreement executed the day and year first before written.

(Name, Designation and address of the Authorized signatory)

(Name, Designation and address of the authorized signatory)

Signed for and on behalf of the Contractor in the Presence of:

Employer in the presence of:

Witness:

1.

2.

Witness:

1.

2.

Name and address of the witnesses to be indicated.

FORM No. 6

SAMPLE

Name of the Bank _____

Managing Director/ DFCCIL Bank Guarantee Bond No._____

Acting through (Designation Dated_and address of contract signing authority)

PERFORMANCE GUARANTEE BOND

In consideration of the Managing Director/ DFCCIL acting through CGM/ GM Co-ord., Dedicated Freight Corridor Corporation of India Limited, hereinafter called "DFCCIL") having agreed under the terms and conditions of agreement/Contract Acceptance letter No.___dated made between

_____(Designation & address of contract signing Authority) and_____(hereinafter called "the said contractor(s)" for the work_____(hereinafter called "the said agreement") having agreed for submission of an 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 with the terms & conditions in the said agreement.

1. We (indicate the name of the Bank) hereinafter referred to as the Bank, under take 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 Deputy Chief Project Manager/ FINANCE, Dedicated Freight Corridor Corporation of India Limited or CGM/ GM Co-ord, DFCCIL stating that the amount claimed is due by way of 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 or 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 amountdue and payable by the Bank under this guarantee. However, our liability under this guaranteeshall be restricted to an amount not exceeding Rs._____(Rs. _____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 suit or proceeding pending before any court or Tribunal relating to liability under this present being absolute and unequivocal.

   (b) The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the contractor(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 CGM/ GM Co-ord DFCCIL (Designation & Address of contract

Signature of tenderer (s) with seal

signing authority) on behalf of the Government, certify that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor (s) and accordingly discharges this guarantee.

5. (a) Not withstanding 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 from the date aforesaid.

(b) Provided always that we_____(indicate the name of the Bank) unconditionally undertakes to renew this guarantee 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 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 contractor (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 torevoke 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 beyond that). Unless extend on demand by Government. Notwithstanding anything to the contrary contained herein before, our liability under this guarantee is restricted to Rs. only) unless a demand under this guarantee is made on usin writing on or before we, shall be discharged from our liabilities under this guarantee thereafter.

Dated_____the day of the for_____(indicate the name of Bank)

Signature of Bank Authorize official(Name):

Witness:

Designation:

Full Address.

Signature of tenderer (s) with seal

FORM No. 7

SAMPLE

STANDING INDEMNITY BOND FOR "ON ACCOUNT" PAYMENTS

(On paper of requisite stamp value)

We, M/s_____hereby undertake that we hold at our stores Depot/s at_____for and on behalf of the Managing Director/ DFCCIL acting in the premises through the GM/Co-Ord/DFCCIL/Kolkata or his successor (hereinafter referred to as "The Employer") all materials for which "On Account" payments have been made to us against the Contract for (

_____) on the section

_____DFCCIL also referred to as Group/s_____vide letter of Acceptance of Tender

_____dated_____and material handed over to us by the employer for the purpose of execution of the said contract, until such time the materials are duly erected or otherwise handed over to him.

We shall be entirely responsible for the safe custody and protection of the said materials again stall risk till they are duly delivered as erected equipment to the employer or as he may direct otherwise and shall indemnify the employer against any loss/damage or deterioration what so ever in respect of the said material while in our possession and against disposal of surplus materials. The said materials shall at all times be open to inspection by any officer authorized by the GM/Co-Ord/DFCCIL/Kolkata in charge of Dedicated Freight Corridor Corporation of India Limited (Whose address will be intimated in due course).

Should any loss, damage or deterioration of materials occur or surplus material disposed off and refund becomes due, the Employer shall be entitled to recover from us the 85% of supply portion of Part IV, Chapter–II (Form - 4) to the Contract (as applicable) and also compensation for such loss or damage if any long with the amount to be refunded without prejudice to any other remedies available to him by deduction from any sum due or any sum which at any time here after becomes due to us under the said or any other Contract.

Dated this day _ _ _ _ day of__2023

for and on behalf of

M/s_____(Contractor)

Signature of witness

Name of witness in Block letter.

Address.

Signature of tenderer (s) with seal

FORM No. 8

ECS / NEFT / RTGS
MANDATE FORM

Date :-

To,

Project Manager /Finance,
Kolkata Unit

Sub : ECS / NEFT / RTGS payments

We refer to the ECS / NEFT / RTGS set up by DFCCIL for remittance of our payments using RBI's NEFT / RTGS scheme, our payments may be made through the above scheme to our under noted account.

Name of Bank	
Name of City	
Bank Code No	
Name of Bank Branch	
Branch Code No	
Address of Bank Branch	
Telephone Number of Bank Branch	
Fax No of Bank Branch	
Name of customer / Tenderer as per account	
Account Number of Tenderer appearing on cheque book	
Type of Account (S. B. / Current / Cash credit)	
IFSC code for NEFT	
IFSC code for RTGS	
9-Digit-code number of the bank and branch appearing on the MICR cheque issued by the bank.	
Details of Cancelled Cheque leaf	
Telephone no of tenderer	
Cell Phone Number of the tenderer to whom details with regard to the status of bill submitted to Accounts Office i.e Co6 & Co7 & Cheque Purchase Orders particulars can be intimated through SMS	
Tenderer's E - mail ID	

Confirmed by Bank signature of tenderer with stamp and address
Enclose a copy of crossed cheque

Signature of tenderer (s) with seal

FORM No. 9

DRAFT MEMORANDUM OF UNDERSTANDING (MOU) ForJOINT VENTURE PARTICIPATION

BETWEEN

M/s …….. having its registered office at …….. (hereinafter referred to as ……..) acting as the Lead Partner of the first part,

and

M/s ……..having its registered office at …….. (hereinafter referred to as `…….') in the capacity of a Joint Partner of the other part.

and

M/s ……..having its registered office at …….(hereinafter referred to as `…….') in the capacity of a Joint Partner of the other part.

