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BIDDING DOCUMENT FOR Turnkey Contract (Design, Supply and Installation)

WBSEDCL Request for Bids

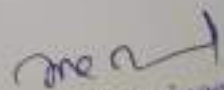
FOR

**SUPPLY & INSTALLATION WORK FOR
CONSTRUCTION OF NEW 33/11 KV S/STN AND
ASSOCIATED 33 KV & 11 KV LINES IN
TURN KEY MODE AT 16 NOS. LOCATION IN WEST
BENGAL**

Key Dates

Date & Time of Release of RFB/NIT	05.10.2026, 16:00 Hrs.
Date of Pre-bid Meeting	12.10.2026, 12:00 Hrs.
Bid Submission Start Date & Time	14.10.2026, 16:00 hrs.
Dead line for Submission of Bid	04.11.2026, 12:00 Hrs.
Date of Opening of Technical Part of Bid	06.11.2026, 14:00 Hrs.
Date of Opening of Financial Part of Bid	To be notified later

Regd. Office: West Bengal State Electricity Distribution Company Limited
Vidyut Bhawan, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091
CIN No. U40109WB2007SGC113473
Tel (O): 033-23197467
Website: www.wbsedcl.in, Email: ceproj1@wbsedcl.in


Chief Engineer
Project-I, WBSEDCL

SUMMARY

PART I – BIDDING PROCEDURES AND REQUIREMENTS

Section 1: Request for Bids Notice /Notice Inviting Tender

This Section includes Request for Bids (RFB)/ Notice Inviting Tender (NIT)

Section 2: Eligibility and Qualification Requirements

This Section contains information regarding specific eligibility and qualification requirements applicable for prospective bidders to be considered for further evaluation of their bids.

Section 3: Instructions to Bidders (ITB) and Bid Data Sheet (BDS)

This Section consists of two parts: “Instructions to Bidders” and “Bid Data Sheet (BDS)”. “Bid Data Sheet” contains information specific to procurement that corresponds to and/or supplements and/or modifies “Instructions to Bidders”. This Section provides information to help prospective bidders prepare their bids. Information is also provided on the bidding process - **Single Stage Two-Envelope Bidding Process with e-Procurement**, submission, opening, and evaluation of bids, selection of successful bidder and on the award of contract.

Section 4: Bidding Forms - Technical Part of the Bid

This Section includes the forms for Technical Part of the bid, that are to be completed by the Bidders and submitted in accordance with the requirements of Section 3.

Section 5: Bidding Forms - Financial Part of the Bid

This Section includes the forms for Financial Part of the bid including Price Schedules, that are to be completed the Bidders and submitted in accordance with the requirements of Section 3.

PART 2 – EMPLOYER’S REQUIREMENTS

Section 6: Employer’s Requirements

This Section specifies the Scope of Work, Specification, the Drawings, and supplementary information that describe the Plant and Installation Services to be procured.

PART 3 – CONDITIONS OF CONTRACT AND CONTRACT FORMS

Section 7: Conditions of Contract

This Section consists of two parts: General Conditions of Contract (GCC) and Special Conditions of Contract (SCC). GCC includes general clauses to be applicable to the Contract and the contents of SCC modify or supplement GCC.

Section 8 - Contract Forms

This Section contains the Letter of Acceptance/ Notification of Award, forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

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PART 1

BIDDING PROCEDURES AND REQUIREMENTS

Section - I: Request for Bids Notice/ Notice Inviting Tender

West Bengal State Electricity Distribution Company Limited

NATIONAL OPEN COMPETITIVE PROCUREMENT

Request for Bids (RFB)/ Notice Inviting Tender (NIT) (Single Stage Two-Envelope Bidding Process with e-Procurement)

Contract title: Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 16 nos. location in West Bengal.

NIT/RFB No: WBSEDCL/ P-I/16-Substation/2026-27/NIT/01

Issued on: 05.10.2026

The Project shall be executed (in Turnkey mode) under the following packages (Table-A) for which, WBSEDCL invites sealed bids in two part (Part I: Techno-Commercial, Part II: Price) under the Domestic Competitive bidding:

TABLE-A

Sl. No.	Name/ Identification of Package	Location of Work				Estimated Cost (excluding GST) (Rs. in Lakhs)	Amount of Bid Security (@2% of Estimated Cost) (Rs. in Lakhs)
		District/ Region	Division	Block	Location		
1	PK_SS_01_R	South 24 Pgs	Canning	Canning - I	Herobhanga	1124.88	76.61
				Basanti	Jharkhali	887.60	
				Jibantala	Moukhali	644.37	
			Baruipur	Baruipur	Kumorhat	1173.48	
						3830.33	
2	PK_SS_03_R	Paschim Midnapur	Belda	Dantan-II	Kashmuli	595.95	39.21
				Narayangarh	Madanmohan Chak	757.57	
			Midnapur	Garbeta-III	Guiadaha	606.74	
						1960.26	
3	PK_SS_07_R	Birbhum	Rampurhat	Mayureswar-I	Birchandrapur	1352.51	45.95
				Mayureswar-II	Satpalsa	945.08	
						2297.59	
4	PK_SS_08_R	Nadia	Nakashipara	Kaliganj	Kaliganj	1253.90	25.08
5	PK_SS_10_R	Malda	South Malda	Kaliachak-III	Deonapur	1454.08	29.08

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6	PK_SS_14_R	Purulia	Purulia	Balarampur	Dava	693.27	58.97
		Bankura	Bishnupur	Bagmundi	Kalimati	1219.99	
				Onda	Ratanpur	1035.29	
						2948.55	
7	PK_SS_15_R	Bankura	Bishnupur	Sonamukhi	Deriapur	1169.98	44.41
				Bishnupur	Bishnupur	1050.56	
						2220.54	

WBSEDCL (hereinafter also referred to as the **Employer** or the **Utility**) invites online Bids for **Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 16 nos. location in West Bengal** with funding from Government of West Bengal, through **07 nos. packages** as specified above.

Bidders are advised to note the clauses on eligibility and qualification requirements in Section 2, to be eligible and qualify for being considered for the award of the contract.

1. Bidding will be conducted through open competitive e-procurement.
2. Each package as specified under Table-A above shall be treated as separate bid and subsequently be evaluated.
3. The RFB document (hereinafter also referred to as bidding document) is available online free of cost, for downloading on www.wbtenders.gov.in from **05.10.2026 at 16:00 hrs. to 04.11.2026 up to 12:00 hrs.** The bidder would be responsible for ensuring that any addenda/corrigendum/amendment etc. available on the website/portal is also downloaded and incorporated.
4. The bidding shall be conducted **under Single Stage Two-Envelope Bidding process with e-Procurement.**
5. Under the Single Stage Two-Envelope Bidding process, the Bidder shall not quote, disclose, or submit its price in the Technical Part (First Envelope) of its bid or in any other manner, whatsoever, except as part of the Financial Part (Second Envelope) of its bid. In case of any non-compliance in this regard, the bids shall be out-rightly/summarily rejected.
6. Bids submitted late will be rejected.
7. Bid must be submitted online through the e-Procurement/e-Tendering process. Any bid or modifications to bid received outside the e-Procurement system will not be considered, unless otherwise specified. The Utility shall not be held liable for any delay due to e-Procurement/e-Tendering system failure beyond its control. Even though the system will attempt to notify the bidders of any bid updates, the Utility shall not be liable for any information not received by the bidder. It is the bidders' responsibility to verify the website for the latest information related to this RFB.
8. Salient details pertaining to this RFB Notice including submission and opening of bid, bid security, cost of documents/tender fee, if any, for downloading the bidding document, address for communication, etc. are given in the TABLE below.


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Project-I, WBSEDCL

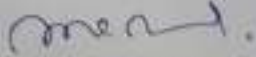
9. All the notarized documents shall be furnished in the stamp paper of cost Rs.100/-.
10. If the Utility office happens to be closed on the specified date of opening of the bids, the bids will be opened on the next working day at the same time and venue or as may be notified by the Utility.
11. Other details can be seen in the RFB document.



Chief Engineer
Project-1, WBSEDCL

TABLE

RFB Notice/NIT No.	WBSEDCL/ P-I/16-Substation/2026-27/NIT/01 dated. 05.10.2026
Contract Title for the Procurement	Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 16 nos. location in West Bengal
Brief description of Scope of Works	The scope of work under the subject packages (as mentioned under Table-A above) includes site survey, planning, design, engineering, assembly manufacturing, testing, supply, loading, transportation, unloading, insurance, delivery at site, handling, storage, installation, testing, commissioning, and documentation of all items/material required to complete the following works at the places mentioned under the respective packages which inter-alia include: Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV Lines.
Mode of Procurement/Bidding	Package wise Singe Stage Two-Envelope Bidding Process with e-Procurement/e-Tendering
Date of Release of RFB Notice/NIT	05.10.2026
Date & Time of Pre-Bid Meeting	12.10.2026, 12:00 hrs.
Last date of Bid Submission	04.11.2026, 12:00 hrs.
Date of Opening of Technical Part (First Envelope) of the bid	06.11.2026, 14:00 hrs.
Date of submission of BG for EMD/ Bid Security (To be physically handed over, scanned copy of the same will be uploaded electronically through e-tendering.), if not opted on-line mode.	04.11.2026, 12:00 hrs.
Opening of Financial Part (Second Envelope) of the Bid	To be notified later. Financial Part of bids from only those bidders shall be opened who, upon evaluation of Technical Part of the bids, are found eligible and qualified, and whose bids are found responsive to Bidding documents.
Location of Submission/ Opening of Bids, as applicable	Chief Engineer, Project-I, WBSEDCL Vidyut Bhawan, 5 th Floor, B-Block, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091 Tel (O): 033-23197467 Website: www.wbstedcl.in , Email: ceproj1@wbstedcl.in
Type of Procurement	Plant (Design, Supply, and Installation)


 Chief Engineer
 Project-I, WBSEDCL

EMD/ Bid Security	All bids must be accompanied by a bid security as per Table A . Bidders must ensure that all bid securities in original form (if not opted in online mode) are received by the deadline for bid submission per ITB 21.1 and to the address provided in Section 3 ITB 21.1
Performance Security	The Performance Security amount is 10% of Contract Price
Bid Validity period	The bid validity period will be 180 days from next date of Opening of Technical Part of the Bid.
Time for Completion	The Time for Completion of the works is 18 (Eighteen) Months from the Effective Date of the Contract.
Address for Correspondence	Chief Engineer, Project-I, WBSEDCL Vidyut Bhawan, 5th Floor, B-Block, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091 Tel (O): 033-23197467, Mob: 9230962700 Website: www.wbsedcl.in , Email: ceproj1@wbsedcl.in
Contact Details of e- Procurement Portal Support Team:	Chief Engineer, Project-I, WBSEDCL Vidyut Bhawan, 5th Floor, B-Block, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091 Tel (O): 033-23197467, Mob: 9230962700 Website: www.wbsedcl.in Email: ceproj1@wbsedcl.in

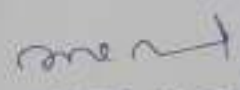

Chief Engineer
 Project-I, WBSEDCL

TABLE- B

SL. No.	Package No./ Package Identification	Scope of work	Location of work	Project Manager/ Controlling Officer in part of the Employer (WBSEDCL) with Office Address
1	PK_SS_01_R	Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 4 nos. location under South 24 Pgs District.	1. Herobhanga 2. Jharkhali 3. Moukhali 4. Kumorhat	Project Manager, Baruipur Project Office, WBSEDCL Mahinagar 33/11 KV S/Stn Campus, P.O. Malancha, Mahinagar, PS. Sonarpur, District. 24 Pgs (South), PIN. 700145
2	PK_SS_03_R	Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 3 nos. location under Paschim Midnapur District.	1. Kashmuli 2. Madanmohan Chak 3. Guiadaha	Project Manager, West Midnapur Project Office, WBSEDCL Railway Goods Shed Road, P.O. Rangamati, District. Paschim Midnapur, PIN. 721102
3	PK_SS_07_R	Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 2 nos. location under Birbhum District.	1. Birchandrapur 2. Satpalsa	Project Manager, Birbhum (Suri) Project Office, WBSEDCL 4 th Floor, Commercial Estate Building (Near Super Market), Suri, District. Birbhum, PIN. 731101
4	PK_SS_08_R	Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 1 nos. location under Nadia District.	1. Kaliganj	Project Manager, Nadia Project Office, WBSEDCL Administrative Building, Bejikhali Power House Complex, P.O. Krishnanagar, District. Nadia, PIN. 741101
5	PK_SS_10_R	Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 1 no. location under Malda District.	1. Deonapur	Project Manager, Malda Project Office, WBSEDCL Commercial Estate, Netaji Market, Rathbari, P.O. Malda, District. Malda, PIN. 732101
6	PK_SS_14_R	Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 2 nos. location under Purulia District & 1 no. location under Bankura District.	1. Dava (Purulia District) 2. Kalimati (Purulia District)	Project Manager, Purulia Project Office, WBSEDCL Purulia Zilla Parishad Bhawan Compound, NREP Building, 2 nd Floor, P.O. Purulia, District. Purulia, PIN. 723101
			3. Ratanpur (Bankura District)	Project Manager, Bankura Project Office, WBSEDCL Bidyut Prashashanik Bhawan (Ground Floor), Lal Bazar, P.O. Bankura, District. Bankura, PIN. 722101
7	PK_SS_15_R	Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 2 nos. location under Bankura District.	1. Deriapur 2. Bishnupur	Project Manager, Bankura Project Office, WBSEDCL Bidyut Prashashanik Bhawan (Ground Floor), Lal Bazar, P.O. Bankura, District. Bankura, PIN. 722101

Section – 2: Eligibility and Qualification Requirements

1. Eligibility Requirements:

Technical Part of the Bid shall be evaluated, interalia, as per **Section 3** based on their responsiveness to and Bidder's compliance with the Eligibility Requirements specified herein below:

- 1.1. Only firm that is a private entity, a state-owned entity, or an institution, legally established in India to undertake design, supply and installation of the works mentioned in the scope of works under this RFB Document/ bidding document are eligible to bid (submit their Bid in response to RFB Notice/ NIT). The Bidder (alternatively referred to as the Contractor/Bidder) may be a proprietorship concern or a partnership firm operating in India, or a registered entity in India under the Companies Act, 1956, 2013 or LLP Act.
- 1.2. Any combination of such entities eligible as per 1.1 above, is also eligible to bid in the form of a joint venture (JV) as defined in **Section 3**, under an existing agreement. In the case of a joint venture, the number of members of the JV shall not exceed 02 (two) and all members shall be jointly and severally liable for the execution of the entire Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of all the members of the JV during the Bidding process and, in the event the JV is awarded the Contract, during contract execution.
In case of JV, the bidding JV (also referred to as the Bidder) shall submit a Joint Deed of Undertaking in Technical Part of its bid, as per the format enclosed in **Section 4** of the RFB/ bidding document. No change in the structure / constitution of the JV shall be permitted at any stage during bidding or execution of the Contract in the event of award.
- 1.3. The Bidder shall submit their bid package wise and can submit their bid for any number of package(s) subject to compliance of eligibility requirement. If a bidder, as a sole entity, participate in a particular package, it can not be clubbed for participation as a JV member for the same package. Also, it a bidder participate as a JV member for a particular package, it can not participate as a part of another JV for the same package.
- 1.4. As an exception to the foregoing Clause 1.1 & 1.2 above:
 - a. **Sanctions:** Firms, which includes any of the JV members in case of bidding Joint Venture as per Clause 1. 2 above, blacklisted by the Employer/ CPSEs or any of their subsidiaries / Government of India/ Government of West Bengal / any Regulatory Authority, as on the date of submission of Bid, are not eligible to bid.
 - b. **Suspension:** Firm, which includes any of the JV members in case of bidding Joint Venture as per Clause 1. 2 above, under suspension by the Employer as the result of the operation of a Bid–Securing Declaration or Proposal-Securing Declaration, shall not be eligible to bid.
 - c. **Prohibitions:** Firms, which includes any of the JV members in case of bidding Joint Venture as per Clause 1. 2 above, and individuals of a country or goods/ works/ services manufactured/ produced in a country shall be ineligible, if as a matter of law

or official regulations, the Government of India prohibits commercial relations with that country.

- 1.5. To be eligible to bid, the Bidders must ensure compliance to the following, failing which they shall not be eligible:
Restrictions under Rule 144 (xi) of GFR 2017: Restrictions on procurement from a bidder of country which shares a border with India.
- 1.6. No special weightage shall be given to MSME.
- 1.7. Employer reserves the right to request for any additional information and reserves the right to reject the Proposal of any Bidder, if in the opinion of Employer, the qualification data is incomplete, or the Bidder is found not qualified to satisfactorily perform the Contract.
- 1.8. For the purposes of these Bidding Documents, the words “facilities,” “plant and equipment,” “installation services,” etc., shall be construed in accordance with the respective definitions given to them in the General Conditions of Contract.

2. Qualification Requirements

2.1. Technical:

For the purpose of bid for a particular package, bidder shall meet the following minimum criteria in past 7 years (up to the deadline of submission of bid):

2.1.1.

- i. Experience in similar work (as per clause 2.1.4 mentioned below) under **single** contract, costing not less than **70% of the estimated amount of the respective package as mentioned in Table A at Section-I (RFB)**. The works under the above contract should be completed works only.

Or

- ii. Experience in similar works (as per clause 2.1.4 mentioned below) under **two contracts**, each costing not less than **40% of the estimated amount of the respective package as mentioned in Table A at Section-I (RFB)**. The works under the above two contracts should be completed works only.

Or

- iii. Experience in similar works (as per clause 2.1.4 mentioned below) under **three contracts**, each costing not less than **30% of the estimated amount of the respective package as mentioned in Table A at Section-I (RFB)**. The works under the above three contracts should be completed works only.

Collectively the JV partners should meet the criteria of projects mentioned in 2.1.1 above. However, each JV partner should have completed at least 1 (one) contract costing not less than **10% of the estimated amount of the respective package as**

mentioned in Table A at Section-I (RFB). The works under the contracts should be completed works only.

For illustration, the various cases possible, along with the number of contracts and minimum amounts(i.e estimated cost for the respective package) for each of scenarios are shown below:

JV of two (2) partners

Scenario		Partner 1	Partner 2
1. One partner fully meets the qualification requirements	A)	1 contract of minimum 70% of the estimated amount	1 contract of minimum 10% of the estimated amount
	B)	2 contracts, each of minimum 40% of the estimated amount	
	C)	3 contracts, each of minimum 30% each of the estimated amount	
2. Both partners put together meet the qualification requirements	A)	1 contract of minimum 40% of the estimated amount	1 contract of minimum 40% of the estimated amount
	B)	2 contracts each of minimum 30% of the estimated amount	1 contract of minimum 30% of the estimated amount

AND

2.1.2. The bidder (including any of JV Partner, in case of JV) must have completed the Construction of at least 1 number 33/11 KV S/Stn with at least total 10 MVA Capacity through ‘Turn-Key’ mode across PAN India.

AND

2.1.3 The bidder (including any of JV Partner, in case of JV) must have completed:

(a) Construction of 33 KV and/ or 11 KV lines (OH and/ or UG) of a Ckt-length not less than 60% of Ckt-length of 33 KV Ckt-length considered under the respective package

AND

(b) Construction of 33 KV lines (OH and/ or UG) of a Ckt-length not less than 20% of Ckt-length of 33 KV Ckt-length considered under the concern package.

2.1.4 For the purposes of satisfaction of Technical Requirement, similar works refers to:

a) Project(s) execution in one or more sectors below: -

- 1) Electrical Transmission sector
- 2) Sub-transmission sector
- 3) Electrical distribution sector

In above sectors, type of construction works undertaken should be of the nature of one or more of the following: -

- 1) EHT lines
- 2) HT lines
- 3) LT lines
- 4) Distribution transformers
- 5) Substations

- b) Notwithstanding the clause 2.1.4 (a) above, experience in only LT lines would not be considered eligible.

2.1.5 For meet the requirement as above, the bidder needs to submit evidential document from the utility(ies)/ end user(s) confirming completion/ execution of work(s) clearly mentioning the nature, quantity & value of the work(s).

The referred works/ contracts under which the bidder participated as a Joint Venture Member or Sub-Contractor, only the bidders share, by value, shall be considered i.r.o Sl. No. 2.1.1, above.

2.1.6 Even though the bidders may meet the above qualifying criteria, they are subject to be disqualified if they have:

- a) Made any mis-leading or false representations in the form, statements, affidavits & attachments submitted in proof of the qualification requirement.
- b) Record of poor performance such as abandoning of works, not properly completion or financial failure etc.
- c) Consistent history of litigation or arbitration proceedings against WBSEDCL.

2.2 Financial/ Commercial:

- 2.2.1 The Net Worth of the bidder must be positive for the each of the last three Financial Years.
- 2.2.2 Minimum Average Annual Turnover (MAAT) of the Bidder for best three years out of last five financial years of the bidder should not be less than 30% of the estimated cost of the respective package rounded off up to two decimal places.
- 2.2.3 Bidder must have liquid assets (LA) and/ or evidence of access to or availability of fund-based credit facilities of not less than 10% of the estimated cost of the respective package rounded off up to two decimal places and the Banker should confirm that the Credit facility is earmarked for the Works specified under Bid on receipt of the Bid. Liquid Assets would include un-incumbered cash (and equivalents), bank deposits with maturity less than 365 days, securities that can be freely traded or maturity less than 365 days and receivables which has general certainty of getting received minus payables which has general certainty of getting paid.
- 2.2.4 In case a bid is submitted by a Joint Venture (JV), all the partners of the JV shall meet, individually, the qualification set forth at para 2.2.1 above and collectively the requirement of

Part 2.2 Bidding Procedures and Requirements

para 2.2.2 & 2.2.3 above. The figures for each of the partner of the joint venture shall be added together to determine the bidder's compliance with the minimum qualifying criteria set out in para 2.2.2 & 2.2.3 above.

2.2.5 Failure to comply with requirement mentioned in 2.2.4 will result in rejection of the Joint Venture's bid.

2.2.6 The lead partner shall be authorized to incur liabilities and receive instruction for and on behalf of any and all partners of the joint venture and the entire execution of the contract including receipt of payment shall be done exclusively through the lead partner. This authorization shall be evidenced by submitting in Technical Part of its bid, a power of attorney signed by legally authorized signatories of all the partners as per proforma in Section 4 of the RFB/ bidding documents.

2.2.7 All partners of the joint venture shall be liable jointly and severally for the execution of the contract in accordance with the contract terms and a copy of the agreement entered into by the Joint Venture partners having such a provision shall be submitted with the Technical Part of the bid. A statement to this effect shall be included in the authorization mentioned under para 2.2.6 above as well as in the Bid Form and in the Contract Form (in case of a successful bid);

2.2.8 The Bidder shall also furnish following documents/details with Technical Part of its bid:

2.2.8.1. A certificate from banker (as per specified format) indicating various fund-based limits sanctioned to the bidder and the extent of utilization as on date. Such certificate should have been issued not earlier than three months prior to the date of deadline of bid submission. Wherever necessary, the employer may make queries with the Bidders' bankers.

2.2.8.2. The complete annual reports together with Audited statement of accounts of the company for last five years of its own (separate) immediately preceding the date of submission of bid. In case audited statements of the last financial year are not available the audited statements of the preceding five years can be submitted.

2.2.8.3. Note:

2.2.8.3.1. In the event the bidder is not able to furnish the information of its own (i.e. separate), being a subsidiary company and its accounts are being consolidated with its group/holding/parent company, the bidder should submit the audited balance sheets, income statements, other information pertaining to it only (not of its group/Holding/Parent Company) duly certified by any one of the authority [(i) Statutory Auditor of the bidder /(ii) Company Secretary of the bidder or (iii) A certified Public Accountant] certifying that such information/documents are based on the audited accounts as the case may be.

2.2.8.3.2. Similarly, if the bidder happens to be a Group/Holding/Parent Company, the bidder should submit the above documents/information of its own (i.e., exclusive of its subsidiaries) duly certified by any one of the authority mentioned in Note - 2.2.8. 3.1 above certifying that these information/ documents are based on the audited accounts, as the case may be.

2.2.8.4. Subcontractors' technical experience and financial resources shall not

be considered in determining the Bidder's compliance with the qualifying criteria.

2.2.8.5. Deleted.

2.2.8.6. The bidder should meet the necessary license class requirements as applicable for the execution of works in this RFB.

However, in case the bidder does not hold the license for the given State, then the bidder should possess the equivalent license for any one State in India and post-award the bidder is required to acquire the necessary license for the given State within a period of three months.

In case bid is submitted by Joint Venture, all partners whose scope as per the delineation of responsibilities amongst JV partners includes execution of Works or part thereof at Site, should possess and/or acquire the necessary license as stated above.

2.3 Assessing Capacity of Bidder:

The criteria for assessing capacity of bidder shall be as below:

Requirement: The bid capacity of the turnkey contractor, shall be equal to or more than the estimated cost of the respective package. The same shall be assessed as per following formula:

$$\text{Bidding capacity} = [A \times N \times 2] - B$$

The value of A and B to be based on the entire business of the bidder.

- A: Maximum annual turnover in last 5 FYs (to be CA certified)
- N: 2 years for this instant NIT.
- B: Value of existing commitments & ongoing works for which LOI, LOA have been issued (to be certified by the Company Secretary/ Whole-Time Director/ CEO of the bidder/ Company Auditor) plus commitments on account of any L1 declaration as part of the DISCOM tender opening.
- In case of JV, bid capacity of each JV partner will be considered in the ratio of their share in the JV agreement. The aggregate bid capacity of the JV will be sum of the proportionate bid capacities of individual partners.
- Agreement entered into by the Joint Venture Partners shall be submitted with the bid indicating the share of each JV partner in the Joint Venture.

Mechanism: The following mechanism shall be adopted to open the financial bids of multiple packages at around the same time:

1. Completion of technical evaluation of the packages and notification of the financial bid opening date with at least 2 days advance notice to the bidders
2. Financial bids shall be opened in descending order of the package size, starting with the

- opening of the financial bid of the package/ RFB with highest estimated value,
3. Financial bids of only those bidders shall be opened, that have requisite bidding capacity corresponding to the estimated value of any particular RFB/ tender,
 4. Before opening every financial Bid, the Bid Capacity of all bidders shall be assessed as per the defined bidding Capacity formula, and including the bid value of previous opened financial bid (if any) for which the bidder is L1.
 5. The above process shall be repeated until opening of all the balance financial bids.
 6. The nature of construction contracts eligible for consideration shall include only Transmission and/ or Distribution lines and S/Stn. Full value of contracts would be considered in case of Supply & Installation contracts, EPC contracts of Turn-key/ partial Turn-key nature.

However, there might be cases wherein the bidder has bid capacity as per the estimated tender value, but LI quoted by the bidder takes it beyond its estimated capacity. Then in such cases, as far as bid capacity clause is concerned, the bidder shall still be considered for award.

Section - 3: Instructions to Bidders and Bid Data Sheet

A. Instructions to Bidders General

1. Scope of Bid and Definitions

- 1.1 In connection with the Notice Inviting Tenders (NIT)/ Request for Bids (RFB) Notice specified in **Bid Data Sheet**, the Employer (named in the **Bid Data Sheet**) issues this RFB/ Bidding Document for the Design, Supply, and Installation of Plant (also referred to as the Scope of Work), as specified in **Section 6**, Employer's Requirement. The name and identification of the package for award of contract under this NIT/RFB is specified in **Bid Data Sheet**.
- 1.2 Throughout this bidding document:
 - (a) **"Affiliate(s)"** means an individual or an entity that directly or indirectly controls, is controlled by, or is under common control with the Bidder.
 - (b) **"Applicable Law"** means the laws and any other instruments having the force of law in India, as may be issued and in force from time to time.
 - (c) **'Employer'/'Utility'** means the entity, as briefly described in **Bid Data Sheet**, that has issued the Request for Bids for award of the Contract for the Design, Supply, and Installation of Plant (also referred to as the Scope of Work), as specified in **Section 6**, Employer's Requirement.
 - (d) **"Bid"** means the Technical Part (first Envelope) and the Financial Part (Second Envelope) of its bid submitted by the Bidder who participates in the bidding in response to Notice Inviting Tenders (NIT)/ Request for Bids (RFB) Notice. It is alternatively also referred to as the tender.
 - (e) **"Bid Data Sheet (BDS)"** means an integral part of the **Instructions to Bidders (ITB) Section 3**, that is used to reflect issues, details and conditions specific to the procurement, to supplement and/or modify the provisions of ITB.
 - (f) **"Bidder"** means a legally established professional firm or an entity that may

submit its Bid to the Employer in response to the RFB Notice/ NIT issued by the Employer, to provide/ provision the Plant to the Employer.

- (g) **“Contract”** means a legally binding written instrument entered between the Employer/ Utility and the successful Bidder, in the manner and in accordance with the RFB document/ bidding documents, for the Design, Supply and Installation of Plant (also referred to as the Scope of Work), and includes the Letter of Acceptance/ Notification of Award, the Contract Agreement, the General Conditions of Contract (GCC), the Special Conditions of Contract (SCC), and the Appendices and the documents attached thereto.
- (h) **“Day”** means a calendar day, unless otherwise specified as **“Business Day”**. A Business Day is any day that is an official working day of Employer. It excludes Employer’s official public holidays.
- (i) **“Government”** means the government of India, State Government or Local Government as applicable.
- (j) **“in writing”** means communicated in written form (e.g. by mail, e-mail, fax, including that distributed or received through the electronic-procurement system used by Employer).
- (k) **“Plant”, “Installation Services”, “Facilities” (also referred hereinafter as “Works”)** used herein shall have the same meaning as ascribed to them in **Section 7**.
- (l) **“ITB”** (this **Section 3** of the RFB/ Bidding Documents) means the Instructions to Bidders that, along with other Sections, provides the Bidders with all information needed to prepare and submit their Bids.
- (m) **“Joint Venture (JV)”** means an association with or without a legal personality distinct from that of its members, of more than one entity/ firm where one member has the authority to conduct all business for and on behalf of any and all the members of the JV, and

where the members of the JV are jointly and severally liable to Employer for the performance of the Contract. Whether or not bidding by Joint Venture is permitted, is specified in **BDS** and in **Section 2**.

- (n) **“RFB”** means the Request for Bids issued by Employer for the selection of the successful Bidder from amongst the bids submitted by bidders(s) who bid againststand in response to the Request for Bids Notice (alternatively referred to as **Notice Inviting Tenders (NIT)**) under Two Envelope Single Stage Bidding Process.
- (o) **“Sub-contractor”** means an entity to whom the Contractor subcontracts any part of the Works as per the applicable provisions of the Contract while the Contractor remains responsible to Employer for the whole and successful performance of the Contract.
- (p) Capitalised terms used herein but not defined specifically shall have the meaning as ascribed to them in Section 5 and Section 6, and elsewhere in RFB/bidding Document.
- (q) if the context so requires, “singular” means “plural” and vice versa.

2. Fraud and Corruption

2.1 The Employer requires compliance with the Anti- Corruption Guidelines/ Laws in force of the relevant Government/ its instrumentalities/ Utility and further requires all, including beneficiaries included in the Procurement process and their personnel, as well as firms and individuals participating in any procurement activity, including but not limited to, Bidders, Suppliers, and Contractors, agents, subcontractors, subconsultants, service providers, subsuppliers, manufacturers (including their respective officers, directors, employees and personnel) to observe the highest standard of ethics during the procurement and

execution of such contracts.. In pursuance of Anti-Corruption Guidelines/ Laws in force of the relevant Government/ its instrumentalities/ Utility

- (a) defines, for the purposes of this provision, the

- (i) “corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;
 - (ii) “fraudulent practice” means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
 - (iii) “coercive practice” means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
 - (iv) “collusive practice” means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party;
 - (v) “abuse” means theft, waste, or improper use of assets related to any procurement-related activity, either committed intentionally or through reckless disregard;
 - (vi) “conflict of interest” means any situation in which a party has interests that could improperly influence that party’s performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations; and
 - (vii) “integrity violation” is any act, as defined which violates the Anti- Corruption Guidelines, including (i) to (vi) above and the following: obstructive practice, violations of government or other sanctions, retaliation against whistleblowers or witnesses, and other violations of the Anticorruption Guidelines, including failure to adhere to the highest ethical standard.
- (b) will reject a proposal for award if it determines that the Bidder recommended for award or any of its officers, directors, employees, personnel, subconsultants, subcontractors, service providers, suppliers or manufacturers has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for the Contract;

2.2 Bidders are also required to sign and furnish in the

Bid, duly signed Integrity Pact if so specified in **ITB 10.2.8.**

3. Eligibility, Qualification Requirements

3.1 The eligibility and qualification requirements against the RFB are given in **Section 2**, for the Bidders and the Plant/ Installation Services/ Works . Bids, if any, from Bidders and/or offering Plant/ Installation Services/ Works not complying with the same shall be outrightly rejected and shall not be considered for evaluation

3.2 Bids submitted by the Bidders shall be evaluated to ascertain their compliance with Eligibility and Qualification Requirements, based on the details/ information/ documentary evidence pertaining to the same to be submitted in the Technical Part, as specified in ITB. All Bidders shall provide in **Section 4**, Bidding Forms, requisite details, and documents in support of meeting the Eligibility and Qualification Requirements. A Bid shall be rejected if the Bidder submitting the Bid, fails to meet the Eligibility and Qualification Requirements. Bids submitted by those Bidders who meet the Eligibility and Qualification Requirements shall be shortlisted for further evaluation of their bids.

3.3 A Bidder shall provide such additional documentary evidence of eligibility and/or qualification satisfactory to the Employer, as the Employer shall reasonably request.

4. Conflict of Interest

4.1 A Bidder shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this Bidding process, if the Bidder:

- (a) directly or indirectly controls, is controlled by or is under common control with another Bidder; or
- (b) receives or has received any direct or indirect subsidy from another Bidder; or
- (c) has the same legal representative as another Bidder; or
- (d) has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the Bid of another Bidder, or influence the decisions of the Employer regarding this Bidding process; or

- (e) any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the Bid; or
 - (f) any of its affiliates has been hired (or is proposed to be hired) by the Employer for the Contract implementation; or
 - (g) has a close business or family relationship with a professional staff of the Utility (or of the project implementing agency) who: (i) are directly or indirectly involved in the preparation of the bidding document or specifications of the Contract, and/or the Bid evaluation process of such Contract; or (ii) would be involved in the implementation or supervision of such Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Employer throughout the Bidding process and execution of the Contract.
- 4.2 A firm that is a Bidder (either individually or as a JV member) shall not participate as a Bidder or as JV member in more than one Bid. Such participation shall result in the disqualification of all Bids in which the firm is involved. However, this does not limit the participation of a Bidder as subcontractor in another Bid or of a firm as a subcontractor in more than one Bid.

B. Contents of Bidding Document

5. Sections of Bidding Document

5.1 The bidding document (also referred to as the RFB document) consist of Parts 1, 2, and 3, which include all the sections indicated below, and should be read in conjunction with any Addenda/ Corrigenda/ Amendments issued in accordance with **ITB 7**.

PART 1 Bidding Procedures and Requirements

- Section 1 - Request for Bids Notice
- Section 2 - Eligibility and Qualification Requirements
- Section 3 - Instructions to Bidders and Bid Data Sheet
- Section 4 - Bidding Forms - Technical Part of the Bid
- Section 5- Bidding Forms - Financial Part of the Bid

PART 2 Employer's Requirements

- Section 6 – Employer's Requirement

PART 3 Conditions of Contract and Contract Forms

- Section 7 - Conditions of Contract
- Section 8 - Contract Forms

5.2 The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding document and to furnish with its Bid, all information or documentation as is required by the RFB/ bidding document.

6. Bidding Process Management, Clarification of the Bidding Document, Site Visit and Pre-Bid Meeting

a) Electronic Procurement

6.1 Electronic- Bidding System (also referred to as e-Procurement or e- Tendering system) as specified in the **BDS** shall be used to manage the bidding

process. Only the Bids which are submitted and received through the specified system in conformity with the procedures and requirements specified of **ITB** and **BDS** shall be considered.

b) Clarifications to Bidding Documents

6.2 The electronic- bidding system specified in the **ITB 6.1** provides for online clarifications. A Bidder requiring any clarification of the bidding document may notify the Employer online or through any other mode if so specified in **BDS**. Clarifications requested through any other mode shall not be considered by the Employer. The Employer will respond to any request for clarification, provided that such request is received prior to the deadline for submission of Bids within a period specified in the **BDS**. Description of clarification sought, and the response of the Employer shall be uploaded for information of all Bidders without identifying the source of request for clarification. Should the clarification result in changes to the essential elements of the bidding document, the Employer shall amend the bidding document following the procedure under **ITB 7** and **ITB 21.2**.

c) Site Visit

6.3 The Bidder is advised to visit and examine the Site where the Plant is to be installed/ Works are to be provided, and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid and entering into a contract for provision of Plant and Installation Services/ construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

6.4 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

d) Pre-Bid Meeting

6.5 If so specified in the **BDS**, the Bidder's designated representative is invited to attend a pre-Bid meeting. The purpose of the meeting will be to clarify issues

and to answer questions on any matter that may be raised at that stage.

6.6 The Bidder is requested to submit any questions in writing, to reach the Employer not later than one day before the meeting.

6.7 Minutes of the pre-Bid meeting, including the text of the questions raised without identifying the source, and the responses given, together with any responses prepared after the meeting, will be notified online through electronic-bidding system. Any modification to the bidding document that may become necessary as a result of the pre-Bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to **ITB 7** and not through the minutes of the pre-Bid meeting. Nonattendance at the pre-Bid meeting will not be a cause for disqualification of a Bidder.

e) Grievances related to Bid

6.8 Any complaints related to Bid shall be furnished by the bidder to the official email id as specified in the BDS under the caption “**Grievances related to Bid**”.

7. Addenda/Corrigendum/ Amendment of Bidding Document

7.1 At any time prior to the deadline for submission of Bids, the Employer may amend the bidding document by issuing addenda/ corrigendum/ amendment. The addendum/ corrigendum/ amendment will be in writing and appear on the e-procurement system and through email notification automatically sent to those bidders who have started working on the procurement, or as otherwise specified in **BDS**.

7.2 Any addendum/ corrigendum/ amendment issued shall be part of the bidding document and shall be deemed to have been communicated to all the bidders.

7.3 To give prospective Bidders reasonable time in which to take an addendum/ corrigendum/ amendment into account in preparing their Bids, the Employer may, at its discretion, extend the deadline for the submission of Bids, pursuant to **ITB 21.2**.

C. Preparation of Bids

8. Cost of Bidding

8.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

9. Language of Bid

9.1 The Bid, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the Employer, shall be written in English. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages into English, in which case, for purposes of interpretation of the Bid, such translation shall govern.

10. Documents comprising Bid

10.1 Under the Single Stage Two Envelope bidding process, the Bid shall comprise two Parts, namely the Technical Part and the Financial Part. These two Parts shall be submitted by the Bidder simultaneously.

10.2 The **Technical Part** shall contain the following:

10.2.1 **Letter of Bid - Technical Part:** prepared in accordance with **ITB 11**;

10.2.2 **Bid Security or Bid-Securing Declaration:** in accordance with **ITB 18**, prepared using the relevant form furnished in **Section 4 - Bidding Forms - Technical Part of the Bid**

10.2.3 **Authorization:** Document authorizing the signatory of the Bid to commit the Bidder, in accordance with **ITB 19.3 or ITB 19.4**, as may be applicable, prepared using the bidder's own format;

10.2.4 **Bidder's Eligibility:** documentary evidence in accordance with **ITB 16.1** establishing the Bidder's eligibility to Bid as per the requirements specified in Section 2/ Section 3;

10.2.5 **Qualifications:** documentary evidence in accordance with **ITB 16.2** establishing the Bidder's compliance to the Qualifications Requirements specified in Section 2/ Section 3, along with duly filled in form for compliance of Qualification Requirements, furnished in Section 4 - Bidding Forms - Technical Part of the Bid;

10.2.6 **Eligibility of Goods/ Works/ Plant and Installation Services:** documentary evidence in accordance with **ITB 16.1**, establishing the

eligibility of the Works to be supplied by the Bidder;

10.2.7 **Conformity:** Undertaking on Compliance of terms & conditions of the Bidding Documents including Scope of Services and other related requirements, towards documentary evidence in accordance with **ITB 15.1**, prepared using the relevant form furnished in **Section 4 - Bidding Forms - Technical Part** of the Bid; and

10.2.8 any other document if required as per **BDS**.

10.2.9 In addition to the requirements as aforesaid, Bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members, a Joint Deed of Undertaking and Power of Attorney. The Joint Deed of Undertaking and the Power of Attorney shall be prepared using the relevant form furnished in **Section 4 - Bidding Forms - Technical Part** of the Bid

10.3 The **Financial Part** shall contain the following:

10.3.1 **Deleted**

10.3.2 **Price Schedules:** completed prepared in accordance with **ITB 11, ITB 13 and ITB 14;**

10.3.3 any other document if required in **BDS**.

10.4 The Technical Part shall not include any financial information related to the Bid price. Where material financial information related to the Bid price is contained in the Technical Part the Bid shall be declared non-responsive.

11. Process of Bid Submission

11.1 The Letter of Bid – Technical Part shall be prepared using the relevant forms furnished in **Section 4 - Bidding Forms - Technical Part** of the Bid. The priced Schedules for the Plant and Installation Services/ Works shall be prepared using the relevant forms furnished in **Section 5 - Bidding Forms - Financial Part** of the Bid. The forms must be completed without any alterations to the text, except as provided under **ITB 19.3** for which the bidder can use its own format. All blank spaces shall be filled in with the information requested.

11.2 Entire Bid as per **ITB 10** including the Letters of Bid and filled-up priced Schedules for the Plant and Installation Services/ Works, shall be submitted online on e-procurement system specified in **ITB 6.1**. Details and process of online submission of the Bid/ tender and relevant documents are given in **ITB 6.1** and the concerned website referred therein.

11.3 **Submission of Original Documents:** The Bidders are also required to separately submit the hard copy of the documents, if any mentioned in **BDS**, at Employer's address specified in **BDS**, so as to reach the office before the opening of the Technical Part of the Bid, either by registered/speed post/courier or by hand, failing which the bids are liable to be declared non-responsive.

11.4 Hard copy of rest of the Bid or any document, other than those specified in **ITB 11.3** are not to be submitted. Employer may, however, seek submission of hard copy of any of the other documents forming part of the Bid or any other supporting/ related document from any of the bidders during the process of evaluation of the Bids, without permitting change in substance of the Bid.

12. Alternative Bids

12.1 Alternative Bids are not permitted and shall not be considered.

13. Bid prices and Discounts

13.1 Unless otherwise specified **in the BDS**, Bidders shall quote for the entire Plant and Installation Services on a "single responsibility" basis. The total Bid price shall include all the Contractor's obligations mentioned in or to be reasonably inferred from the bidding document in respect of the design, engineering, manufacture, including procurement and subcontracting (if any), delivery, construction, installation and completion of the Plant. This includes all requirements under the Contractor's responsibilities for testing, pre-commissioning and commissioning of the plant and, where so required by the bidding document, the acquisition of all permits, approvals and licenses, etc.; the operation, maintenance and training services and such other items and services as specified in the bidding document, all in accordance with the requirements of the bidding documents.

13.2 Bidders are required to quote the price for the commercial, contractual and technical obligations outlined in the bidding document.

13.3 Bidders shall give a breakdown of the prices in the manner and detail called for in the Price Schedules included in Section 5. Bidding Forms – Financial Part of the Bid.

13.4 Depending on the Scope of the Work and the Contract, the Price Schedules shall comprise the schedules listed below. Bidders shall note that the plant and equipment included in Schedule Nos. 1 exclude materials used for civil, building and other construction works. All such materials shall be included and priced under Schedule No. 2, Installation Services. The Schedules comprise:

Schedule No. 1: Supply of Plant (including Mandatory Spare Parts)

Schedule No. 2: Supply of Installation Services

Schedule No. 3: Grand Summary (Schedule Nos.1 and 2)

Schedule No. 4: Recommended Spare Parts

13.5 In the Schedules, Bidders shall give the required details and a breakdown of their prices as follows:

13.5.1 Supply of Plant (Schedule No. 1):

- (i) The price of the plant shall be quoted on FOR (final place of destination (Site/ Project Site) as specified in **BDS**) basis, and shall be inclusive of all costs, expenses, duties, taxes, and other levies incidental thereto inter-alia including design, engineering, manufacture, testing, transportation, insurance etc. and other services, incidental thereto, as applicable, and taking into account any input tax credit except (ii) below;
- (ii) GST as percentage of the price as per (i) above, payable additionally by the Utility, applicable on the plant/ goods/ material, if the contract is awarded to the Bidder, is pre-specified in Schedule No.1 and bidders are not required to quote the same separately anywhere in the bid. (Basis the same and the price quoted as per (i) above, the amount towards GST against each item shall get calculated accordingly); and
- (iii) The total price for the item i.e. (i) plus (ii) above.

13.5.2 Supply of Installation Services (Schedule No. 2):

- (i) The price of Installation Services {excluding the incidental services included in 13.5.1 (ii)} shall be quoted separately and shall be inclusive of all costs, expenses, duties, taxes, and other levies related, inter-alia, to unloading and handling of plant, all labor, contractor's equipment, temporary works, materials, consumables, design and preparation of layout, engineering drawings, and all matters and things of whatsoever nature, including testing, pre-commissioning and commissioning, operations and maintenance services, the provision of as-built drawings, operations and maintenance manuals, training, etc., applicable and necessary for the proper execution of the installation and other services, at final destination (Site/ Project Site) as specified in the **BDS**, related to and incidental to successful installation of the Plant, except (ii) below;
- (ii) GST as percentage of the price as per
 - (i) above, payable additionally by the Utility, applicable on the Installation Services, if the contract is awarded to the Bidder, is pre- specified in Schedule No.2 and bidders are not required to quote the same separately anywhere in the bid (Basis the same and the price quoted as per (i) above, the amount towards GST against each item shall get calculated accordingly); and
 - (iii) The total price for the item i.e. (i) plus (ii) above.

13.5.3 Grand Summary (Schedule No. 3):

The total amount of each of the components from each of Schedule No.1 and Schedule No. 2 corresponding to the Plant and Installation Services, shall be summarized in the schedule titled

Grand Summary, (Schedule 3). Aggregate of the total amount as per **ITB 13.5.1 (i)** and **ITB 13.5.2 (i)**, giving the total **Bid price**, excluding GST, is to be entered in the Letter of Bid. The total amount towards GST, that is aggregate of the total amount as per **ITB 13.5.1 (ii)** and **ITB 13.5.2 (ii)** is to be indicated separately in Schedule No. 3 and entered separately in the Letter of Bid.

13.5.4 Recommended Spare Parts (Schedule No. 4)

Recommended spare parts shall be quoted separately (Schedule 4) in the manner and as specified insubparagraph 13.5.1 above.

13.5.5 The terms CIP, CIF, EXW, FOR and other similar terms shall be governed by the rules prescribed in the current edition of Incoterms, published by the International Chamber of Commerce.

