TENDER SPECIFICATION
FOR

Sub: Bi-Annual rate contract for the work of an original survey with line route allignment,prepration & Substation of detail reports as per requirment of EIC under R & M OH line Navsari Circle.

Estimated Cost – Rs. 90,70,188.00

Price of tender fee – Rs. 5900.00

EMD – Rs. 90,701.88

Time limit- 24 Months

TECHNICAL BID

TENDER NO. TCNS-ET-131-2026-27

TENDER FOR THE WORK OF

Bi-Annual rate contract for the work of an original survey with line route allignment,prepration & Substation of detail reports as per requirment of EIC under R & M OH line Navsari Circle.

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GUJARAT ENERGY TRANSMISSION CORPORATION LIMITED

TENDER NOTICE No – TCNS-ET-131-2026-27

SE (TR) invites "On line Tenders" (e-tendering) for the "**Bi-Annual rate contract for the work of an original survey with line route allignment,prepration & Substation of detail reports as per requirment of EIC under R & M OH line Navsari Circle..**" From registered Contractors in appropriate class with GETCO and who has executed line erection works successfully as mentioned in Qualification requirement criteria given in the tender document. Bidders should fulfill the all the qualification criteria. Otherwise their bids will not be considered & price bid will not be opened. All the bidders should have valid e-tender vender registration.

Tender Papers & Specifications may be downloaded from Web site as https://getco.nprocure.com (For view, download and on-line submission) and GUVNL / GETCO web sites www.gseb.com & www.getcogujarat.com (For view & download only).

All tender documents are to be upload (Notarized / self-attested copies of original – as specified in tender document) through online only (mandatory) on (n) procure portal excluding Tender fee, EMD and Integrity Pact. Tender fee, EMD and Integrity Pact are to be submitted physically by Registered Post A.D. or Speed Post addressed to: The Superintending Engineer (TR) Gujarat Energy Transmission Corporation Limited, Circle Office, 220kV Sub-station Compound, N.H. 48, Grid, Kabilpore, Navsari - 396 427. (refer last page for reference)

"**NO COURIER SERVICE OR HAND DELIVERY**" will be allowed

Sr. No.	Description	
1	Tender No.:	**TCNS/ET-131/2026-27**
2	Purchase of / Work of	**Bi-Annual rate contract for the work of an original survey with line route allignment,prepration & Substation of detail reports as per requirment of EIC under R & M OH line Navsari Circle..**
3	Tender Fee (non refundable)	**Rs. 5900.00 (Including 18% GST)**
4	Estimated cost with GST in Rs. Lacs	**Rs. 90,70,188.00**
5	Earnest Money Deposit amount in Rs.	**Rs. 90,701.88**
6	On line (E-tendering) tender/ offer submission last date up to 16.00 hours only (This is mandatory)	**As per Tender Notice Schedule**
7	Date of opening of Preliminary & Technical stage (on-line Opening)	**As per Tender Notice Schedule**
8	Tentative Date of on – line opening of Price bid, (if possible),	**Shall be intimated separately**
9	Prices	Firm
10	Time limit	24 Months

IMPORTANT:

All the online Annexures i.e. Annexure - 1 to 8 and price bid, other tender documents (refer Table-A) must be submitted/attached through online form only.

Bidder has to upload scanned copies of original (Notarized / self-attested copies of original – as specified in tender document) documents with bid and **no physical documents to be submitted by bidder.**

All such documents should be strictly submitted through online uploading. Otherwise the offer will not be considered and no any further communication in the matter will be entertained on or before due date of submission. **However, of anywhere in tender documents submission of other than this document or physical submission mentioned to be overlooked.**

Tender fees & EMD amount should be paid by **Online-payment mode only. Payment of Tender Fees & EMD by RTGS/NEFT shall be encouraged. After the payment through RTGS/NEFT bidder has to mail following details:**

Sr. No	Required Details
1	Name & Address of the bidder
2	Bidder GST No
3	Tender No with due date
4	Mode of Transfer
5	Ref. ID with Bank Details
6	Paid Amount
7	Payment against (**Tender Fee / EMD**)

To:

a. **setrnavsari.getco@gebmail.com**
b. **decmgtrnavsari.getco@gebmail.com**
c. **aotr.navsari@gebmail.com**
d. **cashnavsari.getco@gebmail.com**

Bidder has to provide all above details on the same date of payment so that receipt can be generated.

❖ **GETCO Beneficiary Bank detail is as under:**

1	Name of Account Holder	Gujarat Energy Transmission Corporation Ltd.
2	Account No.	08200200000194
3	Name of Bank	Bank of Baroda
4	Branch Code	012
5	Address of Bank	Bank of Baroda, Khatrivad, Navsari
6	IFSC Code	BARB0KHATRI
7	PAN No	AABCG4029R
8	TAN No	SRTG01134A
9	GST No	24AABCG4029R2ZC

The transection slip of payment made by RTGS/NEFT is to be uploaded in N-procure with tender documents

Submission and Evaluation of Documents / Clarification:

- The Bidder shall submit/upload all the documents, certificates, declarations, statements and other information required under the Tender Document along with its original online bid within the stipulated date and time for submission of bids. The Bidder shall be solely responsible for ensuring completeness, correctness, legibility and validity of all such documents.
- The Technical/Qualification Requirement (QR) evaluation of the bid shall be carried out only on the basis of the Data / Details / Documents submitted/uploaded by the Bidder as part of its original online offer on or before the stipulated last date and time for submission of the bid.
- After the stipulated last date and time for submission of bids, no new, additional, substitute or replacement document shall be accepted or considered for establishing or improving the eligibility, Qualification Requirement (QR), technical qualification or experience of the Bidder.
- In case any document, certificate, work order, completion certificate, experience certificate, registration certificate or other document required for establishing the eligibility/QR of the Bidder has not been submitted/uploaded with the original online bid, the same shall not be subsequently submitted or considered for establishing or improving the eligibility/QR of the Bidder.

- The Owner/Tendering Authority may, wherever considered necessary, seek clarification only in respect of the Data / Details / Documents already submitted/uploaded by the Bidder with its original online offer, provided that such clarification does not result in any change, addition, substitution or improvement in the substance of the original bid or in the eligibility/QR of the Bidder.
- No clarification shall be sought or accepted for introducing a new experience, new work order, new completion certificate or any other new document which was required to be submitted with the original online bid but was not submitted/uploaded within the stipulated bid submission period.
- No post-bid clarification or document submitted voluntarily by the Bidder shall be considered for evaluation. Any clarification, if required by the Owner/Tendering Authority, shall be sought in writing and shall be limited to the original online submission.
- In case the required Data / Details / Documents are not available in the original online offer, the bid shall be evaluated on the basis of the documents actually submitted/uploaded with the original online bid and dealt with in accordance with the Tender conditions.
- In case any document uploaded/submitted by the Bidder along with the original online bid is found to be unreadable, illegible, corrupted, damaged or otherwise not accessible/openable, the Owner/Tendering Authority may seek clarification/re-submission only for such document(s) which are specifically required as per the duly filled online Annexures submitted by the Bidder, and only to the extent permissible under the Tender Conditions.
- If the Bidder has not duly filled the relevant online Annexure(s), or has merely mentioned "As per attached documents" or any similar general remark in place of providing the required details in the prescribed Annexure(s), then no further communication, clarification or opportunity for submission/re-submission of such document(s) shall be entertained, and the bid shall be evaluated on the basis of the documents/data available in the original online offer.
- The responsibility for ensuring that all uploaded documents are complete, properly filled, legible, accessible, valid and correctly linked/referenced through the prescribed Annexures shall rest solely with the Bidder.

It shall be sole responsibility of the bidder that the uploaded scanned documents (in PDF form) remain legible and should not be password protected.

All the relevant scanned documents as per requirement of the tender are to be upload through online only on n-procure portal including Tender fee, EMD and Integrity Pact.

Evaluation of Online Offer

"Tender shall be evaluated on the basis of the Data / Details / Documents forming part of the original online offer submitted/uploaded by the Bidder on or before the stipulated last date and time for submission of the bid.

No new, additional, substitute or replacement document submitted after the stipulated last date and time for submission of the bid shall be considered for establishing or improving the eligibility, Qualification Requirement (QR), technical qualification or experience of the Bidder.

Clarification, if any, shall be governed strictly by Clause No. 6 of the Tender Document and shall not result in any change or improvement in the substance of the original bid "Tender will be evaluated on basis of Data / Details / Documents submitted by online form only."

It is mandatory for all the bidders to upload their tender documents by on line only (E-tendering) in scheduled time. **No documents shall be considered physically which are mentioned for on-line submission only.**

Online Annexures and Supporting Documents

"Bidders shall fill all online Annexures, wherever required, and shall upload all supporting authentic documents as specified in the Tender Document.

The Bidder shall ensure that all documents required for establishing eligibility, Qualification Requirement (QR), technical qualification and experience are duly uploaded/submitted along with the original online bid within the stipulated date and time for submission of the bid.

The responsibility for submission/uploading of complete and valid documents required under the Tender Document shall rest solely with the Bidder.

In case any required Data / Details / Documents are not submitted/uploaded with the original online bid, the same shall not subsequently be accepted or considered for establishing or improving the

eligibility/QR, except for clarification strictly within the scope permitted under Clause No. 5.
The Owner reserves the right to evaluate the bid on the basis of the Data / Details / Documents available in the original online offer and in accordance with the provisions of the Tender Document.

Bidders are requested to remain in touch with the web-site for any amendment / corrigendum or extension of due date etc

The Earnest Money Deposit and tender fee will be accepted through online payment mode NEFT/RTGS only and Tender Fee payment through NEFT/RTGS with different purchaser or agency shall not be accepted. Tender without EMD and tender fee shall be rejected. Two separate transection for Tender fee and EMD should be submitted.

The GETCO reserves the right to award the work to one or more bidders, considering their technical and financial capacity OR to reject any or all tenders or accept any tender without assigning any reason thereof.

Any technical questions, information and clarifications that may be required pertaining to this enquiry should be referred to: **The Superintending Engineer, Gujarat Energy Transmission Corporation Limited, Transmission Circle Office, Kabilpore, Navsari - 396427**

GETCO reserves the right to reject any OR all tenders without assigning any reasons thereof.

Yours faithfully,

Superintending Engineer
Navsari

To view the PDF file please use “Acrobat Reader” software which can be downloaded from “Adobe” website.

GUJARAT ENERGY TRANSMISSION CORPORATION LIMITED

NAVSARI Date:

I N T E G R I T Y P A C T

OUR ENEAVOUR

To create environment where Business Confidence is built through Best Business Practices and is fostered in an atmosphere of trust and respect between providers of goods and services and their users for the ultimate benefit of society the nation.

GETCO COMMITMENT	PARTY'S COMMITMENT
▪ To maintain the highest ethical standards in business and professional.	▪ Not to bring pressure / recommendations outside GETCO to influence its decision.
▪ Ensure maximum transparency to the Satisfaction of stakeholders.	▪ Not to use intimidation, threat, inducement or Pressure of any kind on GETCO or any of its employees under any circumstances.
▪ To ensure to fulfill the terms of agreement / contract and to consider objectively the viewpoint of parties.	▪ To be prompt and reasonable in fulfilling the contract, agreement, legal obligations.
▪ To ensure regular and timely release of payment on due dates for work done.	▪ To provide goods and / or services timely as per agreed quality and specifications at minimum cost of GETCO.
▪ To ensure that no improper demand is made by employees or by anyone on our behalf.	▪ To abide by the general discipline to be maintained in out dealings.
▪ To give maximum possible assistance to all the vendors / supplier / Service provider and other to enable them to complete the contract in time.	▪ To be true and honest in furnishing information including payment to agents / sub-agent.
▪ To provide all information to suppliers / contractors relating to contract / job which facilitate him to complete the contract / job successfully in time.	▪ Not to divulge any information, business details available during the course of business relationship to others without the written consent of GETCO.
▪ To ensure minimum hurdles to vendors / suppliers / contractors in complete of agreement / contract / work order.	▪ Not to enter into carter / syndicate / understanding whether formal / non-formal so as to influence the price.

_____ _____

Seal & Signature
(GETCO Authorized Signatory)

Seal & Signature
(Party's Authorized Person)

Name:
Designation:

INVITATION OF TENDER:

The Superintending Engineer (TR), Navsari for and on behalf of "GUJARAT ENERGY TRANSMISSION CORPORATION LTD", having its Corporate Office at Vidyut Bhavan, Race Course, Vadodara - 390 007, hereafter called the "GETCO" intends to invite Tender for **Bi-Annual rate contract for the work of an original survey with line route allignment, prepration & Substation of detail reports as per requirment of EIC under R & M OH line Navsari Circle.** as detailed in this specification.

QUALIFYING REQUIREMENT OF THE BIDDER:

1 **Registration**: Bidder quoting for the bid shall be strictly a GETCO registered contractor of any class.

2 **Experience**: The bidder should have an experience of at least 20 KM of survey & preparation of profiles complete with details covered along the route alignment, leveling, fixing of angle point, EHV/HT/LT & P&T line, National highway & Railway Crossings in such a way that no forest / NA Plotting land involved. The bidder should have experience of at least 10 route km out of 20 Km survey work with help of GPS Navigation system including complete BOQ. **Further, Bidder has to submit planning of work along with availability of man power both skilled and unskilled to complete work in stipulated time as per GETCO requirement failing which tender is liable to reject.**

3 **Solvency:** Latest bank solvency certificate from any Bank of a sum of minimum 20 % of the estimated cost shown in the tender.

4 **Provident Fund Code:** Separate provident fund code number towards firm registered with Regional P. F. Commissioner.

5 **Profit & Loss Account Statement:** The Bidder should submit certified Xerox audited copy of the Balance sheet with profit and loss account & IT returns of last three Financial Years.

6 **Nature of Firm:** Attested copy of **Partnership Deed**, **Power of Attorney**, if any, for signing the bid documents in case of partnership firm & self**-affidavit for proprietorship firm**. All such documents shall have to be **NOTARISED.**

7 **I.T. PAN CARD:** The bidder should submit the attested zerox copy of PAN Card of their firm.

8 **GST registration:** The bidders should submit the certified copy of GST registration.

9 Electrical contractor's license with latest validation.

Signature of Contractor

Superintending Engineer(TR)
GETCO, CO,
Navsari

General Conditions of Contract

1.0 General Particulars

1.1 The Gujarat Energy Transmission Corporation Ltd., Navsari hereinafter called 'GETCO'/ 'OWNER' intends to receive bids for survey work using GPS system for **66/132/220 KV D/C /Single Circuit Tower/H-Frame** Transmission line all detailed in the accompanying Specifications in accordance with Terms and Conditions herein. The bids shall be Prepared and furnished as per these Instructions.

1.1 The Scope of the proposal shall be on the basis of a Bidder's responsibility, completely Covering all the Survey work of tentative transmission line as per Schedule – B of PART-III

2.0 Scope of the proposal and Work: -Please refer technical specification Document.

3.0 PROJECT PARTICULARS

Name of the Project:
Survey of Various 66KV Transmission lines

4.0 Bidding Costs

All costs/expenses in the preparation and submission of the Bid (including any post Bid discussions/presentations) shall be fully borne by the Bidder. Owner will not be Responsible/liable for these costs irrespective of the course and conclusion of this Bidding.

5.0 BID DOCUMENTS

5.1 Details of Documents

The following Bid documents apart from Invitation to Bid detail the for survey work & the bidding procedures and the terms & conditions of contract:

a). General Conditions of Contract (GCC-Part I)
b) Survey condition of contract
c). Special Conditions of Contract (SCC-Part I)
d). Technical Specifications for survey (TSP-Part II)
e) Bid Form and Price Schedules (BF/PS-Part III)

5.2 Knowing the Bid Documents

5.2.1 Every intending Bidder is to examine and understand all instructions, forms, terms, Conditions and specifications in the Bid Documents and fully know himself all the Conditions and contents therein, which may in any manner, affect the scope & content of work and the costs thereof. Submission of a Bid not substantially responsive to the Bid Document in all respects and/or failure to furnish all information required by the Bid Document may entail rejection of the Bid at the Bidder's risk.

5.3 Clarifications on Bid Documents

5.3.1 In case an intending Bidder finds any discrepancy or omission in the documents and Specifications or is in doubt as to the true meaning of any part, he shall make a Request, in writing not later than the date of pre Bid discussion, to the owner in triplicate. The owner will issue explanations, interpretations and clarifications as

deemed fit in writing as a response to this request. On receipt of such interpretations/clarifications, the Bidder may submit his Bid within the date and time stipulated in the Bid invitation, All such explanations, interpretations and clarifications from the Owner shall be deemed as part of Bid Documents and shall invariably accompany the Bidder's proposal.

5.3.2 Any verbal/telephonic clarifications and information given by the Owner or his Employee (s) or his representative(s) will not in anyway be binding on the Owner.

6.0 **Amendment of bidding document:**

6.1 At any time prior to the deadline for submission of Bids the Owner may, for any reason, Whether at his own initiative or in response to a clarification requested by the Intending Bidder, modify the Bidding Document with amendment(s).

6.2 The amendment will be notified in writing or Fax /web site to all intending Bidders who have received the Bidding Document at the address contained in the letter of request for issue of Bidding document from the Bidders. Owner will bear no responsibility or liability arising out of non-receipt of the same in time or otherwise.

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

6.4 Such amendments, clarifications etc. shall be binding on bidders and will be given due consideration by the Bidders while they submit their bids and shall invariably Enclose such documents as a part of the bid.

PREPARATION OF BIDS

7.0 Language Of Bid:

7.1 The Bid prepared by the Bidder and all correspondence and documents relating to the Bid, exchanged by the Bidder and the Owner, shall be written in the English language, provided that any printed literature furnished by the Bidder may be written in another language so long as accompanied by an English translation of its pertinent Passages. Failure to comply with this may disqualify a bid. For purposes of Interpretation of the bid, the English translation shall govern.

7.2 **Bid Format**

Bidders have to make the Bid in the formats furnished with this Document. Verbatim without adding any printed/typewritten text of their own.

8 Local Conditions:

8.1 It will be imperative on each Bidder to fully inform himself of all local conditions and Factors which may have any effect on the execution of the Contract covered under Seal & Signature of Bidder these documents and specifications. The Owner shall not entertain any request for clarifications from the bidders, regarding such local conditions.

8.2 It must be understood and agreed that such factors have properly been investigated and considered while submitting the proposals. No claim for financial adjustment to the Contract awarded under these specifications and documents will be entertained by the owner. Neither any change in the time schedule of the Contract nor any

financial adjustments arising thereof shall be permitted by the Owner, which are based on the lack of such clear information or its effect on the cost of the works to the Bidder.

8.0 Documents comprising the Bid:

9.1 The Bidder shall complete the Bid form inclusive of Price Schedules, Technical Data Requirements etc. furnished in the Bidding Documents, indicating, for the goods to be Supplied and services to be rendered, a brief description of work involved & price.

9.2.1 The Bidder shall also submit documentary evidence to establish that the Bidder meets the Qualification Requirements as detailed in Special Conditions of Contract and GCC.

9.3 All Tender Documents/ formats are to be returned completed and filled in all respects and signed by the Company Authorized Signatory wherever specified.

9.4 The Bid Guarantee shall be furnished in a separate cover in accordance with clause at GCC.

10.0 **Bid Price:**

10.1 The Bidder shall indicate, in the appropriate price schedules, enclosed in bid proposal Sheets,. The price for Survey work as per technical detail furnish under the contract, along with the total bid price..

10.2 Detailed break up, covering all the price components of unit prices as well as total bid price, as stipulated in the appropriate price schedules of bid proposal sheet shall be provided by the bidder.

10.3 The bidder's separation of price components in accordance with above clause will be solely for the purpose of the facilitating the comparison of Bids by the owner, for Contract price amendment due to quantity variation and for on account payments (in case of award) and shall not in any way limit the Owner's rights.

11.0 Bid Security/EMD:

11.1 The bidder shall furnish, as a part of its bid EMD, bid security for an amount of one percent of total offered amount to be paid as under:

a) In the form of crossed DD drawn in favor of Gujarat Energy Transmission Corporation Limited payable at Navsari

11.2 The bid security is required to protect the owner against the risk of Bidder's conduct, which would warrant the guarantee forfeiture, pursuant to relevant paras elsewhere The
bid guarantee shall be made payable to the Owner without any condition whatsoever. Seal & Signature of Bidder.

11.3.1 Any bid not secured in accordance with above will be rejected by the Owner as non responsive. No exemptions are made in the furnishing of the security.

11.4 Unsuccessful Bidder's bid security/EMD will be returned/refunded on finalization of tender or three months from the date of submission of tender whichever is later.

11.5 The successful bidders, Bid Security will be discharged upon, furnishing the contract Performance guarantee

11.6 The bid guarantee may be forfeited.

a) If a Bidder withdraws its bid during the period of bid validity specified by the bidder on the bid Form:

b) If a bidder refuses to accept the contract or fails to commence the works (including supplies within thirty days of letter of award of contract)

12.0 Format of Bid:

12.1 The Bidder shall prepare two copies of the bid, clearly marking each “Original bid” and “Copy of Bid”, as appropriate. In the event of any discrepancy between them the original shall govern. All the documents furnished in original document shall be furnished in other copies of Bids.

12.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized by the Bidder to sign the Contract. The letter of authorization shall be indicated by written power-of-attorney Accompanying the bid. All pages of the bid, except for un-amended printed literature, shall be initiated by the person or persons signing the bid.

12.3 The Bidders must submit the qualifying data in one original and one duplicate copy as required in this Instructions to Bidders in separate envelopes sealed and enclosed in the
envelope submitting proposals, super scribed as under :

The bidders must be attach all above documents with certified/self verified copy with physical Technical bid.

12.4 The bid shall contain no interlineations, erasures or overwriting except as necessary to Correct errors made by the Bidder, in which case such corrections shall be initiated by the person or persons signing the bid.

12.5 Bids shall be submitted as under:

Cover-I Earnest Money Deposit (Bid-Security), as per relevant clause of SCC duly signed and Contractor’s covering letter. Tender fee details (as per Tender notice)

Cover-II Qualifying Requirements.

Cover-III Technical Bid

Must contain conditions and schedules of Part-III without prices and Technical Data Requirement Sheets (Cover I, II and III will be collectively called Technical Bid).

13. Signature of Bids.

13.1 The bid must contain the name, residence and place of business of the person or persons making the bid and must be signed and sealed by the Bidder with his usual Signature. The names of all persons signing should also be typed or printed below the Signature.

13.2 Bid by a partnership must be furnished with full names of all partners and be signed with the partnership name, followed by the signature(s) and designation(s) or the authorized partner(s) or other authorized representative(s).

13.3 Bids by Corporation/Company must be signed with the legal name of the Corporation/Company by the President/Managing Director or by the Secretary or

other person or persons authorized to bid on behalf of such Corporation/Company in the matter.

13.4 A bid by a person who affixes to his signature the word 'President', 'Managing Director', 'Secretary', 'Agent' or other designation without disclosing his Principal will be rejected.

13.5 If it is found that two or more persons who are connected with one another either financially or as a principal and agent have bid under different names without Disclosing their connection then such bids will be liable for rejection. Satisfactory evidence of authority of the person signing on behalf of the Bidder shall be furnished with the bid.

13.6 The Bidder's name stated on the proposal shall be the exact legal name of the firm.

13.7 Bids not conforming to the above requirements of signing may be disqualified and EMD forfeited.

14.0 Sealing and marking of bids:

14.1 Cover-I 1. Bid No.
2. Due date for opening
3. Reference of tender fee & earnest money deposit

Cover-I 1. Bid No.
2. Due date for opening.
3. Qualifying Requirements.

Cover-I 1. Bid No.
2. Due date for opening
3. Technical bid & reference and required certificates

Cover-I, & Cover-II shall be individually sealed and super scribed as
` indicated above and should be enclosed in the main cover duly sealed and super scribed as Tender for Annual Survey……against Bid No ------ containing Cover-I, Cover-II, of this tender.

The original Bid and accompanying documents clearly marked "Original" plus one copy for Cover I, and ten copies for Cover II shall be submitted by the Bidder at the date, time and place specified. In the event of any discrepancy between the original and the copies, the original shall govern.

The Bid shall be submitted by RPAD or through speed post services at the Office of the SE (TR) GETCO. NAVSARI Bids submitted should be posted with due allowance for any postal delay. The Bids received after the Due Date and Time of opening are liable to be rejected. Telegraphic/Telex/Fax/e-mail Bids shall not be entertained.

14.2 The Bidders shall seal the original and each copy of the bid in an inner and an outer envelope, duly marking the envelopes as "original" and "copy".

14.3 a. Addressed to the Owner at the following address:

The Superintending Engineer (TR)
Gujarat Energy Transmission Corporation Limited.,
Circle office Navsari
Grid, National Highway No;8, Kabilpore,
Navsari – 396424 District: Navsari, Gujarat

b. Bear the name of package bid enquiry number, name of the work and the words.
"DO NOT OPEN BEFORE……

14.4 The inner envelope shall indicate the name and address of the Bidder to enable the

bid to be returned unopened in case it is declared “late” or “rejected”.

14.5 If the outer envelope is not sealed and marked as required by Clause No: 15.1 the Owner will assume no responsibility for the bid’s misplacement or premature opening. 14.6 The Bid Security conditions must be submitted in a separate sealed envelope.

15 Deadline for submission of bids:

15.1 Bids submitted by telex/telegram will not be accepted. No request from any Bidder to the Owner to collect the proposals from airlines, cargo agent etc. shall be entertained by
the Owner.

15.2 Bids must be received by the Owner at the address specified under Clause No: 15.3, not later than the time & date mentioned in the Invitation to Bid.

15.3 The Owner may, at its discretion, extend this deadline for the submission of bids by Amending the Bidding Document in which case all rights and obligations on the Owner and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

16 Late Bids

16.1 Any bid received by the Owner after the time and date fixed or extended for submission of bids prescribed by the Owner, will be rejected and not considered for evaluation.

17.0 Modification and withdrawal of bids:

17.1 The Bidder may modify or withdraw its bid after the bid’s submission provided that written notice of the modification or withdrawal is received by the Owner prior to the Deadline prescribed for submission of bids.