The expressions of …….. and……shall wherever the context admits, mean and include their respective legal representatives, successors-in-interest and assigns and shall collectively be referred to as "the Parties" and individually as " the Party"

WHEREAS:

Dedicated Freight Corridor Corporation of India Limited (DFCCIL) [hereinafter referred to as "Client"] has invited bids for … "[Insert name of work]… ……"

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. The following documents shall be deemed to form and be read and construed as an integral part of this MOU.

   (i) Notice for Bid, and

   (ii) Bidding document

   (iii) Any Amendment [Addendum/Corrigendum] issued by Dedicated Freight Corridor Corporation of India Limited

   (iv) The bid submitted on our behalf jointly by the Lead Partner.

2. The `Parties' have studied the documents and have agreed to participate in submitting a `bid'

Signature of tenderer (s) with seal

jointly.

3. M/s .....shall be the lead member of the JV for all intents and purpose and shall represent the Joint Venture in its dealing with the Client. For the purpose of submission of bid proposals, the parties agree to nominate..... as the leader duly authorized to sign and submit all documents and subsequent clarifications, if any, to the Client. However M/s .....shall not submit any such proposals, clarifications or commitments before securing the written clearance of the other partner which shall be expeditiously given by M/s……to M/s……

4. The `Parties' have resolved that the distribution of responsibilities and their proportionate share in the Joint Venture is as under:

a. Lead Partner;

(i) ……

(ii) ……

(iii) .....

b. Joint Venture Partner

(i) ……

(ii) ……

(iii) .....

[Similar details to be given for each partner]

5. JOINT AND SEVERAL RESPONSIBILITY

The Parties undertake that they shall be jointly and severally liable to the Client in the discharge of all the obligations and liabilities as per the contract with the Client and for the performance of contract awarded to their JV.

6. ASSIGNMENT AND THIRD PARTIES

The parties shall co-operate throughout the entire period of this MOU on the basis of exclusivity and neither of the Parties shall make arrangement or enter into agreement either directly or indirectly with any other party or group of parties on matters relating to the Project except with prior written consent of the other party.

7. EXECUTIVE AUTHORITY

The said Joint Venture through its authorized representative shall receive instructions, payments from the Client. The management structure for the project shall be prepared by mutualconsultations to enable completion of project to quality requirements within permitted cost and time.

8. BID SECURITY

Till the award of the work, JV firm/Lead Partner of JV firm shall furnish Bid Security to the Client on behalf of the joint venture which shall be legally binding on all the members of the Joint Venture.

9. BID SUBMISSION

Each Party shall bear its own cost and expenses for preparation and submission of the bid and all costs until conclusion of a contract with the Client for the Project. Common expenses shall be shared by all the parties in the ratio of their actual participation.

10. INDEMNITY

Each party hereto agrees to indemnify the other party against its respective parts in case of breach/default of the respective party of the contract works of any liabilities sustained by the Joint Venture.

11. For the execution of the respective portions of works, the parties shall make their own arrangements to bring the required finance, plants and equipment, materials, manpowered the sources.

12. DOCUMENTS & CONFIDENTIALITY

Each Party shall maintain in confidence and not use for any purpose related to the Project all commercial and technical information received or generated in the course of preparation and submission of the bid.

13. ARBITRATION

Any dispute, controversy or claim arising out of or relating to this agreement shall be settled in the first instance amicably between the parties. If an amicable settlement cannot be reached as above, it will be settled by arbitration in accordance with the Indian Arbitration and Conciliation Act 1996 or any amendments thereof. The venue of the arbitration shall be Delhi.

14. VALIDITY

This Agreement shall remain in force till the occurrence of the earliest to occur of the following, unless by mutual consent, the Parties agree in writing to extend the validity for a further period.

a. The bid submitted by the Joint Venture is declared unsuccessful, or

b. Cancellation/ shelving of the Project by the client for any reasons prior to award ofwork

c. Execution of detailed JV agreement by the parties, setting out detailed terms afteraward of work by the Client.

15. This MOU is drawn in ….. number of copies with equal legal strength and status. One copy is held by M/s …… and the other by M/s……..& …….M/s …….. and a copy submitted with the proposal.

16. This MOU shall be construed under the laws of India.

17. NOTICES

Notices shall be given in writing by fax confirmed by registered mail or commercial courier to the following fax numbers and addresses:

Lead Partner	**Other Partner(s)**
……..	**……..**
(Name & Address)	**(Name & Address)**

IN ITNESS WHEREOF THE PARTIES, have executed this MOU the day, month and

year first before written.

M/s……..

……

(Seal)

Witness

1(Name & Address)

2(Name & Address)

Notes: (1) In case of existing joint venture, the certified copy of JV Agreement may be finished

FORM No. 10

DRAFT FORMAT OF JOINT VENTURE AGREEMENT

To be executed on non-judicial stamp paper of appropriate value in accordance with relevant Stamp Act and to be registered with appropriate authority under Registration Act.

The JV agreement shall be structured generally as per contents list given below:

A. CONDITIONS AND TERMS OF JV AGREEMENT

1. Definitions and Interpretation
2. Joint Venture – Include Equity of members, transferability of shareholding of equity of a partner leaving during the subsistence of the contract.
3. Proposal Submission
4. Performance – To indicate scope of responsibility of each member
5. Language and Law
6. Exclusively
7. Executive Authority
8. Documents
9. Personnel
10. Assignment and Third Parties
11. Severability
12. Member in Default
13. Duration of the Agreement
1. Liability and sharing of risks
1. Insurance
2. Sharing of Promotion and Project Costs, Profits, Losses and Remuneration
3. Financial Administration and Accounting
4. Guarantees and Bonds
5. Arbitration
6. Notices
7. Sole Agreement and Variation

B. SCHEDULES

1. Project and Agreement Particulars
2. Financial Administration Services
3. Allocation of the obligations
4. Financial Policy and Remuneration

*****

FORM No. 11

PROFORMA LETTER OF PARTICIPATION FROM EACH PARTNER OF JOINT VENTURE (JV)

(To be executed on non-judicial stamp paper of appropriate value in accordance with relevant Stamp Act and to be registered with appropriate authority under Registration Act.)

No…. Dated

From:

……..

To,

CGM/ GM Co-ord

Dedicated Freight Corridor Corporation of India Limited

Address ----------

Sir,

Re: …"[Insert name of work] ……".
Ref: Your notice for Invitation for Bid (IFB) No. ……dated……..