13.5.6 Items against which no rate or price is entered by the Bidder shall be deemed covered by the rates for other items in the Price Schedule and will not be paid for separately by the Employer. An item not listed in the price schedule shall be assumed to be not included in the Bid, and provided that the Bid is determined substantially responsive notwithstanding this omission, the price as specified in **ITB 28.3**, will be added to the Bid price and the equivalent total cost of the Bid so determined will be used for price comparison.

13.6 The prices shall be either fixed or adjustable as specified in the **BDS**.

13.7 In the case of **Fixed Price**, prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account. A Bid submitted with an adjustable price quotation will be treated as non-responsive and rejected.

13.8 In the case of **Adjustable Price**, prices quoted by the Bidder shall be subject to adjustment during performance of the contract to reflect changes in the cost elements such as labor, material, transport and Contractor/Bidder's equipment in accordance with the procedures specified in the corresponding **Appendix to the Contract Agreement**. A Bid submitted with a fixed price quotation will not be rejected, but the price

adjustment will be treated as zero. If not already specified in **Appendix to the Contract Agreement stated above**, bidders are required to indicate the source of labor and material indices in the corresponding Form in **Section 4. Bidding Forms – Technical Part of the Bid**.

13.8.1 the Bidder shall be free to use transportation through carriers registered in India. Similarly, the Bidder may obtain insurance services from India.

13.9 Bidders wishing to offer any unconditional price reduction (discount) for the award of the package (Contract), shall specify in their Letter of Bid the price reduction applicable to such package, and the manner in which the price reductions will apply. Any conditional discount shall not be considered for evaluation, however, the Employer may consider the same in case of award of Contract on the Bidder.

13.10 The total amount as per **ITB 13.5.1 (i)** and **ITB 13.5.2 (i)**, from each of Schedule No.1 and Schedule No. 2, corresponding to the Plant and Installation Services, respectively, which shall be summarized in the schedule titled Grand Summary, (Schedule 3), and aggregated giving the total **Bid price(s)** of the Bidder, excluding GST and excluding any reduction/ discount offered, shall be brought/ carried forward and entered in the Letter of Bid. Considering reduction/ discount as per **ITB 13.9 and ITB 13.10** (if applicable), if offered, it shall constitute the quoted Bid price of the Bidder, excluding GST.

13.11 The total amount towards GST, that is aggregate of the amount quoted separately by the bidder as per **ITB 13.5.1 (ii)** and **ITB 13.5.2 (ii)**, shall be considered for evaluation and comparison of bids if so specified in ITB 32.1 (e), and it shall be payable/ reimbursable to the Bidder, in the event of award of contract, as specified in **BDS**.

14. Currencies of Bid and Payment

14.1 The prices shall be quoted either in the currency of the Bidder's home country, or in any fully convertible currency(ies) as specified in the **BDS**.

15. Documents Establishing the Conformity of the Plant and Installation Services/ Works

15.1 To establish the conformity of the Plant and Installation Services/ Works to the bidding document, the Bidder shall furnish as part of its Bid an Undertaking on Compliance of terms & conditions of the Bidding Documents including Scope of Work, conformance of Plant and Installation Services/ Works to the technical specifications and standards specified in **Section 6**, Employer's Requirement as well as other related requirements, in the Technical

Part of the bid as specified in **ITB 10.2.7**, as per the format given in **Section 4 - Bidding Forms - Technical Part of the Bid**.

15.2 Wherever and if specified in **Section 6 - Employer's Requirement**, the bidder shall also submit documentary evidence in the form of literature, drawings or data, and a detailed item by item description of the essential technical characteristics of the Plant and Installation Services/ Works, demonstrating substantial responsiveness of the Plant and Installation Services/ Works to the technical specification.

15.3 Wherever and if specified in **Section 6**, Employer's Requirement, the Bidder shall furnish in technical proposal a statement of work methods, equipment, personnel, schedule and any other information as stipulated in **Section 4**, Bidding Forms – Technical Part of the Bid, in sufficient detail to demonstrate the adequacy of the Bidder's proposal to meet the Employer's Requirements and the Time for Completion of the Plant and Installation Services/ Works.

15.4 Standards for workmanship, process, material, and equipment, as well as references to brand names or catalogue numbers specified by the Employer in the Employer's Requirement, are intended to be descriptive only and not restrictive. The Bidder may offer other standards of quality, brand names, and/or catalogue numbers, provided that it demonstrates, to the Employer's satisfaction, that the substitutions ensure substantial equivalence or are superior to those specified in the **Section 6**, Employer's Requirement.

15.5 For major items of Plant and Installation Services if and as listed by the Employer in **Section 2**, Eligibility and Qualification Requirements and **Section 6**, Employer's Requirement, which the Bidder intends to purchase or subcontract, the Bidder shall give details of the name and nationality of the proposed Subcontractors, including

manufacturers, for each of those items. In addition, the Bidder shall include in its Bid information establishing compliance with the requirements specified by the Employer for these items. Quoted rates and prices will be deemed to apply to

whichever Subcontractor is appointed, and no adjustment of the rates and prices, on this account, will be permitted.

15.6 The Bidder shall be responsible for ensuring that any Subcontractor proposed complies with the requirements of **Section 2** and **Section 6**.

16. Documents Establishing the Eligibility and Qualifications of the Bidder and Eligibility of Plant and Installation Services

16.1 To establish Bidder's eligibility and eligibility of Plants and Installation Services/ Works in accordance with **ITB 3** and **Section 2**, Eligibility Requirements, Bidders shall complete the Letter of Bid – Technical Part, and other forms included in **Section 4 - Bidding Forms - Technical Part of the Bid**.

16.2 The documentary evidence of the Bidder's eligibility and qualifications, and eligibility of Plant and Installation Services, to be furnished as per **Section 4 - Bidding Forms - Technical Part of the Bid**, for the Bidder to be considered for award of the Contract, shall establish to the Employer's satisfaction that the Bidder meets each of the Eligibility and Qualification Requirements and establishes eligibility of Plant and Installation Services/ Works, specified in **ITB 3 and Section 2**.

17. Period of Validity of Bids

17.1 Bids shall remain valid until the date specified in the **BDS** or any extended date if amended by the Employer in accordance with **ITB 7**. The Bid Validity period starts from the Bid submission deadline (as prescribed by the Employer in accordance with **ITB 21.1**). A Bid that is not valid until the date specified in the **BDS**, or any extended date if amended by the Employer in accordance with **ITB 7**, shall be rejected by the Employer as nonresponsive.

17.2 In exceptional circumstances, prior to the expiry of the Bid validity, the Employer may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a Bid Security is requested (in accordance with **ITB 18**), it shall also be extended for a corresponding period. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request shall not be required or permitted to modify its Bid, except as provided in this **ITB 17.2**.

18. Bid Security/ Bid Securing Declaration

18.1 Unless otherwise the provision for submission of Bid Securing Declaration is specified in the **BDS**, the Bidder shall furnish as part of the Technical part of its Bid, a Bid security in original form, and in the amount specified in the BDS.

18.2 If a Bid Security is specified pursuant to **ITB 18.1**, the Bid Security shall be a demand guarantee, and in any of the following forms at the Bidder's option:

- (a) an unconditional guarantee or
- (b) a cashier's or certified check or demand draft or
- (c) another form security, if specified in the BDS

All the above shall be from a reputable source as per RBI guideline. In the case of a bank guarantee, the Bid security shall be submitted using the Bid Security Form included in Section 4, Bidding Forms - Technical Part of the Bid. The form must include the complete name of the Bidder. The Bid Security shall be valid for ninety (90) days beyond the original validity period of the Bid, or beyond any period of extension if requested under **ITB 17.2**.

18.3 Unless otherwise specified in the BDS, any Bid not accompanied by a substantially compliant bid security or Bid-Securing Declaration, if one is required in accordance with ITB 18.1, shall be rejected by the Employer as nonresponsive.

18.4 If a Bid Security is specified pursuant to **ITB 18.1**, the Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful bidder's signing the contract and furnishing the Performance Security pursuant to **ITB 43** and **ITB 45**.

18.5 The Bid Security of the successful bidder shall be returned as promptly as possible once the successful bidder has signed the Contract and furnished the required Performance Security.

18.6 The Bid Security may be forfeited, or action may be taken as per the Bid Securing Declaration:

- (a) if a Bidder withdraws/modifies/substitutes its Bid during the period of Bid validity specified by the Bidder in the Letter of Bid
 - Technical Part, or any extension thereto provided by the Bidder; or if the Bidder does not accept the correction of its Bid Price pursuant to **ITB 33**; or
- (b) if the successful Bidder fails to:
 - (i) sign the Contract in accordance with **ITB 43**; or
 - (ii) furnish a performance security in accordance with **ITB 44**.

18.7 The Bid Security or the Bid-Securing Declaration of a JV shall be in the name of the JV that submits the Bid.

18.8 If a Bid Security is not specified pursuant to **ITB 18.1** and Bid Securing Declaration is specified: and

- (a) if a Bidder withdraws its Bid during the period of Bid validity specified by the Bidder on the Letter of Bid Form, except as provided in **ITB 17.2**; or
- (b) if the successful Bidder fails to:
 - (i) sign the Contract in accordance with **ITB 43**; or
 - (ii) furnish a Performance Security in accordance with **ITB 44**;

the Employer may, declare the Bidder disqualified to be awarded a contract by the Employer for a period of time as stated in the **BDS**.

19. Format and Signing of Bid

19.1 The Bidder shall prepare the Bid, in accordance with **ITB 10**.

19.2 Bidders shall mark as “CONFIDENTIAL” information in their Bids which is confidential to their business. This may include proprietary information, trade secrets, or commercial or financially sensitive information.

19.3 The Bid shall be signed by a person or persons duly authorized to sign on behalf of the Bidder. This authorization shall be in the form of the document as specified in **BDS** and shall be submitted/ uploaded along with the Bid as per **ITB 11**.

19.4 In the case that the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives, which shall be submitted/ uploaded along with the Bid as per **ITB 11**.

19.5 Corrections, if any, can be carried out by editing the information before electronic submission on e-procurement portal.

B. Submission of Bids

20. Submission of Bids

20.1 Bids, both Technical and Financial Parts, shall be submitted online on the e-procurement system specified in **ITB 6.1**. Detailed guidelines for viewing bids and submission of online bids are as per **ITB 6.1** and the website referred therein. A prospective bidder can submit its bid online only for which the bidder (in case of JV, the authorised representative of the JV as per **ITB 19.4**) is required to have enrolment/registration and should have valid Digital Signature Certificate (DSC) as specified in **ITB 6.1** in BDS. The Bidder should go through them carefully and submit its bid, along with the specified documents failing which the bid is liable to be rejected.

20.2 The completed Bid comprising of documents indicated in **ITB 10**, should be uploaded on the e-procurement portal along with scanned copies of requisite certificates/ documents as are mentioned in different sections in the bidding document. Further, if so specified in **ITB 11.3**, the Bidders shall ensure submission of hard copy of documents as mentioned therein.

20.3 All the uploaded documents are required to be signed digitally by the bidder.

20.4 Physical, e-mail, Telex, Cable or Facsimile bids will be rejected as non-responsive.

21. Deadline for Submission of Bids

21.1 Bids must be uploaded online, and if so specified in **ITB 11.3**, the hard copy of specified documents must be delivered at the address mentioned therein, no later than the deadline for submission of Bids i.e. the date and time specified in the **BDS**.

21.2 The Employer may, at its discretion, extend the deadline for the submission of Bids by amending the bidding document in accordance with **ITB 7**, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

22. Late Bids

22.1 The electronic bidding system would not allow any late submission of bids after due date & time as per server time.

23. Withdrawal, Substitution, and Modification of Bids

23.1 Bidders may modify their bids by using the appropriate option for bid modification on e-procurement portal before the deadline for submission of bids. For this the bidder need not make any additional payment towards the cost of bid document, if applicable. For bid modification and consequential re-submission, the bidder is not required to withdraw his bid submitted earlier. The last modified bid submitted by the bidder within the bid submission time shall be considered as the Bid. For this purpose, modification/withdrawal by other means will not be accepted. In online system of bid submission, the modification and consequential re-submission of bids is allowed any number of times. A bidder may withdraw his bid by using the appropriate option for bid withdrawal, before the deadline for submission of bids, however, if the bid is withdrawn, re-submission of the bid is allowed only upto the deadline for submission of bids as specified in **ITB 21**.

23.2 Bids requested to be withdrawn in accordance with **ITB 23.1** shall not be opened.

23.3 No Bid may be withdrawn, substituted, or modified 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 Letter of Bid (Technical Part), or any extension thereof. This will result in the forfeiture of the Bid Security or be sufficient ground for action by Employer against the bidder under the Bid Securing Declaration, as may be applicable pursuant to **ITB 18**.

C. Public Opening of Technical Parts of Bids

24. Public Opening of Technical Parts of Bids

- 24.1 The Employer shall, at the Bid opening, publicly open online the Technical Parts of all Bids, except as in the cases specified in **ITB 22** and **ITB 23.2**, received by the deadline of bid submissions as specified in **ITB 21**, at the date, time and place specified in the **BDS** in the presence of Bidders' designated representatives who choose to attend, and this could also be viewed by the bidders online. The Financial Parts of the bids shall remain unopened in the e-procurement system, until the subsequent public opening, following the evaluation of the Technical Parts of the Bids. Bidder's names, and such other details as the Employer may consider appropriate will be notified by the Employer at the time of bid opening.
- 24.2 Only Technical Parts of Bids that are opened at Bid opening of Technical Parts shall be considered further for evaluation.
- 24.3 At the Bid opening the Employer shall neither discuss the merits of any Bid nor reject any Bid (except the cases, in accordance with **ITB 22** and **ITB 23.2**).
- 24.4 The Employer shall prepare a record of the Bid opening, that shall include, as a minimum:
- (a) the name of the Bidder; and
 - (b) the presence or absence of a Bid Security or a Bid-Securing Declaration.
- 24.5 The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

D. Evaluation of Bids - General Provisions

25. Confidentiality

- 25.1 Information relating to the evaluation of Bids and recommendation of contract award, shall not be disclosed to Bidders, or any other persons not officially concerned with the Bidding process.
- 25.2 Any effort by a Bidder to influence the Employer in the evaluation or contract award decisions may result in the rejection of its Bid.
- 25.3 Notwithstanding **ITB 25.1**, from the time of Bid opening to the time of Contract Award, if any Bidder wishes to contact the Employer on any matter related to the Bidding process, it should do so in writing.

26. Clarification of Bids

- 26.1 To assist in the examination, evaluation, comparison of the Bids, and eligibility or qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its Bid and/or seek information related to historical data/ documents pertaining to credentials of the Bidders and the Bids, that the Employer may require. Any clarification submitted by a Bidder in respect to its Bid and that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the Bid shall be sought, offered, or permitted.
- 26.2 If a Bidder does not provide clarifications of its Bid or data/ documents sought, by the date and time set in the Employer's request for clarification/ data/ document, its Bid may be rejected.

27. Deviations, Reservations, and Omissions

- 27.1 During the evaluation of Bids, the following definitions apply:
- (a) "Deviation" is a departure from the requirements specified in the bidding document;
 - (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the bidding document; and

- (c) "Omission" is the failure to submit part, or all of the information or documentation required in the bidding document.

**28. Nonmaterial
Nonconformities, Errors
and Omissions**

- 28.1 Provided that a Bid is substantially responsive, the Employer may waive any nonconformities in the Bid, which do not constitute a material deviation, reservation or omission.
- 28.2 Provided that a Bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Bid related to documentation requirements. Requesting information or documentation on such nonconformities and/or omissions shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.
- 28.3 Provided that a Bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component in the manner specified in **BDS**.

E. Evaluation of Technical Parts of Bids

**29. Evaluation of Technical
Parts**

- 29.1 In evaluating the Technical Parts of each Bid, the Employer shall use the requirements, criteria and methodologies mentioned and specified in **Section 2, Section 3** and **Section 6**.
- 29.2 The Employer shall, interalia, carry out the Technical Evaluation as per **ITB 29.3**, and determine to its satisfaction:
- (a) whether the Bidders comply with the Eligibility Requirements, have offered eligible Plant and Installation Services in their Bids, as specified in **ITB 3** and **Section 2**;
 - (b) whether the Bidders meet the Qualification Requirement as specified in **ITB 3** and **Section 2**. (The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder,

pursuant to **ITB 16** read in conjunction with **ITB 26**. The determination shall not take into consideration the qualifications of other firms such as the Bidder's subsidiaries, parent entities, affiliates, subcontractor/Bidders (other than specialized subcontractor/Bidders if permitted in the bidding document), or any other firm different from the Bidder that submitted the Bid except if provided in the specified Qualification Requirement itself and

- (c) whether the Bids submitted by the Bidders complying with the requirements specified in (a), and (b) above have been determined to be substantially responsive to the RFB/bidding document, as per **ITB 30**.

29.3 Technical Evaluation. The Employer will carry out a detailed technical evaluation of the Bids not previously rejected to determine whether the technical aspects are in compliance with the bidding document. The Bid that does not meet minimum acceptable standards of completeness, consistency and detail will be rejected for non-responsiveness. In order to reach its determination, the Employer will examine and compare the technical aspects of the Bids on the basis of the information supplied by the Bidders, taking into account the following:

- (a) overall completeness and compliance with the Employer's Requirements; conformity of the Plant and Installation Services offered with specified performance criteria, as indicated in **Section 2** and/ or **Section 6**; suitability of the Plant and Installation Services offered in relation to the environmental and climatic conditions prevailing at the site; and quality, function and operation of any process control concept included in the Bid;
- (b) type, quantity and long-term availability of mandatory and recommended spare parts and maintenance services; and
- (c) other relevant factors, if any, listed in the RFB/ bidding document.

30. Determination of Responsiveness

29.4 At this stage, a Bid shall be rejected if the determination on any one of the aspects listed in ITB 29.2 (a), (b) and (c) above, is not in the affirmative. All other Bids shall be considered for further evaluation.

30.1 The Employer's determination of a Bid's responsiveness is to be based on the contents of the Bid itself, as defined in **ITB 10** read in conjunction with **ITB 26** and submitted as per **ITB 11**.

30.2 A substantially responsive Bid is one that meets the requirements of the bidding document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:

(a) if accepted, would:

(i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or

(ii) limit in any substantial way, inconsistent with the bidding document, the Employer's rights or the Bidder's obligations under the Contract; or

(b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.

30.3 The Employer shall examine the technical aspects of the Bids, in particular, to confirm that all requirements of **Section 6**, Employer's Requirement have been met without any material deviation or reservation, or omission.

30.4 If a Bid is not substantially responsive to the requirements of bidding document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

F. Public Opening of Financial Parts of Bids

31. Public Opening of Financial Parts

31.1 Following the completion of the evaluation of the Technical Parts of the Bids, the Employer shall notify in writing those Bidders whose Bids were considered non-responsive to the bidding document / RFB Document or failed to meet the Eligibility Requirements or Qualification Requirement or any other specified requirement, advising them of the following information:

(a) the grounds on which their Technical Part of Bid failed to meet the requirements of the bidding document; and

(b) Financial Part of their Bid will not be opened.

31.2 The Employer shall, simultaneously, notify in writing those Bidders whose Technical Parts have been evaluated as substantially responsive to the bidding document and met the Eligibility Requirement, Qualification Requirement and other specified requirement, advising them of the following information:

(a) their Bid has been evaluated as substantially responsive to the requirements of bidding document and the specified requirements;

(b) Financial Part of their Bid will be opened online at the public opening of the Financial Parts; and

(c) notify them of the date, time and location of the second public opening of the Financial Parts of bid, and the address thereof. In the event of the specified date of bid opening being declared a holiday for the Employer, the bids will be opened at the appointed time and location on the next working day.

31.3 All efforts may be made to have the opening date that should allow Bidders sufficient time to make arrangements for attending the opening if they so choose, however as the opening is in online mode and bidder's get due notification of bid opening and can witness the opening online, the date of opening may be set accordingly based on

Employer's requirements. The Financial Part of the Bids shall be opened publicly in the presence of Bidders' designated representatives who chooses to attend, and this could also be viewed by the bidders online. The bidder's names, the Bid prices, the total amount of each bid, and such other details as the Employer may consider appropriate, will be announced by the Employer at the time of bid opening.

31.4 The Employer shall prepare a record of the Bid opening, that shall include, as a minimum:

- (c) the name of the Bidder; and
- (d) the Bid price, for the package, including any discounts

31.5 Only Financial Parts of Bids that are opened at Bid opening shall be considered for further evaluation.

G. Evaluation of Financial Parts of Bids

32. Evaluation of Financial Parts

32.1 To evaluate the Financial Part of each Bid, the Employer shall consider the following:

- (a) Bid price, as quoted in accordance with **ITB 13.5**;
- (b) price adjustment for correction of arithmetic errors in accordance with **ITB 33**;
- (c) price adjustment due to discounts offered in accordance with **ITB 13.9**;
- (d) price adjustment due to quantifiable nonmaterial nonconformities in accordance with **ITB 28.3**;
- (e) GST, quoted separately as per **ITB 13.11**, adjusted for correction of arithmetic errors in accordance with **ITB 33**, shall be considered for arriving at the evaluated Bid cost/ price and comparison of Bids, except if otherwise specified in **BDS**.

(f) the additional evaluation factors if specified in **BDS** and/ or **Section 6**.

32.2 If price adjustment is allowed in accordance with **ITB 13.6**, the estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in Bid evaluation.

32.3 The Employer's evaluation of a Bid may require the consideration of other factors if specified in BDS, in addition to the Bid price quoted, in accordance with **ITB 33.1 (e)**.

33. Correction of Arithmetical Errors

33.1 The e-procurement system automatically calculates the total amount from unit rates and quantities, and the system also automatically populates the amount in words from the amount in figures, and therefore there is no scope of discrepancy and need for arithmetic correction. However there would be a manual recalculation and in the case of discrepancy between system generated and manual prices, the manually calculated prices shall prevail.

33.2 Any bid which is found to have tampered or modified the electronic logic of the e- procurement system for calculating the total amount from unit rates and quantities, and/ or in populating the amount in words from the amount in figures, is liable to be rejected and the case shall be dealt against the bidder under the Integrity Pact and conditions of the RFB/ bidding documents including those regarding fraud etc..

34. Comparison of Financial Parts

34.1 The Employer shall compare the evaluated price/costs of all substantially responsive Bids, to determine the Bid that has the lowest evaluated cost/ price.

35. Preference

35.1 **Deleted.**

36. Abnormally Low Bids

36.1 An Abnormally Low Bid is one where the Bid price, in combination with other elements of the Bid, appears so low that it raises material concerns

with the Employer as to the capability of the Bidder to perform the Contract for the offered Bid Price.

36.2 In the event of identification of a potentially Abnormally Low Bid, the Employer, unless otherwise specified in **BDS**, may seek written clarification from the Bidder, including a detailed price analyses of its Bid price in relation to the subject matter of the contract, scope, delivery schedule, allocation of risks and responsibilities and any other requirements of the bidding document.

36.3 After evaluation of the price analyses, in the event that the Employer determines that the Bidder has failed to demonstrate its capability to perform the contract for the offered Bid price, the Employer shall reject the Bid.

37. Unbalanced or Front Loaded Bids

37.1 The Bid that is evaluated as the lowest evaluated cost/price, shall be considered by the Employer as unbalanced or front loaded, if the quoted price of supply portion exceeds the percentage specified in **BDS** of the total quoted **Bid price**, after evaluation and excluding GST. In such a case, the bidder shall be required to furnish an additional performance security pursuant to **ITB 44.1** as contract.

38. Most Advantageous Bid

38.1 Having compared the evaluated cost/price of Bids as per **ITB 34**, the Employer shall determine the Most Advantageous Bid (alternatively referred to as **L1 Bid**). The Most Advantageous Bid is the Bid of the Bidder (also referred to as the **successful bidder**) who meets the specified requirements as per **Section 2** and **Section 3**, and whose Bid has been determined to have the lowest evaluated price/cost.

38.2 The capabilities of the manufacturers and subcontractors proposed in its Bid to be used by the Bidder with the Most Advantageous Bid for identified major items of supply or services may also be evaluated for acceptability in accordance with **Section 2** / **Section 6**. Their participation should be confirmed with a letter of intent between the parties, as needed. Should a manufacturer or subcontractor be determined to be unacceptable, the Bid will not be rejected, but the Bidder will be required to substitute an acceptable manufacturer or subcontractor without any change to the Bid price. Prior to signing the Contract, the corresponding **Appendix** to the Contract

Agreement shall be completed, listing the approved manufacturers or subcontractors for each item concerned.

38.3 Price Negotiation - Usually, there shall be no price negotiations. However, in case the Employer identifies exceptional reasons due to which negotiation is required, the Employer reserves its right to negotiate with the lowest acceptable bidder (L-1).

39. Employer's Right to Accept Any Bid, and to Reject Any or All Bids

39.1 The Employer reserves the right to accept or reject any Bid, and to annul the Bidding process and reject all Bids at any time prior to Contract Award, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically, Bid securities, if applicable as per **ITB 18** and submitted, shall be promptly returned to the Bidders.

H. Award of Contract

40. Award Criteria

40.1 The Employer shall award the Contract to the successful Bidder. This is the Bidder whose Bid has been determined to be the Most Advantageous Bid as specified in **ITB 38**.

40.2 The mode of contracting with the successful bidder will be as indicated below:

40.2.1 The award shall be made as follows:

(i) Contract Part I: for Supply of Plant on FOR (final place of destination Site/ Project Site) basis.

(ii) Contract Part II: for Supply of Installation Services {excluding the incidental services included in (i) above}

40.3 Both the parts of the Contract will contain a cross fall breach clause specifying that breach of one will constitute breach of the other.

41. Employer's Right to make minor adjustments at the time of Award

41.1 At the time the Contract is awarded, the Employer reserves the right to invite the Bidder whose Bid is determined to be the Most Advantageous Bid as per **ITB 38**, for discussions if any minor adjustments in the Contract are required, without any substantial change in the terms and conditions of the bidding document.

42. Notification of Award

- 42.1 Prior to the date of expiry of the Bid validity, the Employer shall notify the successful Bidder, in writing, that its Bid has been accepted. The Notification of Award (hereinafter and in the Contract Forms also called the “**Letter of Acceptance**”) shall specify the sum that the Employer will pay the Contractor in consideration of the execution of the Contract (hereinafter and in the Conditions of Contract and Contract Forms called “the Contract Price”).
- 42.2 Until a formal Contract is prepared and executed, the Letter of Acceptance/ Notification of Award shall constitute formation of a binding Contract.

43. Signing of Contract

- 43.1 Promptly upon issue of Letter of Acceptance/ Notification of Award, the Employer shall prepare the Contract Agreement, and keep it ready in the office of the Employer for the signature of the Employer and the successful Bidder, within twenty-one (21) days following the date of Letter of Acceptance. The Contract Agreement shall incorporate all agreements including L-2 schedule between the Employer and the successful Bidder. L-2 schedule should be submitted, discussed, amended (if so required) within overall L-1 schedule and accepted by owner before signing of contract agreement. Also, Contract Performance Guarantee (CPG) should be submitted, verified from issuing bank legally vetted and approved before signing of contract agreement.

“**L-1 schedule**” refers to the detailed breakdown structure of the broad heads of the project execution which is to be mutually agreed by the Employer and the bidder before execution of the contract.

“**L-2 schedule**” refers to detailed breakdown of the individual components of the L-1 Schedule for project completion.

- 43.2 Within twenty-eight (28) days of receipt of Letter of Acceptance, the successful Bidder shall (a) furnish the performance security in accordance with **ITB Clause 44**; and (b) shall sign, date and return the Agreement to the Employer along with the documents stated at (a) above.

I. Performance Security & Funds

44. Performance Security

44.1 Within twenty-eight (28) days of the receipt of the Letter of Acceptance/ Notification of Award from the Employer, the successful Bidder shall furnish the Performance Security & Additional performance security (if applicable), in Indian Rupees, in accordance with the GCC and in the amount, form and details specified in the **BDS**, further subject to **ITB 37**.

44.2 Failure of the successful Bidder to submit the above-mentioned Performance Security & Additional performance security (if applicable) or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security or be sufficient ground for action by the Employer against the bidder under the Bid Securing Declaration, as may be applicable as per **ITB 18**.

45. Source of Funds

45.1 The Employer named in the Bidding Documents intends to use the funds as specified in the BDS.

46. Dedicated bank account of Contractor

46.1 Deleted.

J. Bid Data Sheet (BDS)

The following specific data for the Plant and Installation Services/ Works to be procured shall complement, supplement, and/or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

ITB Reference	A. General
ITB 1.1	<p>The reference number of the Notice Inviting Tenders (NIT/Request for Bids (RFB) is: WBSEDCL/ P-I/ 16-Substation/ 2026-27/ NIT/ 01</p> <p>Dated: 05.10.2026</p> <p>The Employer is: West Bengal State Electricity Distribution Company Limited.</p> <p>The name and identification of the package under this RFB is: As per Table A at Section –I (RFB).</p> <p>These packages do not form lots & each will be evaluated separately except for the criteria mentioned in Qualification Requirement: Financial/ Commercial: in case of bidding for more than one package and subsequently the contract be awarded except the package(s) under Sl. No..... where the work will be segregated District wise & accordingly the contract be awarded.</p>
ITB 1.2 (c)	West Bengal State Electricity Distribution Company Limited (WBSEDCL), A Government of West Bengal Enterprise.
ITB 1.2 (m)	<p>Bidding/ Bids by/ from Joint Venture (JV) is “permitted”.</p> <p>In case Bidding/ Bids by/ from Joint Venture is permitted, the number of members/ partners of the JV shall not exceed 02 (two).</p>
	B. Contents of Bidding Document
ITB 6.1	<p>Bidding against RFB shall be conducted through/ with Electronic – Procurement (e- Procurement/ e- Tendering) System.</p> <p>Employer shall use the following Electronic-Procurement system to manage this Request for Bid (RFB) process:</p> <p><u>www.wbtenders.gov.in</u></p> <p>The electronic-procurement system shall be used to manage the following part of the bidding process under the RFB:</p> <p>Issuing RFB/ Bidding document, amendments/ corrigendum/ addendums/ clarifications, etc., submissions of bids, opening of Bids, etc.</p>

	To aid and facilitate the Bidders on e-Procurement/ e-Tendering process, a detailed guideline is available in the e-procurement portal as referred above. The same may be utilized by the Bidders.
ITB 6.2	<p>A Bidder requiring any clarification of the bidding document may notify the Employer online through the electronic bidding system if provisioned/ permitted or through e-mail at the following e-mail address:</p> <p>ceproj1@wbsedcl.in</p> <p>Requests for clarification should be received by the Employer no later than: 11.10.2026.</p>
ITB 6.5	<p>Pre-Bid meeting shall take place at the following date, time and place:</p> <p>Date: 12.10.2026</p> <p>Time : 12:00 Hours (IST).</p> <p>Place : Conference Room, Distribution Head Quarter Vidyut Bhawan, 1st Floor, D-Block, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091</p> <p>Website: <u>www.wbsedcl.in</u>, Email: <u>ceproj1@wbsedcl.in</u></p> <p>Any Bid related query should be send to the above-mentioned e-mail id by 11.10.2026.</p>
ITB 6.8	Email id:- cproj1@wbsedcl.in
ITB 7.1	The addendum/corrigendum/ amendment will appear on the e-procurement system specified in ITB 6.1 and email notification is also automatically sent through the system to those bidders who have started working on this procurement.
	C. Preparation of Bids
ITB 10.2.8	<p>The Bidder shall submit the following additional documents in Technical Part of its Bid:</p> <p>(i) Integrity Pact, prepared using the relevant form furnished in Section 4 - Bidding Forms - Technical Part of the Bid.</p>

	<p>(ii) Self-certified copy of the document to establish legal status of the firm viz. Certificate of Incorporation issued under The Companies Act / The Limited Liability Partnership Act / Partnership deed etc. as applicable;</p> <p>(iii) Self-certified copy of PAN;</p> <p>(iv) Self-certified copy of GST Registration;</p> <p>(v) Bank Guarantee (BG) for Bid Security/ Document confirming submission of Bid security other than BG, if opted for.</p> <p>(vi) Power of Attorney</p> <p>(vii) Valid Electrical Contractors License issued by any State/ UT</p> <p>(viii) Central Organization which is in force as on the date of Technical bid Opening.</p> <p>(ix) Electrical Supervisors Certificate of Competency as applicable for the work or an undertaking to submit the said certificate before the signing of contract, in the event of contract award.</p> <p>(x) EPF Registration of the bidder.</p>
ITB 10.3.3	As required.
ITB 11	Note for Bidders: Bidders have to submit the bids on the e-procurement portal along with the relevant required documents. For this purpose, the bidders shall fill up online, the forms that are available for online filling on the e-portal. The rest of the forms shall be download by the bidders and filled up. The filled-up pages shall then be scanned and uploaded on the e-procurement portal along with the scanned copies of the supporting documents. The bid shall be digitally signed.
ITB 11.3	<p>The Original signed Bid Security in any format designated in Section 2, ITB 18.2 (if bid security not opted through online method) must be delivered by the Bid Submission deadline per ITB 21.1.</p> <p>For submission of same, the Employer's address is: Chief Engineer, Project-I, WBSEDCL Vidyut Bhawan, 5th Floor, B-Block, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091 Tel (O): 033-23197467 Website: www.wbsedcl.in, Email: ceproj1@wbsedcl.in The hard copies mentioned above are to be submitted respective package wise.</p>
ITB 13.5.1(i), ITB 13.5.2 (i)	<p>Final Destination (Site/ Project Site) is: <i>As per the Table- B of Section-I (RFB) for respective package.</i></p> <p><i>BOCW Cess shall not be included in the price of the supply material in ITB 13.5.1(i). However, BOCW Cess shall be included in the price of the Labour value in ITB 13.5.2(i).</i></p>
ITB 13.5.1(ii), ITB 13.5.2 (ii)	The bidders have to quote the GST, separately.
ITB 13.5.3	To be submitted online
ITB 13.6	The prices quoted by the Bidder shall be firm.
ITB 13.11	<p>GST, as quoted by the bidders shall not be considered for evaluation & comparison of financial bid.</p> <p>GST as applicable in India, on the Plant and Installation Services</p>

	provided/supplied by the Contractor to the Employer under the Contract shall be paid/ reimbursed by Employer against requisite documents, at actuals.
ITB 14.1	Only Indian Rupees (INR) shall be considered as currencies for bidding.
ITB 17.1	The Bid shall remain valid until i.e. up to and including 180 days reckoned from the next date of opening of Technical part of the Bid, as may be extended by the Employer from time to time in accordance therewith. The employer, may, on the merit of case, request the bidder(s) for extension of validity of the offer for a further suitable period without any change in terms & conditions and rates of the offer.
ITB 18.1	<p>A Bid Security <i>shall be</i> required. The amount of the Bid Security shall be as specified in Table A of Section-I (RFB) for the respective package & the Bid Security in form of Bank Guarantee (BG) shall be in favour of: Chief Engineer, Project-I, WBSEDCL 5th Floor, B-Block, Vidyut Bhavan Sector-II, Block-DJ, Bidhannagar, Kolkata-700091 Bank Name: - UCO Bank Account no.: - 17130210001127 IFSC: - UCBA0001713</p> <p>Payable at Kolkata.</p> <p>The package name/ identification should be clearly specified on the sealed envelope in case of Bank Guarantee.</p>
ITB 18.2 (c)	<p>Other types of acceptable securities are:</p> <p><u>Following payment options are available for paying Bid Security amount:</u></p> <ol style="list-style-type: none"> <u>1. Net-banking</u> through Payment Gateway. <u>2. RTGS/NEFT Payment:</u> On selection of RTGS/NEFT as the payment mode, the e-Procurement Portal will show a pre-filled challan having the details to process RTGS/NEFT transaction. The Bidder will print the challan and use the pre-filled information to make RTGS/NEFT payment using his bank account. Once the payment is made, the bidder will come back to the e-Procurement Portal to continue the bidding process after expiry of a reasonable time to enable the RTGS/NEFT process to be completed. <p>In case actual Bid Security amount as per NIT is more than the one shown in e-tender portal, the Bidder shall mandatorily opt for NEFT/RTGS mode (Challan mode). In that case, the total actual Bid Security amount is to be paid only through NEFT/RTGS mode (Challan mode). Challan, thus generated will contain the amount which has been mentioned in e-tender portal. However, for payment of actual amount calculated as per NIT, bidders shall strike out the amount in Challan and manually put actual Bid Security amount while following the due payment procedure at respective Bank.</p>

	<p>For any queries related to payments & refunds, the bidders may communicate with ICICI Customer Support, viz, 033-40267512/13 since payment gateway facility used by e-tender portal is maintained by ICICI.</p> <p>3. Submission of Bid Security through BG: For submission of Bid Security in the form of BG, bidders will have to opt for Bid Security Exemption in e-tender portal and upload scanned copy of BG in the Bid Security exemption document upload section. Bank Guarantee (BG) should be drawn on any scheduled Bank drawn as per the pro-forma of Bank Guarantee for Bid Security, in favour of West Bengal State Electricity Distribution Company Limited as specified in the BDS.</p> <p>Physical copy of BG shall also be submitted at the office of tender inviting authority as per respective clauses of NIT.</p> <p>General Instructions for Online Payment:</p> <ul style="list-style-type: none"> ➤ Bid Security/ EMD amount can be paid either in online mode or submitted through Bank Guarantee (BG) in full. Partial payment through online mode and remaining submission through BG is not allowed. > The bidder will have to mandatorily pay through Net-banking facility once Net-banking mode is opted for payment. > Status of NEFT/RTGS payment through Challan for a bid may take time to be updated in 24 Hrs. (approx.). As such bidders opting to pay through NEFT/RTGS mode shall make payment well before 24 Hrs. to avoid any complicity. > The bank account used for payment of Bid Security by the bidders shall be maintained operative until the completion of tendering process. All refunds will be made mandatorily to the Bank A/c from which the payment of Bid Security has been initiated. > If the offer is submitted without or inadequate Bid Security, the Bid will not be opened. In case of incomplete offer, the Bid will be liable for rejection & Bid Security Deposit will be forfeited.
ITB 19.3	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: <i>Legally valid Power of Attorney demonstrating the authority of the signatory to sign the Bid.</i>
D. Submission of Bids	
ITB 21.1	<p>The following additional information is added to Section 3 Bid Data Sheet ITB 21.1.</p> <p>The Original signed Bid Security in any format designated in Section 2, ITB 18.2 (other than Bid Security submitted in online mode) must be delivered physically by the Bid Submission deadline per ITB 21.1.”</p> <p>The address for hard copy delivery of Bids is; Attention: Chief Engineer, Project-I, WBSEDCL Street Address: Vidyut Bhavan, Block-DJ, Sector-II, Bidhannagar Floor, room number: 5th Floor, Block-B City: Kolkata</p>

	<p>Country: India</p> <p>Please note that the Bid Submission, (including the soft copy of the bid security) shall be submitted electronically and ONLY the original (hard) copy of the bid security (as/ if applicable) shall be submitted by hand or mail.</p> <p>The Deadline for Submission of Bids by uploading on e- Procurement system specified in ITB 6.1 and ITB 11 is:</p> <p>Date: 04.11.2026</p> <p>Time: up to 12:00 Hrs.</p> <p>The Deadline for Submission of documents in hard copy as specified in ITB 11.3 is:</p> <p>Date: 04.11.2026</p> <p>Time: up to 12:00 Hrs.</p>
E. Public Opening of Technical Parts of Bids	
ITB 24.1	<p>The online opening of Technical Part of Bids, shall take place at:</p> <p>Office of Chief Engineer, Project-I WBSEDCL Vidyut Bhawan, 5th Floor, B-Block, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091 Tel (O): 033-23197467 Website: www.wbsedcl.in, Email: ceproj1@wbsedcl.in</p> <p>Date: 06.11.2026</p> <p>Time: 14:00 Hrs.</p> <p>In the event of the specified date of bid opening being declared a holiday for the Employer, the bids will be opened at the appointed time and location on the next working day.</p>
F. Evaluation of Bids - General Provisions	
ITB 28.3	<p>Bid Price shall be adjusted, for evaluation purposes only, to reflect the price of a missing or non-confirming item or component, as below:</p> <p>The adjustment shall be based on the highest price of the item or component as quoted in other substantially responsive Bids. If the price of the item or component cannot be derived from the price of other substantially responsive Bids, the Employer shall use its best estimate. However, for award purpose lowest price will be taken in to consideration.</p>

I. Evaluation of Financial Part of Bids	
ITB 32.1 (e)	GST, as per ITB 13.11 , shall be not considered for arriving at the evaluated Bid cost/ price and comparison of Bids.
ITB 32.1(f)	<p>The Employer's evaluation of a Bid shall also require the consideration of factors listed herein below. Wherever specified, the adjustments shall be determined using the criteria and methodology mentioned in Section 6. Employer's Requirement:</p> <p>(a) Time for Completion: The Plant and Installation Services specified in Employer's Requirement are required to be supplied / provided within the specified Time for Completion. No credit will be given if provided/ supplied before the specified date or period, and Bids offering supply/ completion after the final date/ specified period shall be treated as nonresponsive;</p> <p>(b) Deviation in payment schedule/ terms and conditions of payment: Bidders shall state their Bid price for the payment schedule outlined in the Conditions of Contract. Bids shall be evaluated on the basis of this base price. If a Bid deviates from the specified payment schedule/ terms and conditions of payment, it shall be treated as non-responsive;</p> <p>(c) Life cycle costs: the projected operating and maintenance costs during the life of the Plant, goods or equipment: Not Applicable</p> <p>(d) Functional Guarantees of the Facilities - Not Applicable</p> <p>(e) Cost of withdrawal of deviations: - Not Acceptable (as per Attachment 6 in Section 4)</p>
ITB 35.1	Deleted.
ITB 36	<p>Provisions related to Abnormally Low Bids will apply.</p> <p>i) Additional Performance Security equal to 10% of the Contract price for the most advantageous bid having variation of -20% to -50% of the estimated cost should be furnished in the prescribed format, within a period of 28 days from the date of issuance of the NoA/ LoA.</p> <p>ii) Additional Performance Security equal to 20% of the Contract Price for the most advantageous bid having variation over -50% to -80% of the estimated cost should be furnished in the prescribed format, within a period of 28 days from the date of issuance of the NoA/ LoA.</p>

ITB 37	<p>The percentage is 75%</p> <p>i) If the Bid that is evaluated as the lowest evaluated cost is, in the Employer's opinion, seriously unbalanced or front loaded, the Employer may require the Bidder to provide written clarifications. Clarifications may include detailed price analyses to demonstrate the consistency of the Bid prices with the scope of works, proposed methodology, schedule and any other requirements of the bidding document.</p> <p>ii) After the evaluation of the information and detailed price analyses presented by the Bidder, the Employer may:</p> <p>(a) accept the Bid without any additional Performance Security; or</p> <p>(b) require that the total amount of the Performance Security be increased, at the expense of the Bidder, to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract; or</p> <p>(c) reject the Bid, if the risk cannot be mitigated through additional performance security.</p> <p>Further, in case of Unbalanced/ Front-Loaded Bid, the Additional Performance Security amount is 10% of the level of unbalancing i.e. (actual value of supply part of contract - 75% of overall contract price).</p> <p>75% is to be defined as per ITB 37 under BDS.</p> <ul style="list-style-type: none"> • Validity of this Additional performance security should be up to the date of completion of work with a claim period of further 180 days. • The validity & methodology of release of Additional Performance Security will be same as performance security.
	J. Award of Contract
ITB 44.1	<p>The Performance Security amount is 10% of Contract Price.</p> <p>The Standard Form of Performance Security acceptable to the Employer shall be as specified in Section 8. Contract Forms.</p>
ITB 45.1	Government of West Bengal
Additional-1	Bidders applying as JV must submit documentary evidence indicating share of JV partnership so that the bid capacity can be calculated.

Section - 4: Bidding Forms - Technical Part of the Bid

Form 1**Letter of Bid – Technical Part**

Date of this Bid submission: *[insert date (as day, month and year) of Bid submission]*

NIT/RFB No.: *[insert number of Bidding process]*

Title of Procurement/ Contract: *[Insert here the title]*

To:

Chief Engineer, Project-I

WBSedCL

**Vidyut Bhawan, 5th Floor, Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091**

Website: www.wbsedcl.in, Email: ceproj1@wbsedcl.in

1.0 We, the undersigned Bidder, hereby submit our Bid, in two parts, namely:

- (a) the Technical Part, and
- (b) the Financial Part.

2.0 In submitting our Bid we make the following declarations:

- (a) **No reservations:** We have examined and have no reservations to the bidding document (ITB5), including addenda issued in accordance with Instructions to Bidders (ITB 7);
- (b) **Eligibility:** We meet the eligibility requirements and have no conflict of interest in accordance with ITB 3 and Section 3;
- (c) **Bid/Proposal-Securing Declaration:** We have not been suspended nor declared ineligible by the Purchaser based on execution of a Bid Securing Declaration by the Purchaser in accordance with ITB 10.2.2;
- (d) **Conformity:** We offer to supply in conformity with the bidding document and in accordance with the Delivery Schedules specified in the Schedule of Requirements the all the Goods and Related Services as per the scope mentioned in Part 2, Section 6.;
- (e) **Bid Validity Period:** Our Bid shall be valid for the period specified in BDS 17.1 (as amended if applicable) from the date fixed for the deadline for submission of Bids (specified in BDS 21.1 (as amended if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (f) **Performance Security:** If our Bid is accepted, we commit to obtain a performance security in accordance with the bidding document;
- (g) **One Bid per Bidder:** We are not submitting any other Bid(s) as an individual Bidder, and meet the requirements of ITB 4.2;
- (h) **Suspension:** We, along with any of our subcontractors, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a blacklist as specified in Section 2, Clause 1.3. Further, we are not ineligible under the Purchaser's country laws or official regulations or pursuant to a decision of the United

Nations Security Council;

- (i) **Binding Contract:** We understand that this Bid, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- (j) **Not Bound to Accept:** We understand that you are not bound to accept the lowest evaluated cost/price Bid, the Most Advantageous Bid or any other Bid that you may receive;
- (k) **Fraud and Corruption:** We hereby certify that we have taken steps to ensure that no person acting for us, or on our behalf, engages in any type of Fraud and Corruption;
- (l) **(applicable only if the bidder is a Joint Venture as per Section 2 of RFB/ bidding document)** We have bid as a Joint Venture as per Section 2 of RFB/ bidding document) and in accordance with Clause 2.2.7 of Section 2 we declare and confirm that all partners of the joint venture shall be liable jointly and severally for the execution of the contract in accordance with the contract terms;
- (m) We submit appended herewith, as integral part of the Technical Part of our bid, the details/ documents as listed in the table below in the Forms duly filled, as prescribed, along with supporting documentary evidence as required/ specified. We understand and confirm that we would be solely responsible for any errors or omissions in our Bid and your decision in regard to sufficiency and/ or adequacy of the details/ documents comprising our Bid for determining its completeness shall be final and binding.