17.2 The Bidder’s modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions of clause No: 15.0. The envelope should clearly indicate whether the modification is for the Technical bid or the Price bid. No bid modifications notice by Telex/Grams/Fax shall be entertained by the Owner.

17.3 No bid shall be modified in any manner, whatsoever subsequent to the deadline for submission of bids.

17.4 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Form. Withdrawal/modification of a bid during this interval may result in the Bidder’s forfeiture of its bid security.

18.0 Information required with the proposal:

18.1 The bids must clearly indicate the scope of work as mentioned in the technical Specification.

18.2 The above information shall be provided by the Bidder in the form of separate sheets, drawings, enclosed etc. in two copies along with soft copy.

18.3 Any bid not containing sufficient descriptive details required for survey work, accuracy of survey equipments, calibration date and due date of calibration and details of equipment proposed to use for this contract may be treated as incomplete and hence

rejected. Such descriptive detail submitted by the Bidder will be retained by the Owner. Any major departure from these drawings and descriptive material submitted will not be permitted during the execution of the Contract without specific written permission of the Owner.

18.4 Oral statements made by the Bidder at any time regarding quality, quantity or arrangement of the equipment or any other matter will not be considered.

18.5 Standard catalogue pages and other documents of the Bidder may be used in the bid to provide additional information and data as deemed necessary by the Bidder.

18.6 The Bidder, along with his Proposal, shall submit a list of recommended survey equipment and experience persons which will be required for the purpose of survey of transmission line under the Contract..

18.7 In case the 'Proposal' information contradicts specification requirements, the specification requirements will govern, unless otherwise brought out clearly in the technical commercial deviation schedule.

19 BID OPENING AND EVALUATION:

19.0 Opening of bids by owner:

19.1 The Owner will open the bids in **PHYSICAL** only, bidder wish to attend on the date and time mentioned for opening of technical bids as per tender notice.
Invitation to Bid or in case any extension has been given thereto, on the extended bid opening date and time notified to all the Bidders who have purchased the bidding document. The Bidder's representatives who are present shall sign a register evidencing their attendance.

19.2 The Bidder's names, Technical modifications, Bid withdrawal and such other details as the Owner, at his discretion may consider appropriate, will be announced in the Technical Bid Opening.

19.3 The price bids of all the "Techno-Commercial" Responsive Bidders shall be opened In **PHYSICAL** . The date & time of opening the Price Bid shall be intimated to all such qualified bidders by Fax/Telex, at least one day in advance besides inviting final price bid if found appropriate after evaluation of Technical bids.

19.4 The Bidder's name, Bid Price, all discounts if any, modifications in the Price Bid and any such other details as the Owner, at his discretion, may consider appropriate, will be
announced/ furnished in the Price Bid Opening.

19.5 No electronic recording/transmitting devices will be permitted during Bid opening.

20 **Purpose of evaluation of bids:**

20.1 The Bids received/accepted/opened will be evaluated by the Owner to ascertain the Technical responsiveness of the bid for the complete scope of the proposal, as covered under these specifications and documents. All technically responsive bids shall then be
examined to determine the LOWEST EVALUATED COMMERCIALLY AND

TECHNICALLY RESPONSIVE BIDS.

21 Policy for bids under consideration:

21.1 Bids shall be deemed to be under consideration immediately after opening of Technical Bid and until such time official intimation of award/rejection is made by the Owner to the Bidders. While the Bids are under consideration, Bidders and/or their Representatives and other interested parties are advised to refrain from contacting by any means, the owner and/or his employee's representatives on the matters related to Bids under consideration.

22.2 **Clarification of bids:**
To assist in the examination evaluation and comparison of Bids the owner may on his own ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing and no change in the price or substance of the bid shall be sought, offered or permitted.

23 Preliminary Examination:

23.1 The Owner will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

24.0 Arithmetical errors will be rectified on the following basis:

If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between the total bid amount and the sum of total costs, the latter shall prevail and the total bid amount will be corrected accordingly. If there is a discrepancy between words and figures, the amount advantageous to the Owner will prevail. If the Bidder does not accept the correction of the errors as above, his Bid will be rejected and the amount of Bid Security will be forfeited. The Bidder should ensure that the prices furnished in various price schedules are consistent with each other. In the case of any inconsistency in the prices furnished in the specified prices schedules to be identified in Bid Form for this purpose, the Owner shall be entitled to consider the highest price for the purpose of evaluation and for the purpose of award of Contract use the lowest of the prices in these schedules.

24.1 Prior to the detailed evaluation, the Owner will determine the substantial responsiveness of each bid to the Bidding Document. For purpose of these Clauses, a substantially responsive bid is one which conforms to all the terms and conditions of the
Bidding Document without deviations. completion of works or which limits in any way the
responsibilities or liabilities of the Bidder of any right of the Owner as required in these specifications and documents. The Owner's determination of a bid's responsiveness shall be based on the contents of the bid itself without recourse to extrinsic evidence.

24.2 A bid determined as not substantially responsive will be rejected by the Owner and may not subsequently be made responsive by the Bidder by correction of nonconformity.

24.3 The Owner may waive any minor informality or non-conformity or irregularity in a bid This does not constitute a material deviation, provided such waiver does not Prejudice or affect the relative ranking of any Bidder.

25.0 Award Criteria

25.1 The owner will award the contract to the successful Bidder, whose bid has been Determined to be substantially responsive and has been determined as the lowest

Evaluated bid, providing further that the Bidder is determined to be qualified to Perform the contract satisfactorily. The Owner shall be the sole judge in this regard.

25.2 In case of award of Contract on a bidder there shall be one contracts for survey of Transmission line.

25.3 Further, the Owner reserves the right to award separate contracts to two or more Parties in line with the terms and conditions specified in the accompanying Technical Specifications.

26.0 Owner's right to accept any bid and to reject any or all bids:

26.1 The Owner reserves the right to accept or reject any bid, and to annual the bidding Process and reject all bids at time prior to award of contract, any without thereby Incurring any liability to the affected Bidder or Bidders or any obligation to inform the Affected Bidder or Bidders of the grounds for the Owner's action.

27.0 Notification of award:

27.1 Prior to the expiration of the period of bid validity and extended validity period, if any, The Owner will notify the successful Bidder in writing by registered letter or cable or Telex or FAX, to be confirmed in writing by registered letter that its bid has been Accepted.

27.2 The notification of award will constitute the formation of the Contract.

27.3 Upon the successful Bidder's furnishing of performance guarantee pursuant to Relevant clause No: 38 & 40, the Owner will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to Clause No: 12.00.

28.0 Signing of contract:

28.1 At the same time as the Owner notifies the successful Bidder that his bid has been Accepted, the Owner will send the Bidder the detailed of Award, incorporating all Agreements between the parties.

28.2 Within 15 days of receipt of the detailed of Award, the successful bidder shall sign the same with date and return it to the Owner.

28.3 The Bidder will prepare the Contract Agreement as per the Performa prescribed and the same will be signed within 7 (Seven) days of notification of Award.

29.0 DEFINITION OF TERMS

29.1 The 'Contract' means the agreement entered into between the Owner and the Contractor as per the Contract Agreement signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

29.2 'Owner' shall mean the Gujarat Energy Transmission Corporation Ltd. Vadodara or any of its subsidiaries and shall include its legal representatives, successors and assigns.

29.3 'Contractor' shall mean the Bidder whose bid is accepted by the Owner for the award of the Works and shall include such successful Bidder's legal representatives, successors and permitted assigns.

29.4 'Sub-Contractor' shall mean the person named in the Contract for any part of the

Works or any person to whom any part of the Contract has been sublet by the Contractor with the consent in writing of the Engineer and will include the legal representatives, successors and permitted assigns of such person.

29.5 'Engineer' shall mean the officer appointed in writing by the Owner to act as Engineer from time to time for the purpose of the Contract.

29.6 The terms 'Equipment', to be used by the Contractor under the Contract.

29.7 'Works' shall mean and include the furnishing of equipment, labour and services, as per the Specifications and complete Survey work including all transportation, handling, unloading and storage at the Site as defined in the Contract.

29.8 'Specifications' shall mean the Specifications and Bidding Document forming a part of the Contract and such other schedules and drawings as may be mutually agreed
upon.

29.9 Site' shall mean and include the land and other places on, into or through which the works and the related facilities are to be erected or installed and any adjacent land, paths, street or reservoir which may be allocated or used by the Owner or Contractor in
the performance of the Contract.

29.10 The term 'Contract Price' shall mean the lump-sum price quoted by the Contractor in his bid with additions and/or deletions as may be agreed and incorporated in the Letter of Award and the contract agreement for the entire scope of the works.

29.11 Site Engineer 'Inspector' shall mean the Owner owner's Engineers or any person nominated by the time to inspect the equipment; stores or Works under the Contract and/or the duly authorized representative of the Owner.

29.12 'Notice of Award of Contract'/'Letter of Award'/'Telex of Award' shall mean the official notice issued by the Owner notifying the Contractor that his bid has been accepted.

29.13 'Order' shall mean the official letter issued by the Owner informing the acceptance of the bid.

29.14 'Date of Contract' shall mean the date on which Notice of Award of Contract/Letter of Award has been issued.

29.15 'Month' shall mean the calendar month. 'Day' or 'Days' unless herein otherwise Expressly defined shall mean calendar day or days of 24 hours each.

29.16 A 'Week' shall mean continuous period of seven (7) days.

29.17 Writing' shall include any manuscript, type written or printed statement, under or over signature and/or seal as the case may be.

29.18 When the words 'Approved', 'Subject to Approval', 'Satisfactory', 'Equal to', 'Proper', 'Requested', 'As Directed', 'Where Directed', 'When Directed', 'Determined by', 'Accepted', 'Permitted', or words and phrases of like importance are used the approval, judgment, direction etc. is understood to be a function of the Owner/Engineer.

29.19 The term 'Final Acceptance'/'Taking Over' shall mean the Owner's written acceptance of the Works performed under the Contract, after successful commissioning/completion of Performance and Guarantee Tests, as specified in the accompanying Technical Specifications or otherwise agreed in the Contract.

29.20 ‘Drawing’, ‘Plans, shall mean all:

a) Drawings furnished by the Owner/Consultant as a basis of Bid/Proposals.

b) Supplementary drawings furnished by the Owner/Consultant to clarify and to define in greater detail the intent of the Contract.

c) Drawings submitted by the Contractor with his bid provided such drawings are acceptable to the Owner/Consultant.

d) Drawings furnished by the Owner/Consultant to the Contractor during the progress of the work; and

e) Engineering data and drawings submitted by the Contractor during the progress of the work provided such drawings are acceptable to the Engineer/Owner.

29.21 ‘Codes’ shall mean the following including the latest amendments and/or replacements, if any :

a) Indian Electricity Act, 1905 and Rules and Regulations made there under.

b) Electricity Act 2003 and Rules & Regulations made there under.

c) Indian Factory Act, 1948 and Rules and Regulations made there under.

d) Indian Explosives Act, 1884 and Rules and Regulations made there under.

e) Indian Petroleum Act, 1934 and Rules and Regulations made there under.

f) A.S.M.E. Test Codes.

g) A.I.E.E. Test Codes.

h) American Society of Materials Testing Codes.

i) Standards of the Indian Standards Institution.

j) Other Internationally approved standards and/or rules and regulations touching

the subject matter of the Contract.

29.22 Words imparting the singular only shall also include the plural and vice –versa where the context so requires.

29.23 Words imparting ‘Person’ shall include firms, companies, corporations and associations or bodies of individuals, whether incorporated or not.

29.24 Terms and expressions not herein defined shall have the same meaning as are assigned to them in the Indian Sale of Goods Act (1930), failing that in the Indian Contract Act (1872) and failing that in the General Clauses Act (1897) including amendments thereof, if any.
Or
In addition to the above the following definitions shall also apply.

a) ‘All equipment and materials’ to be supplied shall also mean ‘Goods’.

b) ‘Constructed’ shall also mean ‘erected and installed’.

c) ‘Contract Performance Guarantee’ shall also mean ‘Contract Performance Security’.

30.0 APPLICATION

These General Conditions shall apply to the extent that they are not superceded by Provisions in other parts of the Contract.

31.0 STANDARDS

The goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the Authoritative standard appropriate to the goods and such standards shall be the latest issued by the concerned institution.

32.0 LANGUAGE AND MEASURES

All documents pertaining to the Contract including specifications, schedules, notices, Correspondences, operating and maintenance instructions, drawings or any other Writing shall be written in English language. The Metric System of measurement shall be used exclusively in the Contract.

33.0 Price Basis:

33.1 The Price shall be quoted on firm basis.

33.2 The Price quoted by the bidder shall remain fixed during the bidder's performance of the contract and shall not be subject to variation on any account or for change in quantity.

33.3 **Works contract-tax:**
The structural and architectural portion of the contract shall be treated as works Contract. Consequently, any tax payable on the cost of these items of supply under the works contract shall also be included by the bidder in his total bid price and the owner shall have no liability whatsoever in respect of such works contract tax. However, the owner will deduct works contract tax out of the supplier’s bills as per statutory rules.

33.4 As regards the income Tax, surcharge on income tax and any other corporate tax, including GST if any the owner shall not bear any tax liability whatsoever. The bidder shall be liable and responsible for payment of such taxes as attracted under the provisions of the law.

33.5 Notwithstanding the tax liabilities as per the above sub-clause 35.1 to 35.4 the owner shall have the right to make deduction at source from the amounts payable to the contractor in respect of Income Tax (on the cost of items of supply included in the works
contract) as may be mandatory in terms of the law. The owner shall not bear any liability
in this regard but shall issue necessary certificate in respect of such deduction made.

33.6 In case any tax or duty is newly introduced by the Government applicable for this contract with effect from the next day of the date submission of the bid and if the contractor is required to pay additional tax or duty, then the owner shall reimburse the contractor the additional tax or duty so paid by the contractor against submission by the contractor of documentary evidence to the satisfaction of the owner..

33.7 The owner’s liability for all taxes and duties under the contract shall be limited to those indicated by the Bidder in the Bid Proposal Sheets, subject to the statutory

variations and variations as per above Clause.
If the cost to the Contractor during the performance of the 'Contract' shall be increased or reduced by reasons of the making, passing or promulgation of any law after the date of submission of bid or by any order, regulation or bye-law having the force of law the amount of such increase or reduction shall be added to or deducted from the "Contract Price" as the case may be for direct transactions between contactor & owner, and not for bought out items. It is the Bidders responsibility to furnish details of taxes, duties, levies etc. applicable as on the date of submission of the bid.

33.8 No claim for any increase towards the statutory variation regarding enhancement of existing tax or duty or introduction of a new tax or duty applicable shall be entertained by the Owner during the extended period of contract, if any, provided the extension of the contract is required by causes attributable to the contractor.

33.9 The provision of statutory variation regarding enhancement of existing tax or duty or introduction of a new tax or duty will be applicable only to the direct transaction between the contractor and the owner.

33.10 Before quoting, the bidder may ascertain from the concerned tax authorities of Government of Gujarat the applicability of Work Contract Tax. GSt, etc. in respect of this work and include the same in the quoted price. No separate claim in this regard will be entertained by the Owner, as it is the responsibility of the Bidder to pay all these taxes.

34.0 TAXES, PERMITS & LICENCES

The Contractor shall be liable and pay all non-Indian taxes, duties, levies lawfully Assessed against the Owner or the Contractor in pursuance of the Contract. In addition the Contractor shall be responsible for payment of all Indian duties, levies and taxes lawfully assessed against the Contractor for his personal income & property only.

34.1 Price Inclusions (including Taxes & Duties) :

34.2 **Goods and Service Tax (GST) :**

The F.O.R. Destination pricesare excluding GSTand Cess as applicable which will be paid extra on a given taxable goods and/or services within the original contractual delivery period. The amount and% of GST and Cess as applicable should clearly be indicated separately. (GST/Cess means all applicable Tax/Cess under GST Laws. GST Laws means IGST Act, GST(Compensation to the State for Loss of Revenue) Act, CGST Act, UTGST Act and SGSCT Act, 2017and all related ancilliary legislations).

You shall have to submit a C.A Certificate& duly authorized Signatory of successful bidder, certifying that you have not claimed Refund of any applicable GST and Cess, charged to COMPANY or shall not claim any such Refund, on a future date, from the concerned Authorities and if, any Refund, in respect of such GST and Cess, is claimed by you, it will be immediately passed on to the COMPANY, without COMPANY making any specific Claim, for the same, either from the Department or from you.

The offers having price INCLUSIVE OF GST and Cess is likely to be rejected if the rate of GST and Cess is not mentioned clearlyunless the bidder has opted for Compostion Scheme under GST Act, which should be clearly indicated in the price bid. COMPANY may at its discretion consider such offer with presumption of

highest applicable rate of VAT/GST/Cess prevailing when the price quoted is inclusive of GST and Cess.

If the Supplier/Contractor has opted for the Composition scheme of GST, the same must be clearly specified with valid Declaration & Certificate from Department. In the event of withdrawal/cessation of the Supplier from Composition scheme during the tenure of the contract, the rate mentioned in the price bid shall be final and any additional GST will have to be borne by the tenderer. In no case additional amount towards tax or otherwise will be paid / reimbursed to supplier/contractor.Further Statutory Variation clause will not be applicable in case of Supplier / Contractor has opted for Composition Scheme under GST.

Supplier/Contractor should charge GST in Invoice at the rate as agreed to / mentioned in acceptance of tender only and any deviation in the same shall not be accepted. Further, any additional liability of GST (later on due to wrong mentioning of GST rate, mis-interpretation of HSN/SAC Code, etc.) over and above as charged in the invoice shall be borne by the Supplier/Contractor. However, any refund received by the supplier / contractor on account of GST charged from the company; such refund shall have to be passed on to the company, along with interest if any. Such refund along with interest needs to be passed on suo-moto by the supplier / contractor.

Further, the Company has a right to recover the amount of GST along with penal interest at the rate of 15% per annum if GST charged is not paid / short paid to the government or fail to upload the details or uploads inaccurate particulars on GSTIN portal by the Supplier / Contractor within the stipulated time limit.

In case, Govt. revises the rate of GST rate / Code during the tenure of the contract, the provision of GUVNL's statutory variation clause shall apply.

34.2.1 **INPUT TAX CREDIT BENEFIT**

In the event of any statutory increase in the rate of Input Tax Credited / or due to inclusion of any other additional item of their inputs / input services under the ambit of the Input Tax Credit provisions under the GST Act, subsequent to the date of submission of the offer, the same should be passed on to COMPANY and you should inform such changes to COMPANY from time to time.

34.2.2 <u>WELFARE CESS:-</u>

1. On receipt of A/T, the contractor / bidder will get them registered under Welfare Cess Act and submit the documentary evidence to the concern office.Copy of Registration certificate shall be submitted before submission of 1st RA bill
2. As per the Welfare Cess Act, the welfare cess @ 1% is applicable on supply and erection items for supply, erection, testing & commissioning of substation, transmission lines, EPC/Turnkey projects, and civil works.

OR

If you had not employed on any day of the preceding twelve months, ten or more building workers in any building or other construction work as prescribed under the provisions of Building & Other Construction Workers' Welfare Cess Act, 1996. Due to that the provisions of Building & Other Construction Workers' Welfare Cess Act, 1996 is no applicable and labour department is not giving registration under Building & Other Constructions Workers' Welfare Cess Act, 1966. So they are insisting for waiver of registration under Building & Other Construction Workers' Welfare Cess Act, 1996. In those cases, you have to furnish the following documents with respect to each order placed and site wise.

i. Annexure-1 on the stamp paper of Rs. 300 duly notarized.
ii. Annexure-2 duly acknowledged by labour department.

The above documents (copy enclosed) should be submitted before passing 1st RA bill.

3. Contractor shall get registered under Welfare Cess Act before commencement of work in required head as per nature of work. Office of the Factory Inspector is authorized at present as a registering authority.
4. GETCO shall pay the welfare cess by way of reimbursing to contractors on production of documentary evidence of payment. Registration charges will not be reimbursed.
5. The contracts for which supply or part supply of material are in the scope of GETCO, then contractors shall deposit welfare cess on estimated cost of supplied items to GETCO on progressive basis of utilization. As this part of welfare cess is on GETCO account, the same shall be reimbursed to the contractor on receipt of request letter along with documentary evidence of payment. For calculation of welfare cess on supply part, valuation as per MR shall be taken and informed to the contractor for payment. This will be over and above the A/T value. The modality of payment/ reimbursement of welfare cess will be as under.
6. Before release of payment of first R. A. Bill, the contractor has to submit the documentary evidence of registration. Only thereafter, the bill will be processed for payment.
7. The welfare cess shall be reimbursed to the contractor on submission of copy of documentary evidence of payment by observing due formalities.

1. **GST & welfare tax shall be reimbursed on production of proof of such payments made by the contractor to the appropriate department.**
2. The contractor will have to give indemnity bond for material on Non-judicial Stamp paper of value **Rs. 300/-** to GETCO as per attached format. **The cost of stamp paper will be borne by the contractor.**
3. **The contractor will have to give safety cum indemnity on** Non-judicial Stamp paper of value **Rs. 300/- to GETCO against any possible claim of compensation for damage to contractor's staff or any of third party during the execution of work. The cost of stamp paper will be borne by the contractor.**
4. ***Also the successful bidder will have to execute Agreement on stamp paper of value Rs.300/- at our Transmission Circle, GETCO, Navsari before commencement of works as per GETCO's prescribed Performa.*** **The cost of stamp paper will be borne by the contractor.**

34.3 **Statutory Variations:**

Any statutory increase or decrease in the taxes and duties subsequent to offer if it takes place within the original contractual delivery date will be to the GETCO's account subject to the claim being supported by documentary evidence. However, if any decrease takes place after the contractual delivery date, the advantage will have to be passed on to the GETCO. However, such statutory variation is applicable to only direct supply or services.

34.4 **Income Tax**

Income-tax at source at the prevailing rate will be deducted from bills in accordance with the provision of Income-Tax Laws and to that effect a certificate will be issued to the contractor.

35.0 CONTRACT PERFORMANCE GUARANTEE CUM SECURITY DEPOSIT

35.1 As a contract performance cum security deposit, the successful bidder, to whom the work is awarded, shall be required to furnish a security deposit as per clause No. 36 in form of Bank guarantee from a Public Sector Indian bank/Scheduled, Commercial Bank in the form to be furnished and it shall guarantee the faithful performance of the Contract in accordance with the terms and conditions specified in these documents and specifications.

35.2 The Contract security deposit will be discharged without any interest on successful completion of order and only after the performance guarantee condition is fulfilled. The Contractor shall furnish Contract security deposit(s) for the proper fulfillment of the Contract in the prescribed form within fifteen(15) days of “Notice of Award of Contract”. The security deposit (s) shall be as per terms prescribed.

35.3 GUARANTEES & LIABILITIES

35.3.1 The Contractor shall warrant that the whole project, in accordance with the Contract documents and free from defects in material/equipment and workmanship for a period of twelve month (12) calendar months commencing immediately upon the satisfactory completion of project.

36.0 Security Deposit Cum Performance Guarantee:

“ 36.1 As a security, the successful bidder, to whom the work is awarded, shall be required to

furnish a Security cum performance guarantee in form of Bank guarantee from a Public Sector Indian bank/Scheduled, Commercial Bank in the form to be furnished.. The guarantee amount shall be equal to five percent (5%) of the Contract value in which 2.5 % in the form of Bank Guarantee and 2.5 % will be deducted from RA and it shall guarantee the faithful performance of the Contract in accordance with the terms and conditions specified in these documents and specifications. The security cum performance Guarantee shall cover additionally the following guarantees to the Owner:

a) The successful Bidder guarantees the successful and satisfactory completion of survey & alignment work as per technical specification & BOQ under the Contract, as per the specifications and documents.

b) The successful Bidder further guarantees that the Software provided by him/his Sub-vendors and installed by him shall be free from all defects in design and easy in workmanship and shall upon written notice from the Owner fully remedy free of expenses to the Owner such defects as developed under the normal use of the said software within the period of guarantee specified in the relevant clause of the General Terms and Conditions in the Part-I/Special Conditions of Contract.

36.2 The Contract Performance Guarantee is intended to secure the performance of the entire contract. However, it is not to be construed as limiting the damages.

36.3 The performance guarantee will be discharged without any interest at the end of guarantee period, unless otherwise specified in Special Conditions of Contract.

37 Time Schedule:

37.1 The basic consideration and the essence of the Contract shall be strict adherence to the time schedule for performing the specified works.

37.2 The Owner’s requirements of completion schedule for the Works are mentioned in the Accompanying Special Conditions of Contract.

37.3 The completion schedule as stated in the special conditions of contract shall be one of the major factors in consideration of the bids.

37.4 The owner reserves the right to request for a change in the work schedule during pre-award discussions with successful bidder.

37.5 The successful bidder will be required to prepare detailed PERT Network/ detailed

Bar chart and approved the same from the owner as per the requirement.

38.0 TIME – THE ESSENCE OF CONTRACT

38.1 The time and the date of completion of the Contract as stipulated in the Contract by the Owner without or with modifications, if any, and so incorporated in the Letter of Award, shall be deemed to be the essence of the Contract. The Contractor shall so organize his resources and perform his work as to complete it not later than the date agreed to.

38.2 The Contractor shall submit a detailed PERT network/bar chart within the time frame agreed consisting of adequate number of activities covering various key phases of the work such as leveling, profiling, BOQ ,submission of total detail in hard & soft copy, training to GETCO engineers etc within fifteen (15) days of the date of Notification of Award. This network shall also indicate the interface facilities to be provided by the Owner and the dates by which such facilities are needed. The Contractor shall Discuss the network so submitted with the Owner and the agreed network shall form part of the Contract documents. During the performance of the Contract, if in the Opinion of the Engineer, proper progress is not maintained, suitable changes shall be made in the Contractor's operations to ensure proper progress without any cost Implication to the Owner. The interface facilities to be provided by the Owner in Accordance with the agreed network shall also be reviewed while reviewing the Progress of the Contractor.

38.3 Based on the above agreed network/bar chart fortnightly reports shall be submitted by the Contractor as directed by the Engineer.