1. We wish to confirm that our company/firm has formed a Joint Venture with (i)… ……..& ii)…….for the purposes associated with IFB referred to above.

*(Members who are not the lead partner of the JV should add the following paragraph)**

2. 'The JV is led by…….whom we hereby authorize to act on our behalf for the purposes of submission of Bid for…….and authorize to in cur liabilities and receive instructions for and on behalf of any and all the partners or constituents of the Joint Venture.'

OR

*(Member(s) being the lead member of the group should add the following paragraph)**

2. 'In this group we act as leader and, for the purposes of applying for Bid, represent the Joint

Venture:

3. In the event of our JV being awarded the contract, we agree to be jointly with i) ..... & ii) ..... (names of other members of our JV) and severally liable to the Dedicated Freight Corridor Corporation of India Limited, its successors and assigns for all obligations, duties and responsibilities arising from or imposed by the contract subsequently entered into between Dedicated Freight Corridor Corporation of India Limited and our JV.

4. ***I/We, further agree that entire execution of the contract shall be carried out exclusively through the lead partner.**

Yours faithfully,
(Signature)

(Name of Signatory)……..

(Capacity of Signatory)……

Company Seal * Delete as applicable

Note: In case of existing joint venture, the certified copy of JV Agreement maybe furnished.

FORM No. 12

FORMAT FOR POWER OF ATTORNEY FOR AUTHORISED SIGNATORYOF JOINT VENTURE (JV) PARTNERS
POWER OF ATTORNEY*

(*To be executed on non-judicial stamp paper of the appropriate value in accordance with relevantstamp Act. The stamp paper to be in the name of the company who is issuing the power of Attorney*)

Know all men by these presents, 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 … [Name of Work] including signing and submission of all documents and providing information / responses to Dedicated Freight Corridor Corporation of India Limited, representing us in all matters, dealing with Dedicated Freight Corridor Corporation of India Limited in all matters in connection with our bid for the said project.

We here by agree to ratify all acts, deed sand 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 the…….day of……..

(Signature of authorised Signatory)

Signature of Lead Partner **Signature of JV Partner(s)**

…… ……

(Signature and Name in Block letters of Signatory)
Seal of Company

Witness

Witness1: Witness2:
Name: Name:

Addres: Address:
Occupation: Occupation:

**Notes*

i) To be executed by all the partners jointly, in case of a Joint Venture.

FORM No. 13

FORMAT FOR POWER OF ATTORNEY TO LEAD PARTNER OF JOINT VENTURE (JV)

(*To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant stamp Act. The stamp paper to be in the name of the company who is issuing the powerof Attorney)*

POWER OF ATTORNEY*

Whereas Dedicated Freight Corridor Corporation of India Limited has invited Bids for the work of ……..[Name of Work]

Whereas, the members of the Joint Venture comprising of M/s...., M/s...., M/s. ....., and M/s..... are interested in submission of bid for the work of...*[Insert name of work*] in accordance with the terms and conditions contained in the bidding documents.

Whereas, it is necessary for the members of the Joint Venture to designate one of them as the Lead Partner, with all necessary power and authority to do, for and on behalf of the Joint Venture, all acts, deeds and things as may be necessary in connection with the Joint Venture's bid for the project, as may be necessary in connection the Joint Venture's bid for the project.

NOW THIS POWER OF ATTORNEY WITNESSETH THAT:

We, M/s.……., hereby designate M/s. ..... , being one of the partners of the Joint Venture, as the lead partner of the Joint Venture, to do on behalf of the Joint Venture, all or any of the acts, deeds or things necessary or incidental to the Joint Venture's bid for the contract, including submission of bid, participating in conferences, responding to queries, submission of information/document sand generally to represent the Joint Venture in all its dealings with the Railways/DFCCIL or any other Government Agency or any person, in connection with the Bid/contract for the said work until culmination of the process of bidding till the contract agreement if successful, is entered into with the Dedicated Freight Corridor Corporation of India Limited and thereafter till the expiry of the contract agreement.

**To be executed by all the members of the JV except the lead member.*

The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down bythe 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.

We hereby agree to ratify all acts, deeds and things lawfully one by lead member, 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/Joint Venture.

Dated this the……. Day of..... 2023

……..

(Signature)

…… (Name in Block letters of Executants) Seal of Company

Witness 1	
Name:	
Address:	
Occupation:	
Witness 2	
Name:	
Address:	
Occupation:	

FORM No. 14

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 anypenalty fixed earlier)*will be recovered from you as mentioned in Clause, 17-B of the 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 General Conditions of Contract.

Yours faithfully,

For and on behalf of the Employer
Name of the Official:-
Stamp/Seal of the Employer

FORM No. 15

As per Clause 60.(2) of GCC

CERTIFICATE OF FITNESS

1. (a) Serial Number _____

   (b) Date _____

2. Name of person examined _____

   I certify that I have personally examined *(name)*_____

3. Father's Name: son/daughter of_____, residing at

   _____

4. Sex _____

5. Residence: _____

6. Date of birth, if available, and/or certified age

   _____

   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 and that he/she is fit for employment in a factory or on a work requiring manual labour as an adult/child.

7. Physical fitness _____

8. Identification marks _____

   _____

9. Reasons for:

   (a) refusal to grant certificate, or _____

   (b) revoking the Certificate _____

_____

Signature or Left HandThumb Impression of the

person Examined

_____

Signature of Certifying Surgeon

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

FORM No. 16

Reference Clause 62.(1) of GCC
Registered Acknowledgement Due

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

DFCCIL
(Without Prejudice)

To

M/s _____

_____

Dear Sir,

Contract Agreement No. _____ In connection with _____

1. In spite of repeated instructions to you by the subordinate offices as well as by this office in various letters of even no._____, dated_____; you have failed to start work/show adequate progress and/or submit detailed programme for completing the work.

2. Your attention is invited to this office/CGM'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 General Conditions of Contract to commence works / to make good the progress, failing which further action as provided in Clause 62 of the 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 Employer
Name of the Official:-

Stamp/Seal of the Employer

FORM No. 17

Reference Clause 62.(1) of GCC
Registered Acknowledgement Due

PROFORMA OF 48 HRS NOTICE FOR WHOLE WORK
DFCCIL

(Without Prejudice)

To

M/s _____

_____

Dear Sir,

Contract Agreement No. _____
In connection with _____

1. Seven days' notice under Clause 62 of General Conditions of Contract was given to you underthis 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 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 stand 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 consequences which may please be noted.