Sr.	Document	Status (Submitted/ Not Submitted/ Not Applicable)
1.	This Letter of Bid as per format prescribed in Form 1 given in Section 4 of RFB/ bidding document	
2	Bidder Information as per the format prescribed in Form 2 given in Section 4 of RFB/ bidding document	
3	Bid Security or Bid Securing Declaration, as may be specified in ITB 18 Section 3 of RFB/ bidding document, in the form of specified in ITB. Bid Securing Declaration in format prescribed in Form 3A given in Section 4 and Bid Security in the form of Bank Guarantee in format prescribed in Form 3B given in Section 4 of RFB/ bidding document.	
4.	Power of Attorney by Lead Joint Venture Member/ Sole Bidder authorizing an Individual Designated Representative for the Joint Venture Bidder/ Sole Bidder as per the format prescribed in Form 4 given in Section 4 of RFB/ bidding	

Sr.	Document	Status (Submitted/ Not Submitted/ Not Applicable)
	document	
5.	Declaration of conformance of the Bidder and the Facilities offered, to the specified eligibility requirement specified in Section 2 and Section 3, as per the format prescribed in Form 5 given in Section 4 of RFB/ bidding document	
6.	Local Content Certificate for Class I Local Supplier, as specified in Clause 1.5 of Section 2 of RFB/ bidding document, Affidavit of Self certification as per the format prescribed in Form 6 given in Section 4 of RFB/ bidding document or by certificate (format not specified) of Statutory Auditor, as may be applicable	Not Applicable
7	Power of Attorney by each member/ partner of the Joint Venture in favour of Lead member/ partner as per format prescribed in Form 7 given in Section 4 of RFB/ bidding document (<i>applicable only for Joint Venture Bidder</i>)	
8 A	Joint Deed of Undertaking (JDU) signed by each member/ partner of the Joint Venture, as per format prescribed in Form 8 given in Section 4 of RFB/ bidding document (<i>applicable only for Joint Venture Bidder</i>)	
8 B	Joint Venture Agreement entered amongst all the partners/ members of the Joint Venture in their own format but without violating any of the requirements of the bidding documents and necessarily including the confirmation as specified in Clause 2.2.7 of Section 2 of RFB/ bidding document (<i>applicable only for Joint Venture Bidder</i>)	
9	Details/ Data and documentary evidence in support of meeting the Qualification Requirement specified in Section 2 of RFB/ bidding document, as per the format prescribed in Form 9 given in Section 4 of RFB/ bidding document	
10.	The details of all major items of Plant and Installation Services proposed to be subcontracted in case of award, indicating name and nationality of the proposed subcontractor/sub-vendor for each item, as per the format prescribed in Form 10 given in Section 4 of RFB/ bidding document. as per the format prescribed in Form 1 given in Section 4	Not Applicable
11.	Form of Undertaking on Compliance of Terms & Conditions of the RFB/ bidding document including Scope of Work and other related requirements, as per the format prescribed in Form 11 given in Section 4 of RFB/ bidding document, <i>subject to Sl No. 12 below of this table</i>	

Sr.	Document	Status (Submitted/ Not Submitted/ Not Applicable)
12	Statement of Deviation from the requirements specified in the RFB/ bidding documents including Conditions of Contract, Employer's Requirement/ Specification and Drawings etc, including, inter alia, the cost of withdrawal thereof, as per the format prescribed in Form 12 given in Section 4 of RFB/ bidding document	Not Applicable
13	Work Completion Schedule, as per the format prescribed in Form 13 given in Section 4 of RFB/ bidding document	
14	Guarantee Declaration, as per the format prescribed in Form 14 given in Section 4 of RFB/ bidding document	
15	Information regarding ex-employees of Employer in our firm, as per the format prescribed in Form 15 given in Section 4 of RFB/ bidding document	
16	Filled up information regarding Price Adjustment Data, as per the format prescribed in Form 16 given in Section 4 of RFB/ bidding document	Not Applicable
17	Option for Interest bearing Initial Advance payment and Information for E-payment, PF details and declaration regarding Micro/Small & Medium Enterprises, as per the format prescribed in Form 17 given in Section 4 of RFB/ bidding document	
18	Declaration for tax exemptions, reductions, allowances or benefits, as per the format prescribed in Form 18 given in Section 4 of RFB/ bidding document	
19	Bank Guarantee verification checklist, as per the format prescribed in Form 19 given in Section 4 of RFB/ bidding document	
20	Additional Information, if any, as per the format prescribed in Form 20 given in Section 4 of RFB/ bidding document	
21	Integrity Pact, duly signed on each page by the person signing the bid, as per the format prescribed in Form 21 given in Section 4 of RFB/ bidding document	
22	Format of the Bank Guarantee for the Additional Performance Security Deposit in Form 22	
23	Declaration regarding no litigation against WBSEDCL in Form 23	

- (n) We are also submitting herewith the Financial Part of our Bid, online separately, as per the prescribed Forms given in Section 5 of RFB/ bidding document, complete in all respects in electronic form only, as per the requirements of RFB/ bidding document. We

confirm that the same does not contain any deviation, reservation or omission, failing which it is liable to be rejected.

(o) Contact Person

Details of the contact person representing us supported by the Power of Attorney, as prescribed, are furnished as under:

Name:
 Designation:
 Company:
 Address:
 Mobile:
 Phone:
 Fax:
 Email:

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
 at..... *[Insert place]*.

 Signature {(of Bidder's authorized Bid Signatory (ies))} [#] {In full and initials}:

Full name: {insert full name of authorized Bid Signatory}
 Title: {insert title/position of authorized Bid Signatory}
 Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):
 Capacity: {insert the person's capacity to sign for the Bidder}
 Address: {insert the authorized Bid Signatory's address}
 Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}
 Email: {insert the authorized Bid Signatory's email address} _____

[#]{For a joint venture, either all members shall sign or only the authorized signatory as per ITB 19.4, in either case the power of attorney of the authorized bid signatory (signatories) must be attached}

Form 2**(Appendix to Technical Part of the Bid)****Format for Bidder Information Sheet**

[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]

NIT/RFB No.: *[insert details]*Package Name/ Contract Title: *[insert details]*

Page _____ of _____ pages

1. Bidder's Legal Name
2. Legal Status of the Bidder
3. Bidder's Country of Registration:
4. Bidder's Year of Registration:
5. Bidder's Legal Address in Country of Registration:
6. Bidder's Authorized Representative Information Name: Address: Telephone/Fax numbers: Email Address:
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i> <ul style="list-style-type: none">○ Self-certified copy of the document to establish legal status of the firm viz. Certificate of Incorporation issued under the Companies Act / The Limited Liability Partnership Act / Partnership deed etc. as applicable;○ Self-certified copy of PAN○ Self-certified copy of GST Registration;○ Organizational chart including a list of Board of Directors/ Key Management Personnel.

Note: In case of JV/ Consortium, the afore details/ documents are to be furnished for each of the JV/ Consortium Members

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))} [#] {In full and initials}:

Full name: {insert full name of authorized Bid Signatory}

Title: {insert title/position of authorized Bid Signatory}

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address} _____

[#]*{For a joint venture, either all members shall sign or only the authorized signatory as per ITB 19.4, in either case the power of attorney of the authorized bid signatory (signatories) must be attached}*

Form 3A**(Appendix to Technical Part of the Bid)****Format of Bid Securing Declaration****(Not applicable)****BID SECURING DECLARATION**

Whereas, I/We (name of Bidder) ----- have submitted Bid for -----
 (name of Package) in response to Request for Bid (RFB) no:-----dated

I/We hereby submit following declaration in lieu of Bid Security/ Earnest Money Deposit:

1. If after the opening of Proposal, I/We withdraw and/or modify my/our Proposal during its period of validity (including extended validity) as specified in the RFB document,
Or
2. If, after the issue of Notification of Award of the Contract, I/We fail to sign the Contract, or to submit Contract Performance Guarantee before the deadline specified in the RFB document,
Or
3. If, in case of I/ we fail to ensure that the Contract becomes Effective as specified in the RFB document.

I/we shall be suspended from and shall not be eligible to participate for a period of [... to be filled in by the Utility as per ITB 18.8...] year from date of issue of the suspension order, in the bidding against any of the Notice Inviting Tenders/ Invitation For Bids/ Request for Proposal/ Bid etc. issued by WBSEDCL during that period.

Dated the [Insert date of the month] day of..... [Insert month, year]
 at..... [Insert place].

Signature {(of Bidder's authorized Bid Signatory (ies))} # {In full and initials}:

Full name: {insert full name of authorized Bid Signatory}

Title: {insert title/position of authorized Bid Signatory}

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address} _____

[#] *{For a joint venture, either all members shall sign or only the authorized signatory as per ITB 19.4, in either case the power of attorney of the authorized bid signatory (signatories) must be attached}*

Form 3B**(Appendix to Technical Part of the Bid)****Format of Bank Guarantee for Bid Security**

{To be on non-judicial stamp paper of Rupees One Hundred Only (INR 100/-) or appropriate value as per Stamp Act relevant to place of execution, duly signed on each page.}

Reference No.
.....

Bank Guarantee No.

Dated:

To:

**Chief Engineer, Project-I
WBSEDCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091**

Dear Sir/ Madam,

WHEREAS..... [Insert name of the Sole Bidder] / [insert name of the Lead Joint Venture Member followed by the words “representing Joint Venture of [insert names of all the members of Joint Venture]”] with address [Insert address of Sole Bidder /Lead Joint Venture Member] having its registered office at [Insert address of the Sole Bidder /Lead Joint Venture Member] (Hereinafter, the “Bidder”) wishes to participate in Tender No.[Tender Details] (the “RFB”) issued by WBSEDCL for [name of the Package/ Contract title]

And WHEREAS a Bank Guarantee for [Amount] valid till [Date] is required to be submitted by the Bidder along with the RFB.

We,[Insert name of the Bank and address of the Branch giving the Bank Guarantee] having our registered office at[Insert address of the registered office of the Bank] hereby give this Bank Guarantee No.[Insert Bank Guarantee number] dated[Insert the date of the Bank Guarantee], and hereby agree unequivocally and unconditionally to pay immediately on demand in writing from the Utility any officer authorized by it in this behalf any amount not exceeding [Amount] to the said Utility on behalf of the Bidder.

We[Insert name of the Bank] also agree that withdrawal of the Bid or part thereof by the Bidder within its validity or not signing the Contract Agreement or non-submission of Performance Security by the Bidder within the stipulated time of the Letter of Award to the Bidder or any violation to the relevant terms stipulated in the RFB would constitute a default on the part of the Bidder and that this Bank Guarantee is liable to be invoked and encashed within its validity

by the Utility in case of any occurrence of a default on the part of the Bidder and that the amount is liable to be forfeited by the Utility.

This Guarantee shall be valid and binding on this Bank up to and inclusive of
[Insert the date of validity of the Bank] and shall not be terminable by notice or by Guarantor for the reason of change in the constitution of the Bank or the firm of the Bidder or by any reason whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, conceded with or without our knowledge or consent by or between the Bidder and the Utility.

NOTWITHSTANDING anything contained hereinbefore, our liability under this guarantee is restricted to [Amount]. Our Guarantee shall remain in force till [Date]. Unless demands or claims under this Bank Guarantee are made to us in writing on or before [Date], all rights of the Beneficiary under this Bank Guarantee shall be forfeited, and we shall be released and discharged from all liabilities there under.

<i>[Insert the address of the Bank with complete postal branch code, telephone and fax numbers, and official round seal of the Bank]</i>	<i>[Insert signature of the Bank's Authorized Signatory]</i>
<i>Attested</i>	
..... [Signature] (Notary Public)	
Place:	Date:

INSTRUCTIONS FOR SUBMITTING BANK GUARANTEE

1. Bank Guarantee to be executed on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.
2. The Bank Guarantee by Bidder shall be given from any Scheduled Commercial Bank.
3. The full address along with the Telex/Fax No. and e-mail address of the issuing bank to be mentioned.

Form 4**(Appendix to Technical Part of the Bid)****Format of Power of Attorney of designated Bid Signatory by sole bidder/ lead joint venture member**

[To be on non-judicial stamp paper of Rupees One Hundred Only (INR 100/-) or appropriate value as per Stamp Act relevant to place of execution.]

Know all men by these presents, we *[Insert name and address of the registered office of the Lead Consortium Member of the Bidding Consortium/ Sole Bidder]* do hereby constitute, appoint, nominate and authorize Mr./Ms. *[Insert name and residential address]*, who is presently employed with us and holding the position of..... as our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of our Bid in response to RFB/ Tender No. *[RFB/ Tender Details]* for *[Insert name of Package/ Contract title]* (the “Project”) issued by WBSEDCL, including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which Utility may require us to submit. The aforesaid attorney is further authorized for making representations to Utility, and providing information / responses to Utility, representing us in all matters before Utility, and generally dealing with Utility in all matters in connection with our Bid till the completion of the bidding process as per the terms of the RFB.

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

All the terms used herein but not defined shall have the meaning ascribed to such terms under the RFB.

Signed by the within named *[Insert the name of the executant company]* through the hand of Mr./ Mrs. duly authorized by the Board/ Owner to issue such Power of Attorney dated this day of

Accepted

..... (Signature of Attorney)
 [Insert Name, designation and address of the Attorney]

Attested

.....
 (Signature of the executant)
 (Name, designation and address of the executant)

.....
 Signature and stamp of Notary of the place of execution

Common seal of..... has been affixed in my/our presence pursuant to Board of Director's Resolution dated..../ Owner

1. WITNESS 1.(Signature)
Name
Designation.....
2. WITNESS 2.(Signature)
Name
Designation_

Notes:

- a. The mode of execution of the power of attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s).*
 - b. In the event, power of attorney has been executed outside India, the same needs to be duly notarized by a notary public of the jurisdiction where it is executed.*
 - c. Also, wherever required, the executant(s) should submit for verification the extract of the charter documents and documents such as a Board resolution / power of attorney, infavor of the person executing this power of attorney for delegation of power hereunder on behalf of the executant(s).*
-

Form 5**(Appendix to Technical Part of the Bid)****Format of Declaration of conformance of the Bidder and the Facilities offered, to the specified eligibility requirement**NIT/RFB No : *[insert details]*Package Name/ Contract Title: *[insert details]*

To:

**Chief Engineer, Project-I
WBSEDCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091**

Bidder's Name and Address:

*{In case of JV bidder, mention name
and address of all the Joint Venture members}*

We hereby certify that Plant and Installation Services offered to be supplied by us fully comply with all the eligibility and other requirements specified in Section 2 and Section 3 of RFB/ bidding documents.

We hereby certify that our firm is legally established in India and we fully comply with the eligibility and other requirements specified in Section 2 and Section 3 of RFB/ bidding documents,

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))}# {In full and initials}:

Full name: {insert full name of authorized Bid Signatory}

Title: {insert title/position of authorized Bid Signatory}

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address} _____

{For a joint venture, either all members shall sign or only the authorized signatory as per ITB 19.4, in either case the power of attorney of the authorized bid signatory (signatories) must be attached}

Form 6

Not Applicable

Form 7**(Appendix to Technical Part of the Bid)****Format of Power of Attorney by Each Member/ Partner of The Joint Venture in favor of Lead Member/ Partner**

KNOW ALL MEN BY THESE PRESENTS THAT WE, the Partners whose details are given hereunder have formed a Joint Venture under the laws of and having our Registered Office(s)/Head Office(s) at (hereinafter called the 'Joint Venture' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) acting through M/s being the Partner in-charge, do hereby constitute, nominate and appoint M/s..... a Company incorporated under the laws of and having its Registered/Head Office at..... as our duly constituted lawful Attorney (hereinafter called "Attorney" or "Authorized Representative" or "Partner In-charge" or "Lead Partner" or "Lead Member" or "Leader") to exercise all or any of the powers for and on behalf of the Joint Venture in regard to Request for Bids (RFB)/ Request for Proposals (RFP) No..... for Packagethe bids for which have been invited by **The Chief Engineer, Project-I, WBSEDCL, Vidyut Bhawan, 5th Floor, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091** (hereinafter called the 'Employer') to undertake the following acts :

- i) To submit proposal/ Bid and participate in the aforesaid Bidding, against the RFB/ RFP issued of the Employer, on behalf of the "Joint Venture".
- ii) To negotiate with the Employer the terms and conditions for award of the Contract pursuant to the aforesaid Bid and to sign the Contract with the Employer for and on behalf of the "Joint Venture".
- iii) To do any other act or submit any document related to the above.
- iv) To receive, accept and execute the Contract for and on behalf of the "Joint Venture".

It is clearly understood that the Partner In-charge (Lead Partner/ Lead Member) shall ensure performance of the Contract(s) and if one or more Partner fail to perform their respective portions of the Contract(s), the same shall be deemed to be a default by all the Partners.

It is expressly understood that this Power of Attorney shall remain valid binding and irrevocable till completion of the Defect Liability Period in terms of the Contract.

The Joint Venture hereby agrees and undertakes to ratify and confirm all and whatsoever the said Attorney/Authorized Representatives/Partner in-charge/ Lead Partner/ Lead Member quotes in the bid, negotiates and signs the Contract with the Employer and/or proposes to act or acts on behalf of the Joint Venture by virtue of this Power of Attorney and the same shall bind the Joint Venture as if done by itself.

IN WITNESS THEREOF the Partners Constituting the Joint Venture as aforesaid have executed these presents on this day of..... under the Common Seal(s) of their respective Companies.

for and on behalf of the
Partners of Joint Venture

.....

.....

The Common Seal of the above Partners of the Joint Venture:

The Common Seal has been affixed there unto in the presence of:

WITNESS

1. Signature.....

Name

Designation

Occupation

2. Signature.....

Name

Designation

Occupation

Note:

1. For the purpose of executing the power of attorney, the non-judicial stamp papers of appropriate value shall be purchased in the name of Joint Venture.
2. The power of attorney shall be signed on all the pages by the authorized representatives of each of the partners and should invariably be witnessed and notarized.

Form 8**(Appendix to Technical Part of the Bid)****Format of Joint Deed of Undertaking by the Joint Venture Partners/ Members**

THIS JOINT DEED OF UNDERTAKING executed on this..... day of... ..Two Thousand and..... bya company incorporated under the laws of and having its Registered Office at(hereinafter called the "Party No.1" which expression shall include its successors, executors and permitted assigns) and M/s.....a company incorporated under the laws of and having its Registered Office at (hereinafter called the "Party No.2" which expression shall include its successors, executors and permitted assigns). for the purpose of making a bid and entering into a contract [hereinafter called the "Contract" {in case of award}] against the Request For Bids (RFB)/ Request for Proposal (RFP) No..... for.....(*insert name of the package along with project name*) of **Chief Engineer, Project-I, WBSEDCL** a Company incorporated under the Companies Act of 1956 having its registered office at **Vidyut Bhawan, 5th Floor, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091.**

WHEREAS the Party No.1 and Party No.2 have entered into an Agreement dated.....

AND WHEREAS the Employer invited bids as per the above mentioned Package for the design, supply and installation of the Plant as stipulated in the Bidding Documents for(*insert name of the package along with project name*).....

AND WHEREAS as per Section 2/ Section 3 of the Bidding Documents, inter-alia stipulates that a Joint Venture, as specified therein, may bid, provided, the Joint Venture and the partners/ members in/ of the Joint Ventures fulfill all the specified requirements of the Bidding Documents and that , in such a case, the Bid shall be signed by all the partners so as to legally bind all the Partners of the Joint Venture, who will be jointly and severally liable to perform the Contract and all obligations hereunder.

AND WHEREAS the bid is being submitted to the Employer vide proposal No.....dated..... by Party No.1 based on this Undertaking between all the parties; under these presents and the bid in accordance with the requirements of Section 2/

Section 3 of the Bidding Documents, has been signed in accordance with the provisions contained therein.

NOW THIS UNDERTAKING WITNESSETH AS UNDER:

In consideration of the above premises and agreements all the parties of this Deed of Undertaking do hereby declare and undertake:

1. In requirement of the award of the Contract by the Employer to the Joint Venture Partners, we, the Parties do hereby undertake that M/s..... the Party No.1, shall act as Lead Partner/ Lead Member/ Authorized Representative/ Partner-in- Charge of the Joint Venture, and further declare and confirm that we the parties to the Joint Venture shall jointly and severally be bound unto the Employer for the successful performance of the Contract and shall be fully responsible for the design, supply and installation of the Plant and for successful performance of the Contract in the event of award and performance of equipment in accordance with the Contract:
2. In case of any breach or default of the said Contract by any of the parties to the Joint Venture, the party(s) do hereby undertake to be fully responsible for the successful performance of the Contract and to carry out all the obligations and responsibilities under the Contract in accordance with the requirements of the Contract.
3. Further, if the Employer suffers any loss or damage on account of any breach in the Contract or any shortfall in the performance of the equipment in meeting the performances guaranteed as per the specification in terms of the Contract, the Party(s) of these presents undertake to promptly make good such loss or damages caused to the Employer, on its demand without any demur. It shall not be necessary or obligatory for the Employer to proceed against Lead Partner to these presents before proceeding against or dealing with the other Party(ies), the Employer can proceed against any of the parties who shall be jointly and severally liable for the performance and all other liabilities/obligations under the Contract to the Employer.
4. The financial liability of the Parties of this Deed of Undertaking to the Employer, with respect to any of the claims arising out of the performance or non-performance of the obligations set forth in this Deed of Undertaking, read in conjunction with the relevant conditions of the Contract shall, however, not be limited in any way so as to restrict or limit the liabilities or obligations of any of the Parties of this Deed of Undertaking.
5. It is expressly understood and agreed between the Parties to this Undertaking that the responsibilities and obligations of each of the Parties shall be as delineated in **Appendix – I** *(to be suitably appended by the Parties along with this Undertaking in its bid)* to this Deed of Undertaking. It is further undertaken by the parties that the above sharing of responsibilities and obligations shall not in any way be a limitation of joint and several responsibilities of the Parties under the Contract.

6. It is also understood that this Undertaking is provided for the purposes of undertaking joint and several liabilities of the partners to the Joint Venture for submission of the bid and performance of the Contract and that this Undertaking shall not be deemed to give rise to any additional liabilities or obligations, in any manner or any law, on any of the Parties to this Undertaking or on the Joint Venture, other than the express provisions of the Contract.
7. This Undertaking shall be construed and interpreted in accordance with the provisions of the Contract.
8. In case of an award of a Contract, we the parties to this Deed of Undertaking do hereby agree that we shall be jointly and severally responsible for furnishing a Contract performance security from a bank in favor of the Employer in the currency/currencies of the Contract.
9. It is further agreed that this Deed of Undertaking shall be irrevocable and shall form an integral part of the bid and shall continue to be enforceable till the Employer discharges the same or upon the completion of the Contract in accordance with its provisions, whichever is earlier. It shall be effective from the date first mentioned above for all purposes and intents.

IN WITNESS WHEREOF, the Parties to this Deed of Undertaking have through their authorized representatives executed these presents and affixed Common Seals of their companies, on the day, month and year first mentioned above.

Common Seal of
has been affixed in my/ our
presence pursuant to Board of
Director's Resolution dated

For Lead Partner (Party No.-1)
For and on behalf of M/s
.....

Name

Designation

Signature

(Signature of the authorized
representative)

WITNESS :

I.

II.

Common Seal of

For Party No.-2

has been affixed in my/ our
presence pursuant to Board of
Director's Resolution dated

For and on behalf of
M/s.....

Name

(Signature of the authorized
representative)

Designation

Signature

WITNESS:

I.

II.

Note:

1. For the purpose of executing the Joint Deed of Undertaking, the non-judicial stamp papers of appropriate value shall be purchased in the name of Joint Venture.
2. The Undertaking shall be signed on all the pages by the authorised representatives of each of the partners and should invariably be witnessed.
3. Appendix 1 must be enclosed

(Appendix to Technical Part of the Bid)

Joint Venture Agreement

(no specified format, bidders to use own format)

Form 9

(Appendix to Technical Part of the Bid)

Format for Details/ Data and Documentary Evidence in support of meeting the Qualification Requirement**Notes on Form of Qualification Information**

The information is to be filled in by individual bidders. The following pages will be used for purposes of post-qualification as provided for in Section 2 / Section 3 of RFB/ bidding documents. This information will not be incorporated in the Contract. Attach additional pages as necessary.

NIT/RFB No.: *[insert details]*Package Name/ Contract Title: *[insert details]*

Page _____ of _____ pages

(Qualifying Requirement Data)

To:
Chief Engineer, Project-I
WBSEDCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091

Bidder's Name and Address:

*{In case of JV bidder, mention name
and address of all the Joint Venture members}*

Dear Ladies and/or Gentlemen,

In support of the Qualification Requirements (QR) for bidders, stipulated in Section-2 of the bidding documents, we furnish herewith our QR data/details/documents etc., along with other information, as follows (The QR stipulations have been reproduced in italics for ready reference, however, in case of any discrepancy the QR as given in Section-2 shall prevail).

* We have submitted bid as individual firm.

* We have submitted bid as joint venture of following firms:

(i)

(ii)

(* ***Strike-off whichever is not applicable***)

[For details regarding Qualification Requirements of a Joint Venture, please refer para 4.0

below.]

We are furnishing the following details/document in support of Qualifying requirement for the subject project.

I. Attached copies of original documents defining:

- a) The constitution or legal status;
- b) The principal place of business;
- c) The place of incorporation (for bidders who are corporations); or the place of registration and the nationality of the Owners (for applicants who are partnerships or individually-owned firms).

II. Attached original & copies of the following documents.

- a) Written power of attorney of the signatory of the Bid to commit the bidder.
- b)** Joint Venture Agreement

*[** To be submitted only in case of Joint Ventures. Strike off in case of individual firms.]*

III. Technical Experience QR Data/ Details/ Document

Format A: Format for the Bidder (Single Firm / Partner(s) in case of Joint Venture) for technical experience in compliance to para 2.1 of Section-2 [In case of Joint Venture bidder, the QR data of each of the partner (in support of meeting the requirement of para 2.1.2 of Section-2)] is also to be furnished, as applicable, using this format. The bidder (Single Firm / Partner(s) in case of Joint Venture) who is willing to qualify in compliance to para 2.1 of Section-2 shall fill below format for two or all three contracts.

A1.	Name of Bidder/Lead Partner of JV/other partner(s) of JV	
A2.	Name of Contract (executed during the last 7 years up to 31.03.2022):	
A3.	Contract Reference No. & Date of Award	
A4	Name and Address of the Employer/Utility by whom the Contract was awarded e-mail ID _____ Telephone No. _____ Fax No. _____	
A5(i)	Name of completed work of project execution in electrical Transmission or sub-transmission & distribution sector	_____
(ii)	Cost of the project	_____
(iii)	% of cost w.r.t. estimated cost of this bid (in %)	
A6(i)	Date of successful execution of the Contract/Date of commissioning	_____
A7.	Capacity in which the Contract was undertaken (Check One) _____	☐ Prime Contractor ☐ Partner of JV ☐ Subcontractor <i>(Tick whichever is applicable)</i>
A8.	Details/documentary evidence submitted in support of stated experience/Contract	

(Documentary evidence, such as copies of contract agreement/ letter of award/ utility certificates etc., in support of its experience shall be attached with the filled-up format for each experience/Contract)

IV. Financial/ Commercial QE Data/ Details/ Documents

Format B: Format for the Bidder (Single Firm / Partner(s) in case of Joint Venture) for financial/ commercial experience in compliance to para 2.2.1, 2.2.2, 2.2.3 of Section-2 [In case of Joint Venture bidder, the QR data of each of the partner (in support of meeting the requirement of para 2.2.4 of Section-2) is also to furnished, as applicable, using this format.

A1.	Name of Bidder/Lead Partner of JV/other partner(s) of JV	
A2.	Net-worth in last three financial years: <ol style="list-style-type: none"> 1. Financial Year 2023-24 2. Financial Year 2024-25 3. Financial Year 2025-26 	: Rs ----- lakhs : Rs ----- lakhs : Rs ----- lakhs
A3.	Minimum Average Annual Turnover (MAAT) <ol style="list-style-type: none"> 1. Financial Year 2021-22 2. Financial Year 2022-23 3. Financial Year 2023-24 4. Financial Year 2024-25 5. Financial Year 2025-26 	: Rs ----- lakhs : Rs ----- lakhs : Rs ----- lakhs : Rs ----- lakhs : Rs ----- lakhs
A4	liquid assets (LA) and/ or evidence of access to or availability of credit facilities	: Rs ----- lakhs
A4.	Details/documentary evidence submitted in support of stated details	

V. We understand that:

- i. . Sub contractors' experience and resources shall not be taken into account in determining the bidder's compliance with qualifying criteria.
- ii. One of the partners shall be nominated as lead partner, and the lead partner shall be authorized to incur liabilities and receive instruction for and on behalf of any and all partners of the joint venture and the entire execution of the contract including receipt of payment shall be done exclusively through the lead partner. This authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners as per specified format.
- iii. All partner of the joint venture shall be liable jointly and severally for the execution of the contract in accordance with the contract terms and a copy of the agreement entered into by the joint venture partners having such a provision shall be submitted with the bid.

VI. We have furnished the following documents/details with Technical Part of our Bid:

- 2.1 A certificate from banker (as per format) indicating various fund based/non fund based limits sanctioned to the bidder and the extent of utilization as on date. Such certificate should have been issued not earlier than three months prior to the date of bid opening. Wherever necessary Employer may make queries with the Bidders' bankers.
- 2.2 The complete annual reports together with Audited statement of accounts of the company for last five years of its own (separate) immediately preceding the date of submission of bid.

Note:

- (a) In the event the bidder is not able to furnish the information of its own (i.e. separate), being a subsidiary company and its accounts are being consolidated with its group/holding/parent company, the bidder should submit the audited balance sheets, income statements, other information pertaining to it only (not of its group/Holding/Parent Company) duly certified by any one of the authority [(i)

Statutory Auditor of the bidder /(ii) Company Secretary of the bidder or (iii) A certified Public Accountant] certifying that such information/documents are based on the audited accounts as the case may be.

(b) Similarly, if the bidder happens to be a Group/Holding/Parent Company, the bidder should submit the above documents/information of its own (i.e. exclusive of its subsidiaries) duly certified by any one of the authorities mentioned in Note – 2.3 above certifying that these information/ documents are based on the audited accounts, as the case may be.

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))}# {In full and initials}:

Full name: {insert full name of authorized Bid Signatory}

Title: {insert title/position of authorized Bid Signatory}

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address} _____

{For a joint venture, either all members shall sign or only the authorised signatory as per ITB 19.4, in either case the power of attorney of the authorized bid signatory (signatories) must be attached}

Form 10**(Appendix to Technical Part of the Bid)****(NOT APPLICABLE)****Format of Bought-out & Sub-contracted Items**

NIT/RFB No.: [insert details]

Package Name/ Contract Title: [insert details]

Page_____of_____pages

To,
Chief Engineer, Project-I
WBSEDCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091

Bidder's Name and Address:

*{In case of JV bidder, mention name
and address of all the Joint Venture members}*

Dear Sir/ Madam,

1.0 We hereby furnish the details of major items/ sub-assemblies, we propose to buy from our proposed sub-vendors/ subcontractors for the purpose of supply of Plant and Installation Services under the subject **Package/ Project:**

Sl. No.	Item Description	Quantity proposed to be bought-out/sub-contracted	Details of the proposed sub-contractor/sub-vendor	
			Name	Nationality
1.				
2.				
3.				
4.				
5.				
6.				

2.0 *We hereby declare that, in the event of award of Contract on us, we would not subcontract any portion of Installation Services under Part II of the Contract (Supply of Installation Services) and*

any major item other than those mentioned above under Part I of the Contract (Supply of Plant) without the prior approval of Employer as per the provisions of the Contract. We understand that for subcontract related to hiring of labour, prior approval of the Employer is not required.

Dated the [Insert date of the month] day of..... [Insert month, year]
at..... [Insert place].

Signature {(of Bidder's authorized Bid Signatory (ies))}# {In full and initials}:

Full name: {insert full name of authorized Bid Signatory}

Title: {insert title/position of authorized Bid Signatory}

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address}_____

{For a joint venture, either all members shall sign or only the authorised signatory as per ITB 19.4, in either case the power of attorney of the authorized bid signatory (signatories) must be attached}

Form 11

(Appendix to Technical Part of the Bid)

Format of Undertaking on Compliance of Terms & Conditions of the Bidding Documents including Scope of Work and other related requirements

UNDERTAKING ON COMPLIANCE OF RFB TERMS & CONDITIONS AND OTHER REQUIREMENTS

(To be submitted on ₹100 Stamp paper issued in the State where Bidder's office is located, duly signed by the authorized signatory)

I/We hereby undertake that I/We have examined/ perused, studied and understood the Request For Bid (RFB) Document in respect of RFB no _____ datedand any corrigendum/ addendum/ clarification etc. thereto completely and have submitted my/our Proposal/ Bid in pursuance to the said RFB document for [insert Package Name/ Contract Title].

I/We hereby undertake that I/We understand that the scope of Services and other related requirement under and in pursuance of this RFB are indicative only and not exhaustive in any manner. I/We understand that the scope of Services may undergo changes as per emerging requirements of WBSEDCL as specified in the RFB document.

I/We hereby undertake that we shall comply with the scope of Services and other related requirements and the terms and conditions specified in the RFB document completely and except as mentioned in the Form 12 (Alternative, Deviations and Exceptions to the Provisions) hereof, we have no deviations and/or submissions and/or clarifications, whatsoever of any manner and/or sort and/or kind in this regard.

I/We hereby undertake to provide any further clarifications, details, documents etc. as may be required without changing the substance of our Proposal.

I/We understand that the WBSEDCL reserves the right to float a separate Request For Bid/ Notice Inviting Tender/ Invitation for Bids for the scope of Work and related requirements as covered under this RFB, irrespective of the outcome of this RFB, and I/We hereby undertake that we have no objection for the same. I/We understand that in such a case, I/We shall bid separately in response to such Request For Bid/ Notice Inviting Tender/ Invitation for Bids, and in no case our bid/ Proposal in response to this RFB shall be deemed as a Proposal/ Bid in response to such Request For Bid/ Notice Inviting Tender/ Invitation for Bids.

I/We hereby undertake to provide the Plant and Installation Services and undertake to be the single point of contact for WBSEDCL for complete Scope of Work and related

requirements as per the terms and conditions and as specified in this RFB document.

I/We hereby undertake that except as mentioned in the Form 12 (Alternative, Deviations and Exceptions to the Provisions) hereof, my/our bid is/ deemed to be as per the RFB document and is accordingly submitted to the WBSEDCL. In case of a failure to comply and/or variation WBSEDCL has the sole discretion not to consider or disqualify my/our Proposal/ bid for the aforementioned RFB and I/We shall be not have any claim of anysort/kind/form on the same.

I/We agree to be bound by our Proposal for the period of validity as specified in and required as per Section 3 of RFB document and it shall remain binding upon us and may be accepted at any time before the expiration of that validity period as may be extended by us.

I/We hereby attach the duly signed and stamped RFB document as an unconditional acceptance and compliance of RFB specifications and terms & conditions as part of the Technical Part of our Bid without any deviations and/or submissions and/or clarifications of any manner and/or sort and/or kind in this regard, except as indicated in Form 12 (Alternative, Deviations and Exceptions to the Provisions) hereof ~~from my/our side.~~

I/We understand that mentioning of any pre-requisites, presumptions, assumptions, hiding/ twisting/ deletion/ reduction/ manipulation/ disguising of Scope of Works and/or application features and/or infrastructure and/or project deliverables etc. in any form and/or by any means and/or under any head shall not be constituted as a part of the Bid/ Proposal and in case of award of the Contract the same shall not be claimed by me/us while award and/or subsequently providing of Plant and Installation Services/ execution of work. The decision of WBSEDCL on such issues shall be binding on me/us and the same shall not be arbitrated upon by me/us.

I/We hereby undertake that we abide by all the terms and conditions mentioned in the RFB document along with amendment/corrigendum/ clarification, if any, as confirmed herein

We also confirm that in case any discrepancies/ inconsistencies and deviations/ omissions/ reservations, except as indicated in Form 12 (Alternative, Deviations and Exceptions to the Provisions) hereof, is observed in the online Price Part of our Bid, the same shall be deemed as withdrawn/rectified without any financial implication, whatsoever to WBSEDCL.

I/We understand that at any stage during the tenure of the Contract if it is found that any statement or document submitted by us is false/forged/invalid, WBSEDCL has discretion to terminate the Contract and get the Plant and Installation Services delivered / work done through third party.

I/We hereby affirm that the products and/or Plant and Installation Services offered by us against this RFB are in compliance to the latest Government of India Guidelines and circulars which will remain complied to the same during the duration and execution of this assignment.

I/We also hereby affirm the following:

- a) I/ we are not insolvent, in receivership, bankrupt or being wound up, not have our affairs administered by a court or a judicial officer, not have our business activities

- suspended and am/ are not the subject of legal proceedings for any of the foregoing reasons;
- b) I/ we have not, and our directors and officers have not, been convicted of any criminal offence related to our/ their respective professional conduct or the making of false statements or misrepresentations as to our/ their qualifications to enter into a procurement contract within a period of two years preceding the commencement of this procurement process, or have not been otherwise disqualified pursuant to debarment proceedings;
 - c) I/ we do not have a Conflict of Interest in the procurement in question as specified in the RFB document.
 - d) I/ we comply with the code of integrity and other requirements as specified in the RFB document.

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))}# {In full and initials}:

Full name: {insert full name of authorized Bid Signatory}

Title: {insert title/position of authorized Bid Signatory}

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address} _____

[#]*{For a joint venture, either all members shall sign or only the authorized signatory as per ITB 19.4, in either case the power of attorney of the authorized bid signatory (signatories) must be attached}*

Form 12**(Appendix to Technical Part of the Bid)****Format of Alternative, Deviations and Exceptions to the Provisions of RFB Document****(Not applicable)**

NIT/RFB No.: [insert details]

Package Name/ Contract Title: [insert details]

Page _____ of _____ pages

**To,
Chief Engineer, Project-I
WBSEDCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091**

Bidder's Name and Address:

*{In case of JV bidder, mention name
and address of all the Joint Venture members}*

Dear Sir/ Madam,

The bidder shall itemize any deviation from the Specifications included in his bid. Each item shall be listed (separate sheets may be used and enclosed with this Attachment) with the following information:

Sl. No.	Reference clause in the Specifications	Deviation	Cost of withdrawal of the deviation

The above deviations and variations are exhaustive. We confirm that we shall withdraw the deviations proposed by us at the cost of withdrawal indicated in this attachment, failing which our bid may be rejected and Bid Security forfeited.

Except for the above deviations and variations, the entire work shall be performed as per your specifications and documents. Further, we agree that any deviations, conditionality or

reservation introduced in this Attachment-6 and/or in the Bid form, Price schedules & Technical Data Sheets and covering letter, or in any other part of the bid will be reviewed to conduct a determination of the substantial responsiveness of the bid.

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))}# {In full and initials}:

Full name: {insert full name of authorized Bid Signatory }

Title: {insert title/position of authorized Bid Signatory }

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address}_____

{For a joint venture, either all members shall sign or only the authorised signatory as per ITB 19.4, in either case the power of attorney of the authorized bid signatory (signatories) must be attached}

Form 13

(Appendix to Technical Part of the Bid)

Format of Work Completion Schedule

NIT/RFB No.: [insert details]

Package Name/ Contract Title: [insert details]

Page _____ of _____ pages

To,
Chief Engineer, Project-I
WBSEDCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091

Bidder's Name and Address:

Dear Sir/ Madam,

We hereby declare that the following Work Completion Schedule shall be followed by us in furnishing and installation of the subject Project for the period commencing from the effective date of Contract to us:

Sl. No.	Description of Work	Period in months from the effective date of Contract
1.	Detailed Engineering and drawing submission a) commencement b) completion	
2.	Procurement of equipment/ components & assembly a) commencement b) completion	
3.	Type Tests a) commencement b) completion	

Sl. No.	Description of Work	Period in months from the effective date of Contract
4.	Manufacturing a) commencement b) completion	
5.	Shipments & Delivery a) commencement b) completion	
6.	Establishment of site office	
7.	Installation at Site a) commencement b) completion	
8.	Testing & Pre-commissioning a) commencement b) completion	
9.	Trial Operation a) commencement b) completion	

Notwithstanding the above we reiterate our compliance to the Time for Completion of the Facilities/ Works as per the provisions of the RFB document.

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))}# {In full and initials}:

Full name: {insert full name of authorized Bid Signatory}
Title: {insert title/position of authorized Bid Signatory}
Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):
Capacity: {insert the person's capacity to sign for the Bidder}
Address: {insert the authorized Bid Signatory's address}
Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}
Email: {insert the authorized Bid Signatory's email address} _____

[#]{For a joint venture, either all members shall sign or only the authorized signatory as per ITB 19.4, in either case the power of attorney of the authorized bid signatory (signatories) must be attached}

Note: Bidders to enclose a detailed network covering all the activities to be undertaken for completion of the project indicating key dates for various milestones for each phase constituent-wise.

Form 14

(Appendix to Technical Part of the Bid)

Format of Guarantee Declaration

NIT/RFB No.: [insert details]

Package Name/ Contract Title: [insert details]

Page_____of_____pages

To,
Chief Engineer, Project-I
WBSEDCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091

Bidder's Name and Address:

*{In case of JV bidder, mention name
and address of all the Joint Venture members}*

Dear Sir/ Madam,

We confirm that the plant/ equipment/ goods/ material offered shall have minimum (or maximum, as the case may be) of the performance specified in the RFP document/ Employer's Requirement/ Specification/ Scope of Work. We further guarantee the performance/ efficiency of the plant/ equipment/ goods/ material offered in response to RFP document/ Employer's Requirement/ Specification/ Scope of Work.

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))[#] {In full and initials}}:

Full name: {insert full name of authorized Bid Signatory }

Title: {insert title/position of authorized Bid Signatory }

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address} _____

[#]*{For a joint venture, either all members shall sign or only the authorised signatory as per ITB 19.4, in either case the power of attorney of the authorized bid signatory (signatories) must be attached}*

Form 15

(Appendix to Technical Part of the Bid)

Format of Information regarding Ex-employees

(The information in similar format should be furnished for each partner of joint venture in case of joint venture bid)

NIT/RFB No.: [insert details]

Package Name/ Contract Title: [insert details]

Page _____ of _____ pages

To,
Chief Engineer , Project-I
WBSEDCL
Vidyut Bhawan, 2nd Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091

Bidder's Name and Address:
*{In case of JV bidder, mention name
 and address of the concerned Joint Venture member}*

Dear Sir/ Madam,

Information regarding Ex-employees of WBSEDCL in our Organization

Dear Sir/ Madam,

We hereby furnish the details of ex-employees of WBSEDCL who had retired/ resigned at the level of XXXXXX (*Define suitable post*) from WBSEDCL and subsequently have been employed by us:

Sl. Name of the person	Date of Retirement/	Date of joining and
No. with designation in	resignation from	designation in our
WBSEDCL	WBSEDCL	Organization

1.
 2.
 3.
-

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
 at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))}# {In full and initials}:

Full name: {insert full name of authorized Bid Signatory}

Title: {insert title/position of authorized Bid Signatory}

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address} _____

{For a joint venture, either all members shall sign or only the concerned member and authorised signatory as per ITB 19.4, in either case the power of attorney of the authorized bid signatory (signatories) must be attached}

Note: .

Form 16

(Appendix to Technical Part of the Bid)

Format for Price Adjustment Data**(Not Applicable)**

NIT/RFB No.: [insert details]

Package Name/ Contract Title: [insert details]

Page_____of_____pages

To,
Chief Engineer, Project-I
WBSedCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091

Bidder's Name and Address:
*{In case of JV bidder, mention name
 and address of all the Joint Venture members}*

Dear Sir/ Madam,

We hereby furnish the details of Price Adjustments:

Name of Material***	Price as on 30 days prior to date of bid opening*	Price as on XX days prior to date of shipment*	Variation*
ACSR conductor		NA**	NA**
Power Transformer (aluminum wound)		NA**	NA**
Power Transformer (Copper wound)			
Distribution Transformer (aluminum wound)			
Distribution Transformer (Copper wound)			
Cables		NA**	NA**

*Detailed calculations as per **Appendix-2 of Form 5** to be enclosed

** Not to be filled at the time of bid submission

*** The materials listed are illustrative, a separate row to be created for each material for indicating price adjustment

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))}# {In full and initials}:

Full name: {insert full name of authorized Bid Signatory}

Title: {insert title/position of authorized Bid Signatory}

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address}_____

{For a joint venture, either all members shall sign or only the concerned member and authorised signatory as per ITB 19.4, in either case the power of attorney of the authorized bid signatory (signatories) must be attached}

Form 17**(Appendix to Technical Part of the Bid)****Format of Option for Initial Advance (either Interest Bearing Initial Advance or No Initial Advance) and Information for E-payment, PF details and declaration regarding Micro/Small & Medium Enterprises**

NIT/RFB No.: [insert details]

Package Name/ Contract Title: [insert details]

Page _____ of _____ pages

To,
Chief Engineer, Project-I
WBSedCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091

Bidder's Name and Address:
*{In case of JV bidder, mention name
 and address of all the Joint Venture members}*

Dear Sir/ Madam,

- I. We have read the provisions in the Bidding Documents regarding the option for advance payment. Accordingly, we hereby confirm to opt the following:

Interest Bearing Initial Advance

Supply of Plant Portion: Yes* [☐] No* [☐]

Supply of Installation Services Portion: Yes^ [☐] No^ [☐]

(*^ tick ONLY ONE of the selected options)

- II. We are furnishing the following details of Statutory Registration Numbers and details of Bank for electronic payment.

1.	Name of the Supplier/ Contractor in whose favour payment is to be made	
----	--	--

2.	Address with PIN Code and State	Registered Office: Branch Office: Correspondence Address:
3.	Status – Company/others [Declaration of Micro/ Small/ Medium Enterprise under Micro/ Small & Medium Enterprises Development Act 2006, if applicable]	
4.	Permanent Account (PAN) No.	
5.	Goods and Services Tax Registration No..	
6.	PF Registration No. of the Company	
7.	PF Regional Office covered (with Address)	
8.	Name of Contact Person	
9.	Telephone No(s). Email	Landline(s): Mobile(s): Email ID :
10.	Bank Details for Electronic Payment	Name of the Bank:

		Address of Branch: Account No.: Type of Account: ☐ Saving ☐ Current
11.	9 digit MICR code printed at bottom in middle, next to cheque no.	
12.	IFSC (for RTGS)/NEFT Code <i>(to be obtained from the Bank)</i> <i>Sample Cancelled Cheque to be enclosed</i>	

We hereby declare that the above information is true and correct and we agree that the payment on account of this Contract, in the event of award, be made in the above account maintained in the above mentioned Bank.