38.4 Subsequent to the finalization of the network, the Contractor shall make available to The Engineer a detailed manufacturing programme in line with the agreed Contract network. Such manufacturing programme shall be reviewed, updated and submitted to the Engineer every month thereafter.

38.5 The above bar charts/manufacturing programme shall be compatible with the Owner's Computer environment and furnished to the Owner on such media as may be desired by the Owner.

39.0 PENALTY FOR DELAY:

39.1 The tenderer should note that the completion time allowed for carrying out the work should be strictly observed. Any delay that may take place in supply and erection beyond Contractual cut off date stated as per stipulated delivery period shall be Subject to the penalty at the rate of ½ % +GST of the contract value per week (of delayed
Survey work) with a ceiling of 10 %+GST of the total contract value.

39.2 The penalty will be deducted from bills payable either against this contract or from any Bank Guarantee or any other amount payable under any other contract with the GETCO.

39.3 If the Contractor fails to successfully complete the survey work along with complete Documents within the time fixed under the Contract, the Contractor shall pay to the Owner as penalty a sum specified for each specified period of delay.

39.4 The total amount of penalty for delay under the Contract will be subject to a maximum of 10% of the Contract prices.

40.0 DELAYS BY OWNER OR HIS AUTHORISED AGENTS

40.1 In case the Contractor's performance is delayed due to any act of omission on the

part of the Owner or his authorized agents, then the Contractor shall be given due Extension of time for the completion of the Works, to the extent such omission on the part of the Owner has caused delay in the Contractor's performance of the Contract. Regarding reasonableness or otherwise of the extension of time, the decision of the Engineer shall be final.

40.2 In addition, the Contractor shall not be entitled to any claim whether demonstrable or reasonable compensation if such delays have resulted in any increase in cost

41.0 Presentation of Bills

41.1 For Survey: Monthly R.A Bills for survey work 90% value of work executed in Original with one copy shall be submitted to concerned EE (Const) for passing and Processing for payment.

41.2 Balance 10% payment shall be released only after finalization of complete Navsarisurvey,
Submission of profile with the help of latest software, hard copy as well as soft copy, Training to GETCO engineers for software used for survey works and complete Technical data on completion of work.

41.3 All the bills in accordance with the above clauses must be submitted with the following Information:
a) Item wise work done during billing period.

b) Item wise cumulative work done.

41.4 For non-submission or part submission of above information, an additional 5% amount of the respective RA bill shall be withheld and shall only be released at the time of final bill.

42.0 CONTRACT SECURITY AND PAYMENTS

42.1 The payment to the Contractor for the performance of the works under the Contract will be made by the Owner as per the guidelines and conditions specified herein. All payments made during the Contract shall be on account payments only. The final payment will be made on completion of all Works and on fulfillment by the Contractor of all his liabilities under the Contract.

42.2 Currency of Payment
All payments under the Contract shall be in Indian Rupees only.

42.3 Payment Schedule
Payment shall be as per contract price schedule agreed based on unit rate during Survey work. The final price schedule shall be based on approved profile & BOQ.

42.4 Application for Payment

42.5 The Contractor shall submit application for the payment.

42.6 Each such application shall state the amount claimed and shall set forth in detail, in the order of the Payment Schedule, particulars of the Works including the Works executed at Site and date mentioned in the application and for the period covered since the last preceding certificate, if any.

42.7 Every interim payment certificate shall certify the Contract value of the Works executed up to the date mentioned in the application for the payment certificate, provided that no sum shall be included in any interim payment certificate in respect of

the works that, according to the decision of the Engineer, does not comply with the Contract.

42.8 Mode of Payment

All payments under the Contract shall be made as stipulated in the Contract after signing the Contract Agreement. The payments linked with the survey work and Progressive submission of documents an certificate issued by the Engineer, one for the quantum of work completed and the other for the successful completion of quality check points involved in the quantum of work billed.

43.0 DEDUCTIONS FROM CONTRACT PRICE

All costs, damages or expenses which the Owner may have paid, for which under the Contract the Contractor is liable, or any other retention award will be claimed by the Owner. All such claims shall be billed by the Owner to the Contractor regularly as and when they fall due. Such bills shall be supported by appropriate and certified vouchers or explanations, to enable the Contractor to properly identify such claims. Such claims shall be paid by the Contractor within thirty (30) days of the receipt of the corresponding bills and if not paid by the Contractor within the said period, the Owner may then deduct the amount, from any monies due or becoming due by him to the Contractor under the Contract or may be recovered by sections of Law or otherwise.

44.0 Terms of Payment

The payment for survey work will be made only after execution of the contract Documents/furnishing of Security Deposit and on execution of survey work.

44.1 **For Survey works**.

Monthly R.A Bills for survey 90% value of work executed in original with one copy shall be submitted to concerned EE(Const) for passing and processing for payment.

Balance 10% payment shall be released only after finalization of complete survey, Submission of profile with the help of latest software, hard copy as well as soft copy, training to GETCO engineers for software used for survey works and complete technical data on completion of work.

45.0 Contract Quality assurance:

45.1 The Bidder shall include in his proposal the Quality Assurance Programme containing the overall quality management and procedures which he proposes to follow in the performance of the Works during various phases as detailed in relevant clause of the General Technical Conditions.

45.2 At the time of Award of Contract, the detailed Quality Assurance Programme to be followed for the execution of the Contract will be mutually discussed and agreed and such agreed Programme shall form a part of the Contract.

46.0 Survey Tools And Tackles:

The Bidder under a separate schedule, in his proposal shall include a list of all-special equipment tools & tackles etc. which he proposes to bring to site for the purpose of Survey & route alignment work including leveling, Profiles, soil investigation, soil resistivity etc complete required as per BOQ

47.0 CONTRACT DOCUMENTS

47.1 The term Contract Documents shall mean and include the following which shall be Deemed to form an integral part of the Contract:

a) Invitation to Bid including letter forwarding the Bidding Documents, General Terms and Conditions of Contract and all other documents included under Part I and the Special Conditions of Contract.

b) Specifications of the equipment to be furnished for survey under the Contract as brought out in the accompanying Technical Specifications.

c) Contractor's Bid Proposal and the documents attached there to including the letters of clarifications thereto between the Contractor and the Owner prior to the Award of Contract except to the extent of repugnancy.

d) All the materials, literature, data and information of any sort given by the Contractor along with his bid, subject to the approval of the Owner /Consultant.

e) Letter of Award and any agreed variations of the conditions of the documents and special terms and conditions of Contract, if any.

47.2 In the event of any conflict between the above mentioned documents the matter shall be referred to the Engineer whose decision shall be considered as final and binding upon the parties.

48.0 USE OF CONTRACT DOCUMENTS AND INFORMATION

48.1 The Contractor shall not, without the Owner's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Owner in connection therewith, to any person other than a person employed by the Contractor in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for the purpose of such performance.

48.2 The Contractor shall not, without the Owner's prior written consent, make use of any document or information enumerated in various Contract documents except for the purpose of performing the Contract.

48.3 The Contractor shall not communicate or us in advertising, publicity, sales releases or in any other medium, photographs or other reproduction of the Works under this Contract, or descriptions of the site, dimensions, quantity, quality or other information, concerning the works unless prior written permission has been obtained from the Owner.

48.4 Any document, other than the Contract itself, enumerated in various Contract documents shall remain the property of the Owner and shall be returned (in all copies) to the Owner on completion of the Contractor's performance under the Contract if so Required by the Owner.

49 JURISDICTION OF CONTRACT

49.1 The laws applicable to the Contract shall be the laws in force in India. The Courts of Navsari shall have exclusive jurisdiction in all matters arising under this Contract.

50.0 EXECUTION OF CONTRACT:

50.1 The Owner, after the issue of the Letter of Award to the Contractor, will send one copy of the final agreement to the Contractor for his scrutiny and approval.

50.2 The Agreement, unless otherwise agreed to, shall be signed within 30 days of the Acceptance of the Letter of Award, at the office the Owner at Vadodara on a date and time to be mutually agreed. The Contractor shall provide for signing of the Contract, Performance Guarantee, appropriate power of attorney and other requisite materials. In case the Contract is to be signed beyond the stipulated time, the Bid Guarantee submitted with the Proposal will have to be extended accordingly.

50.3 The Agreement will be signed in copies to be specified and the Contractor shall be provided with one signed original and the rest will be retained by the Owner.

50.4 The Contractor shall provide free of cost to the Owner all the Engineering data, drawings, and descriptive materials submitted with the bid including soft copy, to form a part of the Contract immediately after issue of Letter of Award .

50.5 Subsequent to signing of the Contract, the Contractor at his own cost shall provide the Owner with copies of agreement within seven (7) days after the signing of the Contractor.

51.0 ENFORCEMENT OF TERMS

51.1 The failure of either party to enforce at any time any of the provisions of this Contract or any rights in respect thereto or to exercise any option therein provided, shall in no way be construed to be a waiver of such provisions, rights or options or in anyway to affect the validity of the Contract. The exercise by either party of any of its rights herein shall not preclude or prejudice either party from exercising the same or any other right it may
have under the Contract.

52.0 COMPLETION OF CONTRACT

52.1 Unless otherwise terminated under the provisions of any other relevant clause, this Contract shall be deemed to have been completed on the expiry of the guarantee period as provided for under the clause entitled ‘Guarantee’

53.0 PATENT RIGHTS AND ROYALTIES

Royalties and fees for patents covering providing of survey work processes used in the works shall be deemed to have been included in the Contract Price. The Contractor shall satisfy all demands that may be made at any time for such royalties or fees and he alone shall be liable for any damages or claims for patent Infringements and shall keep the Owner indemnified in that regard. The Contractor shall, at his own cost and expense, defend all suits or proceedings that may be instituted for alleged infringement of any patents involved in the Works, and, in case of an award of damages, the Contractor shall pay for such award. In the event of any suit or other proceedings instituted against the Owner, the same shall be defended at the cost and expense of the Contractor who shall also satisfy/comply with any decree, order or award made against the Owner. But it shall be understood that no such machine, plant, work, material or thing has been used by the Owner for any purpose or any manner other than that for which they have been furnished and installed by the Contractor and specified under these specifications. Final payment to the Contractor by the Owner will not be made while any such suit or claim remains unsettled. In the event any apparatus or equipment, or any part thereof furnished by the Contractor, is in such suit or proceedings held to constitute infringement, and its use is enjoined, the Contractor shall at his option and at his own expense, either procure for the Owner, the right to continue the use of said apparatus, equipment or part thereof, replace it with non-infringing apparatus or equipment or modify it, so it becomes non-infringing.

54.0 DEFENCE OF SUITS

If any action in court is brought against the Owner or Engineer or an officer or agent of the Owner, for the failure, omission or neglect on the part of the Contractor to perform any acts, matters, covenants or things under the Contract, or for damage or injury caused by the alleged omission or negligence on the part of the Contractor, his agents, representatives or his Sub-Contractors, or in connection with any claim based on lawful demands of Sub-Contractors, workmen, suppliers or employees, the Contractor shall in all such cases indemnify and keep the Owner, and the Engineer and/or his representative, harmless from all losses, damages, expenses or decrees arising of such action.

55.0 LIMITATION OF LIABILITIES

The final payment by the Owner in pursuance of the Contract shall mean the release of the Contractor from all his liabilities under the Contract. Such final payment shall be made only at the end of the Guarantee/Warranty period, and till such time as the Contractual liabilities and responsibilities of the Contractor, shall prevail. All other payments made under the Contract shall be treated as on-account payments. The aggregate liabilities are limited up to the total contract value.

56.0 ENGINEER'S DECISION

56.1 In respect of all matters which are left to the decision of the Engineer including the granting or with-holding of the certificates, the Engineer shall, if required to do so by the Contractor, give in writing a decision thereon.

56.2 If, in the opinion of the Contractor, a decision made by the Engineer is not in accordance with the meaning and intent of the Contract, the Contractor may file with the Engineer, within fifteen (15) days after receipt of the decision, a written objection to the decision. Failure to file an objection within the allotted time will be considered as an acceptance of the Engineer's decision and the decision shall become final and binding.

56.3 The Engineer's decision and the filing of the written objection thereto shall be a condition precedent to the right to request arbitration. It is the intent of the Agreement that there shall be no delay in the execution of the works and the decision of the Engineer as rendered shall be promptly observed.

57.0 POWER TO VARY OR OMIT WORK

57.1 No alterations, amendments, omissions, suspensions or variations of the Works (hereinafter referred to as 'variation') under the Contract as detailed in the Contract Documents, shall be made by the Contractor except as directed in writing by the Engineer, but the Engineer shall have full powers subject to the provisions hereinafter contained, from time to time during the execution of the Contract, by notice in writing to instruct the Contractor to make such variation without prejudice to the Contract. The Contractor shall carry out such variation and be bound by the same conditions as far as applicable as though the said variations occurred in the Contract Documents. If any suggested variations would, in the opinion of the Contractor, if carried out, prevent him from fulfilling any of his obligations or guarantees under the Contract, he shall notify the Engineer thereof in writing and the Engineer shall decide forthwith whether or not, the same shall be carried out and if the Engineer confirms his instructions, the Contractor's obligations and guarantees shall be modified to such an extent as may be mutually agreed. Any agreed difference in cost occasioned by any such variation shall be added to or deducted from the Contract Price as the case may be.

57.2 In the event of Engineer requiring any variation, a reasonable and proper notice shall be given to the Contractor to enable him to work his arrangement accordingly, and in cases where goods or materials are already prepared or any design, drawings or pattern made or work done as per the contract requires to be altered, a reasonable and agreed sum in respect thereof shall be paid to the Contractor.

57.3 In any case in which the Contractor has received instructions from the Engineer as to the requirement of carrying out the alterations or additional or substituted work which either then or later on, will in the opinion of the Contractor, involve a claim for additional payment, the Contractor shall immediately and in no case later than thirty (30) days, after receipt of the instructions aforesaid and before carrying out the instructions, advise the Engineer to that effect. But the Engineer shall not become

liable for payment of any charges in respect of any such variations, unless the instructions for the performance of the same shall be confirmed in writing by the Engineer.

57.4 If any variation in the Works results in reduction of Contract Price, the parties shall agree, in writing, so to the extent of any change in the price, before the Contractor proceeds with the change.

57.5 In all the above cases, in the event of a disagreement as to the reasonableness of the said sum, the decision of the Engineer shall prevail.

57.6 Notwithstanding anything stated above in this clause, the Engineer shall have the full power to instruct the Contractor, in writing, during the execution of the Contract to vary the quantities of the items or groups of items in accordance with the provisions of clause entitled 'Change of Quantity' in section GCC. The Contractor shall carry out such variations and be bound by the same conditions as though the said variations occurred in the Contract Documents. However, the Contract Price shall be adjusted at the rates and the prices provided for the original quantities in the Contract.

58.0 ASSIGNMENT AND SUB-LE TTING OF CONTRACT

58.1 The Contractor may, after informing the Engineer and getting his written approval, assign or sub-let the Contract or any part thereof other than for raw material, for minor details or for any part of the plant for which makes are identified in the Contract. Suppliers of the equipment not identified in the Contract or any change in the identified suppliers shall be subjected to approval by the Engineer. The experience list of equipment vendors under consideration by the Contractor for this Contract shall be furnished to the Engineer for approval prior to procurement of all such items/equipment. Such assignment/sub-letting shall not relieve the Contractor of any obligation, duty or responsibility under the Contract. Any assignment as above, without prior written approval of Engineer, shall be void.

58.2 For components/equipment procured by the Contractor for the purposes of the Contract, after obtaining the written approval of the Owner, the Contractor's purchase specifications and enquiries shall call for quality plan to be submitted by the suppliers along with their Proposals. The quality plans called for from the Vendors shall set out, during the various stages of manufacture and installation, the quality practices and procedures followed by the Vendors' quality control organization, the relevant reference document/standard used, acceptance level, inspection documentation raised, etc. Such quality plans of the successful vendors shall be discussed and finalized in consultation with the Engineer and shall form a part of the Purchase Order/Contract between the Contractor and the Vendor. Within three weeks of the release of the Purchase Orders/Contracts for such bought out items/components a copy of the same without price details but together with detailed purchase specifications, quality plans and delivery conditions shall be furnished to the Engineer by the Contractor.

59.0 CHANGE OF QUANTITY

59.1 During the execution of the Contract, the Owner reserves the right to increase or decrease the quantities of items under the Contract but without any change in unit price or other terms & conditions. Such variations unless otherwise specified in the accompanying GCC and/or Technical Specifications, shall not be subjected to any limitation for the individual items but the total variations in all such items under the Contract shall be limited to the extent of 15%(Fifteen Percent) of the contract price by way of suitable amendment to the contract.

59.2 The Contract price shall accordingly be adjusted based on the unit rates available in the Contract for the change in quantities as above. The base unit rates, as identified in the Contract shall however remain constant during the currency of the Contract, In

case the unit rates are not available for the change in quantity, the same shall be subjected to mutual agreement.

59.3 As this is an Survey of transmission line including ,leveling , preparation of field book , preparation of profiles , detail of Railway crossing, river crossing, soil investigation report for river crossing , soil resistivity at the interval of every 3 Km, trial pit every 3 Km, submission of tower schedule, material requirement erection , submission of report on soft copy and hard copy with the help of GPS and other technical data required for completion of entire survey work hand over to GETCO and training to GETCO Engineers at No extra cost to the GETCO .

60.0 COOPERATION WITH OTHER CONTRACTORS AND CONSULTING ENGINEERS

The Contractor shall agree to cooperate with the Owner's other Contractors and Consulting Engineers and freely exchange with them such technical information as is necessary to obtain the most efficient and economical design and to avoid unnecessary duplication of efforts. The Engineer shall be provided with three copies of all correspondence addressed by the Contractor to other Contractors and Consulting Engineers of the Owner in respect of such exchange of technical information, Wherever needed.

61.0 NO WAIVER OF RIGHTS

Neither the inspection by the Owner or the Engineer or any of their officials, employees, or agents nor any order by the Owner or the Engineer for payment of money or any payment for or acceptance of, the whole or any part of the Works by the Owner or the Engineer, nor any extension of time, nor any possession taken by the Engineer shall operate as a waiver of any provision of the Contract, or of any power herein reserved to the Owner or any right to damages herein provided nor shall any waiver of any breach in the Contract be held to be a waiver of any other or subsequent breach.

62.0 CERTIFICATE NOT TO AFFECT RIGHT OF OWNER AND LIABILITY OF THE CONTRACTOR.

No interim payment certificate of the Engineer, nor any sum paid on account by the Owner, nor any extension of time for execution of the Works granted by the Engineer shall affect or prejudice the rights of the Owner against the Contractor or relieve the Contractor of his obligation for the due performance of the Contract, or be interpreted as approval of the Works done or of the equipment furnished and no certificate shall create liability for the Owner to pay for alterations, amendments, variations or additional works not ordered, in writing , by the Engineer or discharge the liability of the Contractor for the payment of damages whether due, ascertained, or certified or not or any sum against the payment of which he is bound to indemnify the Owner, nor shall any such certificate nor the acceptance by him of any sum paid on account or otherwise affect or prejudice the rights of the Owner against the Contractor.

63.0 PROGRESS REPORTS

During the various stages of the work in pursuance of the Contract, the Contractor shall at his own cost submit weekly progress reports as may be reasonably required by the Engineer with such detail of work executed in survey work .

64.0 TAKING OVER

Upon successful completion of all the work specified to be performed at Site on survey work and submission of complete documents, the Engineer shall issue to the Contractor a Taking Over Certificate as a proof of the final acceptance of the survey. Such certificate shall not unreasonably be withheld nor will the Engineer delay the issuance thereof on account of minor omissions or defects which do not affect the commercial operation. Such certificate shall not relieve the Contractor of any of his obligations which otherwise survive, by the terms and conditions of the Contract after

issue of such certificate.
In the event of completion of survey work & submission of complete documents signed jointly., if reasons not attributable to the successful bidder, the Preliminary Acceptance Certificate shall be given within 30 days of pre commissioning tests.

65.0 RISK DISTRIBUTION

65.1 Transfer of title in respect of profiles and related software (soft copy) by the Contractor to GETCO to this contract pursuant to the terms of the Contract shall pass on to GETCO with negotiation of dispatch documents.

65.2 This Transfer of Title shall not be construed to mean the acceptance and the consequent “Taking Over” of complete documents for entire survey and profile work. The Contractor shall continue to be responsible for the quality and performance of such details and for their compliance with the specifications until “Taking Over” and the fulfillment of guarantee provisions of this Contract.

66.0 FORCE MAJEURE

66.1 Force majeure is herein defined as any cause which is beyond the control of the Contractor or the Owner as the case may be, which they could not foresee or with a Reasonable amount of diligence could not have foreseen and which substantially Affects the performance of the Contract, such as:
a. Natural phenomena, including but not limited to floods, droughts, earthquakes and Epidemics;
b. Acts of any Government, domestic or foreign, including but not limited to war, declared or undeclared, priorities, guarantees, embargoes.
Provided either party shall within fifteen (15) days from the occurrence of such a cause notify the other in writing of such causes.

66.2 The Contractor or the Owner shall not be liable for delays in performing his obligations resulting from any force majeure cause as referred to and/or defined above
The date of completion will, subject to hereinafter provided, be extended by a reasonable time even though such cause may occur after Contractor’s performance of obligation has been delayed due to other causes.

67.0 SUSPENSION OF WORK

67.1 The Owner reserves the right to suspend and reinstate execution of the whole or any part of the Works without invalidating the provisions of the Contract. Orders for Suspension or reinstatement of the Works will be issued by the Engineer to the Contractor in writing. The time for completion of the works will be extended for a period equal to duration of the suspension.

67.2 Any necessary and demonstrable cost incurred by the Contractor as a result of such Suspension of the works will be paid by the Owner, provided such costs are Substantiated to the satisfaction of the Engineer. The Owner shall not be responsible for any liabilities if suspension or delay is due to some default on the part of the Contractor or his Sub-Contractor.

68.0 CONTRACTOR`S DE FAULT

68.1 If the Contractor shall neglect to execute the works with due diligence and expedition or shall refuse or neglect to comply with any reasonable order given to him, in writing by the Engineer in connection with the works or shall contravene the provisions of the Contract, the Owner may give notice in writing to the Contractor to make good the failure, neglect or contravention complained of. Should the Contractor fail to comply with the notice within thirty (30) days from the date of serving the notice, then and in such case the Owner shall be at liberty to employ other workmen and forthwith execute such part of the works as the Contractor may have neglected to do or if the Owner shall think fit, without prejudice to any other right he may have under the

Contract to take the work wholly or in part out of the Contractor's hands and recontract with any other person or persons to complete the works or any part thereof and in that event the Owner shall have free use of all Contractor's equipment that may have been at the time on the Site in connection with the works without being responsible to the Contractor for fair wear and tear thereof and to the exclusion of any right of the Contractor over the same, and the Owner shall be entitled to retain and apply any balance which may otherwise be due on the Contract by him to the Contractor, or such part thereof as may be necessary, to the payment of the cost of executing the said part of the Works or of completing the Works as the case may be. If the cost of completing of works or executing part thereof as aforesaid shall exceed the balance due to the Contractor shall pay such excess. Such payment of excess amount shall be independent of the liquidated damages for delay which the Contractor shall have to pay if the completion of works is delayed.

68.2 In addition, such action by the Owner as aforesaid shall not relieve the Contractor of his liability to pay liquidated damages for delay in completion of Works .

68.3 Such action by the Owner as aforesaid the termination of the Contract under this clause shall not entitle the Contractor to reduce the value of the Contract Performance Guarantee nor the time thereof. The Contract Performance Guarantee shall be valid for the full value and for the full period of the Contract including guarantee period.

69.0 TERMINATION OF CONTRACT ON OWNER`S INITIATIVE

69.1 The Owner reserves the right to terminate the Contract either in part or in full due to reasons other than those mentioned under clause entitled 'Contractor's Default'. The Owner shall in such an event give fifteen (15) days notice in writing to the Contractor of his decision to do so.

69.2 The Contractor upon receipt of such notice shall discontinue the work on the date and to the extent specified in the notice, make all reasonable efforts to obtain cancellation of all orders and Contracts to the extent they are related to the work terminated and terms satisfactory to the Owner, stop all further sub-contracting or purchasing activity related to the work terminated, and assist Owner in maintenance, protection, and disposition of the works acquired under the Contract by the Owner. In the event of such a termination the Contractor shall be paid compensation, equitable and reasonable, dictated by the circumstances prevalent at the time of termination.

69.3 If the Contractor is an individual or a proprietary concern and the individual or the proprietor dies and if the Contractor is a partnership concern and one of the partners dies then unless the Owner is satisfied that the legal representatives of the individual Contractor or of the proprietor of the propriety concern and in the case of partnership, the surviving partners, are capable of carrying out and completing the Contract the Owner shall be entitled to cancel the Contract as to its uncompleted part without being in any way liable to payment of any compensation to the estate of deceased Contractor and/or to the surviving partners of the Contractor's firm on account of the Cancellation of the Contract. The decision of the Owner that the legal representatives of the deceased Contractor or surviving partners of the Contractor's firm cannot carry out and complete the Contract shall be final and binding on the parties. In the event of such cancellation the Owner shall not hold the estate of the deceased Contractor and/or the surviving partners of the estate of the deceased Contractor and/or the surviving partners of the Contractor's firm liable to damages for not completing the Contract.

70.0 FRUSTRATION OF CONTRACT

70.1 In the event of frustration of the Contract because of supervening impossibility in terms of Section 56 of the Indian Contract Act, parties shall be absolved of their responsibility to perform the balance portion of the Contract, subject to provisions contained in sub-clause 84.3 below.

70.2 In the event of non-availability or suspension of funds for any reasons, whatsoever (except for reason of willful or flagrant breach by the Owner) and/or Contractor then the works under the Contract shall be suspended.
Furthermore, if the Owner is unable to make satisfactory alternative arrangements for financing to the Contractor in accordance with the terms of the Contract within three months of the event, the parties hereto shall be relieved from carrying out further obligations under the Contract treating it as frustration of the Contract.

70.3 In the event referred to in sub-clauses 84.1& 84.2 above the parties shall mutually discuss to arrive at reasonable settlement on all issues including amounts due to either party for the work already done on quantum merit_ basis which shall be determined by mutual agreement between the parties.