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the Employer
Name of the Official:-

Stamp/Seal of the Employer

FORM No. 17(A)

Reference Clause 62.(1) of GCC
Registered Acknowledgement Due

PROFORMA OF 48 HRS NOTICE FOR PART OF THE WORK

_____ DFCCIL

(Without Prejudice)

To

M/s _____

_____

Dear Sir,

Contract Agreement No. _____ In connection with _____

1. Seven days' notice under Clause 62 of General Conditions of Contract was given to you underthis 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 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 under this contract 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 work being execute 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 Employer
Name of the Official:-

Stamp/Seal of the Employer

FORM No. 18

Reference Clause 62.(1) of GCC
Registered Acknowledgement Due

PROFORMA OF TERMINATION NOTICE
_____DFCCIL

(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 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 fromparticipation 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 Employer
Name of the Official:-

Stamp/Seal of the Employer

FORM No. 18 (A)

Reference Clause 62.(1) of GCC
Registered Acknowledgement Due

PROFORMA OF TERMINATION NOTICE FOR PART OF THE WORK

(DETAILS OF PART OF WORK TO BE MENTIONED)

_____DFCCIL
(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 of work to be mentioned)

2. Your above part of work in contract.....(details of part of work to be mentioned)stands rescinded in terms of Clause 62 of 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 work being execute 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 Employer
Name of the Official:-

Stamp/Seal of the Employer

FORM No. 19

SAMPLE
FORMAT OF BANK GUARANTEE FOR MOBILISATION ADVANCE

(Clause 1.5.20, Part - I, Chapter - V)

Bank guarantee made on this …….. Between..... (hereinafter called "**the Bank**") of the One Part and Dedicated Freight Corridor Corporation of India Limited. (hereinafter called "**the Employer**") of the other Part.

WHEREAS Dedicated Freight Corridor Corporation of India Limited has awarded the Contract no……. for "……." (hereinafter called "**the Contractor**"), having its registered office at ……..

AND WHEREAS vide Clause 1.5.20 of Part - I, Chapter V , Special Conditions of Contract, Mobilization Advance up to____% (___percent) of the original contract value of Rs.....is payable to the contractor against Bank Guarantees, the contractor hereby applies for Mobilization Advance of____% (___percent) amounting to Rs……../- (Rupees.....) of the Contract Price,

Now, we the undersigned, Bank of ……., being fully authorized to sign and to incur obligations for and on behalf of and in the name of Bank of .....hereby declare that the said Bank will guarantee the Employer the full amount of Rs. ……../- (Rupees……..) as stated above.

We, Bank of ……., do hereby unconditionally, irrevocably and without demur guarantee and undertake to pay the Employer immediately on demand any or all money payable by the contractor to the extent of Rs. ……../-(Rupees……..) without any demur, reservation, context, recourse or protest and/or without any reference to the contractor. Any such demand made by the Employer on the Bank shall be conclusive and binding notwithstanding any difference between the Employer and the contractor on any dispute pending before any court, Tribunal, Arbitrator or any other authority. We agree that the guarantee herein contained shall be irrevocable and shall continue to be enforceable till the Employer discharges this guarantee.

This guarantee is valid till ……..

At any time during the period in which this guarantee still valid of the contractor fails to fulfill its obligation under the Contract, it is understood that the Bank will extend this guarantee under the same condition for the required time on demand by the Employer at the cost of the contractor.

The Guarantee hereinbefore contained shall not be affected by any change in the constitution of the Bank or of the contractor.

The neglect or forbearance of the Employer in enforcement of payment of any money, the payment whereof is intended to be hereby secured or the giving of time by the Employer for the payment hereof shall in no way relieve the Bank of their liability under this Deed.

The expressions "the Employer", "the Bank" and "the contractor" hereinbefore used shall include their respective successors and assigns.

Notwithstanding anything contained herein:

Our liability under this Bank Guarantee shall not exceed Rs……../- (Rupees.....)

This bank Guarantee shall be valid up to……..

We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before..... (date of expiry of Guarantee).

In witness whereof we of the Bank have signed and sealed this Guarantee on the..... day of..... being herewith duly authorized.

For and on behalf of the Bank of.....

Signature of Authorized Bank Official

Name .....

Designation .....

Stamp/Seal of the bank .....

Signed, sealed and delivered for and on
Behalf of the bank by the above named

..... in the presence of
Witness 1

Signature .....

Name .....

Address .....

Witness 2

Signature .....

Name .....

Address .....

Form no. 20

PRE CONTRACT INTEGRITY PACT
General

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on----------

----day of the month of---------- 20xx, between, on one hand, the DFCCIL acting through Shri -----

---------- Designation of the officer, (hereinafter called the CLIENT, which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/s---------- represented by Shri---------- Chief Executive Officer (hereinafter called the

"BIDDER/SELLER" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second part.

WHEREAS the CLIENT proposes to procure (Name of the Stores/Equipment/Item, Name of the Consultancy Service, Name of Works Contract, Name of Services) and the [A] is willing to Offer/has offered for stores or works.

WHEREAS the [A] is a private company/ public company/ Government undertaking/ partnership/ registered export agency, constituted in accordance with the relevant law in the matter and the CLIENT is a PSU performing its functions.

NOW, THEREFOR,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:-

Enabling the CLIENT to obtain the desired said (Name of the Stores/Equipment/Item, Name of the Consultancy Service, Name of Works Contract, Name of Services) at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDERs to abstain from bribing or indulging in any corrupt practice in order to secure [B] by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the CLIENT will commit to prevent corruption, in any form, by its Officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:
Commitments of the CLIENT

1. The CLIENT undertakes that no official of the CLIENT, connected directly or indirectly with the [B], will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the [A] either for themselves or for any person, organization or third party related to the [B], in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the [B].

1.1 The CLIENT will, during the pre-contract stage, treat all BIDDERs alike, and will provide to all

BIDDERs the same information and will not provide any such information to any

particular BIDDER which could afford an advantage to that particular [A] in comparison to other BIDDERs.