Dated the *[Insert date of the month]* day of..... *[Insert month, year]* at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))}# {In full and initials}:

Full name: {insert full name of authorized Bid Signatory }

Title: {insert title/position of authorized Bid Signatory }

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address} _____

Form 18**(Appendix to Technical Part of the Bid)****FORMAT OF Declaration for tax exemptions, reductions, allowances or benefits)**

NIT/RFB No.: [insert details]

Package Name/ Contract Title: [insert details]

Page_____of_____pages

To,
Chief Engineer, Project-I
WBSEDCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091

Bidder's Name and Address:
*{In case of JV bidder, mention name
 and address of all the Joint Venture members}*

Dear Sir / Madam,

1. We confirm that we are solely responsible for obtaining following tax exemptions, reductions, allowances or benefits in respect of supplies under the subject Package/ Project, in case of award. We further confirm that we have considered the same in our bid thereby passing on the benefit **to the Chief Engineer, Project-I, WBSEDCL** while quoting our prices. In case of our failure to receive such benefits, partly or fully, for any reason whatsoever, the Employer will not compensate us.
2. We are furnishing the following information required by the Employer for issue of requisite certificate if and as permitted in terms of the applicable Govt. of India policies/procedures (in case of award):

Applicable Act, Notification No. and Clause Ref. No.	Sl. No.	Description of item on which applicable	Country of origin	Remarks, if any

(The requirements listed above are as per current Notification of Govt. of India indicated above. These may be modified, if necessary, in terms of the Notifications.)

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))}# {In full and initials}:

Full name: {insert full name of authorized Bid Signatory}

Title: {insert title/position of authorized Bid Signatory}

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address} _____

Form 19**(Appendix to Technical Part of the Bid)****Format of Bank Guarantee verification Check list**

NIT/RFB No.: [insert details]

Package Name/ Contract Title: [insert details]

Page _____ of _____ pages

To,
Chief Engineer, Project-I
WBSEDCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091

Bidder's Name and Address:

*{In case of JV bidder, mention name
and address of all the Joint Venture members}*

(Bank Guarantee verification Check list)

Dear Sir/ Madam

We have ensured compliance to the following checklist in submission of Bank Guarantee :

S. No.	Checklist	Yes	No
1	Does the bank guarantee compare verbatim with standard proforma for BG?		
2(a)	Has the executing Officer of BG indicated his name designation & Power of Attorney No. / Signing power Number etc. on BG?		
2(b)	Is each page of BG duly Signed/ initialed by the executants and last page is signed with full particulars as required in the standard proforma of BG and under the seal of the bank?		
2(c)	Does the last page of the BG carry the signatures of two witnesses alongside the signature of the executing Bank Manager?		
3(a)	Is the BG on non-judicial stamp paper of appropriate value?		

3(b)	Is the date of sale of non-judicial stamp paper shown on the BG and the stamp paper is issued not more than Six months prior to the date of execution of BG?		
4(a)	Are the factual details such as Bid specification No., LOA No. contract price, etc, correct?		
4(b)	Whether Overwriting /cutting, if any on the BG, authenticated under signature & seal of executants?		
5	Is the amount and validity of BG is in line with contract provisions?		
6	Whether the BG has been issued by a Nationalized bank / Non- Nationalized Bank acceptable to Buyer /Scheduled Bank in India (the applicability of the bank should be in line with the provisions of bidding documents)?		

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))[#] {In full and initials}}:

Full name: {insert full name of authorized Bid Signatory }

Title: {insert title/position of authorized Bid Signatory }

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address} _____

(Common Seal).....

Appendix to Technical Part
Attachment-4A: List of Special Maintenance Tools & Tackles included in bid price

(List of Special Maintenance Tools & Tackles)

**To,
Chief Engineer, Project-I
WBSEDCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091**

Bidder's Name and Address:

Dear Sir,

We are furnishing below the list of special maintenance tools & tackles for various equipment under the subject project. The prices for these tools & tackles are included in our lumpsum bid price. We further confirm that the list of special maintenance tools & tackles includes all the items specifically identified in your bidding documents as brought out below:

S.No.	For Equipment	Item Description	Unit	Quantity
-------	---------------	------------------	------	----------

Notwithstanding what is stated above, we further confirm that any additional special maintenance tools and tackles, required for the equipment under this project shall be furnished by us at no extra cost to the employer.

Date:.....

(Signature).....

Place:.....

(Printed Name).....

(Designation).....

(Common Seal).....

Appendix to Technical Part
Attachment-4B : List of Special Maintenance Tools & Tackles not included in bid price

(List of Special Maintenance Tools & Tackles)

**To,
Chief Engineer, Project-I
WBSEDCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091**

Bidder's Name and Address:

Dear Sir,

We are furnishing below the list of special maintenance tools & tackles for various equipment under the subject Project. The prices for these tools & tackles which are to be taken back after the completion of the work by us are not included in our lumpsum bid price. We further confirm that the list of special maintenance tools & tackles includes all the items specifically identified in your bidding documents as brought out below:

(a)

(b)

Date:.....

(Signature).....

Place:.....

(Printed Name).....

(Designation).....

(Common Seal).....

Form 20**(Appendix to Technical Part of the Bid)****Format of Additional Information**

NIT/RFB No.: [insert details]

Package Name/ Contract Title: [insert details]

Page _____ of _____ pages

To,
Chief Engineer, Project-I
WBSEDCL
Vidyut Bhawan, 5th Floor,
Block-DJ, Sector-II,
Bidhannagar, Kolkata-700091

Bidder's Name and Address:

*{In case of JV bidder, mention name
and address of all the Joint Venture members}*

(Additional Information)

Dear Sir/ Madam,

In support of the additional information required as per the Bidding Documents, we furnish herewith our data/details/documents etc., along with other information, as follows (the stipulations have been reproduced in italics for ready reference):

1.0 *The Bidder shall furnish*

A certificate from their Banker(s) (as per prescribed formats in Form 16, Part -3, Section-8: Contract Forms) indicating various fund based/non fund based limits sanctioned to the Bidder and the extent of utilization as on date. Such certificate should have been issued not earlier than three months prior to the date of bid opening. Wherever necessary the Employer may make queries with the Bidders' Bankers.
[Reference Part -1, Section 2]

1.1 In accordance with 1.0, certificate(s) from banker as per requisite format, indicating various fund based/non fund based limits sanctioned to the bidder or each member of

the joint venture and the extent of utilization as on date is/are enclosed, as per the following details:

Name of the Bidder/partner of Joint Venture	
Name of the Banker by whom certificate issued	
Date of certificate (should not be earlier than 3 months prior to date of bid opening)	
Whether fund based/non fund based limits are indicated in the certificate	
Whether extent of utilization is indicated in the certificate	

*1.2 The Bidder should accordingly also provide the following information/documents (**In case of JV bidders, information should be provided separately for all the Partners of JV in the given format**):*

(i) Details of Banker:

Name of Banker	
Address of Banker	<div></div> <div></div> <div></div>
Telephone No.	<div></div>
Contact Name and Title	<div></div>
Fax No.	<div></div>
E-mail ID	<div></div>

As per para 1.0, Authorization Letter(s) from the bidder (in case of JV bidder, from all the partners) addressed to the Banker(s), authorize **Chief Engineer, Project-I, WBSEDCL**

4. Current Liability										
5. Profit before taxes										
6. Profit after taxes										

3. The information/documentation in support of Bidder's design infrastructure and erection facilities and capacity and procedures including quality control related to the work, are enclosed at _[.....]_____ herewith.
4. The CV and experience details of a project manager with 15 years' experience in executing such contract of comparable nature including not less than five years as manager and the CVs of other employees to be deputed for the subject work, are enclosed at _[.....]_____ herewith.

Dated the *[Insert date of the month]* day of..... *[Insert month, year]*
at..... *[Insert place]*.

Signature {(of Bidder's authorized Bid Signatory (ies))[#] {In full and initials}}:

Full name: {insert full name of authorized Bid Signatory }

Title: {insert title/position of authorized Bid Signatory }

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable):

Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable}

Email: {insert the authorized Bid Signatory's email address} _____

(Common Seal).....

Form 21**(Appendix to Technical Part of the Bid)**

(To be submitted on ₹100 Stamp paper issued in the State where Bidder's office is located, duly signed by the authorized signatory)

Format of Integrity Pact**INTEGRITY PACT****PRE-CONTRACT INTEGRITY PACT****GENERAL**

This pre-bid contract Agreement (herein after called the Integrity Pact) is made on _____ day of the month of _____ 20... , between, on one hand, the WBSEDCL Acting through Shri....., Designation of the officer, (hereinafter called the "WBSEDCL", which expression shall mean and include, unless the context otherwise requires, his successors in the office and assigns) of the First Part and M/s. _____ represented by Shri _____ (hereinafter called the "BIDDER/SUPPLIER", which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the WBSEDCL propose to procure Plant and Installation Services as per the Scope of Work Mentioned in the RFB document (hereinafter called the "Facilities", against RFB No. [.....] for [Package Name/ Contract Title] which expression shall mean and include, unless the context otherwise requires, any additions & deletions in the said "Facilities") and the BIDDER/ Supplier is willing to offer/has offered the said "Facilities".

WHEREAS the BIDDER/ Supplier is a Private Company/Public Company/LLP/ Government Undertaking/ Partnership/Proprietorship, constituted in accordance with the relevant law in the matter and the WBSEDCL is a Ministry /Department of the Government of West Bengal /SPSU performing its function on behalf of the Governor of West Bengal.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the Contract to be entered into with a view to:-

Enabling the WBSEDCL to obtain the desired "Facilities" at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

Enabling BIDDER/ SUPPLIER to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other practices and the WBSEDCL will commit to prevent corruption, in any form, by its official by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:
Commitments of the WBSEDCL

1.
 - 1.1. The WBSEDCL undertakes that no official of the WBSEDCL, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER/SUPPLIER, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.
 - 1.2. The WBSEDCL will, during the pre-contract stage, treat all BIDDER/SUPPLIER alike, and will provide to all BIDDER/SUPPLIER the same information and will not provide any such information to any particular BIDDER/SUPPLIER which could afford an advantage to that particular BIDDER/SUPPLIER in comparison to the other BIDDER(S)/SUPPLIER(S).
 - 1.3. All the officials of the WBSEDCL will report the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
2. In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER/SUPPLIER to the WBSEDCL with the full and verifiable facts and the same is prima facie found to be correct by the WBSEDCL, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the WBSEDCL and such a person shall be debarred from further dealings related to the contract process. In such a case, while an enquiry is being conducted by the WBSEDCL, the proceedings under the contract would not be stalled.

Commitments of BIDDERS/SUPPLIERS

3. The BIDDER/SUPPLIER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following: -
 - 3.1. The will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the WBSEDCL, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
 - 3.2. The BIDDER/SUPPLIER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any

material or immaterial benefit or other advantage, commission, fees, brokerage, or inducement to any official of the WBSEDCL or otherwise in procuring the Contract of forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavor to any person in relation to the contract or any other contract with the Government.

- 3.3. The BIDDER/SUPPLIER shall disclose the name and address of agents and representatives and Indian BIDDERSs shall disclose their foreign principals or associates.
- 3.4. The BIDDER/SUPPLIER shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.
- 3.5. The BIDDER/SUPPLIER further confirms and declares to the WBSEDCL that he BIDDER/SUPPLIER is the original manufacture/Integrator/authorized government sponsored export entity of the defense stores and has not engage any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the WBSEDCL or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER/SUPPLIER, nor has any amount been paid. Promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.
- 3.6. The BIDDER/SUPPLIER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payment he has made, is committed to or intends to make to officials of the WBSEDCL or their familymembers, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
- 3.7. The BIDDER/SUPPLIER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- 3.8. The BIDDER/SUPPLIER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- 3.9. The BIDDER/SUPPLIER shall not use improperly, for purpose of competition or personal gain, or pass on to others, any information provided by the WBSEDCL as part of the business relationship, regarding plans, technical proposal and business details, including information contained in any electronic data carrier. The BIDDER/SUPPLIER also undertakes to exercise due and adequate care lest any such information is divulged.
- 3.10. The BIDDER/SUPPLIER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
- 3.11. The BIDDER/SUPPLIER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- 3.12. If the BIDDER/SUPPLIER or any employee of the BIDDER/SUPPLIER or any person acting on behalf of the BIDDER/SUPPLIER, either directly or indirectly, is a relative of any of the officers of the WBSEDCL, or alternatively, if any relatives of an officer of the WBSEDCL had financial interest/stake in the

BIDDER's/SUPPLIER's firm, the same shall be disclosed by the BIDDER/SUPPLIER at the time of filling of tender.

The term 'relative' for this purpose would be as defined in Section 6 of the Companies Act 1956.

3.13. The BIDDER/SUPPLIER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the WBSEDCL.

4. Previous Transgression

4.1. The BIDDER/SUPPLIER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's/SUPPLIER's exclusion from the tender process.

4.2. The BIDDER/SUPPLIER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5. Earnest Money (Security Deposit) (If applicable as per ITB Clause 18)

5.1. While submitting commercial bid, the BIDDER/SUPPLIER deposit an amount _____ (as specified in TENDER) as Earnest Money/Security, Deposit, with the WBSEDCL through any of the following instruments:

5.1.1. Bank Draft or a Pay Order in favour of 'WBSEDCL' payable at Kolkata.

5.1.2. A confirmed guarantee by an Indian Nationalized Bank, promising payment of the guaranteed sum to the WBSEDCL on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the WBSEDCL shall be treated as conclusive proof of payment.

5.1.3. Any other mode or through any other instrument (to be specified in the TENDER.

5.2. The Earnest Money/ Security Deposit shall be valid as per terms of TENDER.

5.3. In the case of successful BIDDER/SUPPLIER, a clause would also be incorporated in the Article pertaining to Performance Bond in the procurement Contract that the provisions of Sanctions for violation shall be applicable for forfeiture of Performance Bond in case of a decision by the WBSEDCL to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

5.4. No interest shall be payable by the WBSEDCL to the BIDDER/SUPPLIER on Earnest Money/Security Deposit for the period of its currency.

6. Sanctions for Violations

6.1. Any breach of the aforesaid provisions by the BIDDER/SUPPLIER or anyone employed by it or acting on its behalf (whether with or without the knowledge of the

BIDDER/SUPPLIER/SUPPLIER) shall entitle the WBSEDCL to take all or any one of the following actions, wherever required:-

- 6.1.1. To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the BIDDER/SUPPLIER. However, the proceedings with the other BIDDER(s) would continue.
- 6.1.2. The Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/Performance Bond (after the contract is signed) shall stand forfeited either fully or partially, as decided by the WBSEDCL and the WBSEDCL shall not be required to assign any reason, therefore.
- 6.1.3. To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.
- 6.1.4. To recover all sums already paid by the WBSEDCL, and in case of the Indian BIDDER/SUPPLIER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State of India, while in case of a BIDDER/SUPPLIER from a country other than India with Interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the WBSEDCL in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest
- 6.1.5. To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER/SUPPLIER, in order to recover the payments, already made by the WBSEDCL, along with interest.
- 6.1.6. To cancel all or any other contracts with the BIDDER/SUPPLIER. The BIDDER shall be liable to pay compensation for any loss or damage to the WBSEDCL resulting from such cancellation/rescission and the WBSEDCL /PRINCIPAL shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER/SUPPLIER.
- 6.1.7. To debar the BIDDER/SUPPLIER from participating in future bidding processes of the Government of India or any country listed by ADB/WBSEDCL /PRINCIPAL for a minimum period of five years, which may be further extended at the discretion of the WBSEDCL.
- 6.1.8. To recover all sums paid in violation of this Pact by BIDDER/SUPPLIER (s) to any middlemen or agent or broken with a view to securing the contract.
- 6.1.9. In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the WBSEDCL with the BIDDER/SUPPLIER, the same shall not be opened.
- 6.1.10. Forfeiture of performance Bond in case of a decision by the WBSEDCL to forfeit the same without assigning any reason for imposing for sanction for violation of this pact.
- 6.2. The WBSEDCL will be entitled to take all or any of the actions mentioned at para 6.1 (i) to (x) of this Pact also on the Commission by the BIDDER/SUPPLIER or anyone employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER/SUPPLIER), of an offence as defined in Chapter IX of the Indian

Penal code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

- 6.3. The decision of the WBSEDCL to the effect that a breach of the provisions of this pact has been committed by the BIDDER/SUPPLIER shall be final and conclusive on the BIDDER/SUPPLIER. However, the BIDDER/SUPPLIER can approach the Independent Monitor(s) appointed for the purposes of this Pact.

7. deleted

7.1. deleted

8. Independent Monitors

- 8.1. The WBSEDCL has appointed Independent Monitors (hereinafter referred to as Monitors) for this Pact in consultation with the Central Vigilance Commission (Names and Addresses of the Monitors shall be published subsequently by WBSEDCL.
- 8.2. The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.
- 8.3. The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.
- 8.4. Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.
- 8.5. As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the WBSEDCL.
- 8.6. The BIDDER/SUPPLIER(s) accepts that the Monitors has the right to access without restriction to all project documentation of the WBSEDCL including that provided by the BIDDER/SUPPLIER. The BIDDER/SUPPLIER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/SUPPLIER/Subcontractors(s) with confidentiality.
- 8.7. The BUYER will provide to the Monitors sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the monitor the option to participate in such meetings.
- 8.8. The Monitor will submit a written report to the designated Authority of WBSEDCL /Secretary in the Department/ within 8 to 10 weeks from the date of reference or intimation to him by the WBSEDCL /BIDDER/SUPPLIER and, should the occasion arise, submit proposals for correcting problematic situations.

9. Facilitation of Investigation

In case of any allegation of violation of any provisions of this Pact or payment of commission, the WBSEDCL or its agencies shall be entitled to examine all the documents including

the Books of Accounts of the BIDDER/SUPPLIER and the BIDDER/SUPPLIER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

10. Law and Place of Jurisdiction

This Pact is subject to Indian Law. The place of performance and jurisdiction is the seat of the WBSEDCL.

11. Other Legal Actions

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the any extent law in force relating to any civil or criminal proceedings.

12. Validity

12.1. The validity of this Integrity Pact shall be from the date of its signing and extend up to 5 years or the complete execution of the contract to the satisfaction of both the WBSEDCL and the BIDDER/SUPPLIER, including warranty period, whichever is later. In case BIDDER/SUPPLIER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

12.2. Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

13. The parties hereby sign this Integrity Pact at _____ on _____

Signed on(*Insert the Date*)

Signature (of Bidder's authorized Bid Signatory)[#] {In full and initials}:

Full name: {insert full name of authorized Bid Signatory } Title: {insert title/position of authorized Bid Signatory }

Name of Bidder (Sole Bidder's name or Consortium/ JV's name, if applicable): Capacity: {insert the person's capacity to sign for the Bidder}

Address: {insert the authorized Bid Signatory's address}

Phone/fax: {insert the authorized Bid Signatory's phone and fax number, if applicable} Email: {insert the authorized Bid Signatory's email address} _____

[#]{For a joint venture, either all members shall sign or only the authorised signatory as per ITB 19.4, in which case the power of attorney to sign on behalf of all members shall be attached}

Witness

1. _____

2. _____

[WBSEDCL]L

Name of the Officer Designation

Deptt/MINISTRY/PSU

Witness

1. _____

2. _____

* Provision of these clauses would need to be amended/deleted in line with the policy of the [WBSEDCL] in regard to involvement of Indian agents of foreign supplies.

Form-22**FORMAT OF THE BANK GUARANTEE FOR ADDITIONAL PERFORMANCE SECURITY DEPOSIT**

To

..... (Designation of Engineer-in Charge)

..... (Office address of Engineer-in Charge)

.....

WHEREAS

(Name and address of Contractor) hereafter called “the Contractor”) has undertaken in pursuance of Contract No.....

Dated..... to execute.....(name of Contract and brief description of Works) (hereinafter called “the Contract”)

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a Scheduled Commercial Bank for the sum specified therein for ‘**ADDITIONAL PERFORMANE SECURITY DEPOSIT**’ for compliance with his obligation in accordance with the Contract.

NOW WHEREAS, we(indicate the name of the bank and branch) have agreed to give the Contractor such a Bank Guarantee.

NOW THEREFORE, we.....(indicate the name of the bank & branch) hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, upto a total of Rs.....(amount of guarantee)

(in words). We undertake to pay you upon your first written demand and without cavil of argument, a sum within the limits of.....

..... (amount of guarantee) as aforesaid without your needing to prove or to show grounds or reasons of your demand for the sum specified therein.

We, (indicate the name of the bank and branch) hereby waive the necessity of your demanding the said debt from the contractor before presenting us with the demand.

We..... (indicate the name of bank and branch) further agree to pay to you any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal.....the present absolute and unequivocal.

The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.

We (indicate the name of bank and branch) further agree that no change or addition to or other modification of the terms of the Contract or of the works to be performed there under or of any of the Contract documents which may be made between you and Contractor shall in any way release us from any liability under the guarantee, and we hereby waive notice of any such charge, addition or modification.

We (indicate the name of the bank and branch) lastly undertake not to revoke this guarantee except with the previous consent of you in writing.

This Guarantee shall be valid upto..... It come into force with immediate effect and shall remain in force and valid for a period upto the time of completion of work under the stated contract plus claim period of Six months for the Bank Guarantee . Notwithstanding anything mentioned above our liability against this guarantee is restricted to Rs.....(Rupees.....) and unless a claim in writing is lodged with us within the validity period i.e. upto.....this guarantee all our liabilities under this guarantee shall cease to exist.

Signed and sealed this
day.....of.....2021.....at

SIGNED, SEALED AND DELIVERED
For and on behalf of the BANK

By:

(Signature)
(Designation)
(Code Number)
(Address)

NOTES: (1) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee. The address, telephone number and other details of the Head Office of the Bank as well as of issuing Branch should be mentioned on the covering letter of issuing Branch.

Form-23

(On the Bidder's Letterhead)

DECLARATION REGARDING NO LITIGATION AGAINST WBSEDCL

We hereby declare that, no legal litigation/arbitration is pending/ongoing against WBSEDCL in any court/Forum against/by the bidder or its sister concern/Director/Partner/Proprietor.

If it is found at any stage of tendering, our offer will be rejected and I/We don't have any objection on the same.

Bidder's Name:

Signature of the Tenderer :

Designation:

Seal of the Company

Date:

Section - 5: Bidding Forms - Financial Part of the Bid (SAMPLE)

INSTRUCTIONS TO BIDDERS: The bidder must fill and submit the price schedules online as specified in BDS.

(SAMPLE)

Item Rate BoQ

Tender Inviting Authority : CHIEF ENGINEER PROJECT-I

Name of Work: Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 16 nos. location in West Bengal.(PK_SS_08_R)

NIT/RFB No: WBSEDCL/ P-I/16-Substation/2026-27/NIT/01

Name of the Bidder/ Bidding					
<div>PRICE SCHEDULE</div> <div>(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)</div>					
Sl. No.	Item Description	GRAND TOTAL	GRAND TOTAL In Figures To be entered by the Bidder Rs. P	TOTAL AMOUNT WITHOUT GST	TOTAL AMOUNT In Words
1.01	GRAND TOTAL	0.00		0.00	INR Zero Only
Total in Figures				0.00	INR Zero Only
Quoted Rate in Words		INR Zero Only			

Validate

Print

Help

in Rate BoQ

Tender Inviting Authority : CHIEF ENGINEER PROJECT-I

Name of Work: Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 16 nos. location in West Bengal.(PK_SS_08_R)

NIT/RFB No: WBSEDCL/ P-I/16-Substation/2026-27/NIT/01

Name of the Bidder/ Bidding				
<div>PRICE SCHEDULE</div> <div>(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)</div>				
Sl. No.	Item Description	Total Amount Without GST	Total Amount With GST	TOTAL AMOUNT WITH GST In Words
1.01	Supply	0.00	0.00	INR Zero Only
1.02	Erection	0.00	0.00	INR Zero Only
Total in Figures		0.00	0.00	INR Zero Only
Quoted Rate in Words		INR Zero Only		

Name of Work : Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 16 nos. location in West Bengal.(PK SS 08 R)

NIT/RFB No: WBSEDCL/ P-I/16-Substation/2026-27/NIT/01

[illegible]

13.00	Supports for 11 kV Underground System as per Technical specifications, approved drawings and scope of the work.													
13.01	Cable (XLPE 11 kV) 3C x 300 sq. mm., armoured, aluminium conductor	kM	8.900	8.900		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
13.02	11 kV Heat Shrinkable Outdoor Termination Joint, for 3 x 300 sq. mm. XLPE Cable	Nos.	20.000	20.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
13.03	11 kV Heat Shrinkable Straight Through Joint for 3 x 300 sq. mm. XLPE Cable	Nos.	31.000	31.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
13.04	12kV, 10 KA, 1-ph Station Class Lightning Arrester with mounting platform, hardware etc as per technical specification, approved drawing and scope of work. (3 nos. LA per set)	Set	10.000	10.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
E	Construction of 33/11 kV Substation													
14.00	33/11 kV Sub Station as per Technical specifications, approved drawings and scope of the work.													
14.01	10 MVA 33/11 kV Power Transformer	Nos.	0.000	0.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
14.02	RTCC panel for 10 MVA Power Transformer	Nos.	0.000	0.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
14.03	100 kVA 33/0.415 kV 3 Phase ONAN Outdoor type Station Service Transformer.	Nos.	1.000	1.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
14.04	Cable supporting G.I Structure with necessary arrangement of Fabricated G.I for fixing of U.G Cable of Station Service Transformer.	Nos.	1.000	1.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
14.05	Cable supporting G.I Structure with necessary arrangement of Fabricated G.I for fixing of U.G Cable & LA for PTR LV side / Bus.	Nos.	2.000	2.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
15.00	33kV, 1250A, 3-ph, SCADA compatible Outdoor type Vacuum Circuit breaker, 33kV, 1-Phase Outdoor type current transformers with junction box, supporting angle (The CT secondary terminals shall be broughtout in a weatherproof secondary terminal box, 1 no. junction box for 3 nos CT) jumpers, earthing, supporting structures, bi-metallic clamps permanent maintenance platform, marshalling box etc required as per technical specifications,approved drawings and scope of works.													
15.01	33 kV VCB: 1250 Amps: Outdoor type	Nos.	5.000	5.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
15.02	33 kV CT having Ratio 400 - 200/1 - 1A. (For 33 kV I/C or O/G) along with supporting structures and Junction Box for CT with required accessories etc. (3 nos. CT per set)	Set	3.000	3.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
15.03	33 kV CT having Ratio 200 - 100/1 - 1 - 1A. (For PTR) along with supporting structures and Junction Box for CT with required accessories etc. (3 nos. CT per set)	Set	2.000	2.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
16.00	33 kV, 1 Phase 33kV/110 volt, single core outdoor type Potential Transformer along with Junction box and supporting angle, bi-metallic clamps and supporting structure with required accessories etc. complete as per technical specifications,approved drawings and scope of works.													
16.01	33 kV PT having Ratio 33 kV/ 110 volt along with supporting structures and Junction Box for PT with required accessories etc. (3 nos. PT per set)	Set	2.000	2.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
17.00	33 kV SCADA Compatible metal enclosed, indoor, Control Relay panel (30 Volt DC auxiliary supply) consist of Voltmeter, Ammeter, Micoprocessor based relays, provision of TVM energy meter indicating lamps, annunciation windows with annunciation relay, mimic diagram and other components for control, complete, including base mounting channel for CR Panel as per technical specification, approve drawing and scope of work													
17.01	33 kV C&R Panel with differential relay SCADA compatible for individual transformer.	Nos.	2.000	2.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
17.02	33 kV C&R Panel with directional relay SCADA compatible for feeder control.	Nos.	3.000	3.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
18.00	36kV, 400A, 3-ph double break center rotating type (DBCR) Isolators along with Support Insulators, Operating Mechanism, Base Channel , down Pipe and all required accessories complete as per technical specifications, approved drawings & scope of works.													
18.01	33 kV 400A CR Type Isolator with Earth Switch (High Level)	Set	3.000	3.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only

18.02	33 kV 400A CR Type Isolator without Earth Switch (High Level)	Set	8.000	8.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
18.03	33 kV 400A CR Type Isolator without Earth Switch (Low Level)	Set	9.000	9.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
19.00	Lightning Arrestor ,Porcelain Housed Gapless Type with mounting platform, jumpering from Bus Bar, hardware etc as per technical specification, approve drawing and scope of work.													
19.01	Lightning Arrestor 42 kV, 1 Ph, 10 kA Porcelain Housed Gapless Type for 33 kV system, with mounting platform, jumpering from Bus Bar, hardware etc. as per technical specification, approved drawing and scope of work. (3 nos. LA per set)	Set	5.000	5.000	0.00	0.00	0.00	0.00	0%	0.00	0.00	0.00	0.00	INR Zero Only
19.02	12kV, 10 KA, 1-ph Station Class Lightning Arrestor with mounting platform, hardware etc as per technical specification, approved drawing and scope of work. (3 nos. LA per set)	Set	8.000	8.000	0.00	0.00	0.00	0.00	0%	0.00	0.00	0.00	0.00	INR Zero Only
20.00	Battery, Battery charger, Battery stand, Battery insulators, inter battery wiring, Terminal connectors with all accessories as per technical specification, approve drawing and scope of work													
20.01	30V, 100 AH, Pb-Acid Battery, battery stand, battery insulators, inter battery wiring using 30 sq. mm, 1.1 kV Copper single core multi strand cable, terminal connectors with all Accessories	Set	2.000	2.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
20.02	30V, 35 Amp, Float-cum-Boost Battery Charger with full wave rectification for 230 V, 1 phase, 50 Hz AC Input Supply (auto manual, float cum boost ,thyristor controlled battery charger)	Set	2.000	2.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
21.00	Cold Rolled Steel sheet enclosed floor mounted Distribution Board with all accessories as per technical specification, approve drawing and scope of work.													
21.01	Cold Rolled Steel sheet enclosed floor mounted 415 V, AC Distribution Board with all accessories	Set	1.000	1.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
21.02	Cold Rolled Steel sheet enclosed floor mounted 30 V, DC Distribution Board with all accessories.	Set	1.000	1.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
22.00	Conductors for Bus Bar, jumpers, dropper, terminations including hardware fittings, Connector, Clamp, Compression Joints etc. as per technical specification, approved drawings and scope of work													
22.01	ACSR Panther (200 sq. mm) Conductor	kM	0.900	0.900		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
22.02	ACSR Wolf (150 sq. mm) Conductor	kM	0.000	0.000	0.00	0.00	0.00	0.00	0%	0.00	0.00	0.00	0.00	INR Zero Only
22.03	ACSR Dog (100 sq. mm) Conductor	kM	0.099	0.099	0.00	0.00	0.00	0.00	0%	0.00	0.00	0.00	0.00	INR Zero Only
22.04	Aluminium Bus Pipe 1.5"	kM	0.000	0.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
23.00	Insulators & hardware as per technical specification, approved drawings and scope of work													
23.01	33 kV Polymer composite with fittings Pin Insulators (10KN-900 mm creepage distance)	Nos.	78.000	78.000	0.00	0.00	0.00	0.00	0%	0.00	0.00	0.00	0.00	INR Zero Only
23.02	11 kV Polymer composite with fittings Pin Insulators (5KN-320 mm creepage distance)	Nos.	27.000	27.000	0.00	0.00	0.00	0.00	0%	0.00	0.00	0.00	0.00	INR Zero Only
23.03	33 kV Polymer composite 70 kN Disc Insulator	Nos.	84.000	84.000	0.00	0.00	0.00	0.00	0%	0.00	0.00	0.00	0.00	INR Zero Only
23.04	Post Insulator 33 kV	Nos.	0.000	0.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
23.05	Single Tension Hardware Fittings for ACSR Wolf (150 sq. mm) Conductor.	Set	0.000	0.000	0.00	0.00	0.00	0.00	0%	0.00	0.00	0.00	0.00	INR Zero Only
23.06	Single Tension Hardware Fittings for ACSR Panther (200 sq. mm) Conductor.	Set	84.000	84.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
24.00	LT power cables for yard lighting and LT power connection to various equipments as per technical specification, approved drawings and scope of work													
24.01	Cable (XLPE 1.1 kV Grade) 4C x 185 sq. mm., armoured, aluminium conductor	Mtr.	75.000	75.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only

35.01	Portable type Dry Chemical Powder (BC)ABC type (5 kg.)IS : 15683:2006	No.	2,000	2,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
35.02	Portable type Mechanical Foam type (AB) IS:10204 (9 LITER)	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
35.03	Portable wall mounted CO2 Type of 5 kg capacity (squeeze grip type) IS : 15683:2006	No.	2,000	2,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
35.04	Portable type Water (CO) Type (A) IS : 940 Capacity - 9 liter	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
35.05	CO2 Type Trolley Mounted of 22.5 Kg Capacity for Switch Yard.	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
35.06	Sand Buckets with Stand(9 Ltr.) I.S : 2546 (1 set = 4 nos. sand filled bucket with steel stand)	Set	2,000	2,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.00	Tools & tackles, Safety equipments as per technical specifications, approved drawings and Scope of works													
36.01	Fibre Glass or Bamboo Ladder (20ft.)	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.02	Crimping Tools wretched type suitable for size 6 to 400 sq mm.	Set	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.03	Digital Clip On Ammeter (Tong Tester) 0-600 Amps	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.04	Insulation Tester (Megger): 1 no. 5000 V & 1 no. 1000 Volt (Electrically as well as manually operated) of Megger /Fluke/Motwane or equivalent make	No.	2,000	2,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.05	Insulated Cutting plier 8"	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.06	Insulated Nose plier 8"	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.07	Insulated Cutter 6"/8"	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.08	Srew Driver set	Set	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.09	Ring Wrench	Set	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.10	Pipe Wrench	Set	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.11	Torque Wrench	Set	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.12	D Spanner	Set	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.13	Tester Pen	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.14	Wire Cutter Knife	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.15	Hacksaw	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.16	Steel Measuring Tape (5 M)	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.17	Insulation tape (R , Y , B)	Set	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.18	Allen Key Set	Set	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.19	Line Tester	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.20	Sleeve Jointing Machine	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.21	Test Lamp	No.	2,000	2,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.22	Earth resistance meter: Megger/Fluke/Motwane or equivalent make	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.23	Electrician tool box – Tapanis standard kit	Set	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.24	Multi-meter Motwane make Digital type,	No.	1,000	1,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.25	Electrical Resistance Hand Gloves conforming IS: 4770 - 33 kV GRADE (TESTED)	Pair	2,000	2,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.26	33 kV Grade Electrical Insulating Power Mat 3 mm thick (IS:15652/2006)	Mtr.	15,000	15,000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only

36.27	Safety Belt with thigh straps confirming IS:2925 with ISI mark (Tested)	No.	3.000	3.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.28	Rubber Gum Boot conforming to relevant IS codes of different sizes	Pair.	4.000	4.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.29	250x200 mm and 2 mm thick M.S. plate with vitreous enamelled white with red letter as per drawing no. RE/LF/36 (Danger Board)	No.	6.000	6.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.30	Shock Therapy Chart	No.	1.000	1.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.31	ISI marked, Discharge Cum Earthing rod 66 kV rating with discharging multi stranded copper cables & terminals	No.	6.000	6.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.32	Safety Helmet made FRP material conforming to IS: 2925 & ISI marked in matt finish with adjustable type superior resin headband and cotton tape chinstrap.	No.	6.000	6.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.33	Manila Rope	Mtr.	100.000	100.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.34	Equipped First Aid Box	Set	1.000	1.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.35	Chain With Lock	No.	1.000	1.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.36	Infrared thermometer	No.	1.000	1.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.37	Blue Coloured Safety Vest	No.	5.000	5.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
36.38	Soft Barricading Tapes	Mtr.	300.000	300.000		0.00		0.00	0.00		0.00	0.00	0.00	INR Zero Only
Total in Figures												0.00	0.00	INR Only Zero Only
Quoted Rate in Words								INR Only Zero Only						

Tender Inviting Authority : CHIEF ENGINEER PROJECT-I

Name of Work : Supply & Installation work for Construction of new 33/11 KV S/Stn and associated 33 KV & 11 KV lines in Turn Key mode at 16 nos. location in West Bengal.(PK_SS_08_R)

NIT/RFB No: WBSEDCL/ P-II/16-Substation/2026-27/NIT/01

[illegible]

4.01	Excavation, erection, testing & commissioning of G.I Earthing Spike	595.000	595.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
4.02	Erection of 6 SWG GI wire for earthing and guarding (lacing) by providing GI nut, bolts & washers, turn buckle etc	2.117	2.117	MT		0.00		0.00	0.00	0.00	INR Zero Only
5.00	Erection, laying, hoisting, stringing, sagging, jumpering, binding,testing and commissioning of ACSR Conductor with supply and erection of jointing sleeves, P.G Clamps, helical formed fittings, GI turn buckle, CI packing piece, compression joint etc. and dismantling of conductor, iron materials, insulators & other related items from O.H. line & returning to WBSEDCL's store due to augmentation (33 kV line or 11 kV to 33 kV line) as required as per technical specifications, approved drawings and scope of work										
5.01	ACSR 150 sqmm. Wolf conductor (3 wire)	9.440	9.440	CkM		0.00		0.00	0.00	0.00	INR Zero Only
5.02	ACSR 100 sqmm. Dog conductor (3 wire)	11.080	11.080	CkM		0.00		0.00	0.00	0.00	INR Zero Only
5.03	ACSR 20 sqmm. Squirrel conductor (2 wire)	13.530	13.530	CkM		0.00		0.00	0.00	0.00	INR Zero Only
5.04	Dismantling & return of ACSR 100 sq. mm. Dog Conductor	0.000	0.000	kM		0.00		0.00	0.00	0.00	INR Zero Only
5.05	Dismantling & return of ACSR 50 sq. mm. Rabbit Conductor	0.000	0.000	kM		0.00		0.00	0.00	0.00	INR Zero Only
5.06	Dismantling & return of ACSR 30 sq. mm. weasel Conductor	0.000	0.000	kM		0.00		0.00	0.00	0.00	INR Zero Only
B	Erection Testing and Commissioning of 33 kV, 3CX400 sq. mm. Underground Line										
6.00	Excavation of soil for formation of cable trenches & re-instatement of cable trenches / Micro tunnelling work, Laying of Cable with Bricks, Sands etc. as per approved drawings and specifications and scope of work										
6.01	Survey, route alignment of HT under ground line and preparation , submission of soft and hard copy of GPS survey report including incorporation of GPS data using " WBSEDCL Vidyut Manchitra " application on spot .	7.760	7.760	CkM		0.00		0.00	0.00	0.00	INR Zero Only
6.02	Excavation of soil for making of trial hole (minimum size 1.1X0.5X1.2 mtr. Depth) including back filling the excavated soil	58.200	58.200	CuM		0.00		0.00	0.00	0.00	INR Zero Only
6.03	Excavation of soil for formation of cable trenches & re-instatement of the same	2646.000	2646.000	CuM		0.00		0.00	0.00	0.00	INR Zero Only
6.04	Excavation of soil by Cutting of metallad road / Cement Concrete / Brick Soling etc.for formation of cable trenches& re-instatement of the same	0.000	0.000	CuM		0.00		0.00	0.00	0.00	INR Zero Only
6.05	Micro-tunnelling work with Supply & laying of HDPE pipe grade-PE-80, PN-6, 200 mm dia (as per IS 4984-2016 with latest amendment)	3350.000	3350.000	Mtr.		0.00		0.00	0.00	0.00	INR Zero Only
6.06	Supply and laying of kiln-burnt 1st class bricks having proper size & shape suitable for cable protective cover	105840.000	105840.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
6.07	Laying & dressing of 33 kV 3CX400 sq. mm. XLPE Cable with supply and fixing of cable tag and cable marker	7850.000	7850.000	Mtr.		0.00		0.00	0.00	0.00	INR Zero Only
6.08	Making & Fixing of End Termination joint, Outdoor Type for 33 kV 3CX400 sq. mm. XLPE Cable	10.000	10.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
6.09	Making of Straight Through Type Joint including making of jointing pit of the 33 kV 3CX400 sq. mm. XLPE Cable	17.000	17.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
6.10	Making of Protective Duct for cable Joint complete.	17.000	17.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
6.11	Supply & laying of HDPE pipe grade-PE-80, PN-6, 200 mm dia (as per IS 4984-2016 with latest amendment) for riser of 33 kV 3CX400 sq. mm. Cable	30.000	30.000	Mtr.		0.00		0.00	0.00	0.00	INR Zero Only
6.12	Erection, testing and Commissioning of 42kV, 1-ph Station Class Lightning Arresters, jumpering from bus bar, earthing connection (3 nos. LA per Set)	4.000	4.000	Set		0.00		0.00	0.00	0.00	INR Zero Only

6.13	Earthing of LA consisting of 1 no 3 mtrs long 50 mm dia medium guage TATA make GI Pipe (Medium) using GI Flat 50 mm x 6 mm (including supply of all materials) by welding	4.000	4.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
C	Erection Testing and Commissioning of 11 kV Overhead Line										
7.00	Excavation of pole pit and erection of poles by providing and installing Caution Board, Anti-climbing devices (barbed wire) as per approved drawings and specifications and scope of work:										
7.01	Survey, route alignment , pole spotting of HT Overhead line and preparation , submission of soft & hard copy of GPS survey report including incorporation of GPS data using " WBSEDCL Vidyut Manchitra " application on spot .	7.170	7.170	CkM	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
7.02	13 M long WPB 160x160x30.44 kG/Meter with Grade E300 with cement concrete foundation (1:3:6) , muffling (1:2:4) etc.	155.000	155.000	Nos.	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
7.03	PCC Pole: 9M long with refilling by 200 mm average size boulders or/and Brick Ballast mixed with excavated earth(BB:Earth::60:40) etc.	0.000	0.000	Nos.	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
7.04	Erection, testing & commissioning of pre-fabricated galvanized steel items like DP top mounting channel, cross bracings , belting Angle , guarding bracket , extension channel, clamps etc. for over head structures with supply of GI nuts, bolts & washers as per technical specification, approved drawings and scope of work.	6.488	6.488	MT	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
7.05	Erection of Pre-fabricated galvanised 11 kV "V" Brackets for 13 M long WPB	109.000	109.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
7.06	Erection of Pre-fabricated galvanised 11 kV Top Adaptor for 13 M long WPB	109.000	109.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
7.07	Erection of Pre-fabricated galvanised 11 kV "V" Brackets for 9M long PCC Pole	0.000	0.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
7.08	Erection of Pre-fabricated galvanised 11 kV Top Adaptor for 9M long PCC Pole	0.000	0.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
8.00	Erection, testing and commissioning of 11 kV insulator including their hardware fittings as per technical specification, approved drawings and scope of work.										
8.01	11 kV Polymer Composite with fittings Pin Insulator	399.000	399.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
8.02	11 kV Polymer Composite with fittings Disc Insulator with strain hardware	147.000	147.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
9.00	Excavation of stay pit and erection of complete Stay Set with solid GI stay rod, anchor plate providing cement concrete foundation, GI stay wire, Guy Insulator, stay clamp, GI nut & bolts, turn-buckle, etc. as per technical specifications, approved drawings and scope of works.										
9.01	HT Stay Set complete	98.000	98.000	Set	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
10.00	Earthing arrangement as per Technical specifications, approved drawings and scope of work										
10.01	Excavation, erection, testing & commissioning of G.I Earthing Spike	183.000	183.000	Nos.	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
10.02	Erection of 6 SWG GI wire for earthing and guarding (lacing) by providing GI nut, bolts & washers, turn buckle etc	0.650	0.650	MT	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
11.00	Erection, laying, hoisting, stringing, sagging, jumpering, binding,testing and commissioning of ACSR Conductor with supply and erection of jointing sleeves, P.G Clamps, helical formed fittings etc. as required as per technical specifications, approved drawings and scope of work										
11.01	ACSR 50 sqmm. Rabbit conductor (3 wire)	7.170	7.170	CkM		0.00		0.00	0.00	0.00	INR Zero Only

11.02	ACSR 20 sqmm. Squirrel conductor (2 wire)	7.170	7.170	CkM	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
12.00	Erection, Testing and Commissioning of Isolators along with support insulators, Base Channel, down pipe, Arching Horns etc. and all complete accessories as per technical specification, approved drawings and scope of work										
12.01	12kV, 400A Vertical Mounting type tripple pole, Gang Operated Isolator (TPGO)	5.000	5.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
D	Erection Testing and Commissioning of 11 kV, 3CX300 sq. mm. Underground Line										
13.00	Excavation of soil for formation of cable trenches & re-instatement of cable trenches / Micro tunnelling work, Laying of Cable with Bricks, Sands etc. as per approved drawings and specifications and scope of work										
13.01	Survey, route alignment of HT under ground line and preparation , submission of soft and hard copy of GPS survey report including incorporation of GPS data using " WBSEDCL Vidyut Manchitra " application on spot .	8.860	8.860	CkM	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
13.02	Excavation of soil for making of trial hole (minimum size 1.1X0.5X1.2 mtr. Depth) including back filling the excavated soil	124.700	124.700	CuM	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
13.03	Excavation of soil for formation of cable trenches & re-instatement of the same	4300.000	4300.000	CuM	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
13.04	Excavation of soil by Cutting of metallad road / Cement Concrete / Brick Soling etc.for formation of cable trenches& re-instatement of the same	0.000	0.000	CuM	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
13.05	Micro-tunnelling work with Supply & laying of HDPE pipe grade-PE-80, PN-6, 160 mm dia (as per IS 4984-2016 with latest amendment)	1498.000	1498.000	Mtr.		0.00		0.00	0.00	0.00	INR Zero Only
13.06	Supply and laying of kiln-burnt 1st class bricks having proper size & shape suitable for cable protective cover	70500.000	70500.000	Nos.	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
13.07	Laying & dressing of 11 kV 3CX300 sq. mm. XLPE Cable with supply and fixing of cable tag and cable marker	8900.000	8900.000	Mtr.		0.00		0.00	0.00	0.00	INR Zero Only
13.08	Making & Fixing of End Termination joint, Outdoor Type for 11 kV 3CX300 sq. mm. XLPE Cable	20.000	20.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
13.09	Making of Straight Through Type Joint including making of jointing pit of the 11 kV 3CX300 sq. mm. XLPE Cable	31.000	31.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
13.10	Making of Protective Duct for cable Joint complete.	31.000	31.000	Nos.	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
13.11	Supply & laying of HDPE pipe grade-PE-80, PN-6, 160 mm dia (as per IS 4984-2016 with latest amendment) for riser of 11 kV 3CX300 sq. mm. Cable	60.000	60.000	Mtr.		0.00		0.00	0.00	0.00	INR Zero Only
13.12	Erection, testing and Commissioning of 12kV, 1-ph Station Class Lightning Arresters, jumpering from bus bar, earthing connection (3 nos. LA per Set)	10.000	10.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
13.13	Earthing of LA consisting of 1 no 3 mtrs long 50 mm dia medium guage TATA make GI Pipe (Medium) using GI Flat 50 mm x 6 mm (including supply of all materials) by welding	10.000	10.000	Set	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
E	Construction of 33/11 kV Substation										
14.00	Erection, testing and commissioning of 33/11 kV, 3 ph., 50 Hz, ONAN, Cu. Wound, Outdoor Conventional type Power Transformer fitted with on load Tap Changer, transformer oil, Buchholz relay, breather, OTI & WTI, Marshalling Box, Conservator tank, oil level indicator, RTCC Panel, valves on bushing end supported with insulators, Vent explosion plug, control wiring / cabling, cable supporting tray on the body, transformer wheels, bushing etc. as per Technical Specification, approved Drawing and Scope of works.										
14.01	10 MVA, 33/11 kV Power transformer	0.000	0.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only