71.0 GRAFTS AND COMMISSIONS ETC.

Any graft, commission, gift or advantage given, promised or offered by or on behalf of the Contractor or his partner(s), agent(s), officer(s), director(s), employee(s) or servant(s) or any one on his or their behalf in relation to the obtaining or to the execution of this or any other Contract with the Owner, shall in addition to any criminal liability which it may incur, subject the Contractor to the cancellation of this and all other Contracts and also to payment of any loss or damage to the Owner resulting from any cancellation. The Owner shall then be entitled to deduct the amount so payable from any monies otherwise due to Contractor under the Contract.

RESOLUTION OF DISPUTES

72.0 SETTLEMENT OF DISPUTES

72.1 Any dispute(s) or difference(s) arising out of or in connection with the Contract shall, to the extent possible, be settled amicably between the parties.

72.2 If any dispute or difference of any kind, whatsoever, shall arise between the Owner and the Contractor, arising out of the Contract for the performance of the Works whether during the progress of the Works or after its completion or whether before or after the termination, abandonment or breach of the Contract, it shall, in the first place, be referred to and settled by the Engineer, who, within a period of thirty (30) days after being requested by either party to do so, shall give written notice of his decision to the Owner and the Contractor.

72.3 Save as hereinafter provided, such decision in respect of every matters so referred shall be final and binding upon the parties until the completion of the Works and shall forthwith be given effect to by the Contractor who shall proceed with the Works with all due diligence, whether he or the Owner requires arbitration as hereinafter provided or not.

72.4 If after the Engineer has given written notice of his decision to the parties, no claim to arbitration has been communicated to him by either party within thirty (30) days from the receipt of such notice, the said decision shall become final and binding on the parties.

72.5 In the event of the Engineer failing to notify his decision as aforesaid within thirty (30) days after being requested as aforesaid, or in the event of either the Owner or the Contractor being dissatisfied with any such decision, or within thirty (30) days after the expiry of the first mentioned period of thirty days, as the case may be, either party may require that the matters in dispute be referred to arbitration as hereinafter provided.

73.0 ARBITRATION

73.1 All disputes or differences in respect of which the decision, if any, of the Engineer has

not become final or binding as aforesaid shall be settled by arbitration in the manner hereinafter provided.

73.1.1 The arbitration shall be conducted by three arbitrators, one each to be nominated by the Contractor and the Owner and the third to be appointed as an umpire by both the arbitrators in accordance with the Indian Arbitration Act. If either of the parties fails to appoint its arbitrator within sixty (60) days after receipt of a notice from the other party invoking the Arbitration clause, the arbitrator appointed by the party invoking the arbitration clause shall become the sole arbitrator to conduct the arbitration.

73.1.2 The arbitration shall be conducted in accordance with provisions of Indian Arbitration Act 1996 or latest amendment thereof.

73.2 The decision of the majority of the arbitrators shall be final and binding upon the parties. The arbitrators may, from time to time with the consent of all the parties enlarge the time for making the award. In the event of any of the aforesaid arbitrators dying,
neglecting, resigning or being unable to act for any reason, it will be lawful for the party concerned to nominate another arbitrator in place of the outgoing arbitrator.

73.3 The arbitrator shall have full powers to review and/or revise any decision, opinion, direction, certification or valuation of the Engineer in accordance with the Contract, and neither party shall be limited in the proceedings before such arbitrators to the evidence or arguments put before the Engineer for the purpose of obtaining the said decision.

73.4 No decision given by the Engineer in accordance with the foregoing provisions shall disqualify him as being called as a witness or giving evidence before the arbitrators on any matter whatsoever relevant to the dispute or difference referred to the arbitrators as aforesaid.

73.5 During settlement of disputes and arbitration proceedings, both parties shall be obliged to carry out their respective obligations under the Contract.

74.0 RECONCILIATION OF ACCOUNTS

The Contractor shall prepare and submit every two months, a statement covering payments claimed and the payments received vis-à-vis the works executed, for reconciliation of work executed & detail technical clarification with the Owner. The Contractor shall also prepare and submit a detailed of survey work executed along with all relevant documents for quantum of work executed and balance work to be executed in a format to be discussed & finalized with the Owner before the award of Contract.

75.0 LABOUR LAWS:

75.0.1 Persons below the age of 18 years shall not be employed for the work. No female worker shall be employed in the night shift between 07.00 p.m. and 06.00 a.m. next day.

75.0.2 Contractor shall maintain a valid labour license under the contract Labour (Regulation and abolition) Act for employing necessary manpower required by him. In the absence of such license, the contract shall be liable to be terminated without assigning any reason thereof.

75.0.3 The Contractor shall at his own expenses comply with all labour laws and keep the GETCO indemnified in respect thereof. Some of the major liabilities under various labour and industrial laws which the Contractor shall comply with, are as under:
i) Payment of contribution by way of Employer’s Contribution towards provident Fund, Family Pension Scheme, Deposit Linked Insurance Scheme,

Administrative charges, etc. at the rates made applicable from time to time by the Government of Gujarat / Government of India or other Statutory Authority.

ii) Payment of deposit in respect of each contract labour at the rate of Rs. 30/-or later prevailing rate with the Office of Commissioner of Labour as per the Contract Labour (Regulation and Abolition) Act.

iii) License fee as prescribed under the Contract Labour (Regulation and Abolition) Act and Rules framed there under depending upon the number of workmen.

iv) Paid leave facility and wages as per the provision of the Factories Act at the rate of one day for every 20 days of working.
v) Identity cards as prescribed under the Factories Act with photo affixed thereto, for identification.

vi) Payment of retrenchment compensation, Notice Pay and other liabilities as per Industrial Dispute Act. Any payment to the Contractor's employee arising out of any claim of disputes under the Industrial Disputes Act 1947 or any other Labour Laws.

vii) Payment of compensation in case of accidental injury.

viii) Provision of crèche if the female laborers employed are more than 30.

ix) Maternity Leave as per the provisions of the Maternity Benefit Act.

The above are some of the major liabilities of the Contractor in addition to other liabilities prescribed under the various labour laws, in force from time to time, from Statutory Authorities like State Government/ Government o India, which the Contractor shall have to comply with.

75.4 **PROVIDENT FUND AND FAMILY PENSION SCHEME:**

The Contractor shall submit along with his bills (month wise) a statement regarding deduction against employees Provident Fund and Family Pension Scheme in respect of each concerned employee. Provident Fund and Family pension Scheme at the rate of 18% (or at the rate made applicable by the Government from time to time of the wages. The Contractor's contribution and his workers contribution towards Provident Fund and Family Pension Scheme shall be deposited by the Contractor with Regional Provident Fund Commissioner, Ahmedabad.

75.5 **DEPOSIT LINKED INSURANCE SCHEME**

The contractor shall have to deposit ½ % of the wages in respect of employees who is a member of the Provident Fund, as the contribution to the Deposit Linked Insurance Scheme with Regional Provident Fund Commissioner, Ahmedabad.

75.6 **ADMINISTRATIVE CHARGES:**

Administrative charges for maintaining Provident Fund Account shall be deposited by the Contractor with Regional Provident Fund Commissioner, Ahmedabad at the rates applicable.

75.7 **PAID LEAVE FACILITY**:

Paid Leave Facility at the rate of one day for every twenty days worked by the Contract Labour, shall be provided by the Contractor to his workers. He shall maintain Leave Records, Leave Cards, for individual laborer which shall be duly verified, approved and certified by the authorized Officer of the GETCO.

75.8 **WORKMAN'S COMPENSATION FUND AND EMPLOYER'S LIABILITY**

INSURANCE:
The contractor shall cover all his employees under workmen's compensation fund and under the liability insurance. The purchaser shall not be responsible for any payments of compensation to the workers/supervisor of the contractor for fatal or non-fatal accidents during the pendency of the contract.

75.9 The contractor shall employ adequate number of experienced skilled at site for daily supervision and for maintenance of various registers and records required under the law and contract. No payment for supervision shall be admissible.

75.10 **CONTRCTOR TO INDEMNIFY THE GETCO:**

The Contractor shall indemnify the GETCO and every member officer and employees of the GETCO also, Engineer-in-Charge and his staff against all actions, proceedings, claims, demands, costs and expenses whatsoever, arising out of or in connection with the matters referred herein above elsewhere and against all actions, proceedings, claims, demands, costs and expenses which may be made against the GETCO or Government for or in respect of performance of his obligation under the contract documents. The GETCO shall not be liable for intervention of authority Government for or in respect of performance of his obligation under the contract documents. The GETCO shall not be liable for or in respect of or in consequence of any accident or injury to any workman or other person in the employment of the Contractor or his Sub-Contractor and the contractor shall indemnify and keep indemnified the GETCO against all claims, demands, proceedings, cost, charges and expenses whatsoever in respect thereof or in relation thereto.

75.11 **WORKMEN'S COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE**

Insurance shall be effected for all the Contractor's employee engages in the performance of this contract. If any of the work is sublet, the Contractor shall required the Sub-Contractor to provide workmen's employer's liability insurance for the latter's employees, such employees shall be covered under the Contractor's Insurance.

75.12 **WAGES TO BE PAID & TIME OF PAYMENT ETC. BY THE CONTRACTOR**

a) The Contractor shall pay minimum wages per day to his Labours/ Workers as per rates fixed under the minimum wages act. The wages of every Contract Labour employed by him under this contract shall also be paid by him before the expiry of 7th day of the last day of the month in respect of the wages are payable (i.e. wages of a month have to be paid by him in the first week of the next month). Any default will result in cancellation of contract forthwith or else the contractor shall be punishable to the extent of Rs. 100/-per each day or as per the prevailing rules of labour laws.

b) The Contractor shall give his Telephone Number and Address to the GETCO, so that, in case of labour trouble etc. the Contractor can be contacted. The Contractor shall arrange to have his office outside the factory work premises and the Contractor shall arrange to have his office outside the factory work premises and the Contractor shall keep himself present throughout the working hours.

75.13 **REGISTRATION WITH PROVIDENT FUND OFFICE**

I) The separate P.F. code issued from P.F. commissioner is required to be taken by contractor.

ii) If the contractor does not possess separate P.F. code number of RPFC, his tender will not be considered for acceptance.

iii) The contractor should mention separate P.F. code number allotted by RPFC, along with the tender.

76.0 Termination of Contract:

In case of contractor fails to execute the contracts for survey work within contractual period of delivery or in case the works are found not in accordance with prescribed specification and/or the approved specification, the GETCO shall exercise its discretionary power either:

76.1 To recover, from the contractor as agreed, by way of penalty clause above, or

76.2 To execute the work from others elsewhere after giving due notice to the contractor on account and at the risk of the contractor for such work not so delivered or other similar description without canceling the contract in respect of the consignment not yet due for delivery or

77.0 To cancel the contract.

In the event of the risk purchase of survey work of similar description, the opinion of the GETCO shall be final. In the event of action taken under clause above, the contractor shall be liable to pay for any loss which the GETCO may sustain on that account, but the contractor shall not be entitled to have any saving on such purchases made against default.

The decision of the GETCO shall be final as regards to the acceptability of stores supplied by the contractor and the GETCO shall not be required to give any reason in writing or otherwise at any time for rejection of the stores.

78.0 MATCHING OF END COST:

In case the GETCO decides to award contract on matching end-cost basis, the bidder has to reduce all the quoted rates proportionately. The reduction on overall basis will not be accepted (i.e. all unit rates of erection schedule shall be reduced proportionately by difference in percentage). The confirmation for matching end cost shall be given within 7 (seven) days from the letter from GETCO.

79.0 The presently available Toposheet with GETCO shall be made available for execution of work. However any additional Toposheet required for timely completion of survey work shall be arranged by contractor at his own cost.

SURVEY CONDITIONS OF CONTRACT

1.0 GENERAL

1.1 The following shall supplement the conditions already contained in other parts of these specifications & document and shall govern the portion of the work of this Contract to be performed at Site.

1.2 The Contractor upon signing of the Contract shall, nominate a responsible officer as his representative at Site suitably designated for the purpose of overall responsibility and coordination of the works to be performed at Site. Such person shall function from the Site office of the Contractor during the pendency of Contract.

2.0 REGULATION OF LOCAL AUTHORITIES AND STATUTES

2.1 The Contractor shall comply with all the rules and regulations of local authorities during the performance of his field activities. He shall also comply with the Minimum Wages Act, 1948 and the Payment of Wages Act (both of the Government of India) and the rules made there under in respect of any employee or workman employed or engaged by him or his Sub-Contractor. He shall abide by labour laws .

2.2 All initial registration and statutory inspection fees, if any, in respect of his work pursuant to this Contract shall be to the account of the GETCO. Should any such inspection or registration need to be re-arranged due to the fault of the Contractor or his Sub Contractor, the additional fees to such inspection and/or registration also shall be borne by the Contractor.

3.0 OWNER'S LIEN ON EQUIPMENT

The Owner shall have lien on all equipment brought to the Site for the purpose of detail survey , preparation of profiles , detail of soil investigation report , detail of soil strata of trial pits , details of line material requirement including No of towers under this Contract. The Owner shall continue to hold the lien on all such details throughout the period of Contract. No shifting of survey instruments from the Site without the prior written approval of the Engineer.

4.0 ACCESS TO SITE AND WORKS ON SITE

4.1 Suitable access to and possession of the Site shall be afforded to the Contractor by the Owner in reasonable time.

4.2 The works so far as it is carried out on the Owner's premises, shall be carried out at such time as the Owner may approve and the Owner shall give the Contractor reasonable facilities for carrying out the works.

4.3 In the execution of the works, no person other than the Contractor or his duly appointed representative, Sub- Contractor and workmen, shall be allowed to do work on the Site, except by the special permission, in writing of the Engineer or his representative.

5.0 CONTRACTOR'S SITE ESTABLISHMENT

The Contractor shall at all times keep posted an authorized representative for the purpose of the Contract. Any written order or instruction of the Engineer or his duly authorized representative shall be communicated to the said authorized resident representative of the Contractor and the representative shall be available at a stated address for this purpose.

6.0 CO-OPERATION WITH OTHER CONTRACTORS

6.1 The Contractor shall co-operate with all other Contractors or tradesmen of the Owner,

who may be performing other works on behalf of the Owner and the workmen who may be employed by the Owner and doing work in the vicinity of the Works under the Contract. The Contractor shall also so arrange to perform his work as to minimize, to the maximum extent possible, interference with the work of other Contractors and their workmen. Any injury or damage that may be sustained by the employees of the other Contractors and the Owner, due to the Contractor's work shall promptly be made good at the Contractor's own expense.

7.0 **DISCIPLINE OF WORKMEN**

The Contractor shall adhere to the disciplinary procedure set by the Engineer in respect of his employees and workmen at Site. The Engineer shall be at liberty to object to the presence of any representative or employee of the Contractor at the Site, if in the opinion of the Engineer such employee has misconducted himself or is Incompetent or negligent or otherwise undesirable and then the Contractor shall Remove such a person objected to and provides in his place a competent replacement.

8.0 **CONTRACTOR'S FIELD OPERATION**

8.1 The Contractor shall keep the Engineer informed in advance regarding his field activity plans and schedules for carrying-out each part of the works. Any review of such plan or schedule or method of work by the Engineer shall not relieve the Contractor of any of his responsibilities towards the field activities. Such reviews shall also not be considered as an assumption of any risk or liability by the Engineer or the Owner or any of his representatives and no claim of the Contractor will be entertained because of the failure or inefficiency of any such plan or schedule or method of work reviewed. The Contractor shall be solely responsible for the safety, adequacy and efficiency of plant and equipment and his erection methods.

8.2 The Contractor shall have the complete responsibility for the conditions of the Work-site including the safety of all persons employed by him or his Sub–Contractor and all the properties under his custody during the performance of the work. This requirement shall apply continuously till the completion of the Contract and shall not be limited to normal working hours.

9.0 **PROGRESS REPORT**

The Contractor shall furnish three (3) copies each to the Engineer of progress including if any, photographs of the work done at Site.

11.8 The weekly progress report detailing-out the progress achieved on all erection activities shall highlight comparison to the schedules. The report shall also indicate the reasons for the variance between the scheduled and actual progress and the action proposed for corrective measures, wherever necessary. progress shall be submitted in following format.

Description of work as per A/T
Quantity involved as per Route
Work executed up to last week
Work executed during this week

Total Progress survey in km

10.0 **MAN-POWER REPORT**

10.1 The Contractor shall submit to the Engineer, on the first day of every month, a man hours schedule for the month, detailing the man hours scheduled for the month, skill-wise and area-wise.

11.0 **PROTECTION OF WORK**

The Contractor shall have total responsibility for protecting his works till it is finally taken over by the Engineer. No claim will be entertained by the Owner or by the Engineer for any damage or loss to the Contractor's works and the Contractor shall be responsible for complete restoration of the damaged works to original conditions to comply with the specification and drawings.

12.0 EMPLOYMENT OF LABOUR

12.1 The Contractor will be expected to employ on the work only his regular skilled employees with experience of his particular work. No person below the age of eighteen years shall be employed.

12.2 All traveling expenses including provisions of necessary transport to and from Site, lodging, allowances and other payments to the Contractor's employees shall be the sole responsibility of the Contractor.

12.3 In case the Owner becomes liable to pay any wages or dues to Labour or any Government agency under any of the provisions of the Minimum Wages Act, Workmen Compensation Act, Contract Labour Regulation Abolition Act or any other law due to act of omission of the Contractor, the Owner may make such payment and shall recover the same from the Contractor's bills.

13.0 **FACILITIES TO BE PROVIDED BY THE OWNER**

13.1 **Space**

Land for Contractor's Store, Workshop etc.

a) The Engineer shall at his discretion and for the duration of execution of the Contract make available at site, land for construction of Contractor's field office, workshop, stores, etc. required for execution of the Contract. Any such temporary construction shall be done by the Contractor at his cost.

b) On completion of work the Contractor shall hand over the land duly cleaned to the Engineer. Until and unless the Contractor has handed over the vacant possession of land allotted to him for the above purpose, the payment of his final bill shall not be made.

14.0 **FACILITIES TO BE PROVIDED BY THE CONTRACTOR**

14.1 **Survey Instrument.**

The Contractor shall provide the entire survey instrument covered under the Contract. He shall submit a list of all such equipment and detail of skilled persons shall be submitted as per annexure- A-1 of technical specification for survey work to the Engineer before the commencement of work at Site. These instruments shall not be removed from the Site without the written permission of the Engineer.

14.2 **First-aid**

14.3 The Contractor shall provide necessary first-aid facilities for all his employees, representatives and workmen working at the Site. Enough number of Contractor's personals shall be trained in administering first-aid.

14.4 Cleanliness

14.4.1 The Contractor shall be responsible for keeping the entire area allotted to him clean and free from rubbish, debris etc. during the period of Contract. The Contractor shall employ enough number of personnel to keep the work area clean.

15.0 **SECURITY**

The Contractor shall have total responsibility for all equipment for survey work in his

custody/stores, The Contractor shall make suitable security arrangements ensure the protection of all equipment from theft, fire, pilferage and any other damages and loss.

16.0 **FIELD OFFICE RECORDS**

The Contractor shall maintain up to date copies of all drawings, specifications and other Contract Documents and any other supplementary data complete with all the latest revisions thereto. The Contractor shall also maintain in addition the continuous record of all changes to the above Contract Documents, drawings, specifications, and supplementary data, etc. effected at the field and on completion of his total assignment under the Contract shall incorporate all such changes on the drawings and other Engineering data to indicate as installed conditions of the equipment furnished and erected under the Contract. Such drawings and Engineering data shall be submitted to the Engineer in required number of copies.

17.0 **CONTRACTOR'S MATERIALS BROUGHT TO SITE**

17.1 The Contractor shall bring to Site all latest survey equipment required for survey, tools and tackles for the purpose of the works under intimation to the Engineer. All such goods shall, from the time of their being brought vest in the Owner, but may be used for the purpose of the works only and shall not on any account be removed or taken away by the Contractor without the written permission of the Engineer. The Contractor shall nevertheless be solely liable and responsible for any loss or destruction thereof and damage thereto.

17.2 The Owner shall have a lien on such goods for any sum or sums which may at any time be due or owing to him by the Contractor, under, in respect of or by reasons of the Contract. After giving a fifteen (15) days notice in writing of his intention to do so, the Owner shall be at liberty to sell and dispose off any such goods, in such manner as he shall think fit and to apply the proceeds in or towards the satisfaction of such sum or sums due as aforesaid.

17.3 After the completion of the Works, the Contractor shall remove from the Site under the direction of the Engineer the materials above equipment, tools and tackles, etc. with the written permission of the Engineer.

18.0 **PROTECTION OF PROPERTY AND CONTRACTOR'S LIABILITY**

18.1 The Contractor shall be responsible for any damage resulting from his operations. He shall also be responsible for protection of all persons including members of public and employees of the Owner and the employees of other Contractors and Sub-Contractors and all public and private property.

19.0 **INSURANCE**

19.1 In addition to the conditions covered under the Clause entitled 'Insurance' in General Terms and Conditions of Contract, the following provisions will also apply to the portion of works to be done beyond the Contractor's own or his Sub-Contractor's manufacturing Works.

19.2 **Workmen's Compensation Insurance**

This insurance shall protect the Contractor against all claims applicable under the Workmen's Compensation Act, 1948 (Government of India). This policy shall also cover the Contractor against claims for injury, disability, disease or death of his or his Sub-Contractor's employee, which for any reason are not covered under the Workmen's Compensation Act, 1948. The liabilities shall not be less than:

Workmen's : As per statutory
Compensation Provisions

Employee's : As per statutory
liability Provisions

19.3 **Comprehensive General Liability Insurance**

The insurance shall protect the Contractor against all claims arising from injuries, disabilities, disease or death of members of public or damage to property of others, due to any act of omission on the part of the Contractor, his agents, his employees, his representatives and Sub-Contractors or from riots, strikes and civil commotion.

19.4 The hazards to be covered will pertain to all the works and areas where the Contractor, his Sub-Contractors, his agents and his employees have to perform work pursuant to the Contract.

19.5 The above are only illustrative list of insurance covers normally required and it will be the responsibility of the Contractors to maintain all necessary insurance coverage to the extent both in time and amount to take care of all his liabilities either direct or indirect, in pursuance of the Contract.

20.0 **UNFAVOURABLE WORKING CONDITIONS**

The Contractor shall confine all his field operations to those works, which can be performed without subjecting the equipment and materials to adverse effects during inclement weather conditions, like monsoon, storms etc. and during other unfavorable construction conditions. No field activities shall be performed by the Contractor under conditions, which might adversely affect the quality and efficiency thereof, unless special precautions or measures are taken by the Contractor in a proper and satisfactory manner in the performance of such Works and with the concurrence of the Engineer. Such unfavorable construction conditions will in no way relieve the Contractor of his responsibility to perform the Works as per the schedule.

21.0 **PROTECTION OF MONUMENTS AND REFERENCE POINTS**

The Contractor shall ensure that any finds such as relic, antiquity, coins, fossils, etc. which he may come across during the course of performance of his Works either during excavation or elsewhere, are properly protected and handed over to the Engineer. Similarly the Contractor shall ensure that the bench marks, reference points, etc, which are marked either with the help of Engineer or by the Engineer shall not be disturbed in any way during the performance of his Works. If any work is to be performed which disturbs such reference the same shall be done only after these are transferred to other suitable locations under the direction of the Engineer. The Contractor shall provide all necessary materials and assistance for such relocation of reference points etc.

22.0 **WORK & SAFETY REGULATIONS**

22.1 The Contractor shall ensure proper safety of all the workmen and equipment belonging to him or to GETCO or to others, working at the Site. The Contractor shall also be responsible for provision of all safety notices and safety equipment required both by the relevant legislations and the Engineer, as he may deem necessary.

22.2 All equipment used survey work by Contractor shall meet Indian/International Standards maintained by the Contractor in accordance with manufacturer's Operation Manual and safety instructions and as per Guidelines/rules of GETCO in this regard.

22.3 Periodical examinations and all tests for all equipment for survey work shall be maintained in register by the Contractor and will be promptly produced as and when desired by the Engineer or by the person authorized by him.

22.4 The Contractor shall provide suitable safety equipment of prescribed standard to all employees and workmen according to the need.

22.5 The Contractor shall provide safe working conditions to all workmen and employees at the Site for survey and standard quality of material only shall be used by the

Contractor.

22.6 Before the Contractor connects any electrical appliances to any plug or socket belonging to the other Contractor or Owner, he shall:
a. Satisfy the Engineer that the appliance is in good working condition;
b. Inform the Engineer of the maximum current rating, voltage and phases of the appliances;
c. Obtain permission of the Engineer detailing the sockets to which the appliances may be connected.

22.7 The Engineer will not grant permission to connect until he is satisfied that;
a. The appliance is in good condition and is fitted with suitable plug;
b. The appliance is fitted with a suitable cable having two earth conductors, one of which shall be an earthed metal sheath surrounding the cores.

22.8 No electric cable in use by the Contractor/Owner will be disturbed without prior permission. No weight of any description will be imposed on any cable and no ladder or similar equipment will rest against or attached to it.

22.9 No repair work shall be carried out on any live equipment. The equipment must be declared safe by the Engineer and a permit to work shall be issued by the Engineer before any repair work is carried out by the Contractor. While working on electric lines/equipment, whether live or dead, suitable type and sufficient quantity of tools will have to he provided by the Contractor to electricians/workmen/officers.

22.10 In case any accident occurs during the survey work or associated activities Undertaken by the Contractor thereby causing any minor or major or fatal injury to his employees due to any reason, whatsoever, it shall be the responsibility of the Contractor to promptly inform the same to the Engineer in prescribed form and also to all the authorities envisaged under the applicable laws.

22.11 The Engineer shall have the right at his sole discretion to stop the work, if in his Opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/or property, and/or equipment. In such cases, the Contractor shall be informed in writing about the nature of hazards and possible Injury/accident and he shall comply to remove shortcomings promptly. The Contractor after stopping the specific work can, if felt necessary, appeal against the order of Stoppage of work to the Engineer within 3 days of such stoppage of work and decision of the Engineer in this respect shall be conclusive and binding on the Contractor.