1.2 All the officials of the CLIENT will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

2. In case any such preceding misconduct on the part of such official(s) in reported by the [A] to the CLIENT with full, and verifiable facts and the same is prima facie found to be correct by the CLIENT, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the CLIENT and such a person shall be debarred from further dealings related to the [B] process. In such a case while an enquiry is being conducted by the CLIENT the proceedings under the [B] would not be stalled.

Commitments of BIDDERS

The [A] commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage) in order to secure the [B] contract or in furtherance to secure it and in particular committee itself to the following:-

2.1 The [A] will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission fees, brokerage or inducement to any official of the CLIENT, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the [B] in exchange for any advantage in the bidding, evaluation, contracting and implementation of the [B].

2.2 The [A] further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any Material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the CLIENT or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the [B] or any other [B] with the Government for showing or forbearing to show favour or disfavor to any person in relation to the [B] or any other [B] with the Government.

2.3 * [A] shall disclose the name and address of agents and representatives and Indian [A] shall disclose their foreign principals or associates.

2.4 * [A] shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.

2.5 The [A] further confirms and declares to the CLIENT that the [A] is the original manufacturer/integrator/authorized government sponsored export entity of the defense stores and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the CLIENT or any of its functionaries, whether officially or unofficially to the award of the [B] to the [A] nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

2.6 The [A] either while presenting the bid or during pre-contract negotiations or before signing the [B] shall disclose any payments he has made, is committed to or intends to make to officials of the CLIENT or their family members, agents, brokers or any other intermediaries in connection with the [B] and the details of services agreed upon for such payments.

2.7 The [A] will not collude with other parties interested in the [B] to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the [B].

2.8 The [A] will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

2.9 The [A] shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the CLIENT as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The [A] also undertakes to exercise due and adequate care lest any such information is divulged.

2.10 The [A] commits to refrain from giving any complaint directly or through any other manner without Supporting it with full and verifiable facts.

2.11 The [A] shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.

2.12 If the, [A] or any employee of the [A] or any person acting on behalf of the [A], either directly or Indirectly, is a relative of any of the officers of the CLIENT, or alternatively, if any relative of an officer of the CLIENT has financial. Interest/stake in the Bidder's firm, the same shall be disclosed by the [A] at the time of filling of tender.

The term 'relative' for this purpose would be as defined in section 6 of the companies act 1956.

2.13 The [A] shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the CLIENT.

2.14 The [A] shall not approach the courts while representing the matter to IEM and he/she will await their decision in this matter.

3. Previous Transaction

3.1 The [A] declares that no previous transgression occurred in the last three years immediately before signing of this integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any public sector enterprise in India or any Government department in India that could justify BIDDER's from the tender process.

3.2 The [A] agrees that if it makes incorrect statement on this subject, [A] can be disqualified from the ender process or the contact, if already awarded, can be terminated for such reason.

4. Securities/Guarantees

4.1 The Bid Security (also called Earnest Money)/Security Deposit (also called Retention Money)/Performance Guarantee shall be as per the provisions of Bid document.

5. Sanctions for Violations

5.1 Any breach of the aforesaid provisions by the [A] or any one employed by it or acting onits behalf (whether with or without the knowledge of the [A] shall entitle the CLIENT to take all or any one of the following actions, wherever required :-

(i) To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the [A]. However, the proceedings with the other BIDDER(s) would continue.

(ii) The Bid Security deposit (in pre-contract stage) and/or security Deposit/performance Bond (after the [B] is signed) shall stand forfeited fully and the CLIENT shall not be required to assign any reason therefore.

(iii) To immediately cancel the [B], if already signed, without giving any compensation to the [A].

(iv) To recover all sums already paid by the CLIENT, and in case of an Indian [A] with interest thereon at 2% higher that the prevailing prime lending rate of state bank of India, while in case of a [A] from the country other that India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to [A] from the CLIENT in connection with any other [B], such outstanding payment could also be utilized to recover the aforesaid sum and interest.

(v) To encash the advance bank guarantee and performance bond, if furnished by the [A], in order to recover the payments, already made by CLIENT, along with interest.

(vi) To cancel all or any other contracts with the [A]. The [A] shall be liable to pay compensation for any loss or damage to the Client resulting from such cancellation/rescission and the client shall be entitled to deduct the amount so payable from the money(s) due to the [A].

(vii) To debar the [A] from participating in future bidding processes of the Government of India for a minimum period of five years, which may be further extended at the discretion of the CLIENT.

(viii) To recover all sums paid in violation of this pact by [A]) to any middleman or agent or broker with a view a view to securing [B] the contract.

(ix) In cases where irrevocable letters of credit have been received in respect of any [B] signed by the client with the [A], the shall not be opened.

(x) Forfeiture of Performance Bond in case of a decision by the client to forfeit the same without assigning any reason for imposing sanction for violation of this pact.

5.2 The client will entitled to take all or any of the actions mentioned at para 6.1(i) to (x) of this pact also on the commission by the [A] or any one employed by it or acting on its behalf (whether with or without the knowledge of the [A], of an offence as defined in chapter IX of the Indian penal code, 1860 or prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

5.3 The decision of the CLIENT to the effect that a breach of the provisions of this pact has been committed by the [A] shall be final and conclusive on the [A]. However, the [A] can approach the Independent Monitor(s) appointed for the purposes of this Pact.

6. Fall Clause

6.1 The [A] undertakes that it has not supplied/is not supplying similar product/systems or subsystems at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India or PSU and if it is found at any stage that similar product/system or sub systems way supplied by [A] to any other Ministry/Department of the Government of India or a PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the [A] to the CLIENT, if the [B] has already been concluded.

7. Independent Monitors

7.1 The CLIENT has appointed Independent Monitors (hereinafter referred to as Monitors) for this pact in consultant with the central vigilance commission. Names and addresses of the Monitors mentioned below:

I) **Shri V Kannan, Ex-CMD, Vijaya Bank**,
Address: TA-1, Krishna Regency, Third Floor, Tata Silk Farm, K R Road, Basavanagudi, Bangalore-4,
Mob.: No. 0810530555.
(Email: Kannan, venkata@gmail.com)

II) **Ms. Rashmi Verma, IAS (Retd.)**
Address; D-87, Ground Floor, Panchsheel Enclave, New Delhi-110017,
M. No. 9810735544
E-mail-verma.rashmi@rediffmail.com

7.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this pact.