14.02	RTCC Panel for 10 MVA, 33/11 kV Power transformer	0.000	0.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
14.03	Erection, Testing & commissioning of 100 kVA 33/0.415 kV, 3 ph., 50 Hz, ONAN, Cu. wound CRGO core outdoor type Station service Transformers as per Technical Specification, approved drawing and Scope of work.	1.000	1.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
14.04	Erection, testing & commissioning of Pre-fabricated galvanized Cable supporting G.I Structure with necessary arrangement of Fabricated G.I for fixing of U.G Cable for Station Service Transformer as per Technical Specification, approved drawing and Scope of work.	1.000	1.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
14.05	Erection, testing & commissioning of Pre-fabricated galvanized Cable supporting G.I Structure with necessary arrangement of Fabricated G.I for fixing of U.G Cable & LA for PTR LV side / Bus as per Technical Specification, approved drawing and Scope of work.	2.000	2.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
15.00	Erection, testing and commissioning of 33kV, 1250A, 3-ph, SCADA compatible Outdoor type Vacuum Circuit breaker, 33KV, 1-Phase, outdoor type Current Transformers with junction box, supporting angle (The CT secondary terminals shall be brought out in a weather proof secondary terminal box, 1 no. Junction Box for 3 nos. CT), Jumpers, earthing, supporting structures, bi-metallic clamps, permanent maintenance platform, marshalling box etc. required as per technical specifications, approved drawings and scope of work.										
15.01	33 kV, 1250A Outdoor type Vacuum Circuit breaker	5.000	5.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
15.02	CT having Ratio (400-200/1-1A) (For 33kV I/C or O/G) along with Supporting Structures & Junction Box etc.(3Nos. CT per Set)	3.000	3.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
15.03	CT having Ratio (200-100/1-1-1A) (For 6.3/10 MVA PTR) along with Supporting Structures & Junction Box etc.(3 nos. CT per set)	2.000	2.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
16.00	Erection, testing and Commissioning of 33 kV, 1-Phase, 33kV/110 volt, Single core 3 nos. outdoor type Potential Transformer along with junction box (1 no junction box for 3 no of 1-phase PTs), Supporting Structures , bi-metallic clamp along with required accessories complete as per technical specifications, approved drawings and scope of works.										
16.01	33 kV, 1-Phase, 33kV/110 volt, outdoor type Potential Transformer along with Supporting Structures & Junction Box etc.(3 nos. PT per set)	2.000	2.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
17.00	Erection, testing and commissioning of 33kV SCADA compatible metal enclosed Indoor, Control & Relay panel on base mounting 100X50 MS channel with grouting as per technical specification, approved drawings and scope of work.								0.00		
17.01	33 kV C&R Panel, SCADA Compatible for individual control of power transformers with differential relay	2.000	2.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
17.02	33 kV C&R Panel, SCADA Compatible for feeder control with directional relay	3.000	3.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
18.00	Erection, testing and commissioning of 36kV, 400A, 3-ph double break centre rotating type (DBCR), Gang Operated, Isolator along with support Insulators, Operating Mechanism, Base Channel down Pipe and all required accessories complete as per as per technical specification, approved drawings and scope of work.										
18.01	33 kV 400A CR Type Isolator with Earth Switch (High Level)	3.000	3.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
18.02	33 kV 400A CR Type Isolator without Earth Switch (High Level)	8.000	8.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
18.03	33 kV 400A CR Type Isolator without Earth Switch (Low Level)	9.000	9.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
19.00	Erection, testing and Commissioning of Lightning Arresters, jumpering from bus bar, earthing connection as required, as per approved drawings, technical specifications and scope of the work.										
19.01	Erection, testing and Commissioning of 42kV, 1-ph Station Class Lightning Arresters, jumpering from bus bar, earthing connection (3 nos. LA per Set)	5.000	5.000	Set		0.00	0.00	0.00	0.00	0.00	INR Zero Only

19.02	Erection, testing and Commissioning of 12kV, 1-ph Station Class Lightning Arresters, jumpering from bus bar, earthing connection (3 nos. LA per Set)	8.000	8.000	Set	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
20.00	Erection, cabling, interconnection cabling, testing, initial charging, and commissioning of Battery on battery stand, Battery Charger, battery insulators, inter-battery wiring using 30 sqmm. copper single core multi strand cable, terminal connectors & all other accessories and connectors as per as per approved drawings , technical specifications and scope of the work										
20.01	30V, 100 AH Pb Acid Battery, battery stand, battery insulators, inter battery wiring using 30 sq. mm. 1.1 kV Copper single core multi strand cable, terminal connectors with all Accessories	2.000	2.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
20.02	30V, 35 Amp. Float-cum-Boost Battery Charger with full wave rectification for 230 V, 1 phase, 50 Hz AC Input Supply (auto manual, float cum boost ,thyristor controlled battery charger)	2.000	2.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
21.00	Erection, testing & commissioning of Distribution Board by providing MS angle 50x50x6 mm structure, cement concrete foundation, LT Cu. Cable etc. as per technical specifications, approved drawings and scope of work.										
21.01	Cold Rolled Steel sheet enclosed floor mounted 415 V, AC Distribution Board with all accessories	1.000	1.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
21.02	Cold Rolled Steel sheet enclosed floor mounted 30 V DC Distribution Board with all accessories.	1.000	1.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
22.00	Erection, laying, hoisting, stringing, sagging, jumpering, binding to various equipment with supply of bimetallic connectors, clamps, Compression Joints, Connectors, hardware etc. as required as per technical specifications, approved drawings and scope of works.										
22.01	ACSR 200 sqmm. Panther conductor (3 wire)-Substation part	0.300	0.300	kM		0.00		0.00	0.00	0.00	INR Zero Only
22.02	ACSR 150 sqmm. Wolf conductor (3 wire)-Substation part	0.000	0.000	kM		0.00		0.00	0.00	0.00	INR Zero Only
22.03	ACSR 100 sqmm. Dog conductor (3 wire)-Substation part	0.033	0.033	kM		0.00		0.00	0.00	0.00	INR Zero Only
22.04	Aluminium Bus Pipe 1.5"	0.000	0.000	kM		0.00		0.00	0.00	0.00	INR Zero Only
23.00	Erection, testing and commissioning of insulator including their hardware fittings as per technical specification, approved drawings and scope of work.										
23.01	33 kV Polymer Composite with fittings Pin Insulator	78.000	78.000	Nos.	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
23.02	11 kV Polymer Composite with fittings Pin Insulator	27.000	27.000	Nos.	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
23.03	33 kV Polymer Composite with fittings Disc Insulator with strain hardware	84.000	84.000	Set	0.00	0.00	0%	0.00	0.00	0.00	INR Zero Only
23.04	Post Insulator 33 kV	0.000	0.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
24.00	Laying, testing and commissioning of LT Power Cable in cable trench/ pipes/ underground/ overhead with termination at indoor/outdoor terminals including supply of glands, lugs, cable ties, tagging etc. as required as per Technical Specification, approved Drawing and Scope of works.										
24.01	Cable (XLPE 1.1 kV Grade) 4C x 185 sq. mm., armoured, aluminium conductor	75.000	75.000	Mtr.		0.00		0.00	0.00	0.00	INR Zero Only
24.02	Cable (XLPE 1.1 kV Grade) 4C x 50 sq. mm., armoured, aluminium conductor	140.000	140.000	Mtr.		0.00		0.00	0.00	0.00	INR Zero Only
24.03	Cable (PVC 1.1 kV Grade) 4C x 25 sq. mm., armoured, aluminium conductor	220.000	220.000	Mtr.		0.00		0.00	0.00	0.00	INR Zero Only

24.04	Cable (PVC 1.1 kV Grade) 4C x 10 sq. mm., armoured, aluminium conductor	900.000	900.000	Mtr.		0.00		0.00	0.00	0.00	INR Zero Only
24.05	Cable (PVC 1.1 kV Grade) 2C x 10 sq. mm., armoured, aluminium conductor	0.000	0.000	Mtr.		0.00		0.00	0.00	0.00	INR Zero Only
24.06	Cable (XLPE 1.1 kV Grade) 4C x 120 sq. mm., armoured, aluminium conductor	50.000	50.000	Mtr.		0.00		0.00	0.00	0.00	INR Zero Only
25.00	Laying, testing and commissioning of Control Cables in cable trench/ pipes / underground including termination at indoor/outdoor with supply of glands, lugs, cable ties, tagging etc. as required as per Technical Specification, approved Drawing and Scope of works.										
25.01	1.1 kV grade PVC insulated armoured stranded Copper Control Cable: 4C x 2.5 sq. mm.	1.400	1.400	kM		0.00		0.00	0.00	0.00	INR Zero Only
25.02	1.1 kV grade PVC insulated armoured stranded Copper Control Cable: 8C x 2.5 sq. mm.	2.600	2.600	kM		0.00		0.00	0.00	0.00	INR Zero Only
25.03	1.1 kV grade PVC insulated armoured stranded Copper Control Cable: 12C x 2.5 sq. mm.	1.400	1.400	kM		0.00		0.00	0.00	0.00	INR Zero Only
26.00	Erection, testing & commissioning of 12 kV, 800 A, 3-ph, Multi panel Shunt trip, Indoor Type, motor operated, spring closing Vacuum Circuit Breaker and indoor control panel by providing ISMC 100 channel, levelling, alignment and welding on existing cable trench in control room including indoor type Current Transformers, indoor type Potential Transformers, indoor mounting type control panels, by providing control cabling between VCB and indoor control panel and required accessories, bi-metallic clamps, A-meter, volt-meter, Relay & accessories complete for protection as per technical specifications, approved Drawing and scope of the work.										
26.01	12 kV, 800 A, SCADA compatible, 3 Phase, 9 Panel (2 I/C+ 1 B/C + 6 O/G) Shunt Trip VCB	1.000	1.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
26.02	12 kV, 800 A, SCADA compatible, 3 Phase, 11 Panel (3 I/C+ 2 B/C + 6 O/G) Shunt Trip VCB	0.000	0.000	Set		0.00		0.00	0.00	0.00	INR Zero Only
27.00	Laying, erection and Testing of 11kV XLPE, 3 phase Power cables in substation cable trench, fixing/laying of HDPE Pipe for rising as required as per technical specifications, approved Drawing and scope of works								0.00		
27.01	Cable (XLPE 11 kV) 3C x 300 sq. mm., armoured, aluminium conductor	0.800	0.800	kM		0.00		0.00	0.00	0.00	INR Zero Only
27.02	11 kV Heat Shrinkable Outdoor Termination Joint for 3 x 300 sq. mm. XLPE Cable	10.000	10.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
27.03	11 kV Heat Shrinkable Indoor Termination Joint for 3 x 300 sq. mm. XLPE Cable	10.000	10.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
27.04	Supply & laying of HDPE pipe grade-PE-80, PN-6, 160 mm dia (as per IS 4984-2016 with latest amendment) for riser of 11 kV 3CX300 sq. mm. Cable	18.000	18.000	Mtr.		0.00	0.00	0.00	0.00	0.00	INR Zero Only
28.00	Erection of outdoor gantry structure (9 M PCC Pole) with foundation but without fittings including providing and installing danger plate top muffing and pole painting by excavation of pit and by providing shuttering, cement concreting etc. as per Technical Specification, approved Drawing & Scope of works										
28.01	4-Pole Structure by 9M long PCC pole with cement concrete foundation (1:3:6) for LA cum Isolator Support	5.000	5.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
28.02	4-Pole Structure by 9M long PCC pole with cement concrete foundation (1:3:6) for High Level Isolator Support / Bus support	8.000	8.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
28.03	4-Pole Structure by 9M long PCC pole with cement concrete foundation (1:3:6) for Low Level Isolator Support / Bus support	9.000	9.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only
28.04	DP Structure by 9M long PCC pole with refilling by 200 mm average size boulders or/and Brick Ballast mixed with excavated earth(BB:Earth::60:40) etc. for outgoing 11 kV Feeder	6.000	6.000	Nos.		0.00		0.00	0.00	0.00	INR Zero Only

28.05	Erection, testing & commissioning of pre-fabricated galvanized steel items like DP top mounting channel, cross bracings, belting Angle, guarding bracket, extension channel, clamps etc. for over head structures with supply of GI nuts, bolts & washers as per technical specification, approved drawings and scope of work.	21.700	21.700	MT	0.00	0%	0.00	0.00	0.00	INR Zero Only
28.06	Pre-fabricated galvanised steel structure for High level isolator	0.000	0.000	Nos.			0.00	0.00	0.00	INR Zero Only
28.07	Pre-fabricated galvanised steel structure for Low level isolator	0.000	0.000	Nos.			0.00	0.00	0.00	INR Zero Only
28.08	Pre-fabricated galvanised steel structure for Low level bus support	0.000	0.000	Nos.			0.00	0.00	0.00	INR Zero Only
29.00	Erection of Shielding arrangement with WPB Pole fitted with earth spike (on the top of the pole), turn buckles etc. as required as per technical specification, approved drawing and scope of work.									
29.01	13 M long WPB 160x160x30.44 kg/Meter with Grade E300 with cement concrete foundation (1:3:6), without muffing (covered in Civil BOQ) etc.	6.000	6.000	Nos.			0.00	0.00	0.00	INR Zero Only
29.02	Stringing, sagging of ACSR Rabbit (50 sq. mm) Conductor with Hardware Fittings complete	0.240	0.240	kM			0.00	0.00	0.00	INR Zero Only
29.03	Welding and fixing of GI Earth Spike (1853x20) mm	6.000	6.000	Nos.			0.00	0.00	0.00	INR Zero Only
30.00	Erection, Testing and Commissioning of Isolators along with support insulators, Base Channel, down pipe, Arching Horns etc. and all complete accessories as per technical specification, approved drawings and scope of work									
30.01	12kV, 400A Vertical Mounting type tripple pole, Gang Operated Isolator (TPGO)	6.000	6.000	Set	0.00	0%	0.00	0.00	0.00	INR Zero Only
31.00	Excavation of stay pit and erection of complete Stay Set with solid GI stay rod, anchor plate providing cement concrete foundation, GI stay wire, Guy Insulator, stay clamp, GI nut & bolts, turn-buckle, etc. as per technical specifications, approved drawings and scope of works.									
31.01	HT Stay Set complete	12.000	12.000	Set	0.00	0%	0.00	0.00	0.00	INR Zero Only
32.00	Excavation, laying, welding of earthing & grounding conductor with GI flat of 75 mm X 8 mm, TATA make GI pipe earth electrode, bentonite powder etc. and backfilling and erection of riser upto various equipments / gantry structure with GI flat of 65 mm X 6 mm of substation. Separate earthing arrangement for PTR neutral, Station Service Transformer neutral, control room equipments. The work shall be as per technical specifications, approved drawings and scope of the work.									
32.01	Switchyard earthing at new substation	1.000	1.000	Job			0.00	0.00	0.00	INR Zero Only
32.02	Control room earthing at new substation	1.000	1.000	Job			0.00	0.00	0.00	INR Zero Only
32.03	Earthing arrangement for construction of new 33 kV feeder bay at existing Substation	0.000	0.000	Job			0.00	0.00	0.00	INR Zero Only
32.04	Earthing of 6 nos 11 kV terminal Isolator DP with GI Pipe and GI flat 65 mm X 6 mm	1.000	1.000	Job			0.00	0.00	0.00	INR Zero Only
33.00	Erection, testing and commissioning of Switch yard electrification by LED flood light fitted on pole structure and control room roof complete with supply and fixing of junction box as per technical specifications, approved drawings and Scope of works.									
33.01	Erection of LED flood light complete set 250 watt with all accessorie and fittings.	16.000	16.000	Set			0.00	0.00	0.00	INR Zero Only

34.00	Erection, testing and commissioning of internal electrification of control room building through conceal wiring of control room by supplying of main DB sub DB, copper flexible multi conductor (FRLSH) 2.5 sq. mm. wiring (for light and fan), 4 sq. mm. (for power point), power and light points, conduits, fan, LED lamp, Tube fittings, exhaust fans, switches, sockets, 2 mm thick PVC 25 sq. mm. dia conduit pipe, plugs MCB, separate independent earthing (2 nos. 40 mm. TATA make GI pipe 3 mtr. long) etc. as required including DC emergency lighting from DCDB as per technical specification, approved drawing and scope of work.										
34.01	Electrification of control room building	1.000	1.000	Job		0.00		0.00	0.00	0.00	INR Zero Only
	CIVIL										
35	Soil investigation of Sub-Station area by drilling 04 nos. of bore holes of 150mm dia. Upto depth of 10 mtr, collection of soil sample, conducting laboratory/ field test, submission of test results and reports in three complete sets including the report about the soil resistivity, mobilization of all tools, plants etc all complete as per relevant IS codes & as per Technical Specification vide Office Order no. CED/121 dated: 28.03.2016	1.000	1.000	L.S.		0.00		0.00	0.00	0.00	INR Zero Only
36	Detail field survey (Pre level & Post level) work with levelling & @5.0 mtr grid in both sides for land development work including prepare of 03 sets of necessary drawing & data as per direction of EIC including charges of all tools & tackels etc.	2.000	2.000	L.S.		0.00		0.00	0.00	0.00	INR Zero Only
37	Earth work in filling of compound, tank, low land, ditches etc with good earth in layers not exceeding 150mm including breaking clods and consolidating the same by ramming and dressing complete. (Payment to be made on the profile measurement before and after the work). Earth should be arranged by the Contractor.	554.000	554.000	CUM		0.00		0.00	0.00	0.00	INR Zero Only
38	Design, engineering, supply of materials, labours, tools and plants for construction of boundary wall including retention wall (whichever necessary) height from FGL to 1.80 mtr made of reinforced cement concrete foundation (beam, column, footing), angle supports, brick works(1:4), plastering(1:4) including supply and fixing of 600 mm (+/- 30 mm) diameter R.B.T (Reinforced Barbed Tape) Concertina fencing with 50x50x6 M.S. angle including applying zink primer & enamel paint for M.S. angle and for boundary wall- one coat cement based paint, one coat exterior grade Acrylic primer and two coat Protective & decorative Acrylic exterior paint of approved quality all complete as per technical specification, approved drawing & scope of works and specification as per Annexure-A .Boundarywall with 0.60 mtr(approx.) retention wall for Kaligunj S/Stn	167.000	167.000	R/Mtr		0.00		0.00	0.00	0.00	INR Zero Only
39	Design, engineering, supply of materials, labours, tools and plants for construction of 02 nos. gate column including S/Stn's Main Gate made by M.S. materials including with brick works(1:4), plastering(1:4) including applying zink primer & enamel paint for M.S. main gate and for 02 nos. gate column- one coat cement based paint, one coat exterior grade Acrylic primer and two coat Protective & decorative Acrylic exterior paint of approved quality all complete as per technical specification, approved drawing & scope of works and specification as per Annexure-A.	1.000	1.000	L.S.		0.00		0.00	0.00	0.00	INR Zero Only
40	Design, engineering, supply of materials, labours, tools and plants for construction of single storied control room building complete with foundation, tiles flooring, cable trench with 6mm thick MS chequered plate cover, plastering(1:4), 250mm th. brick work(1:6), 125mm th brick wall(1:4), rcc frame structure(M-20 concrete) , roof treatment by screed concrete, painting with inside putty, 01 coat solvent based primer & 02 coats acrylic emulsion paint and for outside wall one coat cement based paint, one coat exterior grade Acrylic primer and two coat Protective & decorative Acrylic exterior paint of approved quality all complete, aluminium doors & windows(min. 1.50mm thick of aluminium member) with M.S. grill(01 coat zink primer & 02 coats enamel synthetic paint), floor & wall tiles as per requirement, recessed water supply cpvc & upvc pipe, sanitary fittings, toilet, water supply arrangements including 1000 litre PVC water storage tank of approved make, Glow-sign board, 01 water purifier with R.O., internal cable trench/cable carrying structure ,spiral stair case etc as per technical specification, approved drawing & scope of works and specification as per Annexure-A Payment will be maid on plinth area basis .Plinth area means outer to outer building area in sq.mCRB with 0.60 mtr(approx.) land filling for Kaligunj S/Stn	192.720	192.720	Sqm		0.00		0.00	0.00	0.00	INR Zero Only
41	Drilling of tube well bore (100 mm x 50 mm size) using PVC pipes & fittings Schedule 80 (heavy duty) conforming to ASTM D - 1785 for supplying drinking water including installation of 3" dia. 1HP, 8-11 stage, single phase, 220-240 V submersible pump with motor, 3 core x 1.5 mm2 Submersible flat cable and control panel of suitable capacity with 01 no. horizontal check valve G.M. tested to 21 kg per sq. cm. as per Technical Specification, approved Drawing & Scope of works and specification as per Annexure-A.	1.000	1.000	L.S.		0.00		0.00	0.00	0.00	INR Zero Only

42	Construction of septic tank of different capacities as per approved drawing with 1st class brick work in cement mortar (1:4) including two 560 mm dia. R.C.C. manhole cover (heavy type) of approved make supplied, fitted and fixed in the 100mm thick R.C.C. (1:1.5:3) top slab with necessary fittings, 20mm thick cement plaster (4:1) with neat cement finish to the internal surfaces and 15 mm thick cement plaster (4:1) to outside wall upto 200 mm below G.L. floor finished with 25 mm thick grey artificial stone over 100 mm thick R.C.C. (1:1.5:3) bottom slab including supplying, fitting and fixing all necessary specials, fittings, S.W. tees, C.I. foot rest etc. including excavation earth in all sorts of soil, shoring, bailing out and pumping out water as necessary, ramming, dressing the bed and refilling the sides of the tanks with earth, removing spoils, filling up the chamber with clear water, removing foreign materials from the chamber and including constructing attached inspection pit as per approved drawing and connecting all necessary pipes, joints etc. with internal plaster work and artificial stone flooring is to be done with admixture of water proofing compound @ 0.5% by weight of cement with all costs of labour and materials. Note:- (i) Finished level of Septic Tank should be 400 mm. from Ground Level. (ii) Height of 50 mm. Ventilation pipe & Mosquito proof mesh, should be followed as per IS:2470, Part-I. Payment will be made separately on the basis of actual height based on relevant I.S.Code. [Page No.-88, Item No.-3 of PWD/SOR w.e.f.01.11.17-1] i) With Pakur variety (SAIL/TATA/RINL)- For 10 users	1.000	1.000	Each		0.00		0.00	0.00	0.00	INR Zero Only
43	Making soak pit 2.5 m diameter 3.0 metre deep with 45 x 45 cm dry brick honey comb shaft with bricks and S.W. drain pipe 100 mm diameter, 1.8 m long complete as per standard design with common burnt clay F.P.S (non modular) bricks of class designation 7.5	1.000	1.000	Each		0.00		0.00	0.00	0.00	INR Zero Only
44	Constructing brick masonry chamber for underground C.I. inspection chamber and bends with bricks in cement mortar 1:4 (1 cement: 4 coarse sand) C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover with frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg), R.C.C. top slab with 1:1.5:3 mix (1) cement: 1.5 fine sand: 3 graded stone aggregate 20 mm nominal size), foundation concrete 1:5:10 (1 cement: 5 fine sand 10 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement: 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete as per standard design: Inside dimensions 455x610 mm and 45 cm deep for single pipe line.	2.000	2.000	Each		0.00		0.00	0.00	0.00	INR Zero Only
45	Design, Engineering, Supply of materials, labours, tools and plants for construction of Plinth Protection of Control room building complete with Earth work soling, 250 mm thick. Brick Work, 100 thick, M-15 concrete, 40 mm thick IPS, side plaster with neat all complete as per technical specification, approved drawing & scope of works and specification as per Annexure-A	65.100	65.100	R/Mtr		0.00		0.00	0.00	0.00	INR Zero Only
46	Design, engineering and construction of foundation including supply of materials, labours, tools and plants and considering original equipment manufacturer recommendations including excavation of pit, shuttering, reinforcement, cement concreting, providing and erecting guiding rail, wheel stopper etc. all complete as per technical specification, approved drawing & scope of works and specification as per Annexure-A.										
46.01	10/6.3 MVA Power Transformer	2.000	2.000	Each		0.00		0.00	0.00	0.00	INR Zero Only
46.02	33/0.415 kV Station Service Transformer	1.000	1.000	Each		0.00		0.00	0.00	0.00	INR Zero Only
46.03	11kV cable support structure	2.000	2.000	Each		0.00		0.00	0.00	0.00	INR Zero Only
46.04	33 kV VCB	5.000	5.000	Each		0.00		0.00	0.00	0.00	INR Zero Only
46.05	33 kV CT	5.000	5.000	Each		0.00		0.00	0.00	0.00	INR Zero Only
46.06	33 kV PT	2.000	2.000	Each		0.00		0.00	0.00	0.00	INR Zero Only
46.07	Cable loop for power cable trench (inner dia. 3.00 m min.)	2.000	2.000	Each		0.00		0.00	0.00	0.00	INR Zero Only
46.08	Cable loop for Station service cable trench (inner dia. 1.50 m min.)	1.000	1.000	Each		0.00		0.00	0.00	0.00	INR Zero Only
46.09	Extra for road crossing structure for crossing power cable (900 mm.wide & 300 mm. depth) under concrete approach road.	4.500	4.500	R/Mtr		0.00		0.00	0.00	0.00	INR Zero Only
46.10	Extra for road crossing structure for crossing control cable (600 mm.wide & 300 mm. depth) under concrete approach road.	4.500	4.500	R/Mtr		0.00		0.00	0.00	0.00	INR Zero Only
46.11	Muffing (M-15 concrete, 0.450x0.550x0.400 ht. with plaster & neat cement)	90.000	90.000	Each		0.00		0.00	0.00	0.00	INR Zero Only

PART 2

SECTION-6: EMPLOYER'S REQUIREMENTS

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A. New 33 kV OH Lines

1.00 GPS Survey

Mapping of route of proposed new 33 kV line GPS Survey in areas be performed mentioning various milestones. While GPS Surveying, existing electrical infrastructure in the locality should also be mapped. Line alignment (single line diagram) on political map with fair correctness, be prepared. SLD and GPS Survey report shall be approved by Project Manager and shall be used as basic document for assessment of works under the contract. On completion of line work, as built Single Line Diagram and pole wise line diagram showing pole wise materials used and pole-to-pole span should be submitted to Project Manager. This details shall be used as reference documents by Quality and Quantity Inspecting officials to execute inspection works.

2.00 Support (pole):

Following type of supports are envisaged for new 33 kV overhead lines-

- a. 9 mtr long /400 kg PCC Poles
- b. 13 m long WPB poles 160 mm x 160 mm 30.44 kg/m.
- c. 12.8 m long Rail Pole (52 kg/m)-for river crossing

Steel bottom plate shall be used in WPB poles and cement concrete reinforced plate shall be used as base plate for PCC poles. WPB poles shall be cleaned till good surface finish and painted with 2 or more coats of red oxide paint and 2 or more coats of aluminium paint till good finish. WPB poles shall also be painted with 2 or more coats till good surface finish with anti-corrosive paint.

Painting of WPB Poles shall be performed at stores. Before shifting to site for erection, poles shall be offered for inspection and approval by WBS EDC.

Before pickling, all welding, drilling, cutting and grinding shall be completed and all grease, paint, varnish, oil and welding slag shall be completely removed.

3.00 Fabricated steel items:

Fabricated steel items like top clamp, cross arm, bracket, clamps, cross bracings, bracings, strain plate, guarding channels, back clamp, etc shall be made of MS Channels, MS angle, MS flats as per approved drawings.

While fabricating, good quality electrical cutting tools and drill machine shall be used to ensure no sharp edges and perfect holes as per approved drawings. Gas cutting set should not be used for fabrication of MS steel items. Weld material shall be distributed equally between the two materials that were joined. The weld shall be free of waste materials such as slag. The weld surface should not have any irregularities or any porous holes (called porosity). The joint shall be tight. Most

welds need to demonstrate the required strength. One way to ensure proper strength is to start with a filler metal and electrode rating that is higher than your strength requirement.

The fabricated steel structures materials shall be hot-dip galvanized thoroughly internally and externally according to IS: 2629 and IS: 2633 (with latest amendments). Galvanizing shall be checked and tested in accordance with IS: 2633.

4.00 Hardware:

MS Nuts, bolts and washers (Galvanized) – 16 mm dia nuts, bolts & washers shall be used for tying of overhead structure items like cross arms, top clamps, brackets, clamps, bracing, strain plates etc.

While erecting, proper dimensions of nut-bolts and washers must be ensured. 2 to 3 threads only be visible of the bolt after full tightening of nut on requisite torque. The hardware shall be hot dip galvanized. The minimum coating of the zinc shall comply with IS: 2629 and IS: 2633. Galvanizing shall be checked and tested in accordance with IS: 2633.

5.00 Stay Set:

Stay set shall be used at all turning locations, conductor dead end location, double pole structure, triple pole structure, four pole structure to nullify the tension of conductor. At dead end locations, stay sets shall be used in pairs in separate foundations. Erection of storm guys at suitable location in straight line may also be provided.

6.00 Earthing:

Following earthing arrangements are envisaged for new 33 kV lines:

- a. GI Earthing spike made of 20mm solid rod
- b. 6 SWG GI wire for earthing and guarding lacing.
- c. ACSR 20 sqmm for Cradle guard lead wire.

Each 33 kV line support shall be provided with one GI earthing spike made of 20 mm solid rod connected with 6 SWG GI wire. Overhead line structure shall be connected to GI earthing spike or GI Earthing Coil using 6 SWG GI wire. GI nuts, bolts & washers shall be used to join two GI wires and 20 mm solid spike rod.

7.00 Insulator and hardware –

33 kV polymer Pin insulator with suitable hardware fittings shall be used. Insulator should be tied properly using binding wire and tape/helical form fitting. In road crossing and line crossing locations bridling cross arms and pin insulator shall be used.

The individual insulator shall be checked for insulation resistance before overhead line installation. Insulator should properly be cleaned before installation. No damage/crack insulator should be used.

8.00 ACSR Conductors:

- a) 6/4.72 mm + 7/1.57 mm (100 mm² Al. Area) – Dog
- b) 30/2.59 mm + 7/2.59 mm (150 mm² Al. Area) – Wolf

Care should be taken while drawing conductor from the drum. Proper roller should be used while handling conductors during erection. Jointing sleeves, binding materials, PG clamps, bi-metallic conductor shall be used for conductor jointing, insulators fixing, jumpering and termination at equipment respectively.

Proper sag should be maintained using sag chart table. While tensioning, care should be taken to avoid tension on pin insulator. Therefore, proper alignment of line to be ensured. Conductor joint should not be in the middle span but may be planned nearer the support.

At terminal location, care should be taken while connecting two sections to avoid bird faults. Therefore, pin insulator is to be used to handle the conductor on cross arm.

9.00 Anti-climbing device:

3.0 kgs, 2.5mm dia (12 SWG) galvanized barbed wire shall be used on each 33 kV support. Galvanized barbed wire should be properly dressed and crimped at termination. While wrapping the wire on support, proper tension should be maintained.

10.00 Danger board:

Each support should be provided with a danger board as per IS . Danger board should be in bi-lingual languages (local language and English).

11.00 Support foundation:

Cement concrete in mixture 1 part cement, 3 part coarse sand, 6 part 40 mm size aggregate stone chips (1:3:6) shall be used in H-Beam 11 kV line supports. PCC pole pit shall be refilled with 200 mm average size of boulder or/and bricks ballast mixed with excavated earth. Proper ramming shall be performed for better compaction.

Muffing shall be provided on WPB poles to prevent direct entry of rain water along the poles. Cement Concrete of 1:2:4 (1 part Cement, 2 parts coarse sand and 4 parts 20mm aggregate stones chips) shall be used for individual poles.

Steel plate shall be used in WPB supports and cement concrete reinforced plate shall be used as base plate for PCC poles.

12.00 Trimming of tree:

The Contractor shall arrange Tree trimming as required.

13.00 Statutory clearances:

During execution of 33 kV Line work, all statutory clearances shall be ensured for ground clearance, line-to-line clearance, road crossing clearance, horizontal and vertical clearances from buildings/objects etc. All road crossings and line crossings shall be guarded as per specifications. Conductor joint should not be provided in mid span length. Instead, it should be nearer to the support.

B. New 33/11 kV Substation

1.00 Details of New 33/11 kV Substations –

Sl. No.	Name of the SubStation	District	Capacity	Package
1	Herobhanga	South 24 PGS	2X6.3 MVA	Package1
2	Jharkhali	South 24 PGS	2X6.3 MVA	
3	Moukhali	South 24 PGS	2X6.3 MVA	
4	Kumorhat	South 24 PGS	2X6.3 MVA	
5	Kashmuli	Paschim Midnapur	2X6.3 MVA	Package3
6	Madan Mohan Chak	Paschim Midnapur	2X6.3 MVA	
7	Guiadaha	Paschim Midnapur	2X6.3 MVA	
8	Birchandrapur	Birbhum	2X10 MVA	Package7
9	Satpalsa	Birbhum	2X6.3 MVA	
10	Kaliganj	Nadia	2X6.3 MVA	Package8
11	Baishnab Nagar (Per Deonapur)	Malda	2X6.3 MVA	Package10
12	Dava	Purulia	2X6.3 MVA	Package14
13	Kalimati	Purulia	2X6.3 MVA	
14	Ratanpur	Bankura	2X6.3 MVA	
15	Deriapur	Bankura	2X10 MVA	Package15
16	Bishnupur	Bankura	2X10 MVA	

2.00 Following works are in the scope of Employer and shall be executed by Project Manager:

- Acquisition of land for the substation and its possession to start constructional activities.
- Confirm general layout of the substation
- 6.3 MVA, 33/11 kV Power Transformer along with accessories will be supplied by WBSEDCL. Also installation of the PTR on plinth and its accessories at proposed 33/11 kV Sub-station shall be done by WBSEDCL & are not under the scope of work. However, activity related to commissioning of PTR and related accessories shall be under the scope of Contract.

3.00 Types of substations are envisaged under this head is as per following:

Outdoor substation – in this type, 33kV section comprising breakers, isolators, 33/0.415 kV station transformer, CTs, PT, Lightning Arrester, Power Transformer, 33kV gantry shall be installed in out-door switch yard. Control panels of breakers shall be installed

inside the control room. All 11kV equipment like CTs, Breakers and control panels shall be installed inside the control room. 11kV cables shall be used for connection of power transformer and breaker and Breaker to outgoing isolators. 11kV feeder isolators and 11kV Lightning Arresters shall be installed outdoor.

4.00 Power Transformers:

Power Transformers shall be 33/11 kV, 3 ph, 50 Hz, ONAN, Cu Wound, Outdoor Conventional type Power Transformer along with transformer oil, Buchholtz relay, breather, OTI & WTI, Marshalling Box, Conservator tank, oil level indicator, valves, Vent explosion plug, control wiring between sensing equipment and marshalling box, cable supporting tray on the body of transformer, transformer wheels, LV/HV bushing etc as required. Following type and capacity of power transformers are envisaged under the scheme:

- i. 6.3 MVA (As per availability)
- ii. 10.0 MVA with on load tap changer

Transformer foundations shall be constructed by turnkey Contractor considering manufacturer's recommendations/requirement of employer. Cement concrete including reinforcement steel shall be used for the foundation. WBSEDCL shall approve design and drawings of foundations. Proper shuttering, vibrator, curing shall be performed while constructing the foundations.

65 mm X 6 mm galvanized neutral earthing strips shall be supplied. Two distinct earth connection shall be provided for neutral earthing. The earthing strips shall be mounted on 11kV post insulators.

Transformer protective equipment like OTI, WTI shall be tested during pre-commissioning stage. Their electric connection upto marshalling box shall be performed as per Original Equipment Manufacturer recommendations/guidance of employer. Cable tray shall be installed for laying of control cable shall be laid on cable tray on transformer body so that cable shall not get heated by transformer temperature. While commissioning the transformer tripping of breaker through all these equipment must be checked.

5.00 Breaker:

33 kV & 11 kV Vacuum Circuit Breakers shall be used for protection and control of power circuits. In outdoor substation, all 11 kV switchgears shall be indoor mounted type and 33 kV breakers shall be outdoor mounting type. The control panels shall be indoor type. The outdoor mounting type breakers shall be supplied with its mounting galvanized steel structures.

Detailed cable schedules, termination details and circuit diagrams of control panels, transformer marshalling box, breaker marshalling box, and capacitor banks

equipment shall be prepared and submitted by turnkey Contractor for approval of WBSEDCL before commencing the work.

Cement concrete including reinforcement steel shall be used for the foundation. WBSEDCL shall approve design and drawings of foundations. Proper shuttering, vibrator, curing shall be performed while constructing the foundations for breaker.

Permanent maintenance platform shall be constructed for outdoor breakers and CT. WBSEDCL shall approve design of platform.

Control wiring between CT/breaker and control panel for outdoor mounting breakers/CT shall be routed through Junction box. Metallic Junction box shall be installed on support gantry structure of substation or on MS angle (50x50x6 mm) support. The boxes are to be erected, electrically connected with the existing system, properly earthed, and labeled. The test report of pre-commissioning checks shall be prepared and submitted. All CT terminals are to be ring type. 2.5 sqmm copper multi stands wiring 1.1 kV grade, ISI marked, IS 694 shall be used for control wiring.

6.00 Station Service Transformer:

100 kVA, copper wound, 33/0.415 kV Station Service Transformers shall be installed on Plinth. Cement concrete including reinforcement steel shall be used for the foundation. Design will be provided/ approved by WBSEDCL . Relevant Indian Standard Should be followed during the work.

7.00 Gantry structures:

Gantry structures made of PCC Pole 9 meter long (400 Kg). MS Channel for bus bar supports (Beam), angle for cross arms/supporting structures and clamps along with hardware items etc. fabricated steel structure items shall be hot dip galvanized and cleaned till good surface finish. The minimum coating of the zinc shall comply with IS: 2629 and IS: 2633 (with latest amendments). Galvanizing shall be checked and tested in accordance with IS: 2633. Items shall be offered for inspection and approval by Project Manager.

8.00 AC Distribution board (ACDB)

415 Volts, ACDB shall be indoor floor mounted with mounting arrangements, three phase-neutral voltmeter, three phase ammeter and Selector switches, 63 Amps TPN switch fuse unit in incomer circuit, 32 Amps TPN switches in outgoing circuits equals the number of indoor breaker control panels plus number of outdoor VCB kiosk panel and having 20% spare outgoing circuits, etc. Alternatively, ACDB can also be erected on separate MS frame made of 50 mm x 50 mm x 6 mm angle.

Substation flooring shall be provided with suitable inserts to fix ICRCA 75 channel. This channel shall hold ACDB board. The board shall be installed on indoor trench.

Cables shall have bottom entry. The board shall be grounded by 50 mm x 6 mm GI strip at two distinct connections.

9.00 DC Distribution board (DCDB)

DCDB would comprises of DC volt meter including mounting arrangements etc.as required as per technical specifications, approved drawings and scope of works. Alternatively, DCDB can also be erected on separate MS frame made of 50mm x 50mm x 6mm angle.

Substation flooring shall be provided with suitable inserts to fix ISMC 75 channel. This channel shall hold DCDB board. The board shall be installed on indoor trench. Cables shall have bottom entry. The board shall be grounded by 50 mm x 6 mm GI strip at two distinct connections.

10.00 Cables:

- a. Control cables: 1.1 KV grade 2.5 mm² PVC insulated and PVC sheathed, armored, stranded, copper control cable with 4 core, 8 core and 12 core are envisaged in the substation.
- b. HT Power Cables: In partly outdoor substation, 11KV XLPE Cables shall be used as per following requirements:
 - Between Power Transformer and Main Incomer Switchgear.
 - Between outgoing Switchgear and outdoor feeder DP structures
- c. LT cable (FRLSH) for Internal Electrification works: following cables shall be used for internal electrification purpose:
 - 1.1 KV PVC insulated PVC sheathed ISI marked, IS 694, 10 mm², copper conductor, stranded, for internal electrification works between main DB and Sub DB or Su DB to switch board,
 - 1.1 KV PVC insulated PVC sheathed ISI marked, IS 694, 2.5mm² /4.00mm², copper conductor, stranded, for internal electrification works light & Fan and Power circuits respectively,
 - 1.1 KV PVC insulated PVC sheathed ISI marked, IS 694, 4.00mm², copper conductor, stranded weather proof cable for connection between outdoor area lighting luminary fixtures and its junction boxes,

Power Cables are to be laid as per best engineering practices. Power and control cables are to be laid in different alignments in cable trench. However, in case power/control cable is required to extend up to the equipment where cable trench is not constructed, they shall be laid in underground trench of width 300 – mm wide, provided with 2nd class brick protection (Approx. 10 bricks per meter length of laying) and sand protective covering (200 mm thick) and laid at the depth of 750mm minimum for LT cables and 1000mm for 11 kV cables. Laying specification of cable shall be as detailed in CPWD specification of laying power cables. Suitable loop length of 1.5 meter to be kept at the end points.

11.00 Junction Box and Control Cabling:

Junction box is to be installed on support structure of substation. The boxes are to be erected, electrically connected with the existing system, properly earthed and labeled.

All CT terminals are to be ring type. 2.5 sqmm copper multi stands wiring 1.1 kV grade, ISI marked, IS 694 shall be used for control wiring.

The junction box shall be earthed.

12.00 DC emergency lighting:

At-least four reputed make LED bulbs are to be provided of 7 watts {2 Nos in control room, 1 No in station battery room, 1 No in yard area}. These bulbs shall be fed by DC station battery. The wiring of these bulbs shall be so designed that it will automatically turn ON in event of failure of normal power supply. Provision for putting these bulbs OFF by operator is also to be provided. Wiring is to be performed concealed using PVC insulated PVC sheathed 2.5 mm² stranded copper wire. An automatic change over switch is envisaged for this purpose. This may be installed at prominent location, generally easily approachable by operator in the substation control room.

13.00 Station Battery and battery Charger:

2 sets of Station Battery and Battery Charger shall be provided.

Station battery are to be supplied with steel racks made of Mild Steel finished with at least three Coats of anti-sulphuric paints of approved shade. The battery may be placed on two-tier formation of stand. The construction of battery rack shall suit site conditions of their placement. The rack shall be painted with three coat of acid proof paint of reputed make as approved by Project Manager. No metal fasteners / nails shall be used for construction of battery racks. The stand shall be supported on insulators to obtain necessary insulation from the earth and there shall be insulators between each cell and stand.

Initial charging of stationary battery shall strictly be done by Original Equipment Manufacturer (OEM). Detail charging and discharging cycle readings shall be recorded and submitted to Project Manager.

Battery room shall be provided with exhaust fan of air displacement capacity more than six times volume of battery room per hour.

The battery connections / terminals are to be cleaned and provided with petroleum jelly. Terminals hardware is to be provided with connecting cables. The inter-battery wiring cable shall be neatly dressed using cable ties, clamped and wired using ferrules, tag mark. New battery sets are to be provided with battery chargers as per detail specifications enclosed. Interconnecting cables and power supply cables originating / terminating at the battery charger, shall be neatly dressed using cable ties, clamped and wired using ferrules, tag marks, double compression glands etc. as applicable. Connecting cable and associated materials needed for commissioning of charger shall be treated as part of the battery charger. 1.1 kV multi-strands, copper

conductors, PVC insulated and PVC sheathed cable for DC wiring between DCDB and Battery bank.

The agency shall provide following equipment at all the substations:

- i. Two copies of battery instruction sheet duly laminated,
- ii. Two sets of ISI marked electrical hand gloves,
- iii. One cell testing voltmeter 3 – 0 – 3 volts,
- iv. Two syringe hydrometers
- v. One thermometer with specific gravity correction scale,
- vi. One set of suitable spanners,
- vii. Two acid resistant funnel,
- viii. One acid resisting jar of 2 liters capacity,

14.00 Outdoor type Current Transformer and Potential Transformer:

Outdoor type Current and Potential Transformers are to be erected on supporting structure. In both the case, separate metallic Junction Box shall be installed on support structure of substation, The boxes are to be erected, electrically connected with the existing system, properly earthed, and labeled. The test report of pre-commissioning checks shall be prepared and submitted.

All CT terminals are to be ring type. 2.5 sqmm copper multi stands wiring 1.1 kV grade, ISI marked, IS 694 shall be used for control wiring..

The junction box shall be earthed.

15.00 Control Panels:

New panels as per the requirement of protection like feeder protection, transformer protection or incomer protection are to be supplied with each newly supplied breaker:

- a. Breaker cum control panel shall be erected on ICRA 100(75x50x6 mm) MS channel duly welded on MS angle inserted on indoor trench. Panels shall then be properly aligned, Cables shall enter with double compression glands, codified, lugged, and dressed.
- b. Functional checks shall be performed on the control panel as per control wiring diagram.
- c. All alarm, annunciation and trip circuits / indication & alarm circuits shall be tested and made operative,
- d. The indication lamp shall be LED type lamp as per given specifications and shall be made operative,
- e. Indicating instruments shall be calibrated,
- f. Grounding of panel at two different locations by 50x6mm flat shall be provided. ,
- g. Control relays shall be calibrated and checked for tripping and closing operations,
- h. Pick up time / trip time and tripping at normal and reduced voltages shall be checked, properly adjusted and recorded,
- i. Latching arrangement of relays shall be checked for operation,
- j. Relay and instruments shall be tested from respective Zonal Testing unit of WBSEDCL.

16.00 Lightning Arrester:

Station Class LAs will be used in 33 kV and 11 kV with base steel structure, terminals bi – metallic connectors / PG clamps and earth connectors. LAs are to be separately earthed. All LA terminals / connections are to be tightened.

17.00 Internal Electrification:

Indoor Distribution Board having 63A TPN MCB, outgoing MCBs of suitable ratings for power and light & fan circuits are to be installed. Internal electrification of the control room includes following provision of fans, exhaust fans, LED illumination fixtures, Fluorescent Tube Light including switches, 3-pin sockets arrangements on each switch board.

- a. Ceiling Fan, 1300mm with electronic type fan regulator: 8Nos.
- b. Exhaust Fan, 650mm: 3 nos.
- c. Fluorescent Tube Light (2X28 Watt, T5): 15 Set
- d. Fluorescent Tube Light (1X28 Watt, T5): 5 Set
- e. Fluorescent Tube Light, Corrosion free (1X28 Watt, T5): 2 Set
- f. Bulk Head (23Watt, LED): 8 nos.

The above list of materials are not conclusive and may change/vary as per site requirements.

Two nos separate 3 m long 40 mm dia earthing shall be provided for internal electrification works.