22.12 The Contractor shall not be entitled for any damages/compensation for stoppage of work due to safety reasons and the period of such stoppage of work will not be taken as an extension of time for completion of work and will not be the ground for waiver of levy of liquidated damages.

22.13 It is mandatory for the Contractor to observe during the execution of the works, requirements of Safety Rules which would generally include but not limited to following
a) Each employee shall be provided with initial indoctrination regarding safety by the Contractor, so as to enable him to conduct his work in a safe manner.

b) No employee shall be given a new assignment of work unfamiliar to him without proper introduction as to the hazards incident thereto, both to himself and his fellow employees.

c) Employees must not leave naked fires unattended. Smoking shall not be permitted around fire prone areas and adequate fire fighting equipment shall be provided at crucial location.

d) There shall be a suitable arrangement at every work site for rendering prompt and sufficient first aid to the injured.

j) Requirements of ventilation in underwater working to licensed and experienced divers, use of gum boots for working in slushy or in inundated conditions are essential requirements to be fulfilled.

22.14 The Contractor shall follow and comply with all GETCO Safety Rules, relevant provisions of applicable laws pertaining to the safety of workmen, employees, plant and equipment as may be prescribed from time to time without any demur, protest or contest or reservations. In case of any discrepancy between statutory requirement and GETCO Safety Rules referred above, the latter shall be binding on the Contractor unless the statutory provisions are more stringent.

a. Fatal injury or accident Rs. 1, 00,000/- +GST per person : These are causing death : applicable for death/

b. Major injuries or accident causing Rs. 20,000/- +GST : injury to whosoever. any person, 25% or more permanent disablement per person to Workmen or employees.

Permanent disablement shall have same meaning as indicated in Workmen's Compensation Act. The compensation mentioned above shall be in addition to the compensation payable to the workmen/employees under the relevant provisions of the Workmen's Compensation Act and rules framed there under or any other applicable laws as applicable from time to time. In case the Owner is made to pay such compensation then the Contractor is liable to reimburse the Owner such amount in addition to the compensation indicated above.

23.0 **CODE REQUIREMENTS**

The detail of survey requirements and procedures to be followed during the detailing shall be in accordance with the relevant Codes and accepted good engineering practice, the Engineer's drawings and other applicable Indian recognized codes and laws and regulation of the Government of India.

PART-I SCC
SPECIAL CONDITIONS OF CONTRACT

1.0 General Particulars:

This part of the Bid Document relates to certain specific/special terms and conditions Particular to the Contract. The provisions herein are to be read and understood in Conjunction with the relevant provisions elsewhere in the General Conditions of Contract (GCC) and Survey Conditions of Contract (SCC). The intent of provisions Herein are specific to this contract and are, in general, supplementary to related Provisions under GCC and SCC**. However, in certain provisions which are contrary to those in GCC and ECC, the provisions in these Special Conditions of Contract will Prevail.**

2.0 **Tender Fee:**

The tender fee specified in notice inviting tender is payable by Demand Draft (DD) at Navsari drawn on any Scheduled Bank in favour of Gujarat Energy Transmission Corporation Ltd. The same will be furnished in Cover-1 of Bid along with EMD (Bid Security).

3.0 **Earnest Money Deposit (EMD):(Ref.Cl.12.1 of GCC)**

(A) If tender value is less than Rs.100 lacs, EMD is payable as under:

3.1 100% of EMD by RTGS/NEFT/DD in favour of Gujarat Energy Transmission CorporationLtd of any

Nationalized Bank. No Bank Guarantee is acceptable.

3.2 Payment by Cheque/Coop Bank Guarantee/ Company Guarantee is not Permissible.

3.3 Validity Period: -The offer should be valid for a minimum period of 180 days From the date of opening of Technical bid.

4.0 Declaration by Bidder:

The Bidder shall sign the Declaration enclosed to this SCC and not furnishing the same will make the Bid invalid.

5.0 **QUALIFYING REQUIREMENT**

5.1 **TECHNICAL CRITERIA:**

The bidder should have an experience of at least 100 KM of survey & preparation of profiles complete with details covered along the route alignment, leveling, fixing of angle point, EHV/HT/LT & P&T line, National highway & Railway Crossings in such a way that no forest / NA Plotting land involved. The bidder should have experience of at least 50 route km out of 100 Km survey work with help of GPS Navigation system including complete BOQ.

6.0 **Additional Documents:**

A. The following details are to be submitted along with the offer

1. Organization set up of the company / institute.
2. Project team proposed to be deployed (should be on permanent basis with the Company) by name & experience as per Annexure – A-1 of Part – II.
3. The bio data and experience of the key person proposed to be deployed.
4. Assignment on hand.
5. Past assignment completed with successful completion certificate should be Submitted as per Annexure – A-3 of Part – II.
6. Last three years turn over details.

B. Apart From various documents to be furnished along with the Bid as required in the GCC and ECC, the following documents/details are to be furnished by the Bidder:

1. GST Registration No. date/ issuing authority.
2. Details of Partners/Directors of the Firm/Company.
3. Experience Record and details of orders pending / executed for various utilities
4. GETCO Vendor Registration of equivalent class with validation.
5. Latest Solvency certificate from Bank (up to 20 % of Bid value).
6. Valid Electrical license
7. P.F Registration.
8. Pan Card copy
9. Partnership deed/Power of attorney
10. Affidavit for proprietorship

7.0 **COMPLETION PERIOD**

7.1 Overall Completion periods of **2 Years (24 Months)** from the date of issue of order for:

7.2 No mobilization period, idling or stoppage period will be allowed during this period of the Contract.

7.3 The completion date will be deemed to be the date on which all works on the Contract are demonstrated to be complete to the satisfaction of the GETCO/Engineer and is Complete in all respects as per the terms and conditions of this Contract.

: TENDER SPECIFICATION NO. :

Sub. : Survey work of 66 KV D/C /Single Circuit Tower/H-Frame Transmission line

In connection with above subject, I / we confirm the following:

(A)I / We, the undersigned, have read and examined the Tender Specification No. GETCO/TRII/TL/Survey/ for detail survey of transmission line using modern survey Techniques including tender specification Part- I , Part-II special condition of contract in detail.

(B) price components in the bid are subject to FIRM PRICE BASIS in line with Tender Specification and stand valid till completion of the contract, if awarded.
(C) I/We declare that our bid is strictly in line with Tender Specifications and there is no deviation. Further, I / we also agree that additional conditions / deviations, if any found in
bid, the offer shall be out rightly rejected without assigning any reason thereof.
Signature of Authorized
Representative of Company/Agency

NAME:_____

STATUS:_____

Name of bidder Company

Seal & Signature of Bidder

CONFIRMATION OF DETAILS OF BIDDER

Bidders are required to furnish following information specifying **YES / NO**

1) Whether the Bid is on percentage basis as called for. **Yes / No**
2) Whether rebate furnished is called for. in percentage basis as **Yes / No**
3) Whether the Bid is submitted by RPAD. Yes / No
4) Whether all pages of Bid Specifications are sealed and signed by the Bidder. **Yes / No**
5) a) Whether the Bidder is registered with GETCO for transmission line erection. **Yes / No**
   b) In case of "Yes", please furnish following details:
   i) Registration Letter No. & date.
   ii) Class of Registration
   Iii) Validity
6) a) Whether Bidder is having PF Code No. **Yes / No**

   Whether EMD paid. (DD / BG) **Yes / No**

   b) In case "Yes", furnish details **Yes / No**
7) Whether following documents as specified are submitted.

   a) Human Resources detail. **Yes / No**
   b) Availability of tools, equipments etc. **Yes / No**
   c) Details of orders executed / on hand **Yes / No**
   d) Financial capability**.** **Yes / No**
   e) Experience as specified. **Yes / No**
   f) Latest Income-tax certificate **Yes / No**
   g) Company's Articles Of Association **Yes / No**
   h) Details Of Partners / Directors **Yes / No**
   i) B.R./P.A. Authorising Person **Yes / No**
   j) Power of Attorney of Consortium Members **Yes / No.**

Signature of Authorized Representative of Company/Agency

NAME:_____

STATUS:_____
Name of tendering Company

PROFORMA FOR CONTRACT AGREEMENT

(Non Judicial Stamp Paper of Rs. 300/-)

This Agreement is made at BARODA the_____ day of _____ in the Christian Year Two thousand four between M/s.

_____ (address of office) _____
(hereinafter referred to as "THE CONTRACTOR" which expression shall unless excluded by or repugnant to the contract include its successors or permitted assigns) of the ONE PART and the Gujarat Energy Transmission Corporation Ltd, having their Head office at Vidyut Bhavan, Race Course, Baroda 390 007 (hereinafter called "The GETCO" which expression shall unless excluded by or repugnant to the context include its successors or assigns) of the other part.
WHEREAS the aforesaid GETCO has accepted the tender of the aforesaid contractors for _____

_____ as per GETCO's Order No. _____
_____ hereinafter called "the works" and more particularly described and enumerated or referred to in the specification, terms and conditions prescribed in the order letter, covering letter and other letters and schedule of price which for the purpose of identification have been signed by Shri_____
on behalf of the contractors and by ----------on behalf of the GETCO, a list whereof is made out in the Schedule hereunder written and all of which said documents are deemed to form part of this contract and included in the expression "The works" wherever herein used, upon the terms and subject to the conditions hereinafter mentioned.
AND WHEREAS THE GETCO has accepted the tender of contractors for the construction of the said works for the sum of Rs. _____ Rupees (_____ _____) upon the terms and subject to the conditions herein mentioned.
NOW THIS AGREEMENT WITNESSESS AND IT IS HEREBY AGREED AND DECLARED THAT.

1. The contractors shall do and perform all works and things in this contract mentioned and described or which are implied therein or therefrom respectively or are reasonably necessary for the completion of the works as mentioned and at the times, in the manner and subject to the terms and conditions and stipulations contained in this contract, and in consideration of the due provision, executions, supply and completion of the works agreed to by the contractor as aforesaid the Board doth hereby covenant with the contractor to pay all the sums of moneys as and when they become due and payable to the contractors under the provisions of the contract. Such payment to be made at such times and in such manner as is provided by the contract.
2. The conditions and covenants stipulated here-in-before in this contract are subject to and without prejudice to the rights of the Board to enforce penalty for delays and / or any other rights whatsoever including the right to reject and cancel on default or breach by the contractor of the conditions and the covenants as stipulated in the general conditions, specifications, forms or tender schedule etc. attached with GETCO's Order No. _____.

   The contract value, extent of supply & erection works, delivery dates , specifications and other relevant matters may be altered by mutual agreement and if so altered shall not be deemed or construed to mean or apply to affect or alter other terms and conditions of the contract and the general conditions and the contract so altered or revised shall be and shall always be deemed to have been subject to and without prejudice to said stipulation.

SCHEDULE

List of documents forming part of the contract :

1. GETCO's Tender Specification No. _____ and contractor's offer opened on dated ____/____/
2. GETCO order No. Dtd. _____ / _____/
3. Contractor's acceptance of order vide letter No. _____.

4. Contractor’s Partnership Deed dtd. _____.
5. Contractor’s Power of Attorney / Board Resolution authorizing person to sign on behalf of Firm.
In witness whereof the parties hereto have set their hands and seals this day and month, year first above written.

1) **Signed, sealed and delivered by**

(Signature with name, Designation and official seal)

For and behalf of M/s. _____ (Signature)

Address : _____

In the presence of (Full Name, Address and Signatures)
i) _____ (Signature)

ii) _____ (Signature)

2) **Signed, sealed and delivered by**

(Signature with name, Designation and official seal)
for and on behalf of Gujarat Energy Transmission Corporation Ltd
Navsari Transmission Circle.

In the presence of name, Full addressed and Signature:

(1) _____

(2) _____

SCHEDULE-19

SAFETY CUM INDEMNITY BOND

(On Non-judicial Stamp paper of value not less than Rs.300.00)

KNOW ALL MEN BY THESE PRESENTS that we, _____ by this SAFETY CUM INDEMNITY BOND Executed on this _____ Day of _____ 2014. I/We Having Registered Office _____(herein after called **"**THE CONTRACTOR**"** which expression shall mean and includes my /our heirs, executors, administrators and legal representatives, successors and permitted assigns) do hereby binds myself/ourselves and also our company/firms after having the power to bind by this promise and undertaking in favour of the Gujarat Energy Transmission Corporation Limited (GETCO), Vadodara a State Transmission Utility under The Electricity Act, 2003 having its registered office at Sardar Patel Vidyut Bhavan, Race course, Vadodara.(hereinafter called as GETCO, which expression shall mean and include its legal representative, administrators assigns) has agreed under the terms and conditions of the contract no._____ dated_____made between _____ and _____for the contract of the _____value of ` _____ interalia on production of Safety Cum Indemnity Bond.

We do hereby undertake and agree to Indemnify and keep Indemnified GETCO from time to time to the extent of `_____ Rupees_____only against any losses or damages, costs, charges and expenses caused to or suffered by reason of the CONTRACTOR while Project, R&M, O&M work including work carried out by outsourcing agency, failing to take proper care or not complying the guidelines given hereunder as per Annexure-A and instructions which may be given from time to time during the continuance of the contract and we further undertake to unconditionally pay the amount claimed by the GETCO on demand and without demur to the extent aforesaid.

Whereas the CONTRACTOR has/have been awarded to execute the job/works under order no._____, dated _____ for _____ issued by the GETCO after having observing necessary formalities, the details of which is described in the order no._____ dated _____ and whereas the said job/works will be /likely to be done in places covered under Employees' State Insurance Act,1948 (ESI) and /or the Workmen Compensation Act,1923 and /or other laws relating to the Labour Management and Welfare Act. (Respective Amendments)

And whereas according to the condition of the Contract the CONTRACTOR is under obligation to execute this Safety cum Indemnity Bond before the commencement of actual execution of work

Now the indenture witnesses that I/We the CONTRACTOR do hereby undertake to follow the guidelines as per Annexure-A prepared by the GETCO.

Further we the CONTRACTOR agree that the GETCO shall be sole judge of and as to whether there has been any breach of the guidelines as per Annexure-A of this bond and as to the extent of the loss, damages, costs, charges and expenses caused to or suffered by the GETCO.

We the CONTRACTOR further agree that our liability under this bond shall not be discharged because of the change in the constitution of the GETCO or for the extension of the time limit or for any other reason.

We the CONTRACTOR further agrees to the given terms and conditions:
That the CONTRACTOR undertakes /undertake to indemnify and keep harmless the GETCO from all claims, actions, proceedings and risk, damage danger to any person whether belonging or not belonging to the. CONTRACTOR.

a. That the CONTRACTOR shall keep harmless the GETCO from all claims, compensation, damages any proceedings in respect of any of its employee / workmen under the Workmen Compensation Act or any other laws for the time being in force.

b. That, if during the course of execution of work as stated in the contract order mentioned hereinabove issued by the OBLIGEE, it is found that the CONTRACTOR has not complied with guidelines as per Annexure-A or terms and conditions / formalities within the meaning of Employees' State Insurance Act,1948 (ESI) or Workmen Compensation Act 1923 or any other laws relating to the Labour Welfare for the time being in force, and also has not observed the safety norms in accordance with the law prevailing at the place of work/job to the satisfaction of the GETCO, the GETCO shall have the right to stop the execution of work/job and the period of such stoppage shall not be taken into account for the calculation of the total period of completion of work for which the CONTRACTOR is responsible to complete the work/job and it will be deemed that discontinuance was due to default of the CONTRACTOR .

c. That, if any time, due to exigency, GETCO as the Principle Employer, becomes liable to pay any such compensation mentioned hereinabove, whether on failure of the CONTRACTOR or for any other reason, the GETCO shall have the right to recover the said amount from any amount receivable by GETCO or any bank guarantee deposited or anything payable whether in connection with this contract or other contract by the CONTRACTOR to the OBLIGEE.

d. That the CONTRACTOR is/are aware and accept that for the persistent or repeated violation of any guidelines as per Annexure-A and terms and conditions mentioned in this Safety cum Indemnity Bond, GETCO shall have right to terminate the contract of work issued to the CONTRACTOR.

e. In case if any safety related fatal Electrical / Mechanical accident occurred to any employee of agency or outsider due to negligence or non-compliance of GETCO safety norms then in addition to the compensation and liability as per statutory requirement, contractor / agency is hereby agreed to pay the penalty amount as given below:

Sr. No	Amount of Contract in Rs.	Penalty amount
1	Up to →1 Lac	`5000/- + GST
2	Above1 Lac to → 10 Lacs	`40000/- + GST
3	10 to --→ 100 Lacs	`100,000/- + GST
4	> 100 Lacs	1.0 % + GST of contract value

f. I/We the CONTRACTOR hereby confirm that in case of any dispute/difference for settlement of claims under this Safety Cum Indemnity bond the courts in Gujarat State wherever job/work is performed or as per GETCO norms shall have the jurisdiction to decide the rights & liabilities of the parties while adjudicating the matter of claims under this Safety Cum Indemnity Bond.

g. This Safety cum Indemnity Bond shall continue and hold good until it is released by the GETCO in Writing on the CONTRACTOR's application after the Contractor has discharged all his obligations under the order mentioned hereinabove and submitted a "NO DEMAND CERTIFICATE" from the GETCO under the said order. The Safety cum Indemnity Bond shall be valid for a CONTRACT PERIOD and renewable thereof (Claim Period).

h. This Safety cum Indemnity Bond and the guidelines as per Annexure-A herein contained are in addition to and not by way of limitation or substitution for any other guarantee, indemnities Hereto before given to the GETCO by the CONTRACTOR and this indemnity does not Revoke or limit such indemnities or guarantees. IN WITNESS WHEREOF the Parties hereto have executed this indenture the day the year First hereinabove written.

(Signature with seal of The CONTRACTOR)

In the presence of:

1. 2.

GUJARAT ENERGY TRANSMISSION CORPORATION LIMITED

CIRCLE OFFICE

NAVSARI

TECHNICAL SPECIFICATION FOR

ARC for original survey with route alignment of 66 kV Lines under Navsari construction division.

(PART-II)

INDEX

Clause No.	Description
1.0	Detail of Transmission Line.
2.0	Scope of work
3.0	Route Alignment
4.0	Detailed Survey
5.0	Geotechnical Investigation
6.0	Statutory Requirement and Standards
Annexure - A	General description of Towers & Foundation & Technical Parameter
Annexure – B	Document to be submitted along the bid
Annexure- C	List of Outputs

TECHNICAL SPECIFICATIONS FOR SURVEY

1.0 General information:-

The technical specification covers detailed survey including route alignment, profiling, Tower Spotting, contouring and soil investigation etc.

2.0 Scope of work :

The scope of work interalia shall include the following:

a) Route alignment using satellite imageries of NRSA and Survey of India Maps, interalia including :-

i) Identification of three alternative route alignments & selection of optimized route alignment. This shall be done using low resolution satellite imageries of NRSA and Survey of India Maps. The output shall be in the form of digitized route alignment drawing with latest topographical and other details / features upto 8 kms on both sides of selected route alignment.

ii) Digital terrain modeling along the selected route using contour data from topographical maps.

b) Detailed survey using GPS, Total work stations, long range scanners & Digital theodolites of reasonable accuracies or alternatively using ALTM (Airborne Laser Terrain Modeling) techniques, interalia including :
   i) Digitised profiling along the selected route along with plan details using PLS CADD.
   ii) Computer aided tower spotting & optimization
   iii) Soil resistivity measurement along the route at interval of 3 Km.
   iv) Digitized contouring at undulated / hilly tower locations.
   v) Trial pit of Size- 1 Meter x 1Meter x 3 Meter at every 3 Km or as per the instruction of engineer In charge and measurement of records of soil strata and submission of the same with proposed type of foundation and back filling.

c) Soil Investigation

d) Preparation of survey reports including estimation of Bill of Quantities tower foundation and line material, identification and explanation of route constraints, infrastructure details available enroute etc.

e) Training to GETCO engineers for implementation of software.

2.1 The Provisional quantities for the scope of work are indicated in relevant Part- III. The final quantities for route alignment & detailed survey (quantities in 'kms' unit) shall be the route length along the approved route alignment. For contouring at undulated / hilly tower locations and soil investigations (quantities in 'locations' unit), the actual quantities to be executed shall be decided by Site Engineer-in-charge. The route alignment, detailed survey, including profiling & tower spotting, contouring, soil investigation etc. shall be carried out by the Contractor as per the technical specifications stipulated here in.

2.2 The contractor must note that the Owner shall not be responsible for loss or damage to properties, trees etc due to contractor's work during survey. The contractor shall indemnity the Owner for any loss or damage to properties, trees etc during the survey work.

2.3 The contractor should note Owner will not furnish the NRSA satellite imageries or topographical maps prepared by survey of India but will make available assistance that may be required in obtaining these by providing letters of recommendation to the concerned authorities. Further, in case the contractor opts for use of ALTM techniques for detailed survey, he shall be responsible for obtaining necessary clearances / permissions by providing letters or recommendations to the concerned authorities.

2.4 All the bidders shall present their proposal methodology for execution of the work as per specifications and details of the equipment & facilities including softwares available with them within 21 days from date of invitation of bid, based on which the Owner may issue suitable amendments. A pre-bid conference shall also be held within 30 days from date of invitation of bid.

2.5 The work shall be carried out by the contractor using modern surveying techniques. The bidder shall indicate in his offer, the detailed description of the procedure to be deployed. The details of the equipment & facilities including softwares for image processing, computer aided tower spotting etc. available with the bidder or his associates shall also be furnished with the bid.

2.6 The contractor shall also engage services of a reputed geo-technical consultant or experts from independent educational / research institutions for examining stability aspects of the selected transmission line route / locations in hilly terrain and ualacreble wherever required.

2.7 After carrying out the detailed survey and soil investigations, the contractor shall submit documents as per Annexure- B.

2.8 Location Details

2.9 No Technical deviation whatsoever to certain conditions of the bidding documents permitted by the Owner and therefore, the Bidders are advised that while making Bid Proposals and quoting prices these conditions may appropriately be taken into consideration.

The Bidder shall complete all the schedules & annexure in the Bid Proposal Sheets, Technical Data Sheets and specified elsewhere.

This specification covers the detailing, of survey of 400/220 KV Transmission line and handing over to GETCO including a complete Data

2.10 The above transmission lines are in the State of Gujarat. Bidders may visit the site to acquaint themselves with the terrain etc. For this purpose, they are requested to contact at the following address :

Superintending Engineer (TR),
Gujarat Energy Transmission Corporation Ltd.,
Circle Office,
Navsari Post Kabilpore-396424
Telephone No.: 02637236232

3.0 Route Alignment :

3.1 Route alignment shall be done using satellite imageries of NRSA (PAN & LISS-III merged product of minimum resolution corresponding to 1:25,000 scales) and survey of India topographical maps (scale 1:50,000). In case the required Survey of India, maps are available in digitized form from Survey of India, the same shall be procured and used by the Contractor. The contractor shall identify & examine three alternative route alignments and suggest to the Owner the optimal route alignment between the terminal points.

3.2 Requirement of Transmission Line Routing

3.2.1 The alignment of the transmission line shall be most economical from the point of view of construction and maintenance.

3.2.2 Routing of transmission line through protected / reserved forest area should be avoided. In case it is not possible to avoid the forests or areas having large trees completely, and then keeping in view of the overall economy, the route should be aligned in such a way that cutting of trees is minimum.

3.2.3 The route should have minimum crossings of Major river, Railway lines, National / State highways, overhead EHV power line and communication lines.

3.2.4 The number of angle points shall be kept to a minimum.

3.2.5 The distance between the terminal points specified shall be kept shortest possible, consistent with the terrain that is encountered.

3.2.6 Marshy and low lying areas, river beds and earth slip zones shall be avoided to minimize risk to the foundations. **& Towers**

3.2.7 It would be preferable to utilize level ground for the alignment.

3.2.8 Crossing of power lines shall be minimum. Alignment will be kept at a minimum distance of 300 m from power lines to avoid induction problems on the lower voltage lines.

3.2.9 Crossing of communication line shall be minimized and it shall be preferably at right angle. Proximity and parallelism with telecom lines shall be eliminated to avoid danger of induction to them.

3.2.10 Areas subjected to flooding such as nalla shall be avoided.

3.2.11 Restricted areas such as civil and military airfield shall be avoided. Care shall also be taken to avoid aircraft landing approaches.

3.2.12 All alignment should be easily accessible both in dry and rainy seasons to enable maintenance throughout the year.

3.2.13 Certain areas such as quarry sites, tea, tobacco and saffron fields and rich plantations, gardens & nurseries which will present the Owner problems in acquisition of right of way and way leave clearance during construction and maintenance should be avoided.

3.2.14 Angle points should be selected such that shifting of the point within 100 m radius is possible at the time of construction of the line.

3.2.15 The line routing should avoid large habitations, densely populated areas to the extent possible.

3.2.16 The areas requiring special foundations and those prone to flooding should be avoided.

3.3 For examination of the alternatives & identification of the most appropriate route, besides making use of informations / data / details available / extracted through Survey of India Topographical maps and computer aided processing of NRSA's satellite imagery, the contractor shall also carry out reconnaissance / preliminary survey as may be required for verification & collection of additional informations / data / details.

3.4 The contractor shall submit his preliminary observations & suggestions along with various informations / data / details collected and also processed satellite imagery data, topographical map data marked with the alternative routes etc. The final evaluation of the alternative routes shall be conducted by the contractor in consultation with Owner's representatives and optimal route alignment shall be proposed by the Contractor. Digital terrain modeling using contour data from topographical maps as well as processed satellite data shall be done by the contractor for the selected route. A fly through perspective using suitable software(s) shall be developed for further refinement of the selected route, if required. Site visit and field verification shall be conducted by the contractor jointly with the Owner's representative for the proposed route alignment.

3.5 Final digitized route alignment drawing with latest topographical and other detail / features (altitude / longitude) including all rivers, railway lines, canals, roads etc upto 8 kms on both

sides of selected route alignment shall be submitted by the contractor for Owner's approval along with report containing other informations / details as mentioned above.