7.3 The monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

7.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.

7.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the CLIENT

7.6 The BIDDER(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the CLIENT including that provided by the BIDOER. The [A] will also grant the Monitor, upon his request and demonstration of a valid Interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor shall be und 'contractual obligation to treat the information and documents of the [A] with confidentiality.

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

7.8 The monitor will submit a written report to the MD/DFCCIL within 8 to 10 weeks from the date of reference or intimation to him by the CLIENT/BIDDER and, should the occasion arise, submit proposal for correcting problematic situations.

8. Facilitation of Investigation

In case of any allegation of violation of any provisions of this Pact or payment of commission, the CLIENT or its agencies shall be entitled to examine all the documents including the Books of Accounts of the [A] and the [A] shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

9. Law and Place of Jurisdiction

This pact is subject to Indian law. The place of performance and jurisdiction is the seat of the CLIENT.

10. Other Legal Actions

The actions stipulated in this integrity pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

11. Validity

11.1 The validity of this integrity pact shall be from date of its signing and extend upto 5 years or the complete execution of the [B] to the satisfaction of both the CLIENT and the [A] including warranty period, whichever is later. In case [A] is unsuccessful, this integrity pact shall expire after six months from the date of the signing of the [B].

11.2 Should one or several provisions of this pact turn out to be invalid; the remainder of this pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

12. The parties hereby sign this integrity pact at …….. on ……..

CLIENT BIDDER

Name of the officer CHIEF EXEUCTIVE OFFICER
Designation

Deptt./Ministry/PSU

Witness witness

1. …….. 2. ……..

Note:

[A]- To be replaced by BIDDER/Seller/Consultant/Consultancy firm/Service provider as the case was may be

[B]- To be replaced by contract/supply contract/consultancy contract/works contract as the case was may be.

FORM No. 21

SUMMARY OF INSURANCES
(Clause 1.5.12, Part - I, Chapter - V)

Insurance to be taken by the Contractor

In accordance with the provision of SCC Sub-Clause 1.5.12, the Contractor shall at its expense take out and maintain in effect, or cause to be taken out and maintained in effect, during the performance of the Contract, the insurance sent for the below in the sums and with the deductibles and other conditions specified. The identity of the insurers and the form of the policies shall be subject to the approval of the Employer, such approval not to be unreasonably withheld.

A. Insurance against Injuries to Person and Damage to property-

Covering any loss, damage, death or bodily injuries which may occur to any physical property or to any person / animal covering loss and damage to Employer property and Employer's personal.

Amount (In Rs)	Deductible limits (in Rs.)	Parties insured (names)	From	To
Rs. 100 Lakh per occurrence with no limit on the number occurrences	-	Contractor and Employer	Commencement date	Issue of Performance certificate

B. Insurance of Works and Contractor's equipments-

The contractor shall insure to cover loss or damage to works, plants, materials and contractor's documents occurring prior to completion of the work until the date of issue of the Taking-Over Certificate for the Works.

Amount (In Rs)	Deductible limits (in Rs.)	Parties insured (names)	From	To
Full replacement value, including delivery to Site plus 15% of replacement cost	-	Contractor and Employer	Commencement date	Issue of Taking-Over Certificate for the Works

C. Insurance for Contractor's Personnel

The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel. The Employer and the Engineer shall also be indemnified under the policy of insurance, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel.

D. Automobile Liability Insurance

Covering use of all vehicles used by the contractor or its sub contractors (whether or not owned by them) in connection with the design, construction testing and commissioning of the facilities under the contract in accordance with statutory requirements.

E. Professional Indemnity Insurance

To cover professional negligence in the design of the works.

Amount (In Rs)	Deductible limits (in Rs.)	Parties insured (names)	From	To
Rs. 50 Lakh	-	Contractor and Employer	Commencement date	Issue of Performance certificate plus 3 years

F. Workers' Compensation

In accordance with the statutory requirement applicable in India.

G. Insurance to be taken by the Employer (DFCCIL)– Nil

FORM No. 22

FORMAT FOR AFFIDAVIT TO BE UPLODED BY TENDERER ALONG WITH THE TENDER DOCUMENT

(Clause 1.3.13(iii), Part - I, Chapter - III)

(To be executed in presence of Public notary on non-judicial stamp paper of the value of Rs. 100/- The stamp paper has to be in the name of the tenderer)**

Tender Notice No……..

Name of Work:……

I..... (Name and designation)** appointed as the attorney/authorized signatory of the tenderer (including its constituents),

M/s.....(hereinafter called the tenderer) for the purpose of the Tender documents for the work of.....as per the tender No.....of DFCCIL, do hereby solemnly affirm and state on the behalf of the tenderer including its constituents as under:

I/we the tenderer(s), am/are signing this document after carefully reading the contents.

1. I/we the tenderer(s) also accept all the conditions of the tender and have signed all the pages in confirmation thereof.

2. I/we hereby declare that I/we have downloaded the tender document from the website https://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 evolution of tenders, execution of work of final payment of the contract, the master copy available with the DFCCIL shall be final and binding up me/us.

3. 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.

4. I/we also understand that my/our offer will be evaluated based on the document/credentials submitted along with the offer and same shall be binding upon me/us.

5. 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 for the information and documents, submitted by us.

6. I/we understand that if the certificates regarding eligibility criteria submitted by us are found to be forged/false or incorrect ay any time during process for evaluation of tenders, it shall lead to forfeiture of the tender BID SECURITY besides banning of business for five year on entire DFCCIL. Further, I/we (insert name of the tenderer)**…….. and all my/our constituents understand that my/our offer shall be summarily rejected.

7. I/we also understand that if the certificates submitted by us found to be false/forged or incorrect at any time after the award of the contract, it will lead to termination of the contract, alongwith forfeiture of BID SECURITY/Security Deposit (SD) and Performance guarantee besides any other provided in the

contract including banning of business for five year on entire DFCCIL.

8. I/We certify that I/we the tenders(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

9. 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 fulfill all the requirements in this regard and am/are eligible to be considered (evidence of valid registration b the competent authority is enclosed)

DEPONENT
SEAL AND SIGNATURE
OF THE TENDERER

VERIFICATION

I/we above named tenderer do hereby solemnly affirm and verify that the contents of my/our above affidavit are true and correct. Nothing has been concealed and no part of it is false.