- a. Main Distribution Board and Sub-Distribution Boards,
- b. ACDB, DCDB, Battery Chargers each at 2 distinct locations

Internal Electrification works' wiring shall be provided with single core PVC insulated & PVC sheathed 2.5 mm² stranded ISI 694 marked copper flexible wire (for light and fan circuits) and 4.0 mm² stranded ISI 694 marked copper flexible wire (for power points) in conceal arrangement in 25 mm dia 2 mm thick PVC ISI marked pipe and 2.5mm thick switch boards in flash arrangement. Neutral links are to be used in each switchboards. Jointing in neutral conductor other than at switching board shall not be permitted.

Iron junction box made of 18 gauges CRCA sheet shall be used for switchboard; 2 mm thick cotton impregnated hylum sheet is to be used for the purpose of switch board. ISI marked switched and sockets are to be used for Internal Electrification works. Earth wire must be made available duly connected with earth circuit for Earthing in each and every switchboard.

Reputed make indoor double door Miniature circuit breaker DB fitted with Miniature Circuit Breakers of MDS/ Havells/ Standard make or equivalent ISI marked shall be used for the protection. Reputed make LED illumination fixtures, Fluorescent Tube Light, Sodium Vapor Lamp, and fans are to be used for the substation. These materials are to be procured from authorized dealer of the materials manufacturers only.

Documentary evidence may be submitted for source of supply of all electrical materials. Before procurement of materials Project Manager shall approve make, type and quality of materials.

Control Room lighting shall be designed to ensure minimum 300 lux illumination level through LED illumination fixtures, Fluorescent Tube Light, LED. The bidder shall submit calculation for achieving the above illumination before start of lighting work for approval of project manager.

18.00 Yard Lighting:

The substation area inside the fencing shall be illuminated provided with LED light fittings. Each fitting and its Junction box enclosures shall be IP 55 protection type. Water and vermin proof-ness is a must.

Area light supply from Substation DB to be extended through PVC insulated PVC Sheathed aluminium stranded armoured power cable shall be laid in underground trench. Laying specification of cable shall be as detailed in CPWD specification of laying power cables. Suitable loop length of 1.5 metre to be kept at the end points.

Pole mounted junction box (and not the Control Gear Box supplied with the fitting) shall be made of 2mm thick CR steel sheet of size 300X300X200mm fitted with SPN terminal block of 32A capacity, 10A SPN miniature circuit breaker of ISI mark and reputed manufacture. The JB shall be hot dip galvanized. The JB shall also conform to IP 55 protection for enclosure. Neoprene gasket shall be used in JB. 2 Nos. earthing terminals of 10 – mm dia shall be provided with 25X6mm size of mounting clamps. Bidders shall get JB drawing approved before start of manufacturing.

WPB poles shall be cleaned till good surface finish and painted with 2 or more coats of red oxide paint and 2 or more coats of aluminium paint till good finish. WPB Poles shall also be painted with 2 or more coats till good surface finish with anti-corrosive paint.

Painting of WPB Poles shall be performed at stores. Before shifting to site for erection, poles shall be offered for inspection.

19.00 ACSR Conductor and Aluminium Pipe:

- i. 50 sq.mm. Rabbit- for shielding
- ii. 100 sq.mm. Dog- for Jumpers & droppers
- iii. 150 sq.mm. Wolf-for Bus Bars
- iv. 200 sq.mm. Panther-for Bus Bars
- v. 1.5 inch Aluminium Pipe-for Bus Bars

ACSR / Pipe shall be provided with hardware fittings, Connectors, T-clamps, bi-metallic clamps and PG clamps as per requirements. T – Clamps shall be provided on each jumper on bus bars. Line jumpers shall be provided with adequate size of PG Clamps (Two numbers PG Clamps at each end of jumper). Clamp shall be made of aluminium grade T-1F as per IS – 8309 having good electrical quality aluminium material and shall not be brittle in nature. Suitable Bi – metallic clamps shall be provided at bushings of transformers and circuit breakers. Also at all those points

where joining of two different materials is found, bi-metallic clamps shall be provided.

Care shall be taken while drawing conductor from the drum. Proper roller shall be used while handling conductors during erection.

20.00 Insulator, hardware and connections to equipment:

33 kV and 11 kV polymer Disc/ Pin insulator with suitable hardware fittings shall be used. Insulator shall be tied properly using binding wire/helical form fitting. In road crossing and line crossing locations bridling cross arms and pin insulator shall be used.

The individual insulator shall be checked for insulation resistance before overhead line installation. Insulator shall properly be cleaned before installation. No damage/crack insulator shall be used.

21.00 Power receptacles:

Two power receptacles are envisaged in switch yard area to provide power supply to Transformer Oil Filtration machine and other testing and commissioning related works. Each receptacles shall house 125A TPN MCCB as incomer, 32A 3 phase socket/switch and 1 No, 16A single phase Industrial type socket/switch of reputed brand and type.

22.00 Yard Earthing:

Earthing shall be provided with GI earth pipe and 75mmx8mm GI flat forming earth mat. 65mmx6mm GI flat shall be used for earth-riser. WBSEDCL shall approve arrangement of earthing network. Following arrangement envisaged for grid/ earth pipe.

Description of equipment	Partly outdoor Substation
Earth Pit made of 3 m long, 40 mm dia GI pipe /Chemical earthing	(a) 6.3/10 MVA PTR: 2 nos. Pipe earthing / PTR (b) Station Service Transformer: 3 nos. Pipe earthing (c) 33KV LA: 2 nos. Pipe earthing per set. (d) H-Beam earthing for shielding: 1 no. Pipe earthing /pole (e) Control Room: 5 nos. Pipe earthing (f) Battery & Charger: 2 nos. Pipe earthing (g) PTR LV Side: 2 nos. Pipe earthing
Earth mat	75mm X 8mm GI Flat
Earth riser	65mm X 6mm GI Flats

The above list are indicative. The earthing of Sub-Station/construction of Earth mat shall be done considering soil resistivity, dimension of the switchyard and other allied factors for which the employer shall provide approved design & drawing with details specifications.

23.00 Fabricated steel items:

Fabricated steel items like top clamp, cross arm, bracket, clamps, cross bracings, bracings, strain plate, guarding channels, back clamp, etc shall be made of MS Channels, MS angle, MS flats as per approved drawings.

While fabricating, good quality electrical cutting tools and drill machine shall be used to ensure no sharp edges and perfect holes as per approved drawings. Gas cutting set should not be used for fabrication of MS steel items. Weld material shall be distributed equally between the two materials that were joined. The weld shall be free of waste materials such as slag. The weld surface should not have any irregularities or any porous holes (called porosity). The joint shall be tight. Most welds need to demonstrate the required strength. One way to ensure proper strength is to start with a filler metal and electrode rating that is higher than your strength requirement.

The fabricated steel structures materials shall be hot-dip galvanized thoroughly internally and externally according to IS: 2629 and IS: 2633 (with latest amendments). Galvanizing shall be checked and tested in accordance with IS: 2633.

24.00 Hardware:

MS Nuts, bolts and washers (Galvanized) – 16 mm dia nuts, bolts & washers shall be used for tying of overhead structure items like cross arms, top clamps, brackets, clamps, bracing, strain plates etc.

While erecting, proper dimensions of nut-bolts and washers must be ensured. 2 to 3 threads only be visible of the bolt after full tightening of nut on requisite torque. The hardware shall be hot dip galvanized. The minimum coating of the zinc shall comply with IS: 2629 and IS: 2633. Galvanizing shall be checked and tested in accordance with IS: 2633.

25.00 Fire Protection System:

Fire Buckets filled with sand: The fire buckets confirming to IS 2546/1974 filled with sand shall be installed at two places in new s/s – in control room and in switchyard near power transformer. There shall be 4 no. of buckets at each location in a s/s. The buckets shall be hanging on a steel stand. The buckets and the stand shall be as per relevant standards and will be filled with sand.

26.00 Portable Fire Extinguishers:

Carbon dioxide type and Dry chemical powder type fire extinguishers are also to be installed in newly constructed substation. All the portable extinguishers shall be of free standing type and shall be capable of discharging freely and completely in upright

position. Each extinguisher shall have the instructions for operating the extinguishers on its body itself. All extinguishers shall be supplied with initial charge and accessories as required. Portable type extinguishers shall be provided with suitable clamps for mounting on walls or columns. All extinguishers shall be painted with durable enamel paint of fire red color conforming to relevant Indian Standards. Capacities of each type shall be as indicated in the schedule of quantities. Carbon dioxide (CO₂, type) extinguisher shall conform to IS:2878. Dry chemical powder type extinguisher shall conform to IS:2171.

27.00 Safety and operation equipment:

The substation shall be equipped with safety equipment for smooth operation and maintenance.

28.00 Following details shall be provided at each substations:

For suitable information to operating staff or the other related persons visiting the substation, following facilities shall be provided before commissioning of substation or on date of inauguration of the substation.

- Sketch of substations electrical circuit inside the substation in white cotton impregnated 2 mm thick hylum sheet 2x2 feet size installed on the wall,
- Notice board 3x3 feet made out of 10 mm thick water proof ply, painted suitably and provided with 1st class teak wood ribs at the sides of 2 x ½ inches size,
- Electrical safety charts,
- Provision for notifying name, address, telephone numbers, qualification details etc of the operational staff Employer intends to post at the substations and their officials in hierarchy,
- Depicting working drawings of cable terminals details and cable laying details in laminated sheets
- Color coding of bus bars and terminal conductors of the feeders using enamel painting round marks and labeling name of feeders, equipment, etc as defined.

29.00 Labelling:

Each substation equipment shall be labelled using yellow base and black indication marks (number or digits). 40/50 mm height digits/words shall be used for this purpose. Base shall be made using 2 or more coats of yellow enamel paint till good surface finish. Base preparation shall be completed before shifting of poles and equipment to site for erection. Base painting and marking of digits shall be performed by a skilled and trained painter using branded enamel paint, Project Manager shall approve type and brand of enamel paint. The identification of phases through Red, Yellow and Blue circles shall be provided on transformer, CT, PT, 33 kV and 11 kV feeder Double Pole structures.

Control panels shall be labelled from front as well as from the back by providing serial number and name of feeder/transformer. The color coding sign on two adjacent panels shall also be provided with 100mm dia color circle overlapping two adjacent panel sheet for safety purpose.

Labeling of following information is intended by the Employer preferably in local language:

1. Transformer capacity and designated name like T - 1 or T - 2,
2. VCB designated name
3. Identification of CT & PT
4. Color coding of bus bars, transformer terminals, feeders phases (R-Y-B)
5. Name of incoming / outgoing feeder.
6. Warning instruction, if any, of availability of two sources of HT supply on same structure.
7. Earth pit designation and date of checking,

30.00 Danger board:

Each substation equipment and structures shall be provided with a danger board as per IS.

31.00 Site Testing and Pre – Commissioning Checks:

An indicative list of tests is given below. Contractor shall perform any additional test based on specialties of the items as per the Field Quality Plan/ instructions of the equipment manufacturer or Employer without any extra cost to the Employer. The Contractor shall arrange all instruments required for conducting these tests along with calibration certificates and shall furnish the list of instruments to the Employer for approval. Detail test certificates duly signed by Employer's representative & agency representative of tests jointly carried out at site before putting the equipment in use, shall be submitted by the Contractor in three copies.

Agency shall also be responsible to prepare Single Line Diagram of substations and an overall power distribution network. These drawings are not necessarily showing the exact dimensions of the substations.

32.00 Equipment test records, commissioning test records and drawings –

Factory test certificates of equipment, test certificates at the time of pre-dispatch inspections, pre-dispatch inspection reports, pre-commissioning check results and post commissioning check results shall be compiled and provided in three sets to Project Manager for his approval and records.

33.00 Electrical Inspection by state Electrical Inspectorate:

The substations shall be subjected to the inspection of state owned Electrical Inspectorate for which payment of fees shall be made by Employer.

The responsibility of Contractor shall include rectification / alteration / addition of installation as per advice of electrical inspector for successful commissioning of the substations within timelimit.

34.00 Arrangement by the Contractor:

Contractor shall project-wise make his own separate arrangements for the following:

1. Opening of a site office-cum-store,
2. Distributions of power supply at all work areas in the substation premises.
3. Construction of office and store (open & covered)
4. Arranement for fabrication etc.
5. Round the clock fire protection and security arrangements for site store-cum-office during construction stage

35.00 Commissioning spares:

The Contractor shall supply spares, which he expects to consume during installation testing and commissioning of system. The quantity of these spares shall be decided based on his previous experience, such that site works shall not be hampered due to non-availability of these spares.

36.00 Recommended spares:

As/if required will be covered through GTP.

C. New 11 KV OH Lines

1.00 GPS Survey

Mapping of route of proposed new 11 kV line by foot GPS Survey be performed mentioning various milestones. While GPS Surveying, existing electrical infrastructure in the locality should also be mapped. Line alignment (single line diagram) on political map with fair correctness, be prepared. SLD and foot GPS Survey report shall be approved by Project Manager and shall be used as basic document for assessment of works under the contract. On completion of line work, as built Single Line Diagram and pole wise line diagram showing pole wise materials used and pole-to-pole span should be submitted to Project Manager. This details shall be used as reference documents by Quality Inspecting officials to execute inspection works.

2.00 Support (pole):

Following types of support are envisaged for 11 KV overhead line:

- a) 9 Mtr/(W.L-400Kg) PCC Poles.
- b) 13 Mtr long WPB 160x160x30.44 kg/m

Precise utilization of type of pole support will depend on site conditions. Cement concrete reinforced plate shall be used as base plate for PCC poles. The size of RCC Base Plate for 9 Mtr PCC Pole which shall be offered for inspection to **WBSEDCL** prior to use. WPB poles shall be cleaned till good surface finish and painted with 2 or more coats of red oxide paint and 2 or more coats of aluminium paint till good finish.

3.00 Fabricated steel items:

Fabricated steel items like top clamp, cross arm, bracket, clamps, cross bracings, bracings, strain plate, guarding channels, back clamp, etc shall be made of MS Channels, MS angle, MS flats as per approved drawings.

While fabricating, good quality electrical cutting tools and drill machine shall be used to ensure no sharp edges and perfect holes as per approved drawings. Gas cutting set should not be used for fabrication of MS steel items. Weld material shall be distributed equally between the two materials that were joined. The weld shall be free of waste materials such as slag. The weld surface should not have any irregularities or any porous holes (called porosity). The joint shall be tight. Most welds need to demonstrate the required strength. One way to ensure proper strength is to start with a filler metal and electrode rating that is higher than your strength requirement.

The fabricated steel structures materials shall be hot-dip galvanized thoroughly internally and externally according to IS: 2629 and IS: 2633 (with latest amendments). Galvanizing shall be checked and tested in accordance with IS: 2633.

4.00 Hardware:

MS Nuts, bolts and washers (Galvanized) – 16 mm dia nuts, bolts & washers shall be used for tying of overhead structure items like cross arms, top clamps, brackets, clamps, bracing, strain plates etc.

While erecting, proper dimensions of nut-bolts and washers must be ensured. 2 to 3 threads only be visible of the bolt after full tightening of nut on requisite torque. The hardware shall be hot dip galvanized. The minimum coating of the zinc shall comply with IS: 2629 and IS: 2633. Galvanizing shall be checked and tested in accordance with IS: 2633.

5.00 Stay Set:

Stay set shall be used at all turning locations, conductor dead end supports, double pole structure, triple pole structure, four pole structure to nullify the tension of conductor. Erection of storm guys at suitable location in straight line may also be provided.

6.00 Earthing:

Following earthing arrangements are envisaged for new 11 kV lines:

- a) GI Earthing spike made of 20 mm solid rod
- b) Maintenance free type earthing

Each 11 kV line support shall be provided with one GI earthing spike made of 20 mm solid rod and connected with 6 SWG GI wire. Overhead line structure shall be connected to GI earthing spike using 6 SWG GI wire. GI nuts, bolts & washers shall be used to join two GI wires and 20 mm solid spike rod. Project Manager shall decide use of GI Earth Coil or 20mm dia GI Solid Rod for individual pole earthing.

6 SWG GI wire shall be used for cross lacing and ACSR 20 Sqmm wire shall be used for guard wires.

7.00 Insulator and hardware –

11 KV polymer Disc/Pin insulator with suitable hardware fittings shall be used. Insulator should be tied properly using binding wire & tape/helical form fitting. In road crossing and line crossing locations bridling cross arms and pin insulator shall be used.

The individual insulator shall be checked for insulation resistance before overhead line installation. Insulator should properly be cleaned before installation. No damage/crack insulator should be used.

8.00 ACSR Conductors:

ACSR 50 sq.mm. Rabbit Conductors are envisaged for new 11 kV lines:

Care should be taken while drawing conductor from the drum. Proper roller should be used while handling conductors during erection. Jointing sleeves, binding materials, PG clamps, bi-metallic conductor shall be used for conductor jointing, insulators fixing, jumpering and termination at equipment respectively. There must not be uneven sag between conductor/spans.

Proper sag should be maintained using sag chart table. While tensioning, care should be taken to avoid tension on pin insulator. Therefore, proper alignment of line to be ensured.

At terminal location, care should be taken while connecting two sections to avoid bird faults. Therefore, pin insulator is to be used to handle the conductor on cross channel.

9.00 11 KV AB Switch:

11 kV, 3-ph, 400 A, 3 Pin type, Vertical Mounting type, Gang Operated, AB Switch shall be installed at cut points and at suitable locations as per instructions of Project Manager. AB Switch structure and handle must be earthed using 6 SWG GI wire.

10.00 Anti-climbing device:

3.0 kgs, 2.5mm dia (12 SWG) galvanized barbed wire shall be used on each 11 kV support. Galvanized barbed wire should be properly dressed and crimped at termination. While wrapping the wire on support, proper tension should be maintained.

11.00 Danger board:

Each support shall be provided with a danger board as per IS. Danger board should be in bi-lingual languages (local language and English).

12.00 Support foundation:

Cement concrete in mixture 1 part cement, 3 part coarse sand, 6 part 40 mm size aggregate stone chips (1:3:6) shall be used in H-Beam 11 kV line supports.

PCC pole pit shall be refilled with 200 mm average size of boulder or/and bricks ballast mixed with excavated earth. Proper ramming shall be performed for better compaction.

Muffing shall be provided on WPB poles to prevent direct entry of rain water along the poles. Cement Concrete of 1:2:4 (1 part Cement, 2 parts coarse sand and 4 parts 20mm aggregate stones chips) shall be used for individual poles.

Steel plate shall be used in WPB supports and cement concrete reinforced plate shall be used as base plate for PCC poles.

13.00 Quality & Quantity inspection and compliance to the observation:

The line works, before or after commissioning/energisation, shall be inspected by Quality Inspectors and State Inspection Inspectorate, if required so. Contractor shall provide all requisite details of line like approved GPS Survey report, as built drawings and joint measurement sheet to the inspector to conduct. Contractor shall rectify defects/deficiencies and submit compliance to the observations with supporting photographs in digital form within one month from receipt of observations.

14.00 Tree Trimming:

The Contractor shall arrange tree trimming as required.

15.00 Statutory clearances:

During execution of 11 KV Line work, all statutory clearances shall be ensured for ground clearance, line-to-line clearance, road crossing clearance, horizontal and vertical clearances from buildings/objects etc. All road crossings and line crossings shall be guarded as per specifications. Conductor joint should not be provided in mid span length. Instead, it should be nearer to the support.

D. Underground Cabling

1. GPS Survey

The detailed GPS Survey shall be carried out for the approved feeders/spur lines by the Contractor and submitted for Employer's approval. The Successful Tenderer shall carry out radar GPS Survey of the route using Ground penetrating Radar and determine route profile of any other utility cables, pipes etc along the route. The route GPS Survey and drilling profile shall be got approved and finalized by the Engineer-in-Charge prior to commencement of the drilling, HDPE pipe insertion and cable insertion.

2. The scope includes :

- Laying of underground 33 kV, XLPE HT Cable (3Cx400 sqmm)
- Laying of underground 11kV, XLPE HT Cable (3Cx300 sqmm)

Laying of cable shall be as per IS 1255.

3. Details scope of work for Micro-tunneling work with HDPE pipe for Under Ground cable laying

The Micro-tunneling work with HDPE pipe of requisite sizes by Horizontal Direction Drilling method may be done for laying of different sizes of Under ground cables along the route for main crossing point of NH/SH/Metal road, Railway, river/canal, other pipelines / installation of different utility as per direction of Project Manager.

Ground penetrating radar survey along the proposed Micro-tunneling route for identification of underground services is to be adopted during Micro-tunneling work.

Requisite safe drilling inspection pits and test pits wherever necessary are to be executed during Micro-tunneling work.

Guided boring / drilling technology is to be used.

In Horizontal and Vertical boring, system should be capable upto 10 meter below ground level.

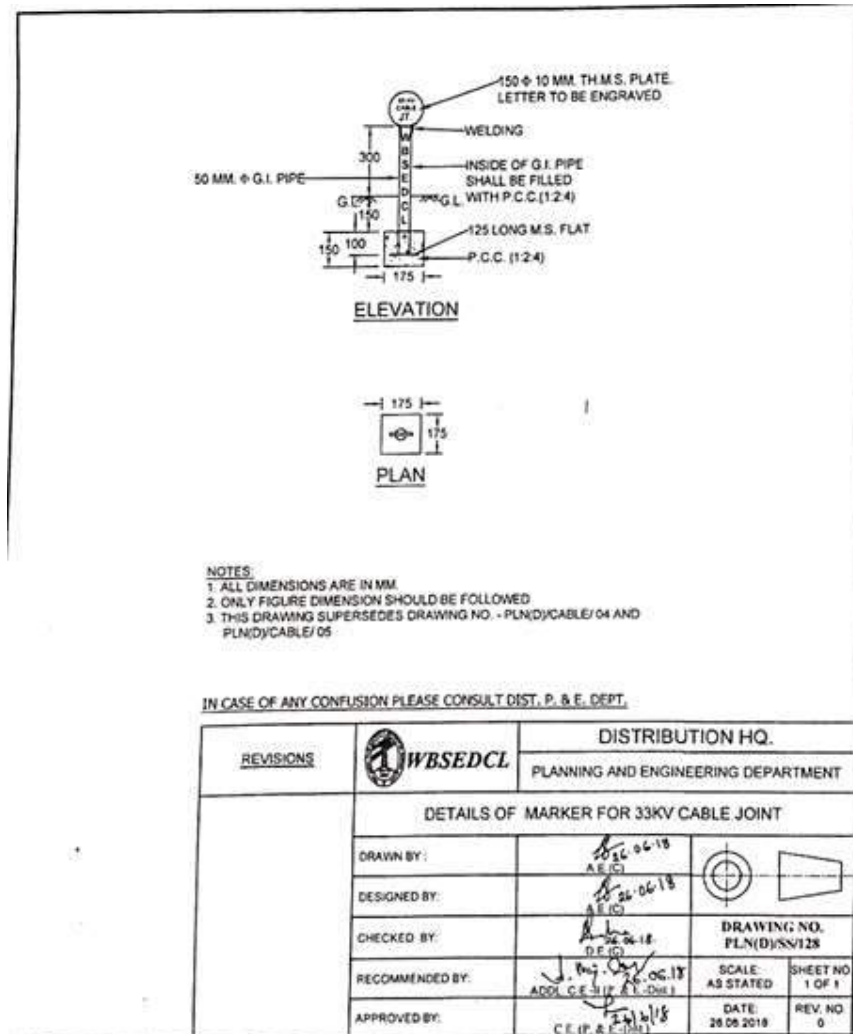
Depth of boring should be as to clear any underground utilities/obstructions. Minimum depth of boring for road crossing should be 1.65 meter from the crust level of road. The Micro-tunneling should be atleast 2 meter below the design bed level of the channel/canal.

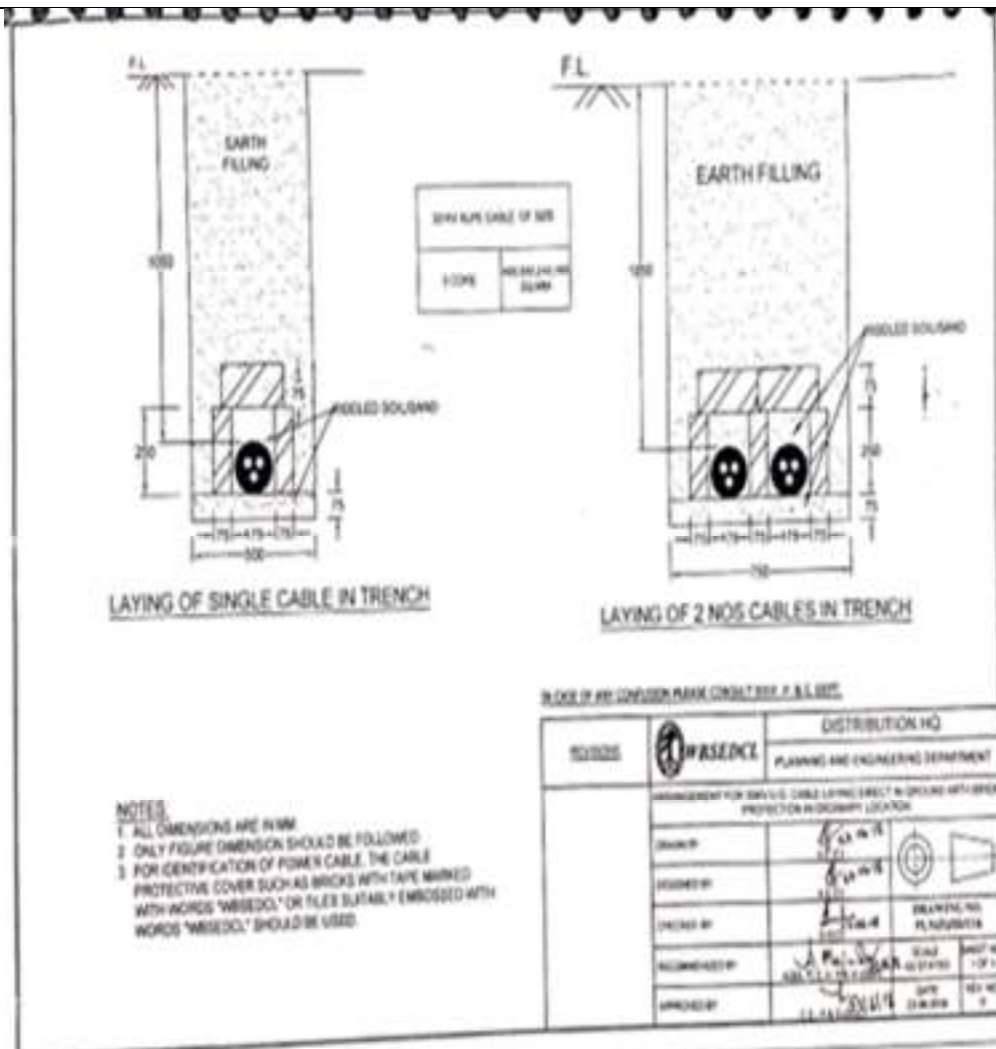
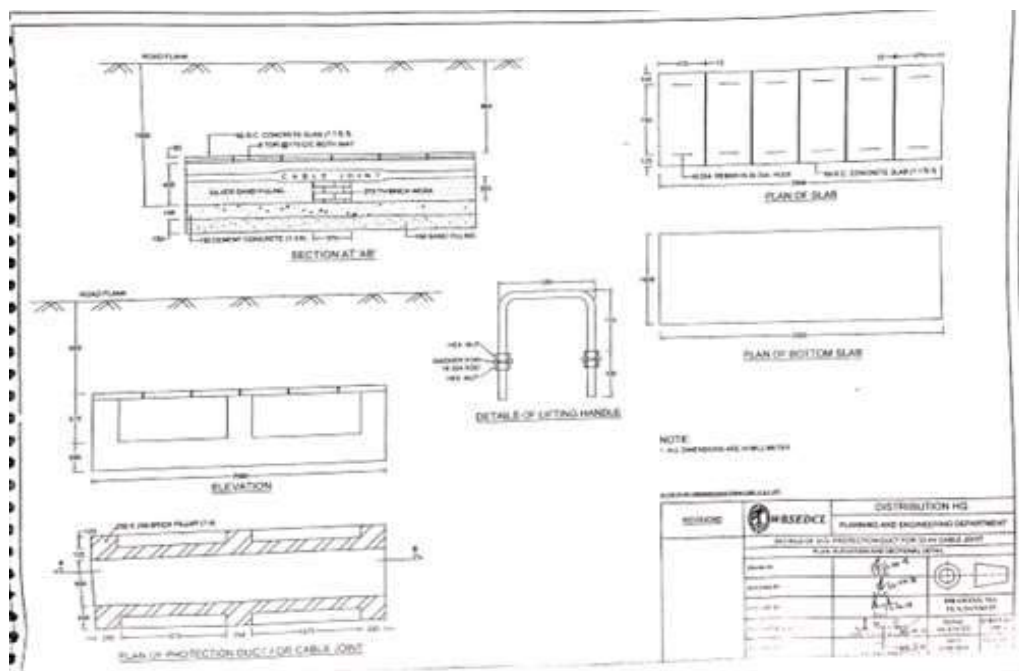
Redio or any other detection system should be used for avoiding damage to existing underground utilities i.e. electric cables, water pipe lines, sewerage line, telecom cables, OFC, gas pipe lines etc.

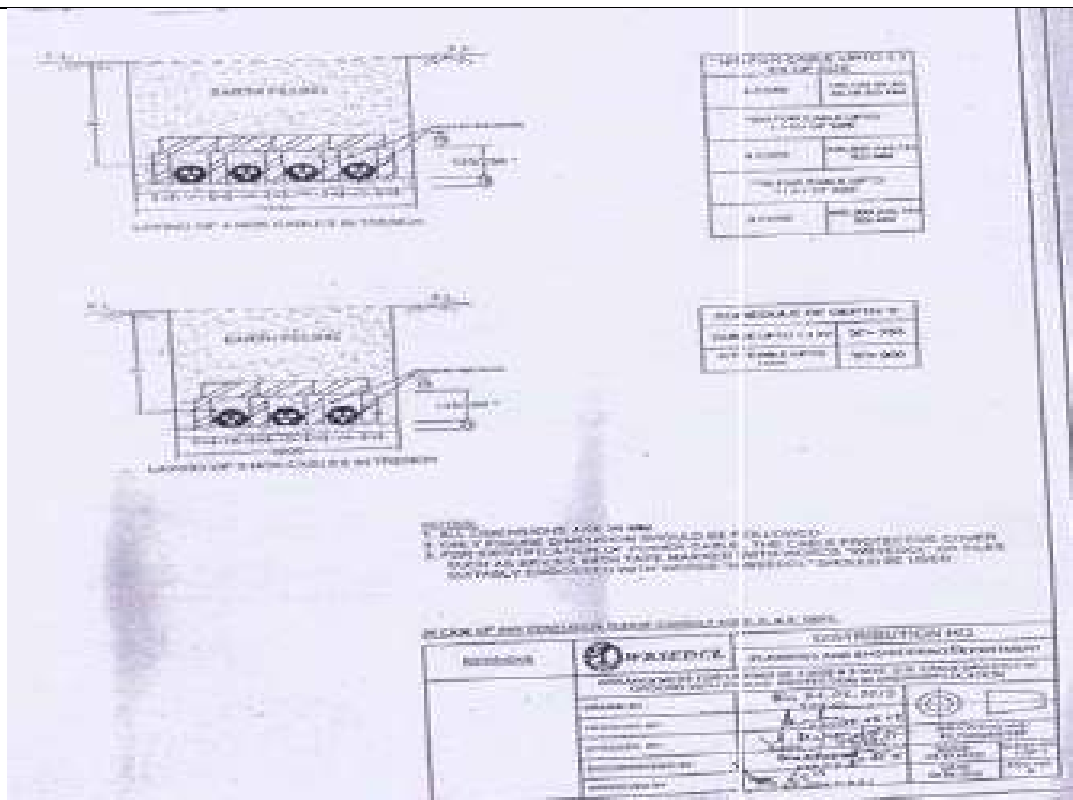
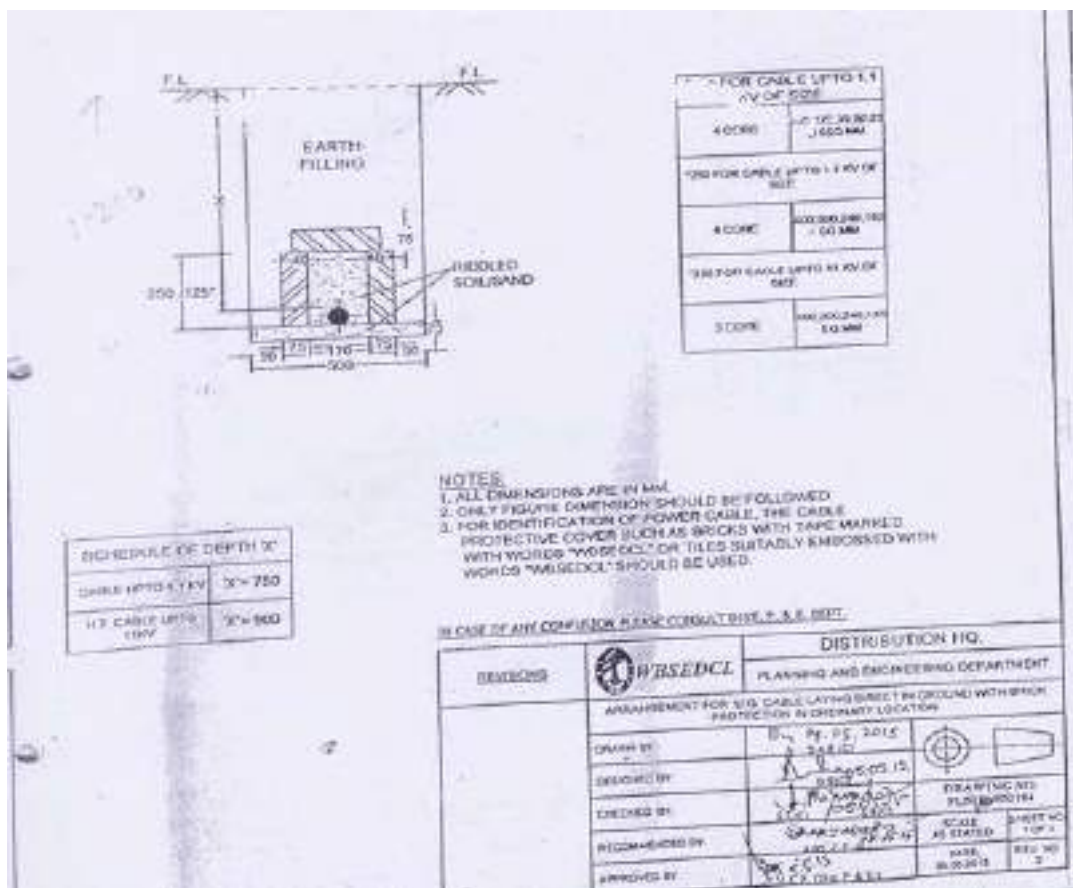
The record of depth of laying of HDPE pipe through Micro-tunneling below the canals / roads/ railway/other utilities should be maintain at an interval of 5 meter.

Necessary data from the appropriate different authority for crossing point are to be obtained for Micro-tunneling work with the assistance of WBSedCL.

Proposed Micro-tunneling diagram with land mark along with depth profile are to be submitted for obtaining approval from the respective utilities before execution. After execution of Micro-tunneling work route profile are to be submitted for record.







E. **Others**

Technical Standards

- a. The electrical equipments and materials required during erection should be of high standard. Technical features of these equipments and materials must conform to the technical specification given in this bidding document. Wherever the same is not specified, it must conform to the relevant I.S for that material.
- b. Materials conforming to other international standards, which ensure equal or higher quality than the standards mentioned above, shall also be acceptable. In case the bidders who wish to offer materials conforming to other standards, salient points of difference between standards adopted and specific standards shall be clearly brought out in the respective schedule. Four copies of such standards with authentic English version shall be furnished along with the offer.
- c. Whenever a material or an article is specified or described by the name of a particular brand, manufacturer or trade mark, the specific item shall be understood as establishing type, function and quality desired. Products of other manufacturers may also be considered, provided sufficient information is furnished, so as to enable the Employer to determine that the products are equivalent to those mentioned.
- d. Materials supplied/used shall conform in all respects to the relevant Indian Standard Specification with latest amendments there to.

	Title	IS No.
1.	Cement	IS 269
2.	Steel	IS 6003/1970
3.	Fasteners	IS 6639/1972
4.	Concrete mix	IS 1343
5.	RCC	IS 456
6.	Cable laying and jointing	IS 1255

Installation work pertaining to equipment, cable laying etc should be in accordance with the applicable standards, safety codes etc.

Site Storage/ Transportation

- e. It shall be the responsibility of the Contractor to store, move/transport from stores/storage yard etc., relevant items and accessories to the place of installation wherever necessary he will assemble all parts of equipment. In accordance with the specific installation instructions as directed by Site Engineer.
- f. The stores should be dismantled and site cleared after the work is completed

Erection, Testing and Commissioning

- g. All the works covered under the scope of the tender shall be done in accordance with the norms defined by the Employer, unless the same is not specifically defined in the specification or with the provisions of Indian Electricity Rules/Acts/Other Government Rules/Regulations as prevalent at the time of execution of the job/work.
- h. Installation shall be carried out strictly in accordance with the approved drawings. Modifications, if any, required to suit site conditions, shall be carried out only with the prior approval of the Site Engineer. All such changes shall be incorporated in "As built" drawings to be furnished by the Contractor.
- i. Responsibility for successful installation of other equipment accessories, purchased but not mentioned specifically above, and their commissioning shall be on Contractor. For all such items the Contractor shall be supplying all material and equipment required to accomplish the job complete in all respect.
- j. Installation work pertaining to equipment, cable laying etc should be in accordance with the applicable standards, safety codes etc.
- k. While Repairing & Replacing the equipment, if any other equipment gets damaged due to negligent handling of the Contractor the same shall be replaced by the Contractor at his cost to the Employer satisfaction.
- l. He shall be responsible for dismantling of defective equipments, there proper handling and shifting.
- m. The Contractor shall hand over the old & dismantled equipments/ materials to the WBSEDCL's Divisional stores for which no extra payment shall be made.
- n. All charges on account of damages/losses/claims/thefts etc. involved under the conditions laid down shall be borne by the Contractor. It's cost shall be recovered from his bills /security deposits /other assets.
- o. In order to avoid hazards to personnel moving around, the equipment such as Transformer, Switchgears etc. if required to be kept charged after installation till their commissioning, shall be cordoned off by suitable barriers to prevent accidental injury to personnel moving around.
- p. Where the equipments/ assemblies are supplied in more than one part, the Contractor shall make all necessary mechanical and electrical connections between the sections. The Contractor shall also do necessary adjustment in the alignments required for its proper operation.
- q. Care shall be taken in handling instruments relays and other delicate devices where instruments and relays are supplied separately they shall be mounted only after the associated switch gear/control panels are erected and aligned.
- r. Precaution: The Contractor shall exercise all possible care to avoid damage to public utilities e.g. water/ sewage pipes telephone and power lines/cable already existing. In case of any accidental damage during the work, the Contractor shall be responsible to repair/replace the same at his own cost, and shall ensure that the purchaser is not put to any loss.
- s. The Contractor shall have to provide proper lighting, barricading, signboards etc. at the work site as a necessary precautionary arrangement to avoid accident/ damage/ losses to the public /utilities/properties.

- t. Space Constraints: While executing the job it is quite possible that some of the specified work may not be carried out due to space/land/ other technical constraints etc. In such case the concerned Employer, if required, may divert this work at some other site or cancel the left over portions of work.
- u. The Contractor shall ensure that the equipment under erection as well as the work area and the site are kept clean to the satisfaction of the Engineer. Packing cases and packing materials shall be promptly cleared from sites.

The maximum allowable quantity for consumption of some major materials i.e. conductors, GI wire, Iron materials arising out of sag, jumper, wastage, loop etc.

Description of items	Sectional weight	Allowable quantity for sag, jumper, wastage etc.	Remarks
ACSR 50 sqmm Rabbit		3 %	For HTOH line
ACSR 100 sqmm Dog		3 %	For HTOH line
ACSR 150 sqmm Wolf		3%	For HTOH line
Barbed wire		3.0 kg/ Pole	For HTOH line
GI Stay Wire 7/3.15 mm	0.428 kg/mtr	3 % per stay	Ordinary Stay for 9M PCC Pole-12.5 mtr+3%
			Ordinary Stay for 13M WPB-15 mtr+3%
			Y Stay for 9M PCC Pole-13.5 mtr+3%
			Y Stay for 13M WPB-16 mtr+3%
GI Stay Wire 7/4 mm	0.690 kg/mtr		Ordinary Stay for 9M PCC Pole-12.5 mtr+3%
			Ordinary Stay for 12.8M long Rail Pole/13M WPB-15 mtr+3%
			Y Stay for 9M PCC Pole-13.5 mtr+3%
			Y Stay for 12.8M long Rail Pole /13M WPB-16 mtr+3%
GI Wire 5 mm	0.154 kg /mtr.	3 %	9M PCC Pole Earthing -14 mtr+3%
			9M PCC Double Pole Earthing -30 mtr+3%
			12.8M long Rail Pole /13M WPB Earthing -18 mtr+3%
			12.8M long Rail Pole /13M WPB Double Pole Earthing -35 mtr+3%
			CG lacing-2.8 mtr. /lacing x no of lacing +3%
ACSR 20 sqmm Squirrel		3%	2 x span length + 3% for Cradle guard with 2 lead wire.

F. **CIVIL part**

Civil works (Annexure-A)

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED	
(A Government of West Bengal Enterprise)	
Schedule of works for Construction of single storied Control Room Building including plumbing works, Structural foundation, boundary wall, cable trench, pathway including switchyard development and sinking of deep tube well with installation of 1HP submersible pump with motor set for proposed 33/11 kV Sub-Station at different district within West Bengal under Project-I,WBSEDCL.	
Sl. No.	Detail Specification for civil works-(ANNEXURE-A)
1	Earth work in excavation of foundation trenches or drains in all sorts of soil but excluding laterite or sandstone including removing spreading or stacking the spoils within a lead of 75m. as directed.
2	Earth work in filling in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc.
3	Anti termite treatment to the top surface of the consolidated earth within plinth walls with chemical emulsion by admixing chloropyrofos emulsifiable concentrates (1% concentration) with water by weight at the rate of 5 Litres per sq. m. of the surface before sand bed or sub-grade is laid. Holes up to 50 mm. to 75 mm. deep at 150 mm. centre to centre both ways shall be made with 12 mm, diameter mild steel rod on the surface to facilitate saturation of the soil with the chemical emulsion. The work shall be carried out as per specification described in para 6.4 of code IS-6313 (part -II) 1981. (Mode of measurement will be per Sq.m of plan area of plinth treated.)
4	Treatment to the back filling of R.C.C. foundation with chemical emulsion by admixing chloropyrofos emulsifiable concentrate (1% concentration) with water by weight at the rate of 7.5 ltr. per sq.m. of the vertical surface of the substructure of each side of the foundation. The work shall be carried out as per specification as described in para 6.3.1 of code IS- 6313 (part-II) 1981 (Mode of measurement will be per sq.m. of vertical area of foundation treated)
5	Filling in foundation or plinth by silver sand in layers not exceeding 150mm as directed and consolidating the same by thorough saturation with water, ramming.
6	Filling in foundation plinth by medium coarse sand in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming
7	Earth work in filling of compound, tank, low land, ditches etc with good earth in layers not exceeding 150mm including breaking clods and consolidating the same by ramming and dressing complete.
8	Applying 2 coats of bonding agent with synthetic multifunctional rubber emulsion having adhesive and water proofing properties by mixing with water in proportion (1 bonding agent : 4 water : 6 cement) as per Manufacturer's specification
9	Extra rate for using water proofing and plasticising admixture @ 0.2% by weight of cement (or at manufacturer's specified rate) for concrete of various grades.
10	Dismantling all types of plain cement concrete works, stacking serviceable materials at site and removing rubbish as directed within a lead of 75 m.
11	Dismantling R.C. floor, roof, beams etc. including cutting rods and removing rubbish as directed within a lead of 75 m. including stacking of steel bars.
12	Dismantling all types of masonry excepting cement concrete plain or reinforced, stacking serviceable materials at site and removing rubbish as directed within a lead of 75 m.
13	Taking out carefully G.C.I. or C.I. or asbestos sheets (including ridges etc.) from roof or wall after unscrewing bolts, nuts, screws etc.and stacking the material at site as directed.
14	Single brick flat soling of picked jhama brick including ramming and dressing bed to proper level and filling joints with powdered earth or local sand.
15	Supplying and laying Polythene Sheet (150gm / sq.m.) over damp proof course or below flooring or roof terracing or in foundation or in foundation trenches.
16	Cement concrete with graded stone ballast (40mm size) - i) Pakur variety- 1:3:6 proportion, ii) With N.B. Variety stone metal 1:3:6 proportion for Jalpaiguri & Coochbehar District.
17	Ordinary Cement concrete (mix 1:1.5:3) with graded stone chips (20 mm nominal size) as per relevant IS codes. i) Pakur variety, ii) River Bazree for Jalpaiguri & Coochbehar District.

18	Ordinary Cement concrete (mix 1:2:4) with graded stone chips (20 mm nominal size) as per relevant IS codes. i) Pakur variety, ii) River Bazree for Jalpaiguri & Coochbehar District.
19	Brick work with 1st class bricks in cement mortar(1:6).
20	125mm tick brick work with 1st class bricks in Cement mortar (1:4).
21	Artificial stone in floor, dado, staircase etc. with cement concrete (4:2:1) with stone chips laid in panels as directed with topping made with ordinary or white cement (as necessary) and marble dust in proportion (2:1) including Smooth finishing and rounding off corners and including application of cement slurry before flooring works using cement 1.75 Kg. sq.m all complete including all materials and labours. 3mm thick topping (high polishing grinding on this item is not permitted with ordinary cement).Using grey cement.---35mm thick
22	Supplying, fitting and fixing 1st quality ceramic tiles of any size in walls & floors to match with the existing work & 4 nos. of key stones (10mm) fixed with araldite at the back of each tile & finishing the joints with white cement mixed with coloring oxide if required to match the colours of tiles including roughening of concrete surface, if necessary or by synthetic adhesive & grout materials etc. A) Floor- With sand cement mortar (1:4) 20mm thick & 2mm thick cement slurry at back side tiles using cement @2.91kg/m ² & joint filling using white cement slurry @0.20kg/m ² .-Area of each tile above 0.09m ² B) Wall- With sand cement mortar(1:3) 15mm thick & 2mm thick cement slurry at back side tiles using cement @2.91kg/m ² & joint filling using white cement slurry @0.20kg/m ² .-Area of each tile above 0.09m ²
23	Supplying and laying 20mm designer chequered tiles of any shade & of approved quality as per IS: 1237:1980 laid in patterns as directed in pavement, footpath etc including necessary underlay 25mm thick(avg.) cement mortar (1:3)complete in all respect with all labour and materials.(Using cement slurry @4.4kg/m ² at back side of tiles).
24	Prefinished and premoulded nosing to treads of steps, railing, window sill etc. of Kota Stone.
25	Wood work in door and window frame fitted and fixed complete including a protective coat of painting at the contact surface of the frame excluding cost of concrete, Iron Butt hinges and M.S. clamps. - Sal: Local
26	Wood work in upper rails of railing, hand rail of staircase, balcony etc. includig necessary bend, moulding fitted and fixed complete i) Sishu, Gamar, Champ, Badam, Bhola, Morga, Hallak.
27	Supplying, fitting and fixing M.S. Clamps for fixing door and window frame made of flat bars, end bifurcated with necessary screws etc. by cement concrete (4 : 2 : 1) as per directions. i) 40mm x 6mm, 125mm length
28	Iron (Oxidised) butt hinges of approved quality fitted and fixed with steel screws, with I.S.I. mark i) 75mmx40mmx1.12mm. ii) 100mmx75mmx3.50mm.
29	Anodized aluminium barrel/tower/socket bolt(full covered) of approved quality manufactured from extruded section conforming to I.S. 204/74 fitted and fixed with Cadmium plated screws. i) 100mm long x 10mm dia bolt. ii) 200mm long x 10mm dia bolt.
30	Anodized aluminum aldop/sliding bolts of approved quality manufactured from extruded section conforming to I.S. specification (IS 2681/66) fitted and fixed complete. i) 250mm x 16mm dia bolt. ii) 300mm x 16mm dia bolt
31	Anodized aluminum 'D' type handle of approved quality manufactured from extruded section conforming to I.S. specification IS 230/72 fitted and fixed complete.With continuous plate base (hexagonal/round rod). i) 100mm grip x 10mm dia rod. ii) 150mm grip x 10mm dia rod.
32	Steel body foot-door holder.
33	Supplying solid flush type doors of commercial quality, the timber frame consisting of top and bottom rails and side styles of well seasoned timber 65mm wide each and the entire frame fitted with 37.5mm wide battens placed both ways in order to made the door of solid core and internal lapping with Garjan or similar wood veneers using phenol formaldehyde as glue etc. complete including fitting fixing the shutters in position but excluding the cost of hinges and other fittings in round floors. - 32 mm thick shutters (Single leaf).