4.0 Detailed Survey :

4.1 The detailed walk over survey shall be carried out using GPS, total stations, digital theodolites etc. along the approved route alignment. As an alternative, the contractor may also use ALTM (Airborne Laser Terrain Modeling) techniques of equal or better accuracy for the detailed survey and plotting on topo sheet to fix up angle point.

.

4.1 Soil resistivity, along the route alignment shall be measured in dry weather by four electrode method keeping inter – electrode spacing of 50 mtrs. For calculating soil resistivity formula $2\pi ar$ (where a=50 m and r=megger reading in ohms) shall be adopted. In case of soil characteristics changes within 2 to 3 km, values shall have to be measured at intermediate locations also. Megger reading and soil characteristics should also be indicated in the soil resistivity results.

4.2 Route Marking

The route of the transmission line shall be recorded using GPS of positional accuracy less than 3m.

The co-ordinates of all the angle points as well as other important crossings, landmarks etc. shall be recorded using GPS for easy relocating.

At the starting point of the commencement of route survey the co-ordinates shall be recoded. The co-ordinates of the location of the survey instrument shall also be recorded. Further, the co-ordinates at prominent position at intervals of not more than 750 meter along the transmission line to be surveyed upto the next angle point shall also be recorded. Wherever the line alignment crosses the EHT line, Railway line, P&T line or roads, the contractor shall record co-ordinates on the points of crossing. Wherever line route alignment passes over permanent land marks such as rock, boulders, culverts etc. suitable white paint marks with directional and GETCO markings shall be made and co-ordinates recorded.

4.3 **Profiling**

4.3.1 The complete profiling along the route shall be carried out using surveying equipments viz. total stations, GPS, digital theodolite, long range scanners etc. Reference levels at every 20 meters along the route are to be recorded. R/Ls at other undulations along the route as well as in the route plan and other enroute details viz. crossings, building & structures, trees & other infrastructure etc shall also be recorded. Areas along the route, which in the view of the contractor, are not suitable for tower spotting, shall also be marked.

4.3.2 The complete profiling details shall be digitized and the data shall be prepared & stored in the format compatible to computer – aided tower spotting software.

4.3.3 A printed / plotted output of the digitized profiling shall be submitted by the contractor to Owner's site-in-charge for review before taking up computer- aided tower spotting.

4.4 **Optimization of tower location / tower spotting** :

4.4.1 Optimization of tower locations shall be done by the Contractor using computer-aided tower spotting software (PLS CADD). In order to verify the results of computer aided tower spotting, the contractor shall supply the Owner, one licensed copy of tower

spotting & optimization software(s) and shall also furnish sample calculations and manual tower spotting drawings for some typical sections.

4.4.2

4.4.3 The sag-tension characteristics of the conductor as well as tower spotting data is furnished in Annexure- A. Sag template curves, if any required for tower spotting shall

4.4.4 be prepared by the contractor **on acrylic sheet indicating cold curve, hot curve, ground clearance curve and support footing curve.**

4.4.5 General description of towers is enclosed at Annexure – A for information of the Bidders.

4.4.6 Tower Spotting

While profiling & spotting the towers, the following shall to be borne in mind :

(a) Span

The number of consecutive spans between the section points shall not exceed 12 spans or 4.5 km in plain terrain and 10 spans or 3 km in hilly terrain for 220KV line. A section point shall comprise of tension point with minimum angle of deviation type towers as applicable.

(b) Extension / Truncation

An individual span shall be as near to the normal design span as possible. In case an individual span becomes too short with normal supports on account of undulations in ground profile, one or both the supports of the span may be extended by inserting standard body / leg extension. In case of locations where the ground clearance is available, truncated towers may be spotted. The provision kept in the design of towers with respect to body/leg extensions, truncations shall be intimated to the contractor by the Owner during execution stage. Indicative sketch of tower configuration depicting possible body / leg extensions, truncation provisions is enclosed at Annexure – A.

(c) Loading

There shall not be any upward force on suspension towers under normal working conditions and the suspension towers shall support at least the minimum weight span as provided in the designs. In case uplift is unavoidable, it shall be examined if the same can be overcome by adding standard body extensions to the towers failing which tension towers designed for the purpose shall be employed at such positions.

(d) Road Crossing

At all important road crossings, the tower shall be fitted with double suspension or tension insulator strings depending on the type of tower but the ground clearance at the roads under maximum temperature and in still air shall be such that even with conductor broken an adjacent span, ground clearance of the conductor from the road surfaces will not be less than 7.015Mtr for 220KV line. At all national highways tension towers shall be utilised and crossing span shall not be more than 250 meters.

(e) Railway Crossings

All the railway crossings coming enroute the transmission line shall be identified by the contractor. At the time of detailed survey, the railway crossings shall be finalized as per the regulation laid down by the Railway Authorities. The following are the important features of the prevailing regulations (revised in 1987).

i) The crossing shall be supported on large angle Y/D type tower on either side depending on the merits of each case.

ii) The crossing shall normally be at right angle to the railway track.

iii) The minimum distance of the crossing tower shall be at least equal to the height of the tower plus 6 meters away measured from the centre of the nearest railway track.

iv) No crossing shall be located over a booster transformer, traction switching station, traction sub-station or a track cabin location in an electrified area.

v)

vi)

vii) Minimum ground clearance above rail level of the lowest portion of any conductor under condition of maximum sag shall be maintained at 15.40 Mtr for 220KV line. And14.6Mtr for 66KV line 7mtr.

viii) The crossing span will be limited to 80% of Normal Span or 240 meters which ever is less.

(f) River Crossings

In case of major river crossings, towers shall be of suspension type and the anchor towers on either side of the main river crossing shall be large angle Y/ D type tower. Clearance required by navigation authority shall be provided. For non navigable river, clearance shall be reckoned with respect to highest flood level (HFL). **Minimum ground clearance above the highest flood level river and lowest point of conductor shall be 5.1 Mtr. for 220KV /66kv line.**

(g) Power line crossings

Where this line is to cross over another line of the same voltage or lower voltage, R / A type tower with suitable extensions shall be used. Provisions to prevent the possibility of its coming into contact with other overhead lines shall be made in accordance with the Indian Electricity Rules, 1956 / Indian Electricity Act, 2003 as amended upto date. In order to reduce the height of the crossings towers it may be advantageous to remove the ground-wire of the line to be crossed (if this is possible, and permitted by the owner of the line to be crossed).

Minimum clearance in meters between lines when crossing each other :

Sr. No.	Nominal system voltage	66 KV &132 KV	220 KV	400 KV
1.	66 KV &132 KV	4.58	4.58	5.49
2.	220 KV	4.58	4.58	5.49
3.	400 KV	5.49	5.49	5.49

For power line crossings of voltage level of 132 KV and above, an angle towers shall be provided on either side of tangent R /A type tower which can be temporary dead end condition with proper guying.

(h) Telecommunication Line Crossings

The angle of crossing shall be as near to 90 degree possible. However, deviation to the extent of 30 degree may be permitted under exceptionally difficult situations.

When the angle of crossing has to be below 60 degree, the matter will be referred to the authority incharge of the telecommunication system. On a request from the contractor, the permission of the telecommunication authority may be obtained by the owner.

Also, in the crossing span, power line support will be as near the telecommunication line as possible, to obtain increased vertical clearance between the wires.

(i) Details en route

All topographical details, permanent features, such as trees, building etc. 17.5Mtr (Total-35Mtr) for 220KV line on either side of the alignment and 9Mtr (Total 18Mtr.) for 66KV Line on either side of the alignment shall be detailed on the profile plan

4.5 **Clearance from Ground, Building, Trees etc**.

Clearance from ground, buildings, trees and telephone lines shall be provided in conformity with the Indian Electricity Rules, 1956 / Indian Electricity Act, 2003 as amended upto date.

4.5.1 The contractor shall count, mark and put proper numbers with suitable quality of paint at his own cost on the trees that are to be cut by the Owner at the time of actual execution of the work as detailed below. Contractor may please note that owner shall not pay any compensation for any loss or damage to the properties or for tree cutting due to contractor's work.

4.5.2 To evaluate and tabulate the trees and bushes coming within 17.5 Mtr. for 220KV line and 18 Mtr.for 66KV line on either side of the central line alignment the trees will be numbered and marked with quality paint serially from angle point 1 (1) onwards and the corresponding number will be painted on the stem of trees at a height of 1 meter from ground level. The trees list should contain the following :

a) Girth (circumstances) measured at a height of 1 meter from ground level.
b) Approximate height of the tree with an accuracy of +2 meters.
c) Name of the type of the species / trees.
d) The bushy and under growth encountered in the 35 Mtr. Belt for 220KV line and 18Mtr for 66KV line should also be evaluated with its type, height, girth and area in square meters, clearly indicating the growth in the tree / bush statement.

4.5.3 The contractor shall also intimate the owner, his assessment about the likely amount of tree & crop compensation etc required to be paid by the owner during execution stage. This assessment shall be done considering prevailing practices / guidelines, local regulations and other enquiries from local authorities.

4.6 Preliminary Schedule

The profile sheets showing the locations of the towers together with preliminary schedules of quantities indicating tower types, wind & weight spans, angle of deviation, crossing & other details etc shall be submitted by the contractor for review & approval by Owner's site in charge.

4.7 Detailed survey of tower locations

The detailed survey shall be conducted to locate the tower locations on ground conforming to the approved profile and tower schedule.

The co-ordinates of all the tower locations shall also be recorded using GPS of positional accuracy less than 3m for easy relocating. The positions of all tower locations shall be marked in the final digitized route alignment drawing with relative distances from any permanent bench mark in the area.

The contractor shall also collect required data at each tower location in respect of soil strata, ground water level, history of water table in adjacent areas / surface water and classify the suitable type of foundation at each tower location based on the data collected at each location and detailed soil investigations carried out at selected locations etc. General description of various type / classification of foundations is enclosed at Annexure – A.

4.8 Contouring at hilly / undulated locations

The levels up or down of each pit centre with respect to centre of tower location shall be recorded at intervals of 2m using total stations / GPS / digital theodolite and digitized contour plans shall be made. Based on the digitized elevation plans, the quantities of benching & protection work vis-à-vis possible unequal leg extensions shall be optimized using suitable computer aided techniques / softwares. Required tower and foundation details, cost data for comparative evaluation of benching & protection work vis-à-vis unequal leg extension shall be provided by the owner to the contractor during execution stage.

4.9 The changes desired by the owner in the preliminary tower schedule or as may be required based on detailed survey of tower locations & contouring by the contractor, shall

be carried out by the contractor and the final tower schedule shall be submitted for approval of owner. The tower schedule shall show position of all type of towers, span length, type of

4.10 foundation for each tower, benching & revetment requirement, unequal leg extensions, deviation at all angles, crossings & other details etc.

4.11 Survey Methodology & Precision

All elevations shall be referenced to benchmarks established by the survey of India. Leveling operations shall begin and end at benchmarks approved by the Owner.

During the leveling of the profile, check surveys will be affected at intervals not exceeding 50 kms. with benchmarks of known elevations. The difference in elevations as surveyed by the contractor and as declared by survey of India for these benchmarks shall not exceed the precision required for 3rd order surveys $e \leq 24k$ where k is the distance between benchmarks in km and e is the difference between elevations in mm.

In the absence of suitable benchmarks the leveling shall be done by two independent leveling parties working in opposite directions along the same line. The difference in elevations between the two surveys shall not exceed the precision required for 3rd order surveys as stated above.

All important objects and features along the transmission line centerline (railways, highways, roads, canals, rivers, transmission lines, distribution lines, telephone lines etc) shall be surveyed and located with a positional accuracy of 1:2000 between points of known horizontal position.

4.12 Survey Report List of output please refer Annexure – C.

5.0 GEOTECHNICAL INVESTIGATIONS

5.1 General

5.1.1 Owner requires that a detailed Geotechnical investigation be carried out at various tower locations to provide the designer with sufficiently accurate information, both general and specific, about the substrata profile and relevant soil and rock parameters at site on the basis of which the foundation of transmission line towers can be classified and designed rationally.

5.1.2 These specifications provide general guidelines for geotechnical investigation of normal soils. Cases of marshy locations and these affected by salt water or saltpeter shall be treated as special locations and the corresponding description in these specifications shall apply. Any other information required for such locations shall be obtained by contractor and furnished to owner.

5.2 Scope

5.2.1 The scope of work includes detail soil investigations and furnishing bore log data at various tower locations. The provisional quantities have been indicated in Bill of Quantities. However, during actual execution of work, the quantities shall be decided by Engineer – in – Charge, depending upon the soil strata and terrain. Based on the bore log data / soil parameter / soil investigation results, the contractor shall recommend the type of foundations suitable for each locations and the same shall be got approved by the owner.

5.2.2 These specifications cover the technical requirement for a detailed Geotechnical investigation and submission of a detailed Geotechnical Report. The work shall include

mobilization of all necessary tools and equipment, provision of necessary engineering supervision and technical personnel, skilled and unskilled labour, etc. as required to carry out the entire field investigation as well as laboratory tests, analysis and interpretations of data collected and preparation of the Geotechnical Report. Contractor shall also collect data regarding variation of subsoil water table along the proposed line route. The aforementioned work shall be supervised by a graduate in Civil Engineering having at least 5 years of site experience in geotechnical investigation work.

5.2.3 Contractor shall make his own arrangements to establish the co-ordinate system required to position boreholes, tests pits and other field test locations as per the drawings / sketches supplied by Owner. Contractor shall determine the reduced levels (RL's) at these locations with respect to benchmarks used in the detailed survey. Two reference lines shall be established based on survey data / details. Contractor shall provide at site all required survey instruments to the satisfactions of the owner so that the work can be carried out accurately according to specifications and drawings. Contractor shall arrange to collect the data regarding change of course of rivers, major natural streams and nalas etc., encountered along the transmission line route from the best available sources and shall furnish complete hydrological details including maximum velocity discharge, highest flood level (H.F.L), scour depth etc. of the concerned rivers, major streams and nalas (canals).

5.2.4 The field and laboratory data shall be recorded on the proforma recommended in relevant Indian Standards. Contractor shall submit to owner two copies of filed bore logs (one copy each to owner site and corporate office) and all the field records (countersigned by the owner) soon after the completion of each boreholes / test.

5.2.5 Whenever contractor is unable to extract undisturbed samples, he shall immediately inform the owner. Payment for boring charges shall be subject to owner being satisfied that adequate effort has been made to extract undisturbed samples. Special care shall be taken for locations where marshy soils are encountered and contractor in such cases shall ensure that specified number of vane shear tests are performed and the results correlated with other soil parameters.

5.2.6 One copy of all field records and laboratory test results shall be sent to owner on a weekly basis. Owner may observe, all the laboratory testing procedures.

5.2.7 The contractor shall interact with the owner to get acquainted with the different types of structures envisaged and in assessing the load intensities on the foundation for the various types of towers in order to enable him to make specific recommendation for the depth, founding strata, type of foundation and the allowable bearing pressure.

5.2.8 After reviewing contractor's geotechnical investigation draft report, owner will call for discussions, to be held normally within one week at owners site office, in order to

5.2.9 comment on the report in the presence of contractor's Geotechnical Engineer. All expenditure associated with the redrafting and finalizing the report, traveling etc. shall be deemed included in the rates quoted for the geotechnical investigations.

5.2.10 Contractor shall carry out all work expressed and implied in clause no. 4.1.2 of these specifications in accordance with requirements of the specification.

5.2.11 The contractor shall prepare and submit soil profile along the transmission line route (in digitized form, with digitized route alignment drawing as base) indicating salient soil characteristics / features, water table etc. based on detailed soil investigations and other details / information collected during detailed survey.

5.3 General Requirements

5.3.1 Wherever possible, contractor shall research and review existing local knowledge, records of test pits, boreholes etc., types of foundations adopted and the behavior of exiting structures, particularly those similar to the present project.

5.3.2 Contractor shall make use of information gathered from nearby quarries, unlined wells, excavation etc. study of the general topography of the surrounding areas will often help in the delineation of different soil types.

5.3.3 Contractor shall gather data regarding the removal of overburden in the project area either by performing test excavations, or by observing soil erosion or land slides in order to estimate reconsolidation of the soil strata. Similarly, data regarding recent land fills shall be studied to detennine the characteristics of such land fills as well as the original soil strata.

5.3.4 The water level in neighbouring streams and water courses shall be noted. Contractor shall make enquiries and shall verify whether there are abandoned under ground works e.g. worked out ballast pits, quarries, old brick fields, mines, mineral workings etc.

5.3.5 It is essential that equipment and instruments be properly calibrated at the commencement of the work. If the owner so desires. Contractor shall arrange for having the instruments tested at an approved laboratory at their cost and shall submit the test reports to the owner. If the owner desires to witness such tests, contractor shall arrange for the same.

5.4 Codes and standards for Geotechnical Investigations

5.4.1 All standards, specifications and codes of practice referred to here in shall be the latest editions including all applicable official amendments and revisions. In case of conflict between the present specifications and those referred to here in, the former shall prevail. Internationally accepted standards which ensure equal or higher performance than those specified shall also be accepted.

5.4.2 All work shall be carried out in accordance with the following Indian Standards and Codes :

Indian Standards (IS)	Title	International and Internationally Recognized Standard / Code
IS:1080-1990	Codes of Practice for Design and construction of simple spread foundations.	
IS:1498-1992	Classification and identification of soils for general engineering purposes.	ASTM D 2487 ASTM D 2488
IS:1892-1992	Code of Practice for Subsurface Investigation for Foundation	
IS:1904-1986	Codes of Practice for Design and Construction of foundation in soils : general requirements	
IS:2131-1992	Method of Standard Penetration Test for soils	ASTM D 1586
IS:2132-1992	Code of Practice for Thin Walled Tube Sampling of Soils	ASTM D 1587
IS:2720-1992	Method of Test for Soils (Relevant Parts)	ASTM D 420
IS:2809-1991 D 653	Glossary of Terms and symbols Relating to Soil Engineering	ASTM
IS:2911-1980	Code of Practice for Design and construction of Pile foundations (Relevant Parts)	
IS:3025	Methods of Sampling and	

	Testing (Physical and chemical) for water used in Industry.	
IS:3043-1991	Code of Practice for Earthing	
IS:4078-1990	Code of Practice for Indexing and Storage of Drill Cores.	
IS:4091-1987	Code of Practice for Design and construction of foundations for transmission line tower and Poles.	
IS:4434-1992	Code of Practice for In-situ Vane Shear Test for Soils	ASTM D 2573 ASTM D 4648
IS:4453-1992	Code of Practice for Exploration by Pits, Trenches, Drifts and Shafts. Code of Practice for Presentation of drilling information and core description in foundation investigation	
IS:4968(PART-II) 1992	Method for Subsurface sounding for soils, dynamic method using cone and Bentonite slurry.	
IS:5313-1989	Guide for Core Drilling observations	
IS:6403-1990	Code of Practice for Determination of Allowable Bearing Pressure on Shallow foundation	ASTM D 194
IS:6926-1990	Code of Practice for Diamond core Drilling for site Investigation for River Valley Projects.	
IS:6935-1989	Method of Determination of Water level in a Bore Hole.	
IS:7422-1990	Symbols and Abbreviations for use in Geological Maps sections and subsurface Exploratory logs (Relevant Parts)	
IS:8009(PART-I) 1993	Code of Practice for Calculation of Settlements of foundations (Shallow Foundations subjected to symmetrical vertical loads).	
IS:8764 – 1991	Method of Determination of Point Load Strength Index of Rocks.	
IS:9143-1991	Method of determination of Unconfined Compressive Strength of Rock materials	ASTM D 2938
IS:9179-1991	Method of Preparation of Rock Specimen for Laboratory Testing.	ASTM D 4543
IS:9259-1992	Specification for Liquid Limit Apparatus	ASTM D 4318
IS:9640-1992	Specification for split spoon	ASTM D 1586

	sampler	
IS:10050-1991	Method of Determination of Slake Durability Index of Rocks.	ASTM D 4644
IS:11315 (PART-II) – 1991	Description of Discontinuities in rock Mass-core recovery and Rock Quality.	

5.5 Field Investigation for Soils

Quantities considered are indicative and owner at tendency to increase / decrease the quantity to an extent of 100 %.

5.5.1 Boring – Boreholes are required for detailed soil investigations.

5.5.1.1 General Requirements

a) Boreholes shall be made to obtain information about the subsoil profile, its nature and strength and to collect soil samples for strata identification and for conduction laboratory tests. The minimum diameter of the borehole shall be 150mm and boring shall be carried out in accordance with the provisions of IS:1892 and the present specification.
b) All boreholes shall be 7m deep for normal soil conditions. The depth of boreholes at river crossings and special locations shall be 40m. If a strata is encountered where the Standard Penetration Test Records N values greater than 100, with characteristics of rock, the borehole shall be advanced by coring at least 3m further in normal locations and at least 7m further for the case of rive crossing locations with prior approval of the owner. When the boreholes are to be termination in soil strata an additional Standard Penetration. Test shall be carried out at the termination depth. No extra payment shall be made for carrying out Standard Penetration Tests.
c) Casing pipe shall be used when collapse of a borehole wall is probable. The bottom of the casing pipe shall at all times be above the test of sampling level but not more than 15cm above the borehole bottom. In case of cohesionless soils, the advancement of the casing pipe shall be such that it does not disturb the soil to be tested or sampled. The casing shall preferably be advanced by slowly rotating the casing pipe and not by driving.
d) In-situ tests shall be conducted and undisturbed samples shall be obtained in the boreholes at intervals specified hereafter. Representative disturbed samples shall be preserved for conducting various identification tests in the laboratory. Water table in the borehole shall be carefully recorded and reported following IS:6935. no water or drilling mud shall be used while boring above ground water table. For cohesionless soil below water table, the water level in the borehole shall at all times be maintained slightly above the water table.
e) The borehole shall be cleaned using suitable tools to the depth of testing or sampling, ensuring least or minimum disturbance of the soil at the bottom of the borehole. The process of jetting through an open tube sampler shall not be permitted. In cohesive soils, the borehole may be cleaned b using a bailer with a flap valve. Gentle circulation of drilling fluid shall be done when rotary mud circulation boring is adopted.
f) On completion of the drilling, contractor shall backfill ali boreholes as directed by the owner.

5.5.1.2 Auger Boring

Auger bring may be employed in soft to stiff cohesive soils above the water table. Augers shall be of helical or post hole type and the cuttings brought up by the auger shall be carefully examined in the field and the description of all strata shall be duly recorded in the field borelog as per IS:1498. No water shall be introduced from the top while conducting auger boring.

5.5.1.3 Shell and Auger Boring

5.5.1.3.1 Shell and auger boring may be used in all types of soil which are free from boulders. For cohesionless soil below ground water table, the water level in the borehole shall always be maintained at or above ground water level. The use of

chisel bits shall be permitted in hard strata having SPT-N value greater than 100. Chiest bits may also be used to extend the bore hole through local obstructions such as old construction, boulders rocky formations etc. the requirements in Clause 5.5.1.2 shall apply for this type of boring also.

Rotary method may be used in all types of soil below water table. In this method the boring is carried out by rotating the bit fixed at the lower end of the drill rod. Proper care shall be taken to maintain firm contact between the bit and the bottom of the borehole. Bentonite or drilling mud shall be used as drillings fluid to stabilize and protect the inside surface of the borehole. Use of percussion tools shall be permitted in hard clays and in dense sandy deposits.

5.5.2 Standard Penetration Test (SPT)

5.5.2.1 This test shall be conducted in all types of soil deposits encountered within a borehole, to find the variation in the soil satisfaction by correlating with the number of blows required for unit penetration of a standard penetrometer.

5.5.2.2 Structure sensitive engineering properties of cohesive soils and silt such as strength and compressibility shall not be inferred based on SPT values.

The test shall be conducted at depths as follows:

Location	Depths (m)
Normal soils	2.0, 3.0, 5.0, 7.0
River crossings and special locations	2.0, 3.0, 5.0, 7.0, 10.0 and thereafter at the rate of 3m intervals to 40m

5.5.2.3 The spacing between the levels of standard penetration testing and next undisturbed sampling shall not be less than 1.0 m equipments, accessories and procedures for conducting the test and for the collection of the disturbed soil samples shall conform to IS:2131.

5.5.2.4 The test shall be carried out by driving a standard split spoon sampler in the bore hole by means of a 650N hammer having a free fall of 0.75m. The sample shall be driven using the hammer for 450mm recording the number of blows for every 150mm. The number of blow for the last 300mm drive shall be reported as N value.

5.5.2.5 This test shall be discontinued when the blow count is equal to 100 or the penetration is less than 25 mm for 50 blows. At the level where the test is discontinued, the number of blows and the corresponding penetration shall be reported. Sufficient quantity of disturbed soil samples shall be collected from the split spoon sampler for identification and laboratory testing. The sample shall be visually classified and recorded at the site as well as properly preserved without loss of moisture content and labeled.

5.5.3 Sampling

5.5.3.1 **General**

a) Sufficient number of soil samples shall be collected. Disturbed soil samples shall be collected for soil identification and for conducting tests such as sieve analysis, index properties, specific gravity, chemical analysis etc. Undisturbed samples shall be collected to estimate the physical bearing capacity and settlement properties of the soil.
b) All accessories and sampling methods shall confirm to IS:2132: all disturbed and undisturbed samples collected in the field shall be classified at site as per IS:1498:
c) All samples shall be identified with date, borehole or test pit number, depth of sampling etc. The top surface of the sample in-situ shall also be marked. Care shall be taken to keep the core and box samples vertical, with the mark directing upwards. The tube

samples shall be properly trimmed at one end and suitably capped and sealed with molten paraffin wax. The contractor shall be responsible for packing, storing in a cool place and transporting all the samples from site to the laboratory within seven days after sampling with probe, protection against loss and damage.

5.5.3.2 **Disturbed Samples**

a) Disturbed soil samples shall be collected in boreholes at regular intervals. Jar samples weighing approximately 1 kg shall be collected at 0.5m below ground level and at every identifiable change of strata to supplement the boring records. Samples shall be stored immediately in air tight jars which shall be filled to capacity as much as possible.
b) In designated borrow areas, bulk samples from a depth of about 0.5m below ground level shall be collected to establish the required properties for use as a fill material. Disturbed samples weighing about 25kg shall be collect at shallow depths and immediately stored in polythene bags as per IS:1892. The bags shall be sealed properly to preserve the natural moisture content of the sample and placed in wooden boxes for transportation.