DEPONENT

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.

Attestation before Magistrate/Notary Pubic

FORM No. 23

FORMAT FOR GURANTEE BONDS

(a) GUARANTEE BOND FOR REINFORCED EARTH WALL SYSTEM

The agreement made this_____day of _____202_ between M/s _____ (hereinafter called the Guarantor of the one part) and the Managing Director, Dedicated Freight Corridor Corporation of India Ltd. acting through Chief General Manager / General Manager Co-ordination (hereinafter called the DFCCIL of other part)

WHEREAS THIS agreement is supplementary to a contract (hereinafter called the Contract) dated _____ made between the GUARANTOR OF THE ONE part and the DFCCIL of the other part, whereby the Guarantor who is the Contractor interalia undertook the work of construction of ROB work at "_____".

In the said contract the item of reinforced earth wall system is to be provided and installed by the Guarantor/Contactor as per the standard specifications of MoRTH (Ministry of Road Transport and Highways). Further the scope of detailed design of the reinforced earth wall system to serve the minimum life of 25 years (to be reckoned from the date after the maintenance period) is within the purview of the Contractor.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said reinforced earth wall system will remain satisfactorily functional for twenty five years to be reckoned from the date after the maintenance period, prescribed in the contract, expires.

_____

During this period of guarantee, the Guarantor shall make good all defects and for that matter shall replace at his risk and cost such elements of the joints including cost of installation and fixing of the reinforced earth wall system to the satisfaction of the Engineer-In-Charge, at his own cost and he shall commence the work for such rectification within seven days from the date of issue of the notice from the Engineer In-charge calling upon him to rectify the defects, failing which the work shall be got done by the Department through some other contractor at the Guarantor's cost and risk. The decision of the Engineer-In-charge as to the cost, payable by the Guarantor shall be final and binding.

That if Guarantor fails to execute the replacement/rectification or commits breach thereunder, then the Guarantor will indemnify the Principal and his successors against all loss, damage, cost, expense or otherwise which may be incurred by him by reason of any default on the part of the Guarantor in performance and observance of this supplementary agreement. As to the amount of loss and / or damage and/or cost incurred by the DFCCIL, the decision of the Engineer-In-Charge will be final and binding on the parties.

IN WITNESS WHEREOF these presents have been executed by the Guarantor_____ and Chief General Manager/General Manager Co-ordination, DFCCIL for and on behalf of the Managing Director, DFCCIL on the day, month and year first above written.

Signed, sealed and delivered by Guarantor
In the presence of
1.
2. (Guarantor)

Signed for and on behalf of Chief General Manager/General Manager Co-ordination, DFCCIL by Dy. CPM
In the presence of
1.
2.

(Dy. CPM)

FORM No. 23

FORMAT FOR GURANTEE BONDS
(b) GUARANTEE BOND FOR BEARINGS

The agreement made this ---------- day of ----------Two Thousand Eighteen between M/s ---------- (hereinafter called the Guarantor of the one part) and the Managing Director, Dedicated Freight Corridor Corporation of India Ltd. Acting through CGM/ GM Co-ord DFCCIL (hereinafter called the DFCCIL of other part)

WHEREAS THIS agreement is supplementary to a contract (hereinafter called the Contract) dated-------

----------made between the GUARANTOR OF THE ONE part and the **DFCCIL** of the other part, whereby the Guarantor who is the Contractor interalia undertook the work of RFO at "----------

---

In the said contract the item of ROCKER/ROLLER, POT/PTFE or ELASTOMERIC type of bearings is to be provided and fixed by the Guarantor/Contractor as per the standard specifications and following the basic design requirements as per detailed design report of the DFCCIL. Further the scope of detailed design of the bearings to serve the minimum life of 50 years (to be reckoned from the date after the maintenance period) is within the purview of the Contractor.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said bearings will remain satisfactorily functional for twenty-five years to be reckoned from the date after the maintenance period, prescribed in the contract, expires.

During this period of guarantee, the guarantor shall make good all defects and for that matter shall replace at his risk and cost such elements of the joints i/c cost of installation and fixing of the bearings to the satisfaction of the Engineer-In-Charge, at his cost and he shall commence the work for such rectification within seven days from the date of issue of the notice from the Engineer-In-Charge calling upon him to rectify the defects, failing which the work shall be got done by the Department through some other contractor at the GUARANTOR's cost and risk. The decision of the Engineer-In-Charge as to the cost, payable by the Guarantor shall be final and binding.

That if the Guarantor fails to execute the replacement/rectification or commits breach thereunder, then the Guarantor will indemnify the Principal and his successors against all loss, damage, cost, expense or otherwise which may be incurred by him by reason of any default on the part of the Guarantor in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and/or cost incurred by the DFCCIL, the decision of the Engineer-In-Charge will be final and binding on the parties.

IN WITNESS WHEREOF these presents have been executed by the Guarantor----------and Chief Project Manager, DFCCIL for and on behalf of the Managing Director, DFCCIL on the day, month and year first above written.

Signed, sealed and delivered by Guarantor in the presence of
1.

(Guarantor)

Signed for and on behalf of General Manager, DFCCIL by Dy. C.P.M/DFCCIL, in the presence of
1

2

(Dy. C.P.M)

FORM No. 24

Bid Security

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).

.....***Bank's Name, and Address of Issuing Branch or Office*.....**

Beneficiary: Dedicated Freight Corridor Corporation of India Limited.

Date:.....

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

…… (Designation & address of Contract Signing Authority), Dedicated Freight Corridor Corporation of India Limited (herein called "**the Employer**") 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 (hereinafter 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 authorised 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 Employer:

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 Employer 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 Employer any amount up to and including aforementioned full amount without any demur, reservation or recourse. Anysuch demand made by the Employer on the Bank shall be final, conclusive and binding, absolute and unequivocal on the Bank 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 Employer without any reference to the Bidder and without the Employer 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 orin 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 Employer 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 Employer at anytime.

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/Maintenance period plus 60

Signature of Tenderer(s) with Seal

days.