34	Supplying, Fitting & Fixing Factory made prelaminate P.V.C. door frame of size 50 mmx47 mm with a wall thickness of 5 mm, made out of extruded 5 mm Prelaminated PVC sheet miter cut at two corners and joined with two nos of 1.5 mm long brackets of 15 mm x15 mm M.S. square tube. The two vertical door profiles are to be reinforced with 19 mmx 19 mm M.S. Square tube of 19 gauge, weather seal to be provided through out the frame. The door frame shall be fixed with the wall using 65/100 mm M.S. Screws through the frame by using P.V.C fasteners. A minimum of 4 Nos of screws to be provided for each vertical member and minimum 2 Nos for horizontal member etc.
35	Supplying, fitting & fixing 30mm thick factory made moulding door shutter, consisting of solid core single leaf flash door of 30mm thickness lipped with 15mm (5mmx3) thick x 30mm wide on one style and top rail and 10mm (5mmx2) thick x30 mm wide of the other style and bottom rail. The inner panel laminated with 2mm thick termite proof water proof and fire resistant moulded PVC sheet with raised panel designed in different plain/ or Prelam colour on one side after routing the moulded design on flash door and 2mm plain and or Prelam PVC sheet on other side using rubber adhesive on flash door and solvent cement adhesive on the PVC lipping etc. complete excluding hardwares as necessary as per direction of EIC, Manufacturer's specification and drawing. i) Moulded door using 2mm Prelam moulded PVC sheet on both side.
36	M.S. works in brackets made from flats, angles, tees etc. to sizes specially bent, twisted, forged; making holes drilled and fitted to rafter of trusses with necessary bolts, nuts, washer or screws etc. (length of straight not less than 230 mm).[Page No.-103,Item No.-8 of PWDSOR w.e.f. 01.11.17]
37	M.S.or W.I. Ornamental grill of approved design joints continuously welded with M.S, W.I. Flats and bars of windows, railing etc. fitted and fixed with necessary screws and lugs i) Grill weighing above 10 Kg./sq.mtr and up to 16 Kg./sq. mtr.
38	M.S. gate of Jail type as per approved design made of strong M.S. frame work, intermediate stiffeners and round / square bars or angles. M.S. sheet (not less than 14 gauge) gussets, cleats etc. including necessary riveting, bolting, welding, locking and hanging arrangements, fitting and fixing complete as per direction of the Engineer-in -charge.
39	Holding down bolts with nut including 100mmx100mmx6mm plate washers at bottom fitted complete and packing the hole with cement concrete or cement grout as directed. i) 20mm dia. bolt 600mm long ii) 20mm dia. bolt 300mm long
40	Collapsible gate with 40mm x 40mm x 6mm Tee as top and bottom guide rail, 20mm x 10mm x 2mm vertical channels 100mm apart in fully stretched position 20mm x 5mm M.S. flats as collapsible bracings properly rivetted and washered including 38mm steel rollers including locking arrangements, fitted and fixed in position with lugs set in cement concrete and including cutting necessary holes, chasing etc. in walls, floors etc. and making good damages complete
41	Supplying, fitting and fixing steel rolling shutter profile type with 18 B.G. of approved type, steel latch section 75mm. wide, fitted with coil wire spring to necessitate the fitting of required No. of C.I. pulleys on heavy type solid drawn seamless steel tube complete with locking arrangements both inside and outside specially built up side guide channels including providing a hood for the steel rolling shutter in the room, painting two coats of approved aluminum paint over approved of red lead primer complete.(Payment of painting to be separately) (Measurement will be made on the area of opening covered by the rolling shutter corrected upto 2 decimal.)
42	Plaster (to wall, floor, ceiling etc.) with sand and cement mortar including rounding off or chamfering corners as directed and racking out joints including throating, nosing and drip course, scaffolding/staging where necessary after chipping over concrete surface With (1:4) cement mortar. i) 10 mm thick plaster ii) 15 mm thick plaster iii) 20 mm thick plaster
43	Neat cement punning about 1.5mm thick in wall, dado, window, sills, floor drain etc. using cement @ 0.152 m ³ /100 m ² .
44	Priming one coat with synthetic oil bound primer of approved quality including smoothening surface by sand papering etc. i) On timber or plaster surface. ii) Steel or other metal surface.
45	Painting with best quality synthetic enamel paints of approved make and brand including smoothening surface by sand papering etc. including using of approved putty etc. on the surface of necessary. a) On timber or plaster surface with super gloss(hi-gloss) of approved quality.

	i) Two coats (with any shade except white.)
	b) On steel or other metal surface with super gloss (hi-gloss) of approved quality.
	i) Two coat (with any shade except white.)
46	Applying decorative cement based paint of approved quality after preparing the surface including scraping the same thoroughly (plastered or concrete surface) as per manufacturer's specification.-One coat on new surface.
47	Applying exterior grade Acrylic primer of approved quality and brand on plastered or concrete surface of old or new surface to receive decorative textured(matt finish) or smooth finish acrylic exterior emulsion paint including scrapping and papering the surface thoroughly, complete as per manufacturer's specification and as per direction of EIC.-one coat
48	Protective and decorative Acrylic exterior paint of approved quality as per manufactures specification and as per direction of E.I.C. to be applied over acrylic primer as required. The rate includes cost of material, labour, scaffolding and all incidental charges but excluding the cost of primer - two coats
	a) Premium 100% Acrylic Emulsion.
49	Rendering the surface of walls and ceiling with white cement based wall putty of approved make and brand(1.5mm thick)
50	Applying interior grade Acrylic primer of approved quality and brand on plastered or concrete surface of old or new surface to receive Distemper/Acrylic emulsion paint including scrapping and papering the surface thoroughly, complete as per manufacturer's specification and as per direction of EIC.
	a) One coat-Solvent based interior grade Acrylic Primer
51	Applying Acrylic Emulsion paint of approved make and brand on walls and ceiling including sand papering in intermediate coats including putty (to be done under specific instruction of Superintending Engineer).
	a) Standard quality-Two coats.
52	Supplying, fitting & fixing UPVC pipes A-Type and fittings conforming to IS:13592-1992 with all necessary clamps nail, including making holes in wall, floor etc. cutting trenches in any soil through masonry concrete structures etc if necessary and mending good damages including joining with jointing materials (Spun Yarn, Valamoid/ Bitumen/ M-Seal etc) complete.
	i) UPVC Pipe-110mm
	ii) UPVC Bend 87.5 degree-110mm
	iii) UPVC Shoe-110mm
53	Supply fitting & fixing of G. I. pipes of TATA make including necessary sockets-for truss work-i) 32mm dia
54	Supplying, fitting & fixing Zn-Al alloy (55% Al & 45% Zn) coating of 150 grams per sq. metre (followed by colour coated on both side) steel sheet work having minimum yield strength of 550 Mpa of trapizoidal profile of approved make as per IS: 15965: 2012 and IS: 14246: 2013 (excluding the supporting frame work) fitted and fixed with 55 mm & 25 mm self tapping screw, EPDM Washer 16 mm dia & 3 mm th. washer etc. complete with 150 mm end lap and one corrugation minimum side lap. (Payment to be made on area of finished work).-In roof- With 0.5 mm thick sheet
55	Supplying , fitting & fixing Zn-Al alloy (55% Al & 45% Zn) coating of 150 grams per sq. metre (followed by colour coated on both side) steel sheet ridging of approved make (excluding the supporting frame work) and fixed with 55 mm & 25 mm self tapping screw, EPDM Washer 16 mm dia & 3 mm th. washer etc. complete with 225 mm end lap and one corrugation minimum side lap.
	i) 150 mm lapping each way-with 0.50 mm sheet.
56	Supplying profiles of required sections made of alluminium alloys extrusions conforming to IS:732-1983 and IS:1285 - 1975 (Anodized with required film thickness and specified colour / natural) matt finished conforming to IS 1868-1983 for fabrication of Composite door , sliding & casement windows , partitions , formed of basic sections of any ISI embossed / certified make and brand as per direction of Engineer in Charge
	I) In 10-20 micron thickness anodizing film-Natural film.
	A) 2- track sliding window
	i) Bottom frame
	ii) Top and side frame.
	B) 3- track sliding window
	i) Bottom frame
	ii) Top and side frame.
	C) Shutter for all track sliding window.

	i) Bottom & Top member.
	ii) Style side member.
	iii) Interlock member.
	D) Casement windows (34 mm depth series)
	i) Outer frame
	ii) Mullion.
	iii) Shutter.
	iv) Glazing clip.
	v) Cleat angle (non anodized)
	E) Movable door shutter.
	a) Door frame (Top & sides).
	b) Shutter
	i) Top Rail.
	ii) Bottom Rail.
	iii) Lock Rail.
	iv) Door Vertical.
	v) Glazing Clip.
	F) Fixed glazing.
	i) Top, Bottom and Side member.
	ii) Intermediate member.
	iii) Glazing clip.
57	Labour charge for fabrication and installation of composite door, window, partitions made from anodized extruded alloy aluminium sections for the following units:-
	A) Glazed aluminium sliding windows made of extruded and anodized alloy aluminium sections, fabrications, including cutting to proper shape and size, drilling and aligning of window and shutter frame fitted with in built looking arrangements, sliding rollers and other necessary fittings, fixture, adhesives and joineries along with extruded neoprene or EPDM gasketing inbetween window frame and masonry with (walls, column, beam, lintels etc.) as well as between stars and frame for fixing glass & poly-Sulphate Sealant and in between shutter and window frame where necessary including cutting to requisite size and fixing the glass as per drawing, specification and direction of E.I.C. The rate includes the hire charges of all tools and plants and all incidental charges, adhesive, joineries such as screw, cleat angle etc. but excludes the cost of extruded aluminium sections, glass, neoprene / EPDM gasketing, locking arrangement and rollers.[Page No.- 239,Item No.-2(A) of PWDSOR w.e.f. 01.11.17]
	B) Partly glazed, partly panelled or fully glazed single leaf aluminium swing door made of extruded and anodized alloy Aluminium sections, fabrication, including cutting to proper shape and size, drilling and aligning, fitted with heavy duty hydraulic action floor spring placed in the floor with mending damages, with top pin assembly of approved make and brand, fitted with in built locking arrangements, flush bolt, glazing clips and all other necessary fittings, fixtures, adhesives and joineries, cutting glass of approved make to requisite shape and size fitting with dry set neoprene of EDPM gasketing, cutting to requisite shape and size panel board(prelaminated particle block) fixing them with glazing clips as per drawing, specification and direction of E.I.C.
	i) Double leaf Door with floor spring(fixed with masonry wall)
58	Supplying bubble free floats glass of approved make and brand conforming to IS: 2835-1987.
	i) 4mm thick clear glass.
	ii) 5mm thick clear glass.
59	Supplying EPDM gasket of approved make and brand as per direction of EIC
	i) For sliding windows-U' shaped EPDM gasket for frames.
	ii) Weather gasket/ wool pile
	iii) For openable/ casement windows and door-EPDM/weather gaskets for outer frame and mullion
60	Supplying PVC rollers for sliding windows as per direction of Engineer in charge.
61	Supplying heavy duty hydraulic double action floor spring along with top pin/set at pivots conforming to IS:6315 or any approved make as per direction of E.I.C.
62	Supplying stainless steel functional hinge for casement windows as per approved brand as directed by EIC.(Natural white)

	i) 250mm long
	ii) 300mm long
63	Supplying heavy duty aluminium handle (EBCO Type). [Natural white]
64	Supplying Zinc powered coated star lock (Natural White).
65	Supplying, fitting & fixing Stainless Steel 'D' or 'H' type of size 300 mm x 19 mm tubular Handle with Grade 304, CE certified, marked & conforming to EN -1154, of approved quality of reputed brand as per direction of Engineer-in-Charge fitted and fixed complete including all incidental charges. -i) Natural colour.
66	Supplying, delivery and spreading approved quality double washed black stone including cost of materials, carriage, loading, unloading all complete including all taxes and duties and incidental charges as per direction of Engineer-In- Charge.(Payment will be made on net volume)
	i) Grade-II aggregates (53-22.4mm) Hand broken aggregates
67	Supplying and laying chequered tiles of any shade & of approved quality with (1:1½:3) cement concrete laid in panels or patterns as directed in pavement, footpath etc. including necessary underlay 25 mm thick [avg] cement mortar (1:3) complete in all respect with all labour and materials. [Using cement slurry @ 4.4 kg/Sq.m at back side and @2.4 kg/Sq.m for joint filling]
	i) Red Variety- 25 mm. thick
68	Supplying fitting and fixing 600 mm (+/- 30 mm) diameter R.B.T (Reinforced Barbed Tape) Concertina fencing on wall top using concertina coils stretched to approx.6 meters length at site clipped with two nos. of horizontal R.B.T strands which will be tensioned and fixed with the vertical M.S angle iron posts by means of security fasteners (such as 'C' clips, R.B.T clips etc.
69	Supplying, fitting and fixing CPVC (Chlorinated Polyvinyl Chloride) pipes of approved make conforming to IS-15778: 2007. with all necessary accessories, specials viz. socket, bend, tee, union, cross, elbo, nipple, longscrow, reducing socket, reducing tee, short piece etc. fitted with holder bats clamps, including cutting pipes, fitting, fixing etc. complete in all respect including cost of all necessary fittings as required, jointing materials in any position above ground. (Payment will be made on the centre line measurements of total pipe line including all all specials. No separate payment will be made for accessories specials. Payment for painting will be made separately.)
	a) For exposed work- CPVC Pipes Class-I,SDR-11
	i) 15mm dia.
	ii) 20mm dia.
	iii) 25mm dia.
	iv) 32mm dia.
	v) 40 mm dia.
	b) For Concealed work- CPVC Pipes Class-I,SDR-11
	i) 15mm dia.
	ii) 20mm dia.
	iii) 25mm dia.
70	Supply of Chlorinated Polyvinyl Chloride (CPVC) Ball valve conforming to IS-15778: 2007
	i) 15mm dia.
	ii) 20mm dia.
	iii) 25mm dia.
	iv) 32mm dia.
	v) 40mm dia.
71	Supplying fitting and fixing bib cock or stop cock
	i) Chromium plated bib cock short body (Equivalent to Code No. 511 & Model – Tropical/Something special of ESSCO or similar brand)
	ii) Chromium plated bib cock long body with wall flange with aerator (Equivalent to Code No. 512 & Model – Tropical/Something special of ESSCO or similar brand)
	iii) Chromium plated stop cock (Equivalent to Code No. 513(A) & 513(B) & Model – Tropical/Something special of ESSCO or similar brand)
	iv) Chromium plated concealed stop cock (Equivalent to Code No. 514(A) & Model – Tropical/ Something special of ESSCO or similar brand)

	v) Chromium plated angular stop cock with wall flange (Equivalent to Code No. 5053 & Model – Florentine of Jaguar or similar brand)
72	Supplying fitting fixing Shower rose of approved brand and make.
	i) Polythene of approved make-15mmx125mm
	ii) Hand Shower (Health Faucet) with 1mtr Flexible Tube with Wall Hook(Equivalent to Code No.573 & Model -ALLIED of Jaquar or similar).
73	Supplying fitting and fixing approved brand P.V.C. connector white flexible, with both ends coupling with heavy C.P. nut 15mm. dia. - i) 750mm long.
74	Supplying, fitting and fixing approved brand 32mm dia. P.V.C. waste pipe with PVC coupling at one end fitted with necessary clamps i) 750mm long.
75	Supplying fitting and fixing 10 liters. P.V.C. low down cistern conforming to I.S. specification with P.V.C. fittings complete, C.I. brackets including two coats painting to bracket etc. White
76	Supplying, fitting and fixing 32 mm dia. flush pipe of approved make with necessary fixing materials and clamps complete.
	i) Polythene flush pipe
77	Supplying, fitting and fixing E.W.C. in white glazed vitreous chinaware of approved make complete in position with necessary bolts, nuts etc.-i) With 'P' trap
78	Supplying, fitting and fixing Closet sheet of approved make with lid and C.P. hinges, rubber buffer and brass screws complete
	i) Plastic white (hollow type)
79	Supplying, fitting and fixing Orissa pattern water closet in white glazed vitreous chinaware of approved make supplied fitted and fixed in position complete excluding 'P' or 'S' trap (excluding cost of concrete for fixing). - i) 580mm x 440mm
80	Supplying, fitting and fixing Flat back urinal (half stall urinal) in white vitreous chinaware of approved make in position with brass screws on 75mm x 75mm wooden blocks complete.
	i) 470 mm X 280 mm X 340 mm
81	Supplying fitting and fixing best quality Indian make mirror 5.5mm thick with silvering as per I.S.I. specification supported on fiber glass frame of any colour, frame size 550mmx400mm.
82	Supplying, fitting and fixing soap holder-PTMT (Prayag or equivalent)
83	Supplying fitting and fixing towel rail with two brackets.
	i) C.P. over brass-25mm dia. and 750mm long.
84	Supplying, fitting and fixing C.I. round grating. i) 100mm.
85	Wash basin vitreous china of approved make (without fittings) supplied,fitted and fixed in position on 75mm X 75 mm X 75 mm wood blocks and C.I. brackets including two coats of painting of C.I. brackets
	i) 450 mm X 300 mm size
	ii) 550mm x 400mm. Size.
86	Supplying, fitting and fixing stainless steel sink complete with waste fittings and two coats of painting of C.I. brackets.
	a) Sink only-630mmx550mmx180mm
87	Supplying, fitting and fixing 15 mm swan neck tap with left & right hand operating nob with aerator (Equivalent to Code No. 510, 510(A) and Model - TROPICAL / SUMTHING SPECIAL of ESSCO or similar brand).
88	Supplying, fitting and fixing pillar cock of approved make- CP Pillar Cock - 15 mm. (Equivalent to Code No. 507 & Model -Tropical / Sumthing Special of ESSCO or similar brand).
89	Supplying, fitting and fixing C.P. Extension Pipe.
90	Supply of UPVC pipes (B type) and fittings conforming to IS: 13592-1992 with labour for fitting and fixing U.P.V.C. pipes for above ground work including cost of jointing materials etc. fitting and fixing all necessary specials, cutting pipes, cutting holes in walls or R.C. floor where necessary and mending good all damages excluding the coat of masonry or concret work, if necessary, but including the cost of fitting and fixing holder bat clamps(any floor) or for underground work including cutting trenches upto 1.5m and refilling the same complete as per direction of EIC.(Payment will be made on center line measurement of the total pipeline including specials).
	a) Above ground -Single socketed 3 meter length-110 mm
	b) Under ground -Single socketed 3 meter length-110 mm
	c) Plain Tee-110 mm

	d) Door Tee-110 mm
	e) Plain Y-110 mm
	f) Bend 87.50-110 mm
	g) Door Bend (TS)-110 mm
	h) Cross Tee with door-110 mm
	j) Vent Cowl-110 mm
	k) Pipe Clip-110 mm
	l) 110x110 P trap-75mm
	m) Passover-110 mm
91	Supplying P.V.C. water storage tank of approved quality with closed top with lid (Black) multilayer. i) 1000 litre Capacity.
92	Labour for hoisting plastic water storage tank. a) Upto 1500 litre capacity-i) Upto 3rd story from G.L.
93	Labour for punching hole in P.V.C. water storage tank upto 50mm dia.
94	Labour for boring tube well of required dia. by water jet system through any type of soil strata including hire and labour charges for boring pipes, scaffolding, tools and plants as necessary and taking out them and lowering pipes, strainers, blind pipe etc. and fitting and fixing the same complete including bucket washing and other incidental works in the connection. The tube well should have a minimum 50 mm gap in between the outside of the tubewell pipe and the bore. a) For depth upto 150 meter for 50mm dia. tubewell with top enlargement of 100 & 150 mm dia. i) 50mm dia. boring. ii) 100 mm dia. boring etc. top enlargement. b) For depth more than 150 meter for 50mm. dia. tubewell with top enlargement of 100mm dia. i) 50mm dia. boring etc. beyond 150 meter.
95	Supply of PVC pipes & fittings Schedule 40 (medium duty) conforming to ASTM D - 1785 and threaded to match with GI Pipes as per IS : 1239 (Part - I) a) PVC Pipes i) 50 mm dia. ii) 100 mm dia. b) PVC Socket i) 50 mm dia. ii) 100 mm dia.
96	Supplying high density polythene strainer of approved make with adapter conforming to I.S. specifications.- i) 50 mm dia.
97	Supplying, fitting & fixing steel cutter piece upto 450 mm long with sockets.- i) 50 mm dia.
98	Supplying M.S. male / female adapter of approved make and brand as per direction of the EIC.- i) 32 mm dia.
99	Supplying, fitting & fixing heavy type bell mouth reducing socket. i) 50mm x 100mm
100	Supplying, fitting & fixing G.I. cap at top.- i) 150mm
101	Washing and developing tube well with air compressor pump and engine for 8(eight)hours continuous pumping per day with necessary arrangements for testing the yields in gallons per hour with 'V' notch including hire and labour charges for all tools and plants and scaffolding as required complete in all respect.
102	Labour for making arrangement for showing verticality test including the cost of hire charges of tools and plants, scaffolding, labour etc. all complete.
103	Collecting sample of water for bacteriological and chemical test from any depth at any time during execution of work including hire and labour charges for tools and plants and sterilization the equipments, paying all charges and fees, testing etc. complete in all respect as per direction.
104	Packing the annular space between the outside of the tube well pipes & strainer and the bore with pea size washed gravel of approved quality having size from 2mm to 5mm or the size approved by the Engineer-In-Charge including cost of all materials, labours and equipment complete.
105	Supplying, fitting & fixing 300 mm M.S. housing clamp of approved quality.

106	Supply, installation and commissioning of KIRLOSKAR/KSB/CROMPTON/CRI/MAHENDRA etc. Submersible Pump, 8-11stage, 1phase/0.75 KW, 1 HP, 220Volts, Head range (65m-26m), Discharge range-(L/PM) (15-45) including control panel board & cost of all materials, taxes and all incidental charges complete.
107	Supplying, fitting and fixing 3 core x 1.5 mm ² Submersible flat cable including cost of all materials, taxes and all incidental charges complete.
108	Supplying, fitting and fixing check valve (horizontal) G.M. tested to 21 kg per sq. cm. i) 32mm dia.
109	Supplying, fitting and fixing porcelain partition wall of approved make of size 618 mm X 310 mm complete in all respect.
110	Providing and fixing exterior quality Aluminium Composite Panel (ACP) wall cladding on existing Al. /MS frame work with GI brackets, ACP fixed on the existing frame work by folding the edges of ACP panel (Engraving the rear surface of ACP sheet) with CP angles, cleats and stainless Steel screws forming groves at the periphery of ACP panel. Such grooves filled with foam and silicon sealant etc. complete with all materials (but including the cost of silicon sealant), labour, scaffolding and all other incidental charges complete in all respect as per specification and direction of Engineer-in-charge. (Mode of payment is on finished surface area of ACP) i) 3mm thick (0.25mm Al.+2.5mm LDPE +0.25mm Al. PVDF coating)
111	Any other items not included above will be as per PWDSOR 01.11.17

Annexure-B

Civil Works And Soil Investigation

1.00 General

The provisions of this section of specification shall only be applicable to the extent of scope of works indicated in Bid Proposal Sheet (BPS). The intent of specification covers the following:

Design, engineering, and construction of all civil works at power sub-station, 66 kV line, 33 kV line, 11 kV line, DTR substation, LT line, HVDS, augmentation/renovation of system etc. All civil works shall also satisfy the general technical requirements specified in other Sections of this Specification and as detailed below. They shall be designed to the required service conditions/loads as specified elsewhere in this Specification or implied as per National/International Standards.

All civil works shall be carried out as per applicable Indian Laws, Standards and Codes. All materials shall be of best quality conforming to relevant Indian Standards and Codes.

The Contractor shall furnish all design, drawings, labour, tools, equipment, materials, temporary works, constructional plant and machinery, fuel supply, transportation and all other incidental items not shown or specified but as may be required for complete performance of the Works in accordance with approved drawings, specifications and direction of Employer.

The work shall be carried out according to the design/drawings to be developed by the Contractor and approved by the Project Manager based on Tender Drawings Supplied to the Contractor by the Project Manager and Original Equipment Manufacturer recommendation. For all buildings, structures, foundations etc. necessary layout and details shall be developed by the Contractor keeping in view the functional requirement of the substation facilities and providing enough space and access for operation, use and maintenance based on the input provided by the Project Manager. Certain minimum requirements are indicated in this specification for guidance purposes only.

In case of R&M of existing substations, Contractor shall visit site to ascertain the amount of repair and strengthening of structures and foundations, dismantling and new construction of structures and foundations works are to be done before quoting. Contractor must furnish the design and drawings in support of the activities mentioned above that are to be carried out in the R&M of existing substation site.

The rate quoted by the bidder for all type of civil work shall be firm irrespective of the type of terrain and depth of filling.

This specification covers all the work required for detailed soil investigation and preparation of a detailed report. The work shall include mobilisation of necessary equipment, providing necessary engineering supervision and technical personnel, skilled and unskilled labour etc. as required to

carry out field investigation as well as, laboratory investigation, analysis and interpretation of data and results, preparation of detailed Geo-technical report including specific recommendations for the type of foundations and the allowable safe bearing capacity for different sizes of foundations at different founding strata for the various structures of the substation. The Contractor shall make his own arrangement for locating the co-ordinates and various test positions in field as per the information supplied to him and also for determining the reduced level of these locations with respect to the benchmark indicated by the Project Manager.

All the work shall be carried out as per latest edition of the corresponding Indian Standard Codes.

a. Geotechnical Investigation

The Contractor shall perform a detailed soil investigation to arrive at sufficiently accurate, general as well as specific information about the soil profile and the necessary soil parameters of the site. So that the foundation of the various structures can be designed and constructed safely and rationally.

A report to the effect will be submitted by the Contractor for Project Manager's specific approval giving details regarding data proposed to be utilized for civil structures design.

The Contractor should visit the site to ascertain the soil parameters before submitting the bid. The topography is uneven steeply sloping at few places requiring cutting and filling operations including slope stability and protection measures (if slopes encountered). Any variation in soil data shall not constitute a valid reason for any additional cost & shall not affect the terms & condition of the Contract. Tests must be conducted under all the critical locations i.e. Control Room Building. Tower locations, transformer etc.

b. Bore Holes

Drilling of bore holes of 150 mm dia. in accordance with the provisions of IS: upto 10 m depth or to refusal whichever ever occur earlier. (By refusal it shall mean that a standard penetration blow count (N) of 100 is recorded for 30 cm penetration). For a new substation, minimum three (3) bore holes shall be done to find out the geological profile of the area. If any unconformity encountered then more bore holes shall be drilled with the approval of Project Manager for the new projects. However in case deep pile foundations are envisaged the depths have to be regulated as per code provisions. In cases where rock is encountered, coring in one borehole per bay shall be carried out to 1.5 M in bedrock and continuous core recovery is achieved.

Performing Standard Penetration Tests at approximately 1.5 m interval in the borehole starting from 1.5 m below ground level onwards and at every change of stratum. The disturbed samples from the standard penetrometer shall also be collected for necessary tests.

Collecting undisturbed samples of 100/75 mm diameter 450 mm long from the boreholes at intervals of 2.5 m and every change of stratum starting from 1.0 m below ground level onwards in clayey strata.

The depth of Water table shall be recorded in each borehole.

All samples, both disturbed and undisturbed, shall be identified properly with the borehole number and depth from which they have been taken.

The sample shall be sealed at both ends of the sampling tubes with wax immediately after the sampling and shall be packed properly and transported to the Contractor's laboratory without any damage or loss.

The logging of the boreholes shall be compiled immediately after the boring is completed and a copy of the bore log shall be handed over to the Project Manager.

c. Electrical Resistivity Test

This test shall be conducted to determine the Electrical resistivity of soil required for designing safe grounding system for the entire station area. The specifications for the equipments and other accessories required for performing electrical resistivity test, the test procedure, and reporting of field observations shall confirm to IS: 3043. The test shall be conducted using Wagner's four electrode method as specified in IS: 1892, Appendix-B2. Unless otherwise specified at each test location, the test shall be conducted along two perpendicular lines parallel to the coordinate axis. On each line a minimum of 8 to 10 readings shall be taken by changing the spacing of the electrodes from an initial small value of 0.5 m upto a distance of 10.0 m.

d. Water Sample

Representative samples of ground water shall be taken when ground water is first encountered before the addition of water to aid drilling of boreholes. The samples shall be of sufficient quantity for chemical analysis to be carried out and shall be stored in airtight containers.

e. Back Filling of Bore Holes

On completion of each hole, the Contractor shall backfill all bore holes as directed by the Project Manager. The backfill material can be the excavated material and shall be compacted properly.

f. Laboratory Test

1. The laboratory tests shall be carried out progressively during the field work after sufficient number of samples have reached the laboratory in order that the test results of the initial bore holes can be made use of in planning the later stages of the field investigation and quantum of laboratory tests.

2. All samples brought from field, whether disturbed or undisturbed shall be extracted/prepared and examined by competent technical personnel, and the test shall be carried out as per the procedures laid out in the relevant I.S. Codes.

The following laboratory tests shall be carried out

a) Visual and Engineering Classification

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- b) Liquid limit, plastic limit and shrinkage limit for C- $\square$ soils.
 - c) Natural moisture content, bulk density and specific gravity.
 - d) Grain size distribution.
 - e) Swell pressure and free swell index determination for expansive soil only.
 - f) Consolidated un-drained test with pore pressure measurement.
 - g) Chemical tests on soil and water to determine the carbonates, sulphates, nitrates, chlorides, Ph value, and organic matter and any other chemical harmful to the concrete foundation.
 - h) C.B.R value
 - i) Rock quality designation (RQD), RMR in case of rock is encountered

2.00 Test Results and Reports

1. The Contractor shall submit the detailed report in two (2) copies wherein information regarding the geological detail of the site, summarized observations and test data, bore logs, and conclusions and recommendations on the type of foundations with supporting calculations for the recommendations. Initially the report shall be submitted by the Contractor in draft form and after the draft report is approved, the final report in two (3) copies shall be submitted. The test data shall bear the signatures of the Investigation Agency, Vendor and also site representative of Employer.

2. The report shall include but not limited to the following:

- i. A plan showing the locations of the exploration work i.e. bore holes, dynamic cone penetration tests etc.
- ii. Bore Logs: Bore logs of each bore holes clearly identifying the stratification and the type of soil stratum with depth. The values of Standard Penetration Test (SPT) at the depths where the tests were conducted on the samples collected at various depths shall be clearly shown against that particular stratum.

Test results of field and laboratory tests shall be summarised strata wise as well in combined tabular form. All relevant graphs, charts tables, diagrams and photographs, if any, shall be submitted along with report. Sample illustrative reference calculations for settlement, bearing capacity, pile capacity shall be enclosed.

a. Recommendations: The report should contain specific recommendations for the type of foundation for the various structures envisaged at site. The Contractor shall acquaint himself about the type of structures and their functions from the Project Manager. The observations and recommendations shall include but not limited to the following:

- i. Geological formation of the area, past observations or historical data, if available, for the area and for the structures in the nearby area, fluctuations of water table etc. Slope stability characteristics and landslide history of the area shall be specifically highlighted. Remedial measures to be adopted shall also be given.

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- ii. Recommended type of foundations for various structures. If piles are recommended the type, size and capacity of pile and groups of piles shall be given after comparing different types and sizes of piles and pile groups.
 - iii. Allowable bearing pressure on the soil at various depths for different sizes of the foundations based on shear strength and settlement characteristics of soil with supporting calculations. Minimum factor of safety for calculating net safe bearing capacity shall be taken as 3.0 (three). Recommendation of liquefaction characteristics of soil shall be provided.
 - iv. Recommendations regarding slope of excavations and dewatering schemes, if required. Required protection measures for slope stability for cut & fill slopes of switchyard and approach road with stone pitching/retaining walls shall be clearly spelt out. Calculation shall also be provided for stability adequacy.
 - v. Comments on the Chemical nature of soil and ground water with due regard to deleterious effects of the same on concrete and steel and recommendations for protective measures.
 - vi. If expansive soil is met with, recommendations on removal or retaining the same under the structure, road, drains, etc. shall be given. In the latter case detailed specification of any special treatment required including specification of materials to be used, construction method, equipment to be deployed etc. shall be furnished. Illustrative diagram of a symbolic foundation showing details shall be furnished.
 - vii. Recommendations for additional investigations beyond the scope of the present work, if considered such investigation as necessary.

3.00 Site Preparation

The Employer shall be responsible for proper leveling of switchyard site as per layout and levels of switchyard finalized during detailed engineering stage. The Employer at his own cost shall make the layout and levels of all structure etc from the general grids of the plot and benchmarks set and approved by the Project Manager. The Contractor shall give all help in instruments, materials and personnel to the Project Manager for checking the detailed layout and shall be solely responsible for the correctness of the layout and levels. Site leveling shall be in the scope of the Employer. Bidder may decide the level of the sites. However, the level shall be such that it is 300 mm higher than the highest flood level (HFL) of the site. If HFL is not available, then nearby road level shall be assumed as HFL.

Whenever for bay extension works the existing substation are to be modified or strengthen, Contractor should keep same as EGL of existing sub-station so that FFL shall be same for both and all the necessary arrangements are to be carried out in this regard by the Contractor.

This clause covers the design and execution of the work for site preparation, such as clearing of the site, the supply and compaction of fill material, slope protection by stone pitching/retaining walls depending on the site location & condition, excavation and compaction of backfill for foundation, road construction, drainage, trenches and final topping by brick soling/stone filling.

1) The Employer shall develop the site area to meet the requirement of the intended purpose. The site preparation shall conform to the requirements of relevant sections of this specification or as per stipulations of standard specifications. Employer shall also carry out necessary protection of slope of switchyard area and approach road.

2) The fill material if required shall be suitable for the above requirement. The fill shall be such material and the site so designed as to prevent the erosion by wind and water of material from its final compacted position or the in-site position of undisturbed soil.

3) Material unsuitable for founding of foundations shall be removed and replaced by suitable fill material and to be approved by the Project Manager.

4) Backfill material around foundations or other works shall be suitable for the purpose for which it is used and compacted to the density described under Compaction. Excavated material not suitable or not required for backfill shall be disposed off in areas as directed by Project Manager upto a maximum lead of 1 km.

a. Excavation and backfill

1. Excavation and backfill for foundations shall be in accordance with the relevant code.

2. Whenever water table is met during the excavation, it shall be dewatered and water table shall be maintained below the bottom of the excavation level during excavation, concreting and backfilling.

3. When embankments are to be constructed on slopes of 15% or greater, benches or steps with horizontal and vertical faces shall be cut in the original slope prior to placement of embankment material. Vertical faces shall measure not more than 1 m in height.

4. Embankments adjacent to abutments, culverts, retaining walls and similar structures shall be constructed by compacting the material in successive uniform horizontal layers not exceeding 20 cm in thickness (of loose material before compaction). Each layer shall be compacted as required by means of mechanical tampers approved by the Project Manager. Rocks larger than 10 cm in any direction shall not be placed in embankment adjacent to structures.

5. Earth embankments of roadways and site areas adjacent to buildings shall be placed in successive uniform horizontal layers not exceeding 20 cm in thickness in loose stage measurement and compacted to the full width specified. The upper surface of the embankment shall be shaped so as to provide complete drainage of surface water at all times.

6. The land required for borrowing earth shall be arranged & selected by Contractor. The identified land shall be got approved by Project Manager. The quoted rates shall include cost of earth, taxes, duties, royalty, compensation for the land identified for borrow earth. The rate shall also be inclusive of all leads, lifts, ascent, descent and testing required for completion of work in all respect.

7. The ground levels for all measurements shall be taken at every 5 meter distance in uniformly sloping ground and at closer distance where pits/undulations are met with. In fairly leveled area, levels shall be taken at 15 mt. apart at the discretion of Project Manager. The ground levels shall be recorded and plotted on plans. The same shall be recorded by Project Manager before the earth work is started. All labor, material, tool, equipment etc required for the above work shall be arranged by the Employer at his own cost.

b. Compaction

1. The density to which fill materials shall be compacted shall be as per relevant IS and as per direction of Project Manager. All compacted sand filling shall be confined as far as practicable. Backfilled earth shall be compacted to minimum 95% of the Standard Proctor's density at OMC. The sub-grade for the roads and embankment filling shall be compacted to minimum 95% of the Standard Proctor's density at OMC. Cohesion less material sub grade shall be compacted to 70% relative density (minimum).

2. At all times unfinished construction shall have adequate drainage. Upon completion of the road's surface course, adjacent shoulders shall be given a final shaping, true alignment and grade.

3. Each layer of earth embankment when compacted shall be as close to optimum moisture content as practicable. Embankment material, which does not contain sufficient moisture to obtain proper compaction, shall be wetted. If the material contains any excess moisture, then it shall be allowed to dry before rolling. The rolling shall begin at the edges overlapping half the width of the roller each time and progress to the center of the road or towards the building as applicable. Rolling will also be required on rock fills. No compaction shall be carried out in rainy weather.

c. Requirement for fill material under foundation

All foundations shall rest below virgin ground level and the minimum depth of foundation below the virgin ground level shall be at least 500 mm. For small equipment and minor foundations like marshalling kiosk, Switch board stand, earth switch and main box support etc. may be reduced to 300 mm with specific approval of the Project Manager.

4.00 Stone Filling & Antiweed Treatment

The Contractor shall furnish all labour, equipment and materials required for complete performance of the work in accordance with the drawings, specification and direction of the Project Manager.

Stone filling shall be done in the areas of the switchyard wherever equipment and or structures are to be provided under present scope of work covering entire fencing area.

Prevailing practice of stone filling is to be adopted for the bay extension works of existing substations. Contractor shall verify the existing practice prevailing at site before quoting.

Before taking up stone rolling, antiweed treatment shall be applied in the switchyard area where stone filling is to be done and the area shall be thoroughly de-weeded including removal of the roots. The recommendation of local agriculture/horticulture department shall be sought wherever feasible while choosing the type of chemical to be used. Nevertheless the effectiveness of chemical shall be demonstrated by the Contractor in a test area of size 10 meter x 10 meter (approx..). The final approval based on the result shall be given by Project Manager. Antiweed treatment shall be procured from reputed manufacturer. The dosage and application of chemical shall be strictly as per the manufacturer's recommendation. The Contractor shall be requested to maintain the area free of weed for a period of one year from the date of application of the first dose of the chemical.

5.00 General Requirement

- a. The material required for site surfacing shall be free from all types of organic materials and shall be of standard quality, and as approved by the Project Manager.

The material to be used for stone filling/ site surfacing shall be uncrushed/ crushed/ broken stone of 20 mm nominal size (single sized) conforming to table 2 of IS: 383- 1970. Hardness, flakiness shall be as required for wearing courses are given below.

(a) Sieve analysis limits/Gradation

Sieve size	% passing by weight
40mm	100
20mm	85-100
10mm	0-20
4.75mm	0-5

(b) Hardness

Abrasion value (IS: 2386 part-IV) not more than 40%

Impact value (IS: 2386 part-IV) not more than 30%

(c) Flakiness Index

As per (IS: 2386 part-IV) and maximum value is 25.

- b. After all the structures/equipment are erected, the surface of the switchyard area shall be maintained, rolled/compacted to the lines and grades as decided by Project Manager. De-weeding including removal of roots shall be done before rolling is commenced. Project Manager shall decide final formation level so as to ensure that the site appears uniform. The final formation level shall however be very close to the formation level indicated in the drawing using half-ton roller with suitable water sprinkling arrangement to form a smooth and compact surface.

- c. A base layer of uncrushed/crushed/broken stone of 20 mm nominal size (single sized) shall be spread and rolled/compacted by using half ton roller with 4 to 5 passes and water sprinkling to form a minimum 50 mm layer on the finished ground level of the specified switchyard area excluding roads, drains, cable trench and tower and equipment foundations as indicated in the drawing.

d. Over the base layer of site surfacing material, a final surface course of minimum 50 mm thickness of 20 mm nominal size (single sized) broken stone as specified above shall be spread and compacted by light roller using half tones steel roller (width 30" and 24" dia meter) with water sprinkling as directed by the Project Manager. The water shall be sprinkled in such a way that bulking does not take place.

e. In areas that are considered by the Project Manager to be too congested with foundations and structures for proper rolling of the site surfacing material by normal rolling equipment, the material shall be compacted by hand, if necessary. Due care shall be exercised so as not to damage any foundation structures or equipment during rolling compaction.

6.00 Site Drainage

a. Adequate site drainage system shall be provided by the Contractor in new and existing substation. In case of bay extension of existing substation, drainage layout shall be prepared by the Contractor in such away that it should satisfy the technical parameters stated below while designing the drainage system so that flow of water of the existing part of substation remain uninterrupted and the same should be approved by the Project Manager. The technical parameters stated below also to be taken into account while designing the drainage system for new substation as well.

The Contractor shall obtain rainfall data and design the storm water drainage system, (culverts, ditches, drains etc.) to accommodate run off due to the most intense rainfall that is likely to occur over the catchments area in one hour period on an average of once in ten years. The surface of the site shall be sloped to prevent the ponding of water.

b. The maximum velocity for pipe drains and open drains shall be limited to 2.4m/sec and 1.8m/sec respectively. However, minimum non-silting velocity of 0.6m/sec shall be ensured. Longitudinal bed slope shall not be milder than 1 in 1000.

c. The drains shall be constructed using Brick masonry except at road crossings etc. where RCC pipe shall be used. The RCC pipe for drains and culverts shall be as per IS:456 and IS:783.

d. The Contractor shall ensure that water drains are away from the site area and shall prevent damage to adjacent property by this water. Adequate protection shall be given to site surfaces, roads, ditches, culverts, etc. to prevent erosion of material by water.

e. The drainage system shall be adequate without the use of cable/pipe trenches. (Pipe drains shall be provided in areas of switchyard where movement of crane will be necessary in operating phase of the substation).

f. For pipe drains, concrete pipe of class NP2 shall be used. However, for road crossings etc. higher strength pipe of class NP3 shall be provided. For rail crossings, pipes conforming to railway loading standards or at least NP4 class shall be provided. Manholes shall be provided at every 30m interval, at connection points and at every change of alignment.

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- g. Open surface drains for new s/s shall be provided with brick masonry in 1:6 (1 cement: 6 coarse sand) cement mortar with 15 mm thick, 1:4 (1 cement: 4 sand) cement plaster inside and exposed surface of drains as per approved drawing. For bay extension at existing substations, prevailing practice of the respective substation shall be adopted.
 - h. Pipe drains shall be connected through manholes at an interval of max. 30m. Effluents shall be suitably treated by the Contractor to meet all the prevalent statutory requirements and local pollution control norms and treated effluents shall be conveyed to the storm water drainage system at a suitable location for its final disposal.
 - i. Invert of the drainage system shall be decided in such a way that the water can easily be discharged above the High Flood Level (HFL) outside substation boundary at suitable location up to a maximum 50M beyond boundary wall of substation or actual whichever occurs earlier and approved by Project Manager.
 - j. All internal site drainage system, including the final connection/disposal to Project Manager acceptance points shall be part of Supplier's scope including all required civil works. The Contractor shall connect his drain(s) at one or more points to outfall points as feasible at site.
 - k. The drainage scheme and associated drawings shall be got approved and constructed as per enclosed tender drawing.

7.00 Roads and Culverts inside substation premises

- a. The main approach road including modification of existing road to meet the site conditions, roads for access to equipment and buildings within substations (including bay extension in existing substations) are in the scope of the Contractor. Layout of the roads shall be based on General detail & Arrangement drawing for the substation. If extra road is required for functional point of view, which has not been mentioned in the layout drawing, Contractor should provide the same without extra cost to the Project Manager.
- b. All substation roads shall be constructed so as to permit transportation of all heavy equipment. The roads shall have min. 3.0 m wide RCC road as per enclosed tender drawing.
- c. Road construction shall be as per IRC standards.
- d. Adequate provision shall be made for road drainage. Protection of cut and embankment slopes of roads as per slope stability requirement shall be made.
- e. All the culverts and its allied structure (required for road/rail, drain trench crossings etc.) shall be designed for class A loading as per IRC standard / IS code and should be checked for loading.
- f. All roads shall be designed for class 'D' of traffic as per IRC-37 Guide-lines for the design of rigid pavements.

8.00 Transformer Foundation

The Contractor shall provide a road system integrated with the transformer foundation to enable installation and the replacement of any failed unit by the spare unit located at the site. This system shall enable the removal of any failed unit from its foundation to the nearest road.

If existing/failed transformer is required to be replaced by new one in augmentation/bay extension works of existing substations then the foundation supporting that equipment shall be strengthened by modifying the foundation itself or the foundation shall be dismantled and recast new foundation as per site conditions. However, Contractor must furnish the design calculation incorporating all those changes so that safety of the structure and foundation remain adequate.

Similarly all types of equipment foundations with /without supporting structures shall be treated in similar manner as stated for transformer foundations.

Contractor must access the amount of work involved for augmentation/bay extension of existing substations while quoting.