5.5.3.3 Undisturbed Samples

In each borehole undisturbed samples shall be collected at every change of strata and at depths as follows:

Location	Depths (m)
Normal soils	1.0, 4.0, 6.0
Special locations	1.0, 4.0, 6.0, 11.0 and thereafter at the rate of 3m intervals to 33mm

5.5.3.3.1 The spacing between the top levels of undisturbed sampling and standard penetration testing shall not be less than 1.0m. Undisturbed samples shall be of 100mm diameter and 450mm in length. Samples shall be collected in a manner to preserve the structure and moisture content of the soil. Accessories and sampling procedures shall conform to IS:1892 and IS:2132.

a) Undisturbed sampling in cohesive soil – Undisturbed samples in soft to stiff cohesive soils shall be obtained using a thin walled sampler. In order to reduce the wall friction, suitable precautions, such as oiling the surfaces shall be taken. The sampling tube shall have a smooth finish on both surfaces and a minimum effective length of 450mm. The area ratio of sampling tubes shall be less than 12.5%. However, in case of very stiff soils area ratio upto 20% shall be permitted.
b) Undisturbed sampling in very loose, saturated, sandy and silty soils and very soft clays :

   Samples shall be obtained using a piston sampler consisting of a cylinder and piston system. In soft clays and silty clays, with water standing in the casing pipe, piston sampler shall be used to collect undisturbed samples in the presence of expert supervision.

   Accurate measurements of the sampling depth, dimensions of sampler, stroke and length of sample recovery shall be recorded. After the sampler is pushed to the required depth, the cylinder and piston system shall be drawn up together, preventing disturbance and changes in moisture content of the sample.
c) Undisturbed sampling in cohesionless soils

   Undisturbed samples in cohesionless soils shall be obtained in accordance with IS:8763. Sampler operated by compressed air shall be used to sample cohesionless soils below ground water table.

5.5.4 Ground Water

5.5.4.1 One of the following methods shall be adopted for determining the elevation of ground water table in boreholes as per IS:6935 and the instructions of the Owner:

a) In permeable soils, the water level in the borehole shall be allowed to stabilize after depressing it adequately by bailing before recording its level. Stability of sides and bottom of the boreholes shall be ensured at all times.
b) For both permeable and impermeable soils, the following method shall be suitable. The borehole shall be filled with water and then bailed out to various depths. Observations on the raise or fall of water nor rise is observed shall be considered the water table elevation and confirmed by three successive readings of water level taken at two hours interval.

5.5.4.2 If any variation of the ground water level is observed in any specific boreholes, the water level in these boreholes shall be recorded during the course of the field investigation. Levels in nearby wells, streams, etc. if any, shall also be noted in parallel.

5.5.4.3 Subsoil water samples (only at special locations)

a) Sub soil water samples shall be collected for performing chemical analysis. Representative ground water samples shall be collected when first encountered in boreholes and before the addition of water to aid boring or drilling.
b) Chemical analysis of water samples shall include determination of pH value, turbidity, sulphate, carbonate, nitrate and chloride contents, presence of organic matter and suspended solids. Chemical preservatives may be added to the sample for cases as specified in the test methods or in applicable Indian Standards. This shall only be done if analysis can not be conducted within an hour of collection and shall have the prior written permission and approval of the Owner.

5.5.5 **Dynamic Cone Penetration Test (only at Special locations**)

Dynamic cone penetration test shall be conducted to predict stratification, density, bearing capacity of granular soils etc. The test shall be conducted to the specified depth or refusal, whichever comes first. Refusal shall be recorded when the blow count exceeds 150 for 300 mm penetration. Equipment, accessories test procedures, field observations and reporting of results shall confirm to IS:4968, Part-II. The driving system shall comprise of a 650 kg weight having a free fall of 0.75m. The cone shall be of 65mm diameter provide with vents for continuous flow of betonies slurry through the cone and rods in order to avoid friction between the rods and soil. On completion of the test the results shall be presented as a continuous record of the number of blows required for every 300 mm penetration of the cone into the soil in a suitable chart supplemented by a graphical plot of blow count for 300 mm penetration vs. depth. On completion of the test, the results shall be presented on the proforma approved by the Owner.

5.5.6 Vane Shear Test - required for boreholes where UDS is not possible (Only at Special Locations)

Field vane shear test shall be performed inside the borehole to determine the shear strength and bearing capacity of cohesive soils. Equipment, accessories, test procedures, field observations shall correspond to IS:4434. Tests may also be conducted by direct penetration from ground surface. If the cuttings at the test depth in the borehole show any presence of gravel, sand shells, decomposed wood, etc. which are likely to influence the test results substantially, the test at that particular depth may be omitted with the permission of the owner. However, the test shall be conducted at depth where these obstructions cease to occur. On completion of the test, the results shall be reported in an approved proforma as specified in IS:4434, Appendix-A.

5.6 Field Investigation for Rock

5.6.1 Rock Drilling

5.6.1.1 If, during the investigations, large hard fragments or natural rock beds are encountered, work shall proceed with core drilling methods. The equipment and procedures for this operation shall confirm to IS:1892. The starting depth of drilling in rock shall be certified by the owner. At the end of the investigation, the hole drilled in rock shall be backfilled with grout consisting of 1 part cement and 3 parts sand by weight.

5.6.1.2 Drilling shall be carried out with NX size tungsten carbide (TC) or diamond tipped drill bits, depending on the type of rock and according to IS:6926. Suitable type of drill bit (TC/Diamond) and core catchers shall be used to ensure continuous and good core recovery. Core barrels and core catchers shall be used for breaking off the core and retaining it when the rods are withdrawn. Double tube core barrels shall be used to ensure better core recovery and to retrieve cores from layers of bedrock. Water shall be circulated continuously in the hollow rods and the sludge conveying the rock cuttings to the surface shall be collected. A very high core recovery ratio shall be aimed at in order to obtain a satisfactory undisturbed sample.

Attempt shall be made to recover cores of 1.5m length. Normally TC bit shall be used. Change over to a diamond bit shall require the specific written approval of the owner and his decision as to whether a TC or a diamond bit is to be used shall be final and binding on contractor.

5.6.1.3 No drilling run shall exceed 1.5m in depth. If the core recovery is less than 80% in any run, the length of the subsequent run shall be reduced to 0.75m. During drilling operations observations on return water, rate of penetration etc. shall be made recorded and recorded as per IS:5313.

a) The colour of return water at regular intervals, the depth at which any change of colour of return water is observed, the depth of occurrence and amount of flow of hot water, if encountered, shall be recorded.
b) The depth through which a uniform rate of penetration was maintained, the depth at which marked change in rate of penetration or sudden fall on drill rod occurs, the depth at which any blockage of drill bit causing core loss, if any, shall be recorded.
c) Any heavy vibration or torque noticed during the drilling should be recorded together with the depth of occurrence.
d) Special conditions like the depth at which grouting was done during drilling, presence of artesian conditions, loss of drilling fluid observations of gas discharge with return water etc. shall also be observed and recorded.
e) All the observations and other details shall be recorded as per daily drill and reported in a proforma as given in IS:5313, Appendix A.

5.6.2 **Core Sampling**

5.6.2.1 Core samples shall be extracted by the application of a continuous pressure at one end of the core with the barrel held horizontally without vibration. Friable cores shall be extracted

from the barrel directly into a suitably sized half round plastic channel section. Care shall be taken to extrude the samples in the direction of coring to avoid stress reversal.

5.6.2.2 Immediately after withdrawal from the core barrel, the cores shall be placed in a tray and transferred to boxes specially prepared for this purpose. The boxes shall be made from seasoned timber or any other durably material and shall be indexed on top pf the lid

according to IS:4078. The cores shall be numbered serially and arranged in the boxes in a sequential order. The description of the core samples shall be recorded as instructed in IS:4464. Where no core is recovered, it shall be recorded as specified in the standard. Continuous record of core recovery and rock quality designation (RQD) are to be mentioned in the borelog in accordance with IS:1 1315 (Part-II).

5.7 Laboratory Testing

5.7.1 **Essential Requirements**

a) Depending on the types of substrata encountered, appropriate laboratory tests shall be conducted on soil and rock samples collected in the field. Laboratory tests shall be scheduled and performed by qualified and experienced personnel who are thoroughly conversant with the work. Tests indicated in the schedule of items shall be performed on soil, water and rock samples as per relevant IS codes. One copy of all laboratory test data records shall be submitted to Owner progressively ever week. Laboratory tests shall be carried out concurrently with the field investigations as initial laboratory test results could be useful in planning the later stages of field work. A schedule of laboratory tests shall be established by contractor to the satisfaction of the owner within one week of completion of the first bore hole.
b) Laboratory tests shall be conducted using approved apparatus complying with the requirements and specification of Indian Standards or other approved standards for this type of work. It shall be checked that the apparatus are in good working condition before starting the laboratory tests. Calibration of all the instruments and their accessories shall be done carefully and precisely at an approved laboratory.
c) All samples, whether undisturbed or disturbed shall be extracted, prepared and examined by competent personnel properly trained and experienced in soil sampling, examination, testing and in using the apparatus in conformance with the specified standards.
d) Undisturbed soil samples retained in liners or seamless tube samplers shall be removed, without causing any disturbance to the samples, using suitably designed extruders just prior to actual testing. If the extruder is horizontal, proper support shall be provided to prevent

   the sample from breaking. For screw tube extruders, the pushing head shall be free from the screw shaft so that no torque is applied to the soil sample in contact with the pushing head. For soft clay samples, the sample tube shall be cut by means of a high speed hacksaw to proper test length and placed over the mould before pushing the sample into it with a suitable piston.
e) While extracting a sample from a liner or tube, care shall be taken to assure that its direction of movement is the same as that during sampling to avoid stress reversal.

5.7.2 Tests

5.7.2.1 Tests as indicated in these specifications and as may be requested by the owner, shall be conducted. These tests shall include but may not be limited to the following:

a) Tests of undisturbed and disturbed samples
   - Visual and engineering classification
   - Sieve analysis and hydrometric analysis
   - Liquid, plastic and shrinkage limits
   - Specific gravity
   - Chemical analysis
   - Swell pressure and free swell index determination
   - Proctor compaction test
b) Tests of undisturbed samples
   - Bulk density and moisture content

- Relative density (for sand)
- Unconfined compression test
- Box shear test (for sand)
- Triaxial shear tests (depending on the type of soil and field conditions on undisturbed or remoulded samples)
- Unconsolidated undrained
- Consolidated drained test
- Consolidation

c) Tests on rock samples
- Visual classification
- Moisture content, porosity and density
- Specific gravity
- Hardness
- Stake durability
- Unconfined compression test (both saturated and at in-situ water content)
- Point load strength index
- Deformability test (both saturated and at in-situ water content)

d) Chemical analysis of sub soil water.

5.7.3 Salient Test Requirement

a) Triaxial shear tests shall be conducted on undisturbed soil samples, saturated by the application on back pressure. Only if the water table is at sufficient depth so that chances of its rising to the base of the footing are small or nil, the triaxial tests shall be performed on specimens at natural moisture content. Each test shall be carried out on as set of three test specimens from one sample at cell pressures equal to 100, 200 and 300 KPa respectively or as required depending on the soil conditions.
b) Direct shear test shall be conducted on undisturbed soil samples. The three normal vertical stresses for each test shall be 100, 200 and 300 KPa or as required for the soil conditions.

c) Consolidation test shall have loading stages of 10, 25, 50, 75, 100, 200, 400 and 800 KPa. Rebound curve shaft be recorded for all samples by unloading the specimen at its in-situ stress. Additional rebound curves shall also be recorded wherever desired by the owner.
d) Chemical analysis of subsoil shaft include determination of PH value, carbonate, sulphate (both SO3 and SO4), chloride and nitrate contents, organic matter, salinity and any other chemicals which ,may be harmful to the foundation material. The chemical contents shall be indicated as parts per million (PPM) based on weight.

5.8 Geotechnical Investigation Report

5.8.1 General

a) Contractor shall submit a formal report containing geological information of the region, procedures adopted for geotechnical investigation, field observations, summarized test data, conclusions and recommendations. The report shall also include detailed borelogs,

b) subsoil sections, field test results, laboratory observations and test result both in tabular as well as graphical form, practical and theoretical considerations for the interpretation of test results, supporting calculations for the conclusions drawn etc. Initially, contractor shall submit three copies of the report in draft form for Owner's review.
c) Contractor's Geotechnical engineer shall visit owner's corporate office for a detailed review based on Owner's comments in order to discuss the nature of modifications, if any,

to be done in the draft report. Contractor shall incorporate in the report the agreed modifications and resubmit the revised draft report for approval. Ten copies of the detailed final approved report shall be submitted to owner together with one set of reproducible of the graphs, tables etc.

d) The detailed final report based on field observations, in-situ and laboratory tests shall encompass theoretical as well as practical considerations for foundations for different types of structures.

5.8.2 Data to be furnished

5.8.2.1 The report shall also include the following:

a) A plot plant / location plan showing the locations and reduced levels of all field test e.g. boreholes, trial pits, static cone penetrations tests, dynamic cone penetration tests etc., property drawn to scale and dimensioned with reference to the established grid lines.
b) A true cross section of all individual boreholes and test pits with reduced levels and co-ordinates showing the classification and thickness of individual stratum, position of ground water table, various in-situ tests conducted, samples collected at different depths and the rock stratum, if encountered.
c) Geological information of the area including geomorphology, geological structure, lithology stratigraphy and tectonics, core recovery and rock quality designation (RQD) etc.
d) Observations and data regarding change of course of rivers, velocity, scour depths, slit factor etc., and history of flood details for mid stream and river bank locations.
e) Past observations and historical data, if available, for the area or for other areas with similar soil profile, or with similar structures in the surrounding areas.
f) Plot of Standard Penetration Test (uncorrected and corrected N values) with depth for each test site.
g) Results of all laboratory test summarized according to Table 4.0 (i) for each sample as well as (ii) for each layer, along with all the relevant charts, tables, graphs, figures, supporting calculations, conclusions and photographs of representative rock cores.
h) For all triaxial shear tests, stress vs. strain diagrams as well as Mohr's circle envelopes shall be furnished. If back pressure is applied for saturation, the magnitude of the same

i) shall be indicated. The value of modulus of elasticity (E) shall be furnished for all tests along with relevant calculations.
j) For all conclusions tests, the following curves shall be furnished.
   a. e v/s. log p
   b. e v/s. p
   c. compression v/s. log t or v/s.$\sqrt{}$ t

depending upon the shape of the plot, for proper determination of coefficient of consolidation.

The point showing the initial condition (e0, p0) of the soil shall be marked on the curves.

k) The procedure adopted for calculating the compression index from the field curve and settlement of soil strata shall be clearly specified. The time required for 50% and 90% primary consolidation along with secondary settlements, if significant, shall also be calculated.

Table 4.0

SUMMARY OF RESULTS OF LABORATORY TESTS ON SOIL AND WATER SAMPLES

1	Bore hole test pit no
2	Depth (m)
3	Type of sample
4	Density (kg/m3)
	a) Bulk
	b) Dry
5	Water content (%)
6	Particle Size (%)
	a) Gravel
	b) Sand
	c) Silt
	d) Clay
7	Consistency properties
	a) LL
	b) PL
	c) PI
	d) LI
8	Soil
	a) Classification-IS
	b) Description
	c) Specific gravity
9	Strength Test
	a) Type
	b) C (Cohesion)
	c) Ø (angle of internal friction)
10	Consolidation Test
	a) ę
	b) Pc
	c) Cc
	d) DP
	e) Mv
	f) Cv
11	Shrinkage limit (%)
12	Swell Test
	a) S.Pr
	b) FS
13	Relative Density (%)
14	Remarks

Notations :

I For type of Sample:
DB-Disturbed bulk soil sample
DP-Disturbed SPT soil sample
DS-Disturbed samples from cutting edge of undisturbed soil sample
RM-Remoulded soil sample
UB-undisturbed soil sample
US-Undisturbed soil sample by sampler
W-Water sample

II For Strength Test:

SCPT-Static Cone Penetration Test
UCC-Unconfined Compression Test

VST-Vane Shear Test
TUU-Unconsolidated Undrained Triaxial Test
Note: Replace T by D for Direct Shear Test
Tod-Consolidation Drained Triaxial Test

III For Others:
LL-Liquid Limit (%)
PL-Plastic Limit
PI-Plasticity Index
LI-Liquidity Index
C-Cohesion (kPa)
Ø-Angle of Internal Friction (degrees)
S-Pr.-Swelling Pressure (kPa)
ę- Initial Void Ratio
Pc-Reconsolidation Pressure (kPa)
Cc-Compression Index
DP- Change in Pressure (kPa)
m-Coefficient of Volume Compressibility (m2/KN)
C- Coefficient of Compressibility (m2/hr)

IV For Chemical Test
As per Specifications – Clause 4.8.4

4.8.3 Recommendations

4.8.3.1 Recommendations shall be provided for each tower location duly considering soil type and tower spotting data. The recommendations shall provide all design parameters and considerations required for proper selection, dimensioning and future performance of tower foundation and the following

a) The subsurface material must provide safe bearing capacity and uplift resistance by incorporating appropriate safety factors thereby avoiding rupture under ultimate loads.

b) Movement of the foundation, including short and long term components under transient and permanent loading, shall be strictly controlled with regard to settlement, uplift, lateral translation and rotation.

c) Co-efficient of permeability of various sub soil and rock strata based on in-situ permeability tests. Core resistance, frictional resistance, total resistance, relation between core resistance, Standard Penetration Test N value, and settlement analysis for different sizes of foundation as specified in para 4.1.8.3 (I) based on static cone penetration test.

d) For shallow foundation the following shall be indicated with comprehensive supporting calculations :

i) Net Safe allowable bearing pressure for isolated square footing of sizes 2.0, 3.0 and 4.0 m at three different foundation depths of 1,2 and 3m below ground level considering both shear failure and adopted in the calculation.
ii) Net Safe allowable bearing pressure for raft foundations of which greater than 5m at 2.0, 3.0 and 4.0m below ground level considering both shear failure and settlement criteria.
iii) Rate and magnitude of settlement expected of the structure.
iv) Net safe bearing capacity for foundation sizes mentioned in para

(i) above, modulus of subgrade reaction, modules of elasticity from plate load test results along with time settlement curves and load settlement curve in both natural and log graph, variation of modulus

of subgrade reaction with size, shape and depth of foundation.

e) The stable slopes for shallow and deep excavations, active and passive earth pressure at rest and angle of repose for sandy soild shall be furnished. The loading of the foundations shall not compromise the stability of the surrounding subsurface materials and the stability of the foundation shall be ensured against sliding or overturning.

f) Depending on the subsurface material, water table level and tower type, either reinforced concrete isolated pad and chimney, case-in-situ bored pile of special foundations shall be installed at a given location.

g) Net Safe allowable bearing pressure and uplift resistance shall be provided for the various sizes of isolated square footing founded at various depths below ground level considering both shear failure and movement criteria, rate and magnitude of movement expected of the structure (settlement, uplift, rotation) shall also be given.

h) In cases where normal open cast/pile foundations appear to be impractical, special pile foundations shall be given due consideration along with the following :

i) Type of pile foundation and reasons for recommending the same duly considering the soil characteristics.
ii) Suitable founding strata for the pile.
iii) Estimated length of pile for 500, 750 and 1000 KN and 4500 KN capacities; end bearing and frictional resistance shall be indicated separately.
iv) Magnitude of negative skin friction or uplift forces due to soil swelling.

i) Where the subsoil water and soil properties are found to be chemically aggressive. Contractor shall take suitable precautions during construction including any protective coating to be applied on the foundations, susceptibility of soil to termite action and remedial measures for the same shall be dealt with;

j) Suitable of locally available soils at site for filling, backfilling and adequate compaction shall be investigated.

k) If expansive soil such as black cotton soil is encountered recommendation of removal or retainment of the same shall be given in the later case, detailed specifications of special requirements shall also be given.

l) Susceptibility of subsoil strata to liquefaction in the event of earthquake and remedial measures, if required, shall be considered.

m) Any other information of special significance such as dewatering schemes etc. which may have a bearing on the design and construction shall be provided.

n) Recommendations for additional soil investigations, beyond the scope of the present work, shall be given if contractors considers such investigations necessary.

4.8.4 **Hydrogeological Conditions**

4.8.4.1 The maximum elevation of ground water table, amplitudes of its fluctuations and data on water aggressively with regard to foundation structure materials shall be reported. While preparing ground water characteristics the following parameters should be specified for each acquifier :

a) bicarbonate alkalinity mg-eq/(deg),
b) pH value
c) content of aggressive carbon dioxide, mg/I;
d) content of magnesia salts, mg/I, recalculated in terms of lons mg+2;

e) content of ammonia salts, mg/I, recalculated in terms of lons NH4+
f) content of caustic alkalis, mg/I, recalculated in terms of lons Na+ and K+

g) content of chlorides, mg/I, recalculated in terms of Ions Cl-
h) content of sulphates, mg/I, recalculated in terms of Ions SO4-2
i) aggregate content of chlorides, sulphates, nitrates, carbonates and other salts, mg/I.

4.9 **Rates and Measurements**

4.9.1 **Rates**

The contractor's quoted rates shall be inclusive of making observations, establishing the ground level and co-ordinates at the location of each borehole, test pit etc. No extra payments shall be made for conducting Standard Penetration Test, collecting, packing, transporting of all samples and cores, recording and submittal of results on approved formats.

4.1.9.2 **Measurements**

Certain tests have to be conducted in bore holes or test pits etc. Such, boreholes, test pits etc. shall be measured only once for payment regardless of the number of tests carried out

4.10 **Specific Requirement for geotechnical Investigation at River Crossings.**

4.10.1 The entire soil investigation work at river crossing locations (if required) shall be carried out in accordance with the relevant parts of the specifications for geotechnical investigation modified to the extent given below.

4.10.2 **Requirements**

4.10.2.1 Boreholes shall be executed to specified depth of 40m (refer clause 4.5.1.1b). If refusal strata is reached (i.e. SPT-N value is greater than 100 continuously for 5m depth) with characteristics of rock the boreholes may be terminated at shallower depth i.e. at 5m in refusal strata, with prior approval of the Owner.

4.10.2.2 Laboratory testing shall be conducted on all soil samples to determine grain size distribution, liquid limit and plastic limit of the different soil strata encountered.

4.10.2.3 Geotechnical Report must furnish the following:

a) Geotechnical investigation scheme.
b) Bore-logs indicating soil stratification, with IS classification, sampling details and SPT 'N' values.
c) Soil cross-sections along various boreholes in two orthogonal directions indicating soil stratification based on field and laboratory tests.
d) Grain size distribution curves.
e) IS classification of soils.
f) Shear tests (UU) to be done on saturated soil samples.
g) Bearing capacity of soil at different levels.
h) Scouring depth of river.
i) Highest flood level (H.F.L.).
j) Maximum discharge, velocity etc. (from authenticated source such as CWC or appropriate State authorities).
k) Recommendations regarding type of foundation to be adopted at the location.

4.10.3 A check list for reporting results of river crossing locational details, detailed soil investigation and river values for river crossing locations is enclosed at Annexure-D.

24.11 **Special Terms and conditions for Geotechnical Investigation in the River bed**

4.11.1 Contractor is required to mobilize a suitable arrangement (floating pontoon, plant, equipment etc,) to carry out Geotechnical investigation work in creek/river locations identifies by the Owner.

4.11.2 In the event of storm or stoppage of work etc., Contractor shall not be paid extra for mobilization/remobilization of floating pontoon, plant, equipment etc.

4.11.3 Contractor shall fully satisfy himself about the conditions of creek/river (depth of water, wave currents, wind conditions etc.) prevailing in the area of proposed investigation and plan the necessary tools and plant to be deployed before quoting. Any claim resulting from lack of data collection in this respect shall not entertained.

4.11.4 Contractor shall make his own arrangements for locating the coordinates and position of boreholes in creek/river with respect to two grid-lines indicated by Purchaser.

4.11.5 Boring in creek or river shall be payable only below the bed level and no payment shall be made for lowering the casing in water.

4.11.6 Contractor shall arrange for necessary transportation on water (e.g. motor boat) to facilitate the supervision of work by officials of Purchaser at its own cost.

4.11.7 Full details of the construction plant. Proposed working method for boring and sampling in water shall be submitted along with the Tender.

4.11.8 The unit rate quoted for underwater boring shall include complete work required as per specification and no separate payment shall be made on any account.

6.0 **STATUTORY REQUIREMENT & STANDARD**

6.1 Contractor is required to follow statutory regulations stipulated in Electricity (Supply) Act 1948, Indian Electricity Rules and other local rules & regulations.

6.2 The codes and standards referred to in these specifications shall govern. In case of a conflict between such codes/standards and these specifications, the provisions of the specifications shall prevail. Such codes, standards referred to shall mean latest revisions, amendments, changes adopted and published by relevant agencies.

63 Other Internationally acceptable standards which ensure equivalent or better performance than those specified shall also be acceptable.

2.0 General Classifications of Foundations

The foundation classification shall depend upon the type of soil, sub-soil water level and the presence of surface water which have been classified as follows :

2.1 Normal dry

To be used for locations where normal dry cohesive or non-cohesive soils are met.

2.2 (a)Sandy Dry Soil

To be used for locations where cohesionless pure sand or negligible cohesive sand mixed with soil are met in dry condition.

2.2(b) Sandy wet soil condition

To be used in location where water table is met from top (location in creak area)

2.3 Wet

To be used at following locations :

a) Where sub-soil water is met at 1.5 meters or more below the ground level.
b) Which are in surface water for long periods with water penetration not exceeding one meter below the ground level e.g. the paddy fields.

2.4 Partially Submerged

To be used at locations where sub-soil water table is met between 0.75 meter to 1.5 meter below the ground level.

2.5 Fully Submerged

To be used at locations where sub-soil water table is met between 0.75 meter below the ground level.

2.6 Black Cotton Soil

To be used at locations where soil is clayey type, not necessarily black in colour, which shrinks when dry and swells when wet, resulting in differential movement. For designing foundations, for such locations, the soil is to be considered sub-merged in nature.