7. The Bank Guarantee is unconditional and irrevocable.

8. The expressions Bank and Employer 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 Employer. 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	
BANK NAME	
BRANCH NAME	
CITY NAME	
ADDRESS	
DISTRICT	
STATE	
BG ENABLED	

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

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 deletedfrom the final document.

Signature of Tenderer(s) with Seal

FORM No. 25

(Reference Clause 40(A)
Registered Acknowledgement Due

PROFORMA OF 14 DAYS NOTICE FOR OFFLOADING OF PART OF CONTRACT WORK

Dedicated Freight Corridor Corporation of India Ltd.
(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 show adequate progress of work so as to complete the contract within the original / extended date of completion of contract and part(s) of contract work are yet to be started/ still lagging behind the agreed program of work, listed as under:

(Details of part(s) of work which is delayed and can be executed independently, 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 14 days' notice in accordance with Clause 40A of the General Conditions of Contract to deploy adequate resources i.e. *(the details of resource requirement, to be mentioned)* and commence / to make good the progress for part(s) of works detailed above, failing which action as provided in Clause 40A of the General Conditions of Contract shall be commenced after expiry of 14 days' notice period viz. to offload few/ all part(s) of work mentioned above to any of the existing or new contractor without your participation and at your Risk & Cost, not exceeding the value of Performance Guarantee of this contract, which may please be noted.

Kindly acknowledge receipt.

Yours faithfully

For and behalf of the Employer
Name of the Official:-
Stamp/ Seal of the Employer

Signature of Tenderer(s) with Seal

FORM No. 26

(Reference Clause 40(A)
Registered Acknowledgement Due

NOTICE FOR PART OF CONTRACT WORK OFFLOADED

Dedicated Freight Corridor Corporation of India Ltd.
(Without Prejudice)

To

M/s ……
……..

Dear Sir,

Contract Agreement No. ……
In connection with ……..

1. Fourteen days' notice under Clause 40A of the General Conditions of Contract was given to you under this office letter of even no., dated ; but you have taken no/inadequate action to deploy adequate resources to commence the part(s) of work/show adequate progress of the part(s) of work, mentioned therein.

As you have failed to abide by the instructions issued to commence the part(s) of work/show adequate progress of the part(s) of work even at the lapse of 14 days' notice period under Clause 40A of the General Conditions of Contract, few part(s) of the work under the contract have been offloaded and being executed by other mode(s) at the cost detailed below:

Or,

1. Please refer your request letter no….. dated ….., wherein it was requested under clause 40 A of the General Conditions of Contract to offload part(s) of works at your risk & cost. The details of part(s) of the work under the contract which have been offloaded and being executed by other mode(s) at the cost detailed below:

(List of Part(s) of work offloaded, Details of mode of execution of such offloaded work along with approximate cost thereof to be mentioned)

2. The final measurement of work(s) already executed for above part(s) of work recorded as per clause 45 (A) or/and 45 (B) of the General Conditions of Contract is enclosed herewith.

3. The Bill(s) of Quantities for Part(s) of work offloaded is enclosed herewith.

4. The additional cost in execution of offloaded work through mode(s) mentioned in para (1) above is determined as Rs……., over& above the cost of execution under this contract (including the PVC amount payable as per contract, as on the date of issue of this notice). This additional cost shall be recovered from your next on account bill(s) or any other dues payable to you under contract.

5. The Contract value gets reduced to Rs……..:

6. You are requested to continue with the balance work in the contract subsequent to offloading of above part(s) of work.

Kindly acknowledge receipt.

Yours faithfully

For and behalf of the Employer
Name of the Official:-
Stamp/ Seal of the Employer

Signature of Tenderer(s) with Seal

FORM No. 27

Reference Para 64.(3)

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

1. Name:

2. Contact Details:

3. Prior experience (Including Experience with Arbitrations):

4. Total Number of Arbitration/DAB/Conciliation Cases presently involved as Arbitrator/DAB Member/Conciliator:

5. Total Number of Arbitration/DAB/Conciliation Cases in which acting as Contractor's (one of the Party to the present dispute) nominee Arbitrator/DAB Member/Conciliator:

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:

Signature of Tenderer(s) with Seal

FORM No. 28

Security Deposit

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).

.....***Bank's Name, and Address of Issuing Branch or Office*.....**

Beneficiary: Dedicated Freight Corridor Corporation of India Limited.

Date:.....

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

…… (Designation & address of Contract Signing Authority), Dedicated Freight Corridor Corporation of India Limited (herein called "**the Employer**") 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 (hereinafter called "the **Bid**") .

WHEREAS, the Bidder is required to furnish Security Deposit for the sum of ***[Insert required Value of*** Security Deposit***]***, 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 authorised persons of the Bank]***, have, at the request of the Bidder, agreed to give guarantee for Bid Security (Bid Security) / Security Deposit as hereinafter contained, in favour of the Employer:

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 Employer full amount in the sum of ***[Insert required Value of Security Deposit]*** as above stated.

2. The Bank undertakes to immediately pay on presentation of demand by the Employer any amount up to and including aforementioned full amount without any demur, reservation or recourse. Anysuch demand made by the Employer on the Bank shall be final, conclusive and binding, absolute and unequivocal on the Bank 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 Employer without any reference to the Bidder and without the Employer 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 orin 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 Employer 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 Employer at anytime.

Signature of Tenderer(s) with Seal

6. This guarantee will remain valid and effective from***……[insert date of issue]*** till ……***[insert date, which should be minimum 60 days beyond the Maintenance period].*** Any demand in respect of this Guarantee should reach the Bank within the validity period of Bid Security/Maintenance period plus 60 days.

7. The Bank Guarantee is unconditional and irrevocable.

8. The expressions Bank and Employer 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 Employer. 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	
BANK NAME	
BRANCH NAME	
CITY NAME	
ADDRESS	
DISTRICT	
STATE	
BG ENABLED	

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

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 deletedfrom the final document.

DRAWINGS

PART V

DESIGN & DRAWING SPICIFICATION

1.1 The latest Technical/ Specification and Standard Drawings/Designs of DVC, Kolkata, shall be used as reference for preparation of design, drawing, quality maintaining, execution, testing & commissioning of entire work. All Drawings/Designs will be provided by DFCCIL/DVC.

****** END OF TECHNICAL BID PACKET-A ******