2.7 Fissured Rock

To be used at locations where decomposed or fissured rock, hard gravel, kankar, limestone, laterite or any other soil of similar nature is met. Under cut type foundation is to be used for fissured rock locations.

In case of fissured rock locations, where water table is met at 1.5 meter or more below ground level, wet fissured rock foundations shall be adopted. In case of dry locations, dry fissured rock foundation shall be adopted.

2.8 Hard Rock

The locations where chiseling, drilling and blasting is required for excavation, Hard Rock type foundations are to be used. For these locations, rock anchoring is to be provided to resist uplift forces. For design purpose, rock level shall be considered at ground level and no over burden soil weight shall be considered for resisting the uplift.

2.9 Brakish soil

To be used in location were salty water is encountered in black cotton soil.

2.10 River crossing locations

To be used for river crossing locations after carrying out special soil investigation.

Note :

1. In addition to the above, depending on the site conditions other types of Foundations shall also be provided to the Contractor suitable for intermediate conditions under the above classifications to effect more economy.
2. The proposal for these types of foundations shall be submitted by the Contractor based on the detailed soil investigation and approval for the same shall be obtained from the Employer.

3.0 TECHNICAL DETAIL

3.1 WIND LOADING :

The wind pressure on tower including insulator string, conductor and ground wire will be as follow.

Sr. No.	Description	Details
1.	On conductor & earthwire	75 kg/m2 acting on full exposed area.
2.	Wind on tower & insulator (only one insulator string)	1.5 times the exposed area

3.2 TEMPRATURE VARIATION :

Sr. No.	Description	Details
1.	Minimum temperature	0º
2.	Every day temperature	32º C
3.	Maximum temperature	67º C for conductors for 66KV 53º C for earthwire

3.5 **DETAILS OF LINE, TOWER & CLEARANCE**:

a. Line

Sr. No.	**Description**	**Details**
1.	Line voltage	66/72.5 KV
2.	Frequency	50 c/s
3.	Neutral grounding system	Effectively grounded

b. Towers

Sr. No.	**Description**	**Details**
1.	No. of circuits	Double circuit/Single Circuit
2.	Configuration	Barrel type
3.	Factor of safety	Normal con. – 2 condition. Broken wire – 1.5 condition.

ANNEXURE- B

DOCUMENTS TO BE SUBMITTED WITH TECHNICAL BID.

Sr No	Description
1	Methodology proposed to be adopted for selecting most suitable route.
2	Details of maps and software provided to be used for marking route and obtain 3-D view and profile terrain.
3	Methodology proposed for detailed survey along with list of equipments, name of software for tower profile and optimization of tower quantity.
4	Training programme details.
5	List of work done and sample documents.
6	Name of geotechnical consultants and soil instigation agency proposed.
7	BOQ format.
8	FQP.

ANNEXURE – C

LIST OF OUTPUT

1. Complete BOQ of transmission line with technical specification at Annexure – B Shall be furnished in Survey Report.

Sr No	Description
1	Route alignment carried out by walk over survey with the help of latest modern survey technique using GPS navigation system and indication it on topo sheet of survey of India map and submission the same for approval.
2	Leveling should be taken at every 20 meter. Preparation of field book and submission of the same. The route should be straight as far as possible and number of angle point shall be minimum as far as possible.
3	Each angle point locations shall be shown with detailed sketches along with latitude-& longitude showing existing close by permanent land marks such as specific tree(s), cattle shed, homes, tube wells, temples, electric pole / tower, telephone pole, canal, roads, railway lines etc. The relative distance of land marks from the angle points and their bearings shall be indicated in the sketch. These details shall be included in the survey report. Also cement concrete block fixed at field for marking of angle point.
4.0	Information w.r.t infrastructure details available enroute, identification and explanation of route constraints, etc shall also be furnished in the survey report and shall inter alia include the following :- • Information regarding infrastructural facilities available along the final route alignment like access to roads, railway stations, **nearest village**, construction material sources (like quarry points for stone, sand and availability of construction water), labour, existing transport facilities, fuel availability etc shall be furnished in the survey report. • All observations which the contractor thinks would be useful to the construction of the transmission lines mentioned under scope of work are to be reported. • Suggestions regarding the number of convenient zones (line segments / portions) in which the entire alignment can be divided keeping in view the convenience of the line construction, operation, maintenance etc are to be given. • Suggestions regarding location for setting up stores during line construction in consultation with owner representatives shall also be provided by the contractor. • Working moths available during various seasons along the final route alignment, with period, time of sowing & harvesting of different type of crops and the importance attached to the crops particularly in the context of way leave problems and compensation payable shall be stated by the contractor. • Availability of labour of various categories and contractors of civil works shall also be reported. • Some portions of the line may require clearance from various authorities. The contractor shall indicate the portion of the line so affected, the nature of clearance required and the name of concerned organizations such as local bodies, municipalities, P&T (name of circle), inland navigation, Irrigation Department, Electricity Boards and Zonal railways, Divisional Forest Authorities , **State highway, collector office** etc. • All the requisite data for processing the case of statutory clearances such as PTCC, Forest and Railway & **Highway Authority** shall be provided along with the report. • The details pertaining to pollution levels envisaged along the transmission

	lines. • Six copies of survey reports (Hard & soft) shall be furnished by the contractor to the owner. • Tower spotting on profile as per technical parameter furnished at Annexure-A. • Profiles prepared using PLSCADD software shall be submitted for approval. • Profiles shall be indicating of level , type of tower , line crossing clearance over Railway / Highway/ Line crossing etc on profile base on level and clearance of various crossing. • Separate profiles for river crossing indicating span, HFL level , type of tower proposed , soil investigation report , suggestion for type of foundation to be adopt etc. 1) Soil resistitivity report at every 3 KM . 2) Trial pit shall be excavated at every 3 KM having depth of 3 meter and width of 1x1 meter. Detail of soil table shall be indicated for deciding type of foundation will encountered. 3) Soil investigation for river crossing tower shall be carried out and full detail should be submitted. 4) EHT line consisting name of line, voltage class and crossing section and type of towers of existing line. 5) Railway crossing detail consisting gauge , nearest Railway station, Railway pole detail section where proposed line will cross. 6) Forest area , Forest authority etc for submitting proposal for approval during execution of work.

ANNEXURE- A-1
THE BIDDER SHALL SUBMIT FOLLOWING INFORMATION

Sr No	Particulars	Details
a.1	Relevant past experience	
a.1.1	No of feasibility report/project report completed for transmission system.	
b.	Proposed methodology and work plan including deployment of resources.	
c	Qualification and experience of key person	As per AnnexureA-2

ANNEXURE- A-2

TEAM TO BE DEPLOYED (ON PERMANAT ROLL OF THE COMPANAY)

Sr.No	Name of the person	Qualification	Experience		Job assigned in the team	Remark
			No of years	Area		

Annexure- 3

TOWER SPOTTING DATA FOR 66 KV D/C TOWER SUITABLE FOR ACSR PANTHER CONDUCTOR

TOWER SPOTTING DATA FOR 66 KV D/C TOWER SUITABLE FOR ACSR PANTHER USED WITH ACSR DOG CONDUCTOR.

Sr No	Description	Tower type				Remark
		P	Q	R	S	
1	Normal Span	280 meters				
2	Wind Span (Max.)	330 meters				
3	Vertical Load	Downwards				
4	Maximum Deviation	2º	15º	30º	60º or DE	
5	Maximum individual span	450	450	450	450	
6	Weight span G.W		Max.	Min		
(i)	Effect one span		270	120		In B.W.C.
(ii)	Effect both span		450	200		In N.C
	Weight span conductor					
(i)	Effect one span		270	120		In B.W.C.
(ii)	Effect both span		450	200		In N.C
7	Permissible sum at adjacent spans for reduce angle of deviation	2º-600 1º-651 0º-702	15º-600 14º-650 13º-701 12º-751 11º-802 10º-852	30º-600 29º-649 28º-698 27º-748 26º-797 25º-847 24º-896	60º-600 59º-644 58º-688 57º-733 56º-778 55º-823 54º-868	1. sum not to exceed twice the max. individual span. 2. consider GW or Cond whichever given lesser value.
8	Design long tension GW Conductor	 100% 50%	Long component of full tension ---------do ---------			
9	Broken wire condition	One cond or GW broken	Any two cond or one cond and one GW broken	Three cond or two cond & GW broken		

10	Sag tension value consider in design	CONDUCTOR		GROUND WIRE	
		Tension in kg.	Sag in meter	Tension in kg.	Sag in meter
a.	0º- 2/3rd F.W	3113	-	1510	-
b.	32ºC F.W	2750	-	1400	-

c.	**67ºC**	**-**	**6.075**	**-**	**4.833**
11	**Sag tension value to be consider with ACSR DOG**	**CONDUCTOR**		**GROUND WIRE**	
		Tension in kg.	**Sag in meter**	**Tension in kg.**	**Sag in meter**
a.	**0º- 2/3rd F.W**	**1310**	**-**	**1420**	**-**
b.	**32ºC F.W**	**1245**	**-**	**1311**	**-**
c.	**67ºC**	**-**	**5.991**	**-**	**4.591**
d.	**0º- N.W**	**-**	**3.541**	**-**	**3.159**
e.	**32ºC N.W**	**826**	**4.673**	**-**	**-**

TOWER SPOTTING DATA FOR 66 KV D/C TOWER SUITABLE FOR ACSR " DOG" CONDUCTOR.

Sr No	Description	Tower type				Remark
		P	Q	R	S	
1	Vertical Load	379(140)	474(150)	474(235)	474(150)	
2	Maximum Deviation	2º	15º	30º	60º or DE	
3	Normal span	260	260	260	260	
4	Maximum individual span	390	390	390	390	
5	Weight span G.W		Max.	Min		
(i)	Effect one span		225	104		In B.W.C.
(ii)	Effect both span		390	172		In N.C
6	Weight span conductor					
(i)	Effect one span		225	104		In B.W.C.
(ii)	Effect both span		390	172		In N.C
7	Permissible sum at adjacent spans for reduce angle of deviation	2º-520 1º-563 0º-608	15º-520 14º-563 13º-608 12º-650 11º-695 10º-736	30º-520 29º-562 28º-605 27º-648 26º-690 25º-734 24º-776	60º-520 59º-558 58º-596 57º-635 56º-674 55º-713 54º-752	1. sum not to exceed twice the max. individ ual span. 2. consid er GW or Cond whiche ver gives lesser value.
8	Design long tension					

	GW Conductor	100% 50%	Long component of full tension ---------do ---------

9	Broken wire condition	One cond or GW broken	Any two cond or one cond and one GW broken	Three cond or two cond & GW broken	
10	Sag tension value consider in design	CONDUCTOR		GROUND WIRE	
		Tension in kg.	Sag in meter	Tension in kg.	Sag in meter
a.	0º- 2/3rd F.W	1329	-	1210	-
b.	32ºC F.W	1223	-	1132	-
c.	67ºCNo Wind	625	5.330	773	4.670 at 53ºC
d.	0ºC No Wind	1141	2.917	1114	3.238

TOWER SPOTTING DATA FOR 66 KV D/C TOWER SUITABLE FOR ACSR " PANTHER CONDUCTOR.

Sr No	Description	Pole type				Remark
		PP	PQ	PR	PS	
1	Vertical Load	Downwards				
2	Maximum Deviation	2º	15º	30º	60º or DE	
3	Normal span	300	300	300	3	
4	Maximum individual span	450	450	450	450	
5	Weight span G.W		Max.	Min		
(i)	Effect one span		270	120		In B.W.C.
(ii)	Effect both span		450	200		In N.C
6	Weight span conductor					
(i)	Effect one span		270	120		In B.W.C.
(ii)	Effect both Spa		450	200		In N.C
7	Permissible sum at adjacent spans for reduce angle of deviation	2º-600 1º-651 0º-702	15º-600 14º-650 13º-701 12º-751 11º-802 10º-852	30º-600 29º-649 28º-698 27º-748 26º-797 25º-847 24º-896	60º-600 59º-644 58º-688 57º-733 56º-778 55º-823 54º-868	1. sum not to exceed twice the max. individual span. 2. consider GW or Cond whichever gives lesser value.

8	Design long tension GW Conductor	100% 50%	Long component of full tension ---------do ---------			
9	Broken wire condition	On e	Any two cond or one	Three cond or two cond &		
		G W	cond and one GW	GW broken		

10	Sag tension value consider in design	CONDUCTOR		GROUND WIRE	
		Tension in kg.	Sag in meter	Tension in kg.	Sag in meter
a.	0º- 2/3rd F.W	3139	-	1522	-
b.	32ºC F.W	2763	-	1410	-
c.	75ºC	-	6.34	-	4.51 at 53ºC

SEAL & SIGNATURE OF BIDDER

TOWER SPOTIING DATA FOR 66 KV MULTI-CIRCUIT TOWER SUITABLE FOR ACSR PANTHER CONDUCTOR

Tower Type	MP	MQ	MR	MS
Deviation Angle	0 to 2	0 to 15	15 to 30	30 to 60
				Dead End
Ruling Span	-- 250 n eters --			
Weight Span (meier)				
Maximum	325	325	325	325
Minimum	170	170	170	170
Wind Span (meter)				
Maximum	275	275	275	275

Conductor and Earthwire parameters

	ACSR PANTHER		*7/3.15* EARTHWIRE	
Condition	TENSION (Kg.)	SAG (Meter)	TENSION (KQ.)	SAG (Meter)
0 degres No Wind	3055	2.496	1488	2.246
0 degree 213rdfull wind	3218	"	1560	"
32 degree full wind	2691	"	1391	-
75 degree No Wind	1630	4.67	"	"
53 degree No Wind	"	-	1064	3.143
Wind Pressure on Conductor *1* Earthwire		45 kg/sq. mtr.		

Signature of Authorized Representative

Company / Agency

NAME: _____

STATUS: _____

Name of tendering Company

_____

SEAL & SIGNATURE OF BIDDER

SCHEDULE- 4

Insulator and its String Parameters: - 66 KV

1)	**Size of discs**	280 x 145 mm AND / OR 305 X 145 mm				
2)	**Number of discs**	**Maximum**			**Minimum**	
i)	**Suspension string**	6 Nos.			5 Nos.	
ii)	**Tension string**	6 Nos			6 Nos.	
3)	**Insulators strings :**					
	Description of string	**Electro mechanical strength**				
		Kg				
	a) Single Suspension	90 KN				
	b) Double Suspension	90 KN				
	c) Single Tension	120 KN				
	d) Double Tension	120 KN				

SEAL & SIGNATURE OF BIDDER

APPENDICES

(Scan copy of all annexures to be attached on-line)

Annexure-I

Details of erection orders executed by the bidder of various Transmission lines.
Period: (During last FIVE Years.)

SURVEY OF TRANSMISSION LINES UPTO & ABOVE 66KV CLASS ONLY.

Sr. No.	Order No./Date	Description	Order Qty.	Order Amount	Name of Order placing
1	2	3	4	5	6

Annexure-I (A)

Completion date as per	Date of commencement of	Date of actual completion of
7	8	9

Note: -**Work order & Certificate for satisfactory work completion from competent authority of The GETCO/organization who placed the order should be invariably attached with this schedule.**

Signature of Authorized Representative
Company / Agency
NAME: _____ STATUS: ___ Nam

Signature of Contractor
Navsari

Superintending Engineer (TR) GETCO, CO,

Annexure-II

Details of the Firm

Name of the Firm		
A		
1	**Address of registered office**	
2	**Contact personnel**	
3	**Designation**	
4	**Residential Address**	
5	**Phone No.**	
	Office	
	Residential	
6	**Fax No.**	
7	**Telegraphic code**	
8	**E-mail address**	
B		

1	**Address of WORK**	
2	**Contact personnel**	
3	**Designation**	
4	**Residential Address**	
5	**Phone No.**	
	Office	
	Residential	
6	**Fax No.**	
7	**Telegraphic code**	
8	**E-mail address**	

TENDERER'S DETAILS OF PERSONNEL (II-A)

Sr. No.	Description &Details of position	Name	Qualification	Professional Experience & details of works carried out	Remarks
1	2	3	4	5	6

Annexure-III

Details of plant and equipment available on hand with the bidder for use on this work. Name of the Bidder: _____

Sr. No.	Name of Equipment	No. of Units	Kind & make	Capacity	Age & Condition	Present Location	Remarks
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**

Signature of Authorised Representative

Company / Agency
NAME: _____ STATUS: ___ Name of tendering Co
mp
any

Signature of Contractor
Navsari

Superintending Engineer (TR) GETCO, CO,

Annexure-IV

FINANCIAL CAPABILITY

Sr. No.	Details	Amount Rs. In lacs	Remark
1	2	3	4
1	Annual turnover for last three years.		
2.	Price of the biggest job carried out.		

Signature of Authorised Representative
Company / Agency
NAME: _____ STATUS: ___

Signature of Contractor

Superintending Engineer (TR)
GETCO, CO,
Navsari

APPENDIX – V

Qualification Requirement.

Contractor must fill up below details & should place at the top of the Technical Bid.

Sr No:	**List of Documents**	
1	Registration with GETCO for erection of Transmission lines.	Class – Ref NO.___ valid up to
2	P.F. No.	GJ/
3	Partnership deed/Proprietor (Notarized copy)	
4	Power of Attorney (Notarized copy)	
5	Bl. Sheet / P&L A/C, Statement of last three years.	
6	Latest Solvency certificate.	Rs. Lacs issued by Bank, branch dtd.
7	**GST Registration No.**	
8	PAN NO	
9	Electrical contractor license	
10	Experience certificate – form 3A of last 3 financial Years	

Signature of Tenderer Company's Round Seal
Date :
Place

APPENDIX – VI

Qualification Requirement.

1.	PRICES: [FIRM ONLY] (Please Specify YES / NO.)	
2.	PENALTY TERMS AGREED (Please Specify YES / NO.)	
3.	SECURITY TERMS AGREED: (Please Specify YES / NO.)	
4.	TERMS AGREED: (Please Specify YES / NO.)	
5.	VALIDITY Of the offer for 180 DAYS From the date of opening of the Technical Bid: AGREED: (Please Specify YES / NO.)	
6.	PAYMENT TERMS AGREED: (Please Specify YES / NO.)	
7.	MOBILE NOS., TELEPHONE NOS. & FAX NO:	
8.	Authorized person of the firm :	
9.	Name of the proprietor, partners, directors [as the case may be], along with address, telephone, fax no. etc.	

Contractor must fill up above details

Signature of Tenderer Company's Round Seal

Date :

Place

Placing Vendors/Contractors for Purchase/Works in a Stop deal/Banned for business dealing / blacklisting:

1.1. Stop deal / banned for business dealing / blacklist means debarment of parties from participating in the tendering process.

1.1.1. Firm will mean Bidder / Licensor / Tendered / Consultant / Vendor / Contractor.

1.1.2. Reasons for Putting a Firm on Stop deal / banned for business dealing / Blacklisting is to protect the GUVNL and its subsidiary Companies from dealing with an undesirable firm.

1.2. The list of indicative reasons for placing the firm in a Stop deal / banned for business dealing / Blacklist are as under.

A Firm will be placed in a Stop deal / banned for business dealing / blacklist, if the Firm-

1.2.1. Has submitted fake, false or forged documents / certificates,

1.2.2. Has revised / withdrawn price bid after opening of Techno – commercial bid, until and unless it is sought for,

1.2.3. Has tampered with the stipulated tendering procedure.

1.2.3. Has refused to accept letter of Acceptance / purchase Order / Work Order after the same is issued by the Company within the validity period and as per agreed terms and conditions,

1.2.5. Has committed breach of contract or has failed to perform a contract or has abandoned the contract,

1.2.6. Has failed to provide suitable expertise for the work as per per-scheduled Program.

1.2.7. Has failed to submit all the necessary tests reports / documents within time schedule / as per company's time limit, as mentioned in the LOI, if the letter of Acceptance (LOA) is placed subject to submission of type reports / documents to the firm.

1.2.8. Has indulged in construction and erection of defective works.

1.2.9. Has supplied inferior quality / defective materials and refused to replace with stipulated time frame, as specified by the company,

1.2.10. Has substituted materials in lieu of materials supplied by the company or has not returned or has short returned or has unauthorisely disposed of materials / documents / drawings / tools or plants or equipment supplied by the Company,

1.2.11. Has involved in malpractices such as bribery, corruption, fraud, canvassing and pilferage,

1.2.12. Has unauthorisely obtained official company information or copies of documents, in relation the tender / Contract.

1.2.13. Has failed to follow the stipulated mode of communication, if specified by the endering authority / purchaser.

1.2.14. Has parted with, leaked or provided confidential / proprietary information of the Company given to the firm only for its use (in discharge of its obligation against an order) to any third party without prior consent of the Company,

1.2.15. Any other ground for which in opinion of the company makes it undesirable to deal with the Firm

1.2.16**.** In case the State Government directs the Company to place a firm in stop dealing / banned for business dealing / banned for business dealing / blacklisting.

1.3. Every bidder should at the time of submission of bid, give a declaration that bidder and / or proprietor / partner / Director of the firm has not been placed on stop dealing / banned for business dealing / blacklisting by GUVNL and It's any subsidiary Companies as per **ANNEXURE-VII (as per attached format).**

Annexure-VII

(UNDERTAKING IN REGARD TO STOP DEAL/BANNED FOR BUSINESS DEALING/BLACK LIST THEREOF)

Sub: Undertaking in regard to Stop Deal/Banned for Business dealing/Black list thereof.
Ref: Tender No._____

(All bidders will have to furnish the following undertaking duly filled in, singed and stamped for each quoted item of the tender along with the technical bid.)

I/We _____authorized signatory of M/s. _____here by certify that M/s. _____and their proprietor/any partner/any directors of the firm is not stop deal and/or banned for business dealing and/or black listed by GUVNL and/or their any subsidiary company viz. GSECL/GETCO/DGVCL/MGVCL/UGVCL/PGVCL.

Seal of the firm **Signature of the tenderer**

TENDER SPECIFICATION
FOR

Sub: - Bi-Annual rate contract for the work of an original survey with line route allignment,prepration & Substation of detail reports as per requirment of EIC under R & M OH line Navsari Circle..

Estimated Cost – Rs. 90,70,188.00

Price of tender fee – Rs. 5900.00

EMD – Rs. 90,701.88

Time limit- 24 Months

PRICE BID

TENDER NO. TCNS-ET-131-2026-27

Name of Work: Bi-Annual rate contract for the work of an original survey with line route alignment, preparation & submission of detail reports as per requirement of EIC under Navsari Construction Division Office						
Sr. No	**SOR**	**Description**	**Unit**	**Qty.**	**Unit Rate in Rupees**	**Amount in Rupees.**
1	A-1	Work of an original survey with line route alignment, preparation & submission of detail reports as per requirement of EIC in 6 copies including excavation for trail pits in any type of soil for soil classification work, the size of trial pits is 1x1x3 meter, 2 Nos. of such pits in 1 km length & providing and fixing of pre-cast permanent concrete blocks/stones of 150mm x 100mm x 300mm (LxBxH) on each deviation point / trial pit on entire line with chain age / Trail Pit number (TP-1) painted on it as per instruction of the EIC. The rate is inclusive of back filling of the pits so excavated after classification of soil for foundation. Detail scope of Work :- (a) Submission of feasible and shortest 3 numbers of line route on survey of India topo	KM	400	9467	3786800.00

		sheet and kmz file. Also, fixing and submission of one final route on survey of India Topo Sheet, on google map and kmz file as per requirement. (c) Preparing tower schedule with details like type of tower with summary - Indication of all angle point with fixing of suspension tower in between angle point, foundation type, sectional length, lat-longs (co-ordinate), name of village, land type (Waste or agriculture), BOQ of foundation, BOQ of tower etc. as per requirement of EIC. (d) To take level of major crossing with detail & indicate detail about major nearby installation Like defense, Airport, Oil filled etc. (e) Submit all type of statutory details with drawing, which require for statutory approval i.e. Crossing of Electric Line (all type), Gas Line, National / State highways, Railway, Canal, Forest etc. Importantly, any work				

		other than mentioned will align with the specific requirements outlined by the Engineer-in-Charge. Note : The survey report will be submit with sign and stamp of the surveyor agency and engineer in charge.				

2	A-2	The work of detail survey, preparation and submission of profiles in 6 copies (PLSCAD as well as hardcopy), Detail scope of Work :- (a) Fixing of tower as per actual requirement, site condition and plotting of line on profile having standard details i.e. span length, lat-long (co-ordinate), chainage, weight and wind span, all dimensions, scale, legends, tower spotting data etc. as per requirement and along with all require details. (c) Preparation and submission of tower schedule as per standard require details with all the Major - Minor crossing details in profile drawing and tower schedule, along with due care of clearance as per prevailing standards i.e., for all electric line with pole, all type of track, river, pond, nala, road, canal etc. (d) Details of Right of Way in profile drawing. i.e. Building, Temple, Well etc. (g) Plotting line on TIKKA-MAP (Revenue	KM	200	10222	2044400.00

		Land map) - Required TIKKA-MAP will be provided by GETCO. Importantly, any work other than mentioned will align with the specific requirements outlined by the Engineer-in-Charge. Note : The survey report will be submit with sign and stamp of the surveyor agency and engineer in charge.				
3	A-3	Check Survey along with plotting of line route on village (tika) map with Coordinates including detailed survey, preparation of profiles and revision in original route alignment, if any and as per instruction of EIC.	KM	200	9277	1855400.00
					Estimated Cost Rupees.	**7686600.00**
					GST@18%	**1383588.00**
					Total	**9070188.00**

CERTIFICATE

I/We have read and clearly understood the terms, conditions, Schedule-B and Technical specifications put by GETCO on WEB site.

I/We hereby accept all the conditions and specifications of this tender document and accordingly.

I/we am / are ready to carry out the above work ……% above/below, (In word …… % above/ below) of schedule rate of GETCO`

The Tender amount thus works out Rs:- _____(Rupees in words _____Frs._____ _____)

Seal & Signature
And address of Contractor

Superintending Engineer (TR)
GETCO, CO,
Navsari