9.00 Cable & Pipe Trenches

a. The cable trenches and precast removable RCC cover (with lifting arrangement) shall be constructed using RCC of M20 grade for new substation whereas for bay extension of existing substation size and material of cable trenches shall be same as the existing one and pre-cast removable RCC cover (with lifting arrangement) shall be constructed using RCC of M20 grade. Cable trenches must be designed for the design criteria stated below, whether it is of concrete or brick for both new substations and bay extension works in existing substations.

b. The cable trench walls shall be designed for the following loads.

- (i) Dead load of 100 kg/m length of cable support + 75 Kg on one tier at the end.
- (ii) Triangular earth pressure + uniform surcharge pressure of 1 T/m².

c. Cable trench covers shall be designed for self-weight of top slab + concentrated load of 200 kg at center of span on each panel.

d. Cable trench crossing the road/rails shall be designed for class A. Loading of IRC/relevant IS Code and should be checked for transformer loading.

e. Trenches shall be drained. Necessary sumps be constructed and sump pumps if necessary shall be supplied. Cable trenches shall not be used as storm water drains.

f. The top of trenches shall be kept at least 100 mm above the finished ground level for the new substation. The top of cable trench shall be such that the surface rainwater does not enter the trench.

g. The top of trench shall be kept same as existing one to maintain uniformity of the cable trenches structure in case of bay extension works of existing substations.

h. All metal parts inside the trench shall be connected to the earthing system.

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- i. Cables from trench to equipment shall run in hard conduit pipes.
 - j. Trench wall shall not foul with the foundation. Suitable clear gap shall be provided.
 - k. The trench bed shall have a slope of 1/500 along the run & 1/250 perpendicular to the run.
 - l. Cable trenches shall be blocked at the ends if required with brick masonry in cement sand mortar 1:6 and plaster with 15mm thick 1:4 cement sand mortar.
 - m. Cable trench contains cable tray that shall be supported on ISA. The size and spacing of angle section shall be as per design criteria mentioned above.
 - n. Cable trench shall be constructed as per enclosed tender drawing.

10.00 Foundation /RCC Construction

1. Work covered under this Clause of the Specification comprises the design and construction of foundations and other RCC constructions for switchyard structures, equipment supports, trenches, drains, control cubicles, bus supports, transformer, marshalling kiosks, auxiliary equipment & systems, buildings, tanks, boundary wall or for any other equipment or service and any other foundation required to complete the work. This clause is as well applicable to the other RCC constructions.

However, for the augmentation/bay extension works of existing substation, type of RCC structures and foundations etc. shall be similar to one already existing at the existing substation and for which design shall be furnished in support of safety of those RCC structures and foundations etc. Contractor must assess the amount of work involved for the construction of switchyard structures, equipment supports, trenches, drains, control cubicles, bus supports, transformer, marshalling kiosks, auxiliary equipment & systems, buildings, tanks, boundary wall or for any other equipment or service and any other foundation required to complete the work for the existing substations.

2. Concrete shall conform to the requirements mentioned in IS: 456 and all the tests shall be conducted as per relevant Indian Standard Codes as mentioned in Standard field quality plan appended with the specification

A minimum grade for PCC and RCC shall be used for all structural/load-bearing members as per latest IS 456.

3. If the site is sloppy, the foundation height will be adjusted to maintain the exact level of the top of structures to compensate such slopes.

4. The switchyard foundation's plinths and building plinths shall be minimum 300mm and 500 mm above finished ground level respectively.

5. Minimum 75mm thick lean concrete shall be provided below all underground structures, foundations, trenches etc. to provide a base for construction.

6. Concrete made with Portland slag cement shall be carefully cured and special importance shall be given during the placing of concrete and removal of shuttering.

7. The design and detailing of foundations shall be done based on the approved soil data and sub-soil conditions as well as for all possible critical loads and the combinations thereof. The Spread footings foundation or pile foundation as may be required based on soil/sub-soil conditions and superimposed loads shall be provided.

8. If pile foundations are adopted, the same shall be cast-in-situ driven/bored or precast or under reamed type as per relevant parts of IS Code 2911. Only RCC piles shall be provided. Suitability of the adopted pile foundations shall be justified by way of full design calculations. Detailed design calculations shall be submitted by the bidder showing complete details of piles/pile groups proposed to be used. Necessary initial load test shall also be carried out by the bidder at their cost to establish the piles design capacity. Only after the design capacity of piles has been established, the Contractor shall take up the job of piling. Routine tests for the piles shall also be conducted. All the work (design & testing) shall be planned in such a way that these shall not cause any delay in project completion.

a. Design

1. Foundations shall be of reinforced cement concrete for new substation but for the augmentation / bay extension works of existing substation it could be of RCC/ PCC depending on type of structures and materials used for the similar type of structures in those bay extension works of existing substation. Design requirement shall be fulfilled by the Contractor and furnished for approval for both new substation and existing substation (for bay extension works) as specified in the scope of work. The design and construction of RCC/ PCC / Masonry structures shall be carried out as per IS: 456 and relevant IS code/CBIP manual/NBC etc and minimum grade of concrete shall be as per relevant IS code. Higher grade of concrete than specified above may be used at the discretion of Contractor without any additional financial implication to the Project Manager.

2. Limit state method of design shall be adopted unless specified otherwise in the specification.

3. For detailing of reinforcement IS: 2502 and SP: 34 shall be followed. Cold twisted deformed bars ($F_y=415 \text{ N/mm}^2$) conforming to IS: 1786 shall be used as reinforcement. However, in specific areas, mild steel (Grade I) conforming to IS: 432 can also be used. Two layers of reinforcement (on inner and outer face) shall be provided for wall & slab sections having thickness more than 150 mm. Clear cover to reinforcement towards the earth face shall be minimum 40 mm.

4. RCC water retaining structures like storage tanks, etc. shall be designed as un-cracked section in accordance with IS: 3370 (Part I to IV) by working stress method. However, water channels shall be designed as cracked section with limited steel stresses as per IS: 3370 (Part I to IV) by working stress method.

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5. The procedure used for the design of the foundations shall be the most critical loading combination of the steel structure and or equipment and/or superstructure and other conditions, which produces the maximum stresses in the foundation or the foundation component and as per the relevant IS Codes of foundation design. Detailed design calculations shall be submitted by the bidder showing complete details of piles/pile groups or isolated /combined footings proposed to be used.
 6. Design shall consider any sub-soil water pressure that may be encountered following relevant standard strictly.
 7. Necessary protection to the foundation work, if required shall be provided to take care of any special requirements for aggressive alkaline soil, black cotton soil or any other type of soil which is detrimental/harmful to the concrete/masonry foundations.
 8. RCC columns /pedestals shall be provided with rigid connection at the base.
 9. All sub-structures shall be checked for sliding and overturning stability during both construction and operating conditions for various combinations of loads. Factors of safety for these cases shall be taken as mentioned in relevant IS Codes or as stipulated elsewhere in the Specifications. For checking against overturning, weight of soil vertically above footing shall be taken and inverted frustum of pyramid of earth on the foundation should not be considered.
 10. Earth pressure for all underground structures shall be calculated using co-efficient of earth pressure at rest, co-efficient of active or passive earth pressure (whichever is applicable).
 11. In addition to earth pressure and ground water pressure etc., a surcharge load of 1T/Sq.m shall also be considered for the design of all underground structures including channels, sumps, tanks, trenches, substructure of any underground hollow enclosure etc., for the vehicular traffic in the vicinity of the structure.
 12. Following conditions shall be considered for the design of water tank in pumps house, channels, sumps, trenches and other underground structures:
 - i. Full water pressure from inside and no earth pressure & ground water pressure & surcharge pressure from outside (application only to structures, which are liable to be filled up with water or any other liquid).
 - ii. Full earth pressure, surcharge pressure and ground water pressure from outside and no water pressure from inside.
 - iii. Design shall also be checked against buoyancy due to the ground water during construction and maintenance stages. Minimum factor of safety of 1.5 against buoyancy shall be ensured ignoring the superimposed loadings.
 13. The foundations shall be proportioned so that the estimated total and differential movements of the foundations are not greater than the movements that the structure or equipment is designed to accommodate.

14. The foundations of transformer and circuit breaker shall be of block type foundation. Minimum reinforcement shall be governed by IS: 2974 and IS: 456.

15. The tower and equipment foundations shall be checked for a factor of safety of 2.0 for normal condition and 1.5 for short circuit condition against sliding, overturning and pullout.

b. Admixtures & additives

1. Only approved admixtures shall be used in the concrete for the Works. When more than one admixture is to be used, each admixture shall be batched in its own batch and added to the mixing water separately before discharging into the mixer. Admixtures shall be delivered in suitably labeled containers to enable identification.

2. Admixtures in concrete shall conform to IS: 9103. The water proofing cement additives shall conform to IS: 2645. Project Manager shall approve concrete Admixtures/ Additives.

3. The Contractor may propose and the Project Manager may approve the use of a water-reducing set-retarding admixture in some of the concrete. The use of such an admixture will not be approved to overcome problems associated with inadequate concrete plant capacity or improperly planned placing operations and shall only be approved as an aid to overcoming unusual circumstances and placing conditions.

4. The water-reducing set-retarding admixture shall be an approved brand of Ligno-sulphonate type admixture.

5. The waterproofing cement additives shall be used as required / advised by the Project Manager.

c. Gates and Boundary Wall

1. The Gate frame shall be made of medium duty MS pipe conforming to relevant IS with welded joints.

2. The gates shall be fabricated with welded joints to achieve rigid connections. The gate frames shall be painted with one coat of approved steel primer and two coats of synthetic enamel paint.

3. Gates shall be fitted with approved quality iron hinges, latch and latch catch. Latch and latch catch shall be suitable for attachment and operation of pad lock from either side of gates. Hinges shall permit gates to swing through 180 degree back against fence. Gates shall be earthed by G I wire.

4. Gates shall be fitted with galvanized chain hook or gate hold back to hold gates open. Double gates shall be fitted with centre rest and drop bolt to secure gates in closed position.

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5. Gates shall be installed in locations shown on drawings. Next to the main gate, a men gate (1.25 m wide, single leaf) shall also be provided.
 6. Bottom of gates shall be set approximately 40mm above ground surface and necessary guiding mechanism shall be fitted.
 7. The Contractor shall design and construct boundary wall around substation area as per requirements. The boundary wall shall be of height 1.80M and shall be made of RCC frame construction with RCC column and plinth beam arrangement and panels filled with one brick thick wall in cement sand mortar 1:6. The boundary wall shall be plastered on both external and internal faces with cement and sand plaster 1:4 of thickness 15 mm. An additional concertina I-shaped arm of MS/GI angle 50x50x6 with 2-rows (2 nos.) concertina wire A-4 IS: 278. Expansion joints shall be provided as per code requirements. MS grating shall be provided at required locations for drainage purposes. The boundary wall shall be painted with minimum two coats of color wash over a base coat of white wash with lime. The front portion of boundary wall shall however be with a RC jail and 12 mm square MS bar top above brick work and pebble dash plaster finish with colour pigment. The steel work shall be given two coats of synthetic enamel paint of approved make over one coat of primer. Boundary wall and gate shall be constructed as per enclosed *tender drawing*.

11.00 Buildings - General Requirements

The scope for new control room building includes the design, engineering and construction including anti-termite treatment, plinth protection, DPC of Building including sanitary, water supply, electrification, false ceiling etc. of control room building. The buildings shall be of RCC framed structure of concrete of M20 grade (Min.). Following design criteria shall be adopted for design purposes for new substation.

If any extension of the Control Room building is required in augmentation / bay extension works of existing substation then extension part shall be compatible to existing one structurally and architecturally but following design criteria shall be adopted for design purposes for R&M of existing substation.

a. Control room Building

Minimum floor area requirements shall be 10000×12000 mm excluding space for wash room which may be increased at the time of detailed engineering to suit project requirements. The layout of the control room shall be finalized as per detailed engineering to suit project requirements. The minimum dimension of different rooms required for C.R. building shall be as per drawing. The CR building shall consist of the following:

- a. Control room
- b. S/s In-charge room
- c. Battery room
- d. Store room
- e. Toilet

An open space of 1 m minimum shall be provided on the periphery of the rows of panel and equipment generally in order to allow easy operator movement and access as well as maintenance.

Any future possibility of annexed building shall be taken care of while finalizing the layout of the control room building.

Minimum headroom of 3 M below soffit of beams/false ceiling shall be considered for rooms. The roof shall have one side sloping roof or flat roof as finalized during detailed engineering.

i.Design

a) The buildings shall be designed:

1. To the requirements of the National Building Code of India, and the standards quoted therein.
2. For the specified climatic & loading conditions.
3. To adequately suit the requirements of the equipment and apparatus contained in the buildings and in all respects to be compatible with the intended use and occupancy.
4. With a functional and economical space arrangement.
5. For a life expectancy of structure, systems and components not less than that of the equipment, which is contained in the building, provided regular maintenance is carried out.
6. Be aesthetically pleasing. Different buildings shall show a uniformity and consistency in architectural design.
7. To allow for easy access to equipment and maintenance of the equipment.
8. With, wherever required, fire retarding materials for walls, ceilings and doors, which would prevent supporting or spreading of fire.
9. Suitable expansion joints shall be provided in the longitudinal direction wherever necessary with provision of twin columns.
10. Individual members of the buildings frame shall be designed for the worst combination of forces such as bending moment, axial force, shear force, torsion etc.
11. Permissible stresses for different load combinations shall be taken as per relevant IS Codes.
12. The building lighting shall be designed in accordance with the requirements of relevant section.
13. Seismic considerations as applicable.

ii.Design loads

Building structures shall be designed for the most critical combinations of dead loads, super-imposed loads, equipment loads, wind loads, seismic loads, and temperature loads.

Dead loads shall include the weight of structures complete with finishes, fixtures and partitions and should be taken as per IS: 1911.

Super-imposed loads in different areas shall include live loads, minor equipment loads, cable trays, small pipe racks/hangers and erection, operation and maintenance loads. Equipment loads shall constitute, if applicable, all load of equipments to be supported on the building frame.

The wind loads shall be computed as per IS 875, Seismic Coefficient method shall be used for the seismic analysis as per IS 1893 with importance factor 1.5.

Wind and Seismic forces shall not be considered to act simultaneously.

Floors/slabs shall be designed to carry loads imposed by equipment, cables piping, equipment and other loads associated with building. Floors shall be designed for live loads as per relevant IS. Cable and piping loads shall also be considered additionally for floors where these loads are expected.

For consideration of loads on structures, IS: 875 shall strictly adhere to. Any other load coming in the structure, not mentioned in IS 875 shall be calculated as per relevant IS code and NBC.

iii. Submission

The following information shall be submitted for review and approval to the Project Manager:

1. Design criteria shall comprise the codes and standards used, applicable climatic data including wind loads, earthquake factors maximum and minimum temperatures applicable to the building locations, assumptions of dead and live loads, including equipment loads, impact factors, safety factors and other relevant information.
2. Structural design calculations and drawing (including construction/fabrication) for all reinforced concrete and structural steel structures.
3. Fully, dimensioned concept plan including floor plans, cross sections, longitudinal sections, elevations and perspective view of each building. These drawings shall be drawn at a scale not smaller than 1:75 and shall identify the major building components.
4. Fully dimensioned drawings showing details and sections drawn to scales of sufficient size to clearly show sizes and configuration of the building components and the relationship between them.
5. Product information of building components and materials, including walls partitions flooring ceiling, roofing, door and windows and building finishes.

6. A detailed schedule of building finishes including colour schemes.

7. A door & window schedule showing door types and locations, door lock sets and latch sets and other door hardware.

Approval of the above information shall be obtained before ordering materials or starting fabrication or construction as applicable.

iv. Finish Schedule

1. The finishing schedule is given in subsequent clauses.

2. M.S. Ladder should be provided to access the control room roof from outside. Ladder shall be made up of ISMC 75x40 which will run as beam one meter apart and intermediate steps will be made up of 45x45x5 angle with rise of 300 mm. Red oxide primer shall be applied initially, then two coats of rich zinc paint shall be applied to avoid corrosion.

v. Flooring

Flooring in various rooms of control room building shall be as for detailed schedules given in Table -1

vi. Walls

Control room buildings shall be of framed superstructure. All walls shall be non-load bearing walls. Min. thickness of external walls shall be 250 mm (one brick) with 1:6 cement sand mortar.

vii. Plastering

All internal walls shall have minimum 15 mm thick 1:4 cement sand plaster on either side of wall. The ceiling shall have 10 mm thick 1:4 cement sand plaster.

viii. Finishing

All external surfaces shall have 20 mm thick 1:4 cement sand plaster with water proofing compound. The paint shall be antifungal quality of reputed brand suitable for masonry surfaces for high rainfall zone. White cement primer shall be used as per manufacturer's recommendation.

Internal finish Schedule is given Table - 1 below:

TABLE-1

S.No.	Location	Flooring & Skirting 150mm high	Wall Internal& Ceiling	Doors, Windows, Ventilators
1.	Control Room, Relay Room, Sub-station Incharge, Office, corridor, staff room.	10 to 20 mm designer paving tiles with alkali proof, acid proof tiles with top surface smooth.(Such as -Johnson Endura tiles) or specified in the drawing.	One coat solvent based primer with 02 coats acrylic emulsion paint over 2 to 4 mm thick putty or specified in the drawing.	1) Standard steel rolled section frames with 4 mm glass. or 34mm depth series aluminium window as specified in the drawing (min. thickness of aluminium member not less than 1.50mm), 4mm clear glass for aluminium Window & 5mm clear glass for aluminium door.
3.	Battery room	Acid and Alkali Resistant tiles.	Dado of acid resistant tile 1.2 M high & Paint of remaining portion-One coat solvent based primer with 02 coats acrylic emulsion paint over 2 to 4 mm thick putty or specified in the drawing.	2) Flush door shutters
4.	Toilet	Ceramic glazed tiles in flooring	DADO glazed tile 2.1M high for toilet or One coat solvent based primer with 02 coats acrylic emulsion paint over 2 to 4 mm thick putty or specified in the drawing.	
5.	Other areas not specified	Terrazo tiles		

Note: DSR item references (DSR-2017) to be read with WBPWDSOR with latest corrigenda & Addenda&specifications are only for material and workmanship guidance of the Contractors.

ix.Roof

Roof of the C.R. Building shall consist of Cast-in-situ RCC slab treated with a water proofing system which shall be an integral cement based treatment conforming to WBPWD specification. The water proofing treatment shall be of following operations:

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- i. Applying and grouting a slurry coat of neat cement using 2.75 kg/m^2 of cement admixed with proprietary water proofing compounds conforming to IS: 2645 over the RCC slab including cleaning the surface before treatment.
 - ii. Laying cement concrete using broken bricks/brick bats 25mm to 100mm size with 50% of cement mortar 1:5 (1 cement: 5 coarse sand) admixed with proprietary water proofing compound conforming to IS: 2645 over 20mm thick layer of cement mortar of min 1:5 (Cement: 5 coarse sand) admixed with proprietary water proofing compound conforming to IS: 2645 to required slope and treating similarly the adjoining walls upto 300mm height including rounding of junctions of walls and slabs.
 - iii. After two days of proper curing applying a second coat of cement slurry admixed with proprietary water proofing compound conforming to IS: 2645.
 - iv. Finishing the surface with 20mm thick joint less cement mortar of mix 1:4 (1 cement: 4 coarse sand) admixed with proprietary water proofing compound conforming to IS: 2645 and finally finishing the surface with trowel with neat cement slurry and making of 300 x 300 mm square.
 - v. The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. All above operations to be done in order and as directed and specified by the Project Manager.

With average thickness of 120 mm and minimum thickness at khurra at 65 mm.

x. Glazing

Minimum thickness of glazing shall be 5.0 mm. as per IS: 2835.

xi. Doors and Windows

The details of doors and windows of the control room building shall be as per finish schedule Table-1 and tender drawing with the relevant IS code. Rolling steel shutters and rolling steel grills shall be provided as per layout and requirement of buildings. Paints used in the work shall be of best quality specified in WBPWD specification.

xii. Plumbing & Sanitation

1. All plumbing and sanitation shall be executed to comply with the requirements of the appropriate byelaws, rules and regulations of the Local Authority having jurisdiction over such matters. The Contractor shall arrange for all necessary formalities to be met in regard to inspection, testing, obtaining approval and giving notices etc.
2. PVC syntax or equivalent make Roof water tank of adequate capacity depending on the number of users for 24 hours storage shall be provided. Minimum 1 Nos. 500 liters capacity shall be provided.

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3. Galvanized MS pipe of medium class conforming to IS: 1239 shall be used for internal & external piping work for potable water supply.
 4. Sand CI pipes with lead joints conforming to IS: 1729 shall be used for sanitary works above ground level.
 5. Each toilet shall have the following minimum fittings.
 - (a) WC (Western type) 390 mm high with toilet paper roll holder and all fittings
Or
WC (Indian Type) Orissa Pattern (580 x 440 mm) with all fittings (both types of WCs shall be provided at alternate locations).
 - (b) Urinal (430 x 260 x 350 mm size) with all fittings.
 - (c) Wash basin (550 x 400 mm) with all fittings.
 - (d) Bathroom mirror (600 x 450 x 6 mm thick) hard board backing
 - (e) CP brass towel rail (600 x 20 mm) with C.P. brass brackets
 - (f) Soap holder and liquid soap dispenser.
 6. All fittings, fastener, grating shall be chromium plated.
 7. All sanitary fixtures and fittings shall be of approved quality and type manufactured by well known manufacturers. All items brought to site must bear identification marks of the type of the Manufacturer.
 8. Soil, waste and drain pipes, for underground works shall be stoneware for areas not subject to traffic load. Heavy-duty cast iron pipes shall be used otherwise.
 9. In case of Augmentation/R&M of existing substation, amount of work shall be envisaged by contract for lump sum quotation.

12.00 Miscellaneous General Requirements

1. Dense concrete with controlled water cement ratio as per IS-code shall be used for all underground concrete structures such as pump-house, tanks, water retaining structures, cable and pipe trenches etc. for achieving water-tightness.
2. All joints including construction and expansion joints for the water retaining structures shall be made water tight by using PVC ribbed water stops with central bulb. However, kicker type (externally placed) PVC water stops shall be used for the base slab and in other areas where it is required to facilitate concreting. The minimum thickness of PVC water stops shall be 5 mm and minimum width shall be 230 mm.

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3. All steel sections and fabricated structures that are required to be transported on sea shall be provided with anti corrosive paint to take care of sea worthiness.
 4. All mild steel parts used in the water retaining structures shall be hot-double dip galvanised. The minimum coating of the zinc shall be 750 gm/sq. m. for galvanised structures and shall comply with IS: 2629 and IS: 2633. Galvanizing shall be checked and tested in accordance with IS: 2633. The galvanizing shall be followed by the application of an etching primer and dipping in black bitumen in accordance with BS: 3416.
 5. A screed concrete layer not less than 100 mm thick and of grade not weaker than M10 conforming to IS: 456-1978 shall be provided below all water retaining structures. A sliding layer of bitumen paper or craft paper shall be provided over the screed layer to destroy the bond between the screed and the base slab concrete of the water retaining structures.
 6. Bricks having minimum 75kg/cm² compressive strength can only be used for masonry work. Contractor shall ascertain himself at site regarding the availability of bricks of minimum 75kg/cm² compressive strength before submitting his offer.
 7. Doors and windows on external walls of the buildings (other than areas provided, with insulated metal claddings) shall be provided with RCC sunshade over the openings with 300 mm projection on either side of the openings. Projection of sunshade from the wall shall be minimum 450 mm over window openings and 750 mm over door openings.
 8. Service ladder shall be provided for access to all roofs.
 9. Angles 45x45x5 mm (minimum) with lugs shall be provided for edge protection all round cut outs/openings in floor slab, edges of drains supporting grating covers, edges of RCC cable/pipe trenches supporting covers, edges of manholes supporting covers, supporting edges of manhole precast cover and any other place where breakage of corners of concrete is expected.
 10. Anti termite chemical treatment shall be given to column pits, wall trenches, foundations of buildings, filling below the floors etc. as per IS: 6313 and other relevant Indian Standards.
 11. All rungs for ladder shall also be galvanised as per IS: 277 medium classes.
 12. For all civil works covered under this specification, nominal mix by volume batching as per WBPWD specification is intended. The relationship of grade of concrete and ratio of ingredients shall be as below:

Sl.No.	Mix	Cement	Sand	Coarse aggregate of 20 mm down grade as per IS 383
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1.	M 10	1	3	6
2.	M 15	1	2	4
3.	M 20	1	1.5	3

The material specification, workmanship and acceptance criteria shall be as per relevant clauses of WBPWD specification and approved standard Field Quality Plan.

13. The details given in tender drawings shall be considered along with details available in this section of the specification while deciding various components of the building.

14. Items/components of buildings not explicitly covered in the specification but required for completion of the project shall be deemed to be included in the scope.

13.00 Interfacing

The proper coordination & execution of all interfacing civil works activities like fixing of conduits in roofs/walls/floors, fixing of foundation bolts, fixing of lighting fixtures, fixing of supports/embedment, provision of cutouts etc. shall be the sole responsibility of the Contractor. He shall plan all such activities in advance and execute in such a manner that interfacing activities do not become bottlenecks and dismantling, breakage etc. is reduced to minimum.

14.00 Water Supply

(i) Contractor shall make its own arrangement for construction water.

(ii) The Contractor shall carry out all the plumbing/erection works required for supply of water in control room building.

(iii) The details of tanks, pipes, fittings, fixtures etc for water supply are given elsewhere in the specification under respective sections.

(iv) A scheme shall be prepared by the Contractor indicating the layout and details of water supply which shall be got approved by the Project Manager before actual start of work including all other incidental items not shown or specified but as may be required for complete performance of the works.

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- (v) Bore wells and pumps for water supply are in the scope of Contractor meeting the day-to-day requirement of the water supply.
 - (vi) If the water is supplied by Municipal Corporation then bore well for water supply purposes is not required to be carried out by Contractor. Contractor shall also make necessary arrangement /formalities to receive water connection from corporation.

15.00 Sewerage System

- (i) Sewerage system shall be provided for control room building.
- (ii) The Contractor shall construct septic tank and soak pit suitable for 5 users if outside of Municipal Corporation zone. Otherwise, all necessary arrangement for the disposal of sewerage to the Municipal Corporation's end shall be arranged by the Contractor at his own cost for regularizing the disposal activity.
- (iii) The septic tank and soak pit shall be constructed as per enclosed tender drawing.

16.00 Statutory Rules

- a. Contractor shall comply with all the applicable statutory rules pertaining to factories act (as applicable for the State). Fire Safety Rules of Tariff Advisory Committee, Water Act for pollution control etc.
- b. Provisions for fire proof doors, no. of staircases, fire separation wall, plastering on structural members (in fire prone areas) etc. shall be made according to the recommendations of Tariff Advisory Committee.
- c. Statutory clearance and norms of State Pollution Control Board shall be followed as per Water Act for effluent quality from plant.
- d. Requirement of sulphate resistant cement (SRC) for sub structural works shall be decided in accordance with the Indian Standards based on the findings of the detailed soil investigation to be carried out by the Bidder.
- e. Foundation system adopted by Bidder shall ensure that relative settlement and other criteria shall be as per provision in IS: 1904 and other Indian Standards
- f. All water retaining structures designed as un-cracked section shall also be tested for water tightness at full water level in accordance with clause no. 10 of IS: 3370 (Part-I).
- g. Construction joints shall be as per IS: 456.
- h. All underground concrete structures like water retaining structures etc. shall have plasticizer cum water proofing cement additive conforming to IS: 9103. In addition, limit on permeability as given in IS: 2645 shall also be met with. The concrete surface of these structures in contact with earth shall also be provided with two coat of bituminous painting for water/damp

proofing. In case of water leakage in the above structures, Injection Method shall be applied for repairing the leakage.

- i. All building/construction materials shall conform to the best quality specified in WBPWD specifications if not otherwise mentioned in this specification.
- j. All tests as required in the standard field quality plans have to be carried out.

17.00 Fencing

a. Product materials for fencing

The minimum requirements are as follows:

i.Chain Link fence fabric in accordance to IS-2721

- 1. Size of mesh : 75 mm
- 2. Nominal wire size : 4.0 mm dia
- 3. Width of chain link : 2000 mm
- 4. Class of zinc coating : medium
- 5. Zinc coated after weaving.

ii.Posts

Angle Section

Intermediate : L 65 x 65 x 6

Straining posts : L 65 x 65 x 6

Stay post : L 65 x 65 x 6

- 1. All structural steel shall conform to IS: 2062 and shall be painted with a coat of approved steel primer and two coats of synthetic enamel paint.
- 2. The Chain Link fabric shall be fixed to the post at the top and bottom of the fence by welding/fixing 50 mm MS flat all through its length.
- 3. Fencing top shall be either of galvanised barbed wire or tape. Barbed wire shall conform to IS: 278.
- 4. The barbed wire may consist of not more than two splices per reel. The barbed wire shall be formed by twisting two line wires, one containing the barbs. The barbed wire shall be designated as A-4 IS: 278 and shall be galvanized.

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5. Above chain link, 3-rows (6 nos) of barbed tape/wire shall be provided in each arm of the Y shaped barbed arm at top.
 6. With barbed tape/wire above the chain link fence, the total fence height shall be minimum 2500 mm above finished gravel level.
 7. Barbed tape/wire arms shall be same as intermediate and straining post.
 8. Tension wire: single strand, high tensile, galvanised steel wire, 4 mm diameter.
 9. Fittings and hardware: cast aluminum alloy or galvanized steel, malleable or ductile cast iron turnbuckles to be drop forged.
 10. GI chain link mesh shall be as per IS: 2721. Mesh size 75 mm and nominal wire size shall be 4.0 mm diameter.

On the results of these additional tests, the whole or portion of the barbed wire/tape shall be accepted or discarded by the Purchaser, as the case may be.

b. Installation

1. Contractor shall submit the fencing drawing Fence shall be installed along lines shown on approved drawings.
2. Post holes shall be excavated by approved methods.
3. Intermediate posts shall be spaced 2.5 m apart measured parallel to ground surface.
4. Straining posts shall be installed at equal intervals not exceeding 25.0 m.
5. Straining posts shall be installed at sharp changes in grade, at corners, at change of direction and where directed.
6. All corner post will have two-stay post and every tenth post will have a transverse stay post.
7. Posts shall be set in 1:2:4 plain cement concrete Blocks of minimum dimension 400 mm x 400 mm x 1000 mm deep Concrete work shall conform to relevant clause. Post shall be braced and held in plumb position and true alignment and elevation until concrete has set.
8. Fence fabric shall not be installed until concrete has cured a minimum of 7 days.
9. Bottom and top of the fence fabric shall be fixed with MS flats of 50 mm x 6mm (min).
10. Fence fabric shall be laid out with barbed edge on top, stretched tightly and shall be fastened to intermediate, post gate and straining post with 50 x 6 flats.

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11. Fabric shall be secured to tension wires with tie wires at 400 mm intervals. Tie wires shall be given not less than two twists.
 12. Barbed tape shall be spliced with standard wire splices.
 13. Barbed tape shall be stretched to have uniform tension.
 14. Barbed tape shall be attached to barbed wire arms with approved metal clips.
 15. Toe wall of one Brick/Random Rubble masonry, with notches over 75 mm thick PCC (1:4:8) shall be provided below all fencing and shall be minimum 200 mm above and 200 mm below finished ground level. All exposed surfaces of brick toe wall shall be provided with 1:6 cement sand plaster and coated with two coats of colour wash with a base coat of white wash with lime. Rubble masonry toe wall shall be with raised & cut pointing and 50 mm PCC (1:2:4) band coping.
 16. Proper earthing shall be done for fencing also.

Annexure-C

Technical Specification of Geotechnical Investigations

1 General

Owner requires that a detailed Geotechnical Investigations be carried out at various tower locations to provide the designer with sufficiently accurate information, both general and specific, about the sub-strata 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.

2 Scope

- 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 the 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 location and the same shall be got approved by the Owner.
- 2.2 This specification covers the technical requirements 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 carrying out the entire field investigation as well as laboratory tests, analysis and interpretation of data collected and preparation of the Geotechnical Report. Contractor shall also collect data regarding variation of sub-soil 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.
- 2.3 Contractor shall make its own arrangements to establish the co-ordinate system required to position boreholes, test pits and other field test locations as per the drawings/sketches supplied by Owner. Contractor shall determine the reduced level (R.L'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 lines route from the best available sources and shall furnish complete hydrological details including maximum velocity discharged, highest flood level (H.F,L), scour depth etc. of the concerned river, major streams and nalas (canals).
- 2.4 The field and laboratory data shall be recorded on the pro-forma recommended in relevant Indian Standards. Contractor shall submit to Owner two copies of field bore logs (one copy each to Owner's site and Corporate Office) and all the field records (countersigned by the Owner's site representative) soon after the completion of each bore-holes/test.
- 2.5 Whenever, contractor is unable to extract undisturbed samples, it 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 numbers of Vane Shear Tests are performed and the results correlated with other soil parameters.
- 2.6 One copy of all field records and laboratory test results shall be sent to Owner on fortnightly basis. Owner may observe, at the laboratory testing procedure.
- 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 and in order to enable him to make specific recommendation for the depth, founding strata, type of foundation and the allowable bearing pressure.

3 Codes and Standards for Geotechnical Investigations:

The work shall be carried out in accordance with the following Indian Standards and Codes with latest amendments:

India Standard (IS)	Title
IS:1892-1992	Code of Practice for Sub-surface Investigation for Foundation.
IS:1904-1986	Code of Practice for Design and Construction of Foundation in Soils: General Requirements.
IS:2131-1992	Method of Standard Penetration Test for Soils.
IS:2132-1992	Method of Standard Penetration Test for Soils.
IS:2720-1992	Method of Test for Soils (Relevant Parts).
IS:2809-1991	Glossary of Terms and Symbols Relating to Soil Engineering.
IS:2911-1992	Code of Practice for Design and Construction of Pile Foundations (Relevant Parts).
IS:3025	Method 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 Drilled Codes.
IS:4453-1992	Code of Practice for Exploration by Pits, Trenches, Drifts and Shafts.
IS:4464-1990	Code of Practice for Presentation of Drilling Information and Core Description in Foundation Investigation.
IS:4968 (Part-I): 1992	Method for Sub-surface Sounding for Soils, Dynamic Method using cone and Bentonite Slurry.
IS:6403-1990	Code of Practice for Determination of Allowable Bearing Pressure on Shallow Foundation.
IS:6935-1989	Method of Determination of Water Level in Bore-hole.
IS:7422-1990	Symbols and Abbreviations for use in Geological Maps, Sections and Sub-surface Exploratory Logs (Relevant Parts).
IS:8009 (Part-I): 1993	Code of Practice for Calculation of Settlement of Foundations (Shallow Foundations subjected to symmetrical Vertical Loads).
IS:9259-1992	Specification for Liquid Limit Apparatus.
IS:9640-1992	Specification for Split Spoon Sampler.

4. Field Investigation for Soils:

Tentative numbers of detailed soil investigation will be given by ordering authority.

4.1 Boring:

Boreholes are required for detailed soil investigations.

5. General Requirements:

- Boreholes shall be made to obtain information about the sub soil profile, its nature and strength and to collect soil samples for strata identification and for conducting laboratory tests. The minimum diameter of the bore-hole shall be 150mm and boring shall be carried out in accordance with the provisions of IS: 1892 and present specification.
- All bore-holes shall be 10 M deep for normal soil conditions. The depth of bore-holes for river crossing and special locations shall be 40m. If a strata is encountered where the Standard Penetration Test Records 'N' value greater than 100, with characteristics of rock, the bore-hole shall be advanced by coring at least by 3m further in normal locations and at least 7m further for the case of river crossing location with prior approval of the Owner. When the bore-holes are to be terminated 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 bore-hole wall is probable. The bottom of the casing pipe shall at all times be above the level of the test sample but not more than 15 cm above the bore-hole bottom. In case of cohesion-less soil, 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 bore-holes at intervals specified hereafter. Representative disturbed samples shall be preserved for conducting various identification tests in the laboratory. Water table in the bore-hole shall be carefully recorded and reported following IS: 6935. No water or drilling mud shall be used while boring above ground water table. For cohesion-less soil below water table, the water level in the bore-hole 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 by 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 all boreholes as directed by the Owner.

6. Auger Boring:

Auger boring 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 bore log as per IS:1498. No water shall be introduced from the top while conducting auger boring.

7. Shell and Auger Boring

- 7.1 Shell and auger boring may be used in all types of soil, which are free from boulders. For cohesion less 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. Chisel bits may also be used to extend the borehole through local obstructions such as old construction, boulders, rocky formations, etc. The requirements in Clause 4.5.1.2 shall apply for this type of boring also.
- 7.2 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 drilling 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.

8. Standard Penetration Test (SPT)

- 8.1 This test shall be conducted in all types of soil deposits encountered within a borehole, to find the variation in the soil stratification by correlating with the number of blows required for unit penetration of a standard penetrometer. Structure sensitive engineering properties of cohesive soils & STP values.
- 8.2 The test shall be concluded at depths as follows:

Location	Depths (M)
Normal Soils	2.0, 3.0, 5.0, 7.0
River crossing & special locations	2.0, 3.0, 5.0, 7.0, 10.0, & thereafter at the rate of 3M intervals up to 30/40M.

- 8.3 The spacing between the levels of standard penetration testing & next undistributed sampling shall not be less than 1.0 m. Equipments, accessories & procedures for the conducting test & for the collection of distributed soil samples shall conform to IS: 2131.
- 8.4 The test shall be carried out by driving a standard split spoon sampler in the boreholes 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 bumper of blows for 150 mm. The no of the blow for last 300mm drive shall be reported as N value.
- 8.5 This test shall be discontinued when the blow count is equal to 100 or the penetration is less than 25mm for 50 blows. At the level, where the test is discontinued, the no of blows & the corresponding penetration shall be reported. Sufficient quantity of distributed soil samples shall be collected from the split spoon sampler for identification & laboratory testing. The sample should be visually classified & the recorded at the site as well as the property preserved without loss of moisture content & labelled.

9. Sampling

General

- 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.
- All accessories and sampling methods shall conform to IS: 2132 all disturbed and undisturbed samples collected in the field shall be classified at site as per IS: 1948.
- samples shall be identified with date, borehole or test number, depth of sampling etc. the top surface of the sample in-situ 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.

9.1 Disturbed Samples

- Disturbed soil samples shall be collected in boreholes` at regular intervals. Jar samples weighing approximately 1 kg shall be collected at 0.5m intervals starting from a depth of 0.5m below ground level and at every identifiable change of strata to supplement the boring records. Samples shall be stored immediately in airtight jars, which shall be filled to capacity as much as possible.
- 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 25 kg shall be collected 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 in wooden boxes for transportation.

9.2 Undisturbed Samples

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

Locations	Depth (M)
Normal Soils	1.0, 4.0, 7.0
Special Locations	1.0, 4.0, 7.0, 11.0 and thereafter at the rate of 3 M intervals up to 33 M.

- 9.2.1 The spacing between the top levels of undisturbed sampling and standard penetration testing shall not be less than 1.0 M. Undisturbed sampling shall be of 100 mm diameter and 450 mm 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 up to 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 sample 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 cohesion less soils:
Undisturbed samples in cohesionless soils shall be obtained in accordance with IS: 8763. Sampler operated by compressed air shall be used to sample cohesion less soils below ground water table.

10. Ground Water

- 10.1 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 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 rise or fall of water level shall be made at each depth. The level at which neither fall 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.
- 10.2 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 investigation. Levels in nearby wells, streams etc., if any, shall be noted in parallel.

11. Subsoil water samples (only at special locations)

- a) Subsoil 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 cannot be conducted within an hour of collection and shall have the prior written permission and approval of the Owner.

12 Laboratory Testing:

- 12.1 Essential Requirements
 - a) Depending on the types of substrata encountered, appropriate laboratory tests shall be conducted on soil samples collected in the field. Laboratory tests shall be scheduled and performed by qualified and experienced personnel who are thoroughly conversant with the work. Test indicated in the scheduled of items shall be performed

on soil, water as per relevant IS codes. One copy of all laboratory test data records shall be submitted to Owner progressively every 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 fieldwork. A schedule of laboratory tests shall be established by the 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 braking. 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 a tube, care shall be taken to assure that its direction of movement is the same as that during sampling to avoid stress reversal.

13. Tests

13.1 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 Limit.
 - Specific Gravity.
 - Chemical Analysis.
 - Swell Pressure and Free Swell Index Determination.
- b) Tests of undisturbed samples
 - Bulk Density and Moisture Content.
 - Relative Density (For sand).
 - Unconfined Compression Test.
 - Box Shear Test (For sand).
 - Tri-axial Shear Test (Depending on the type of soil and field conditions on undisturbed or re-moulded samples)
 - I) Unconsolidated Undrained.
 - II) Consolidated Drained.
 - Consolidation.
- c) Chemical Analysis of sub soil water

14. Salient Test Requirement

- a) Tri-axial Shear Test shall be conducted on undisturbed soil sample, saturated by the application of that pressure. Only the water table is at sufficient depth so that chances of its rising to the base of the footing are small or nil, the tri-axial tests shall be performed on specimens at natural moisture content. Each test shall be carried out on a set of three test specimens from one sample at cell pressures equal to 100, 200 & 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 & 300 Kpa. or as required for the soil conditions.
- c) Consolidation test shall have loading stages of 10, 25, 50, 75, 100, 200, 400 & 800 Kpa. Rebound curve shall 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 includes determination of PH value, carbonate sulphate (both SO_3 & SO_4), chloride and nitrate contents, organic matter. Salinity and any other chemicals which to be harmful to the foundation material. Their contents in the soils shall be indicated as percentage (%).
- e) Chemical analysis of subsoil water samples shall include the determination of properties such as colour, odour, turbidity, PH value and specific conductivity, the last two chlorides, nitrates, organic matter and any other chemical harmful to the foundation material. The chemical contents shall be indicated as parts per million (PPM) based on weight.

15. Geotechnical Investigation Report

15.1 General

- a) Contractor shall submit a formal report containing geological information of the region, procedures adapted for geo-technical investigation, field observations, summarized test data, conclusions and recommendations. The report shall also include detailed bore-logs subsoil sections field test results, laboratory observations and test results 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.
- b) Contractor's Geotechnical Engineer shall visit Owner's **Planning & Engineering Office at 2nd floor, Vidyut Bhavan, Salt Lake**, 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 agreed modifications and resubmit the revised draft report for approval. **6(Six) copies** of the detailed final approved report shall be submitted to Owner together with one set of reproducible of the graphs, tables etc.
- c) 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 structures.

15.2 Data to be furnished

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 penetration 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 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) Observation 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.
- d) Past observations and historical data, if available, for the area or for the others with similar soil profile, or with similar structures in the surrounding areas.
- e) Plot of standard Penetration Test (uncorrected and corrected N values) with depth for each test site.
- f) Results of all laboratory test summarised according to table 1.0 (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.

-
- g) For all tri-axial 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 shall be indicated. The value of modules of elasticity (E) shall be furnished for all tests along with relevant calculations.
 - h) For all consolidation tests the following curves shall be furnished
 - i. e Vs. $\log p$.
 - ii. e Vs. P .
 - iii. Compression Vs. $\log t$ or Vs. $\sqrt{t}$depending upon the shape of the plot, for proper determination of coefficient of consolidation.
The point showing the initial condition (e_0 , p_0) of the soil shall be marked on the curves.
 - i) 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 1.0

SUMMARY OF RESULT 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) ϕ (angle of internal friction)
- 10. Consolidation Test**
 - a) e_0
 - b) P_c
 - c) C_c
 - d) DP
 - e) M_v
 - f) C_v
- 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 block soil sample
US – Undisturbed soil sample by sampler
W – Water sample

II. For strength test:

UCC – Unconfined Compression Test
VST – Vane Shear Test
 T_{UU} – Unconsolidated Undrained Tri-axial Test
Note: Replace T by D for Direct Shear Test
Tod – Consolidation Drained Tri-axial Test

III. For Others:

LL – Liquid Limit (%)
PL – Plastic Limit
PI – Plasticity Index
LI – Liquidity Index
C – Cohesion (kpa)
 θ – Angle of Internal Friction (degree)
S-Pr. – Swelling Pressure (kpa)
FS- Fully Submerged
 e_0 - Initial Void Ratio
 P_c – Reconsolidation Pressure (kpa)
Cc – Compression Index
DP – Change in Pressure (kpa)
 M_v – Coefficient of Volume Compressibility (M^2/KN)
 C_v – Coefficient of Consolidation (M^2/hr)

IV. For Chemical Test :

As per specification

16. Recommendations

- 16.1 Recommendations shall be provided each location duly considering type of soil data. The recommendations shall provide all design parameters and considerations required for proper selection, dimensioning and future performance of tower foundations and the following:
- The subsurface material must provide safe bearing capacity and uplift resistance by incorporating appropriate safety factors thereby avoiding rupture under ultimate loads.
 - Movement of 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.
 - Co-efficient of permeability of various sub-soil and rock strata based on in-situ permeability tests.

-
- d) For shallow foundation the following shall be indicated with comprehensive supporting calculations:
- i. Net Safe allowable bearing pressure for isolated square/ rectangular footing of sizes 1.5, 2, 2.5, 3, 3.5 up to 4.0 M at three different depths 1.2, 1.5, 2.0, 2.5 and 3.0 M below ground level considering both shear failure and settlement criteria giving reasons for type of shear failure adopted in the calculation.
 - ii. Net safe allowable bearing pressure for raft foundations of widths greater than 5 M at 1.5, 2.0 and 3.0 M 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 sub-grade reaction, modulus 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 sub-grade 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 soils shall be furnished. The loading of the foundations shall not compromise the stability of the surrounding sub-surface materials and the stability of the foundation shall be ensured against sliding or overturning.
- f) Depending on the sub-surface material, water table level and tower type, either reinforced concrete isolated pad and chimney, cast-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 footings 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 450,500, 650,750 and up to 1000 KN capacities and bearing resistance shall be indicated separately.
 - iv. Magnitude of negative skin friction or uplift forces due to soil swelling.
- i) Where the sub-soil 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) Suitability of locally available soils at site for filling, back-filling and adequate compaction shall be investigated.
- k) If expansive soil such as black cotton soil is encountered recommendation of removal or retaining the same shall be given in the latter case, detailed specifications of special requirements shall also be given.**
- l) Susceptibility of sub-soil 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) Recommendation for additional soil investigations beyond the scope of the present work shall be given if Contractor considers such investigations necessary.

17. Hydrological Conditions

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

- a) bi-carbonate alkalinity mg-eq/(deg).
- b) pH value.
- c) Content of aggressive carbon dioxide, mg/l.
- d) Content of magnesia salts, mg/l, recalculated in terms of ions Mg^{+2} .
- e) Content of ammonia salts, mg/l, recalculated in terms of ions NH_4^+ .
- f) Content of caustic alkalis, mg/l, recalculated in terms of ions Na^+ and K^+ .
- g) Content of chlorides, mg/l, recalculated in terms of ions Cl^- .
- h) Content of sulphates, mg/l, recalculated in terms of ions SO_4^{-2} .
- i) Aggregate content of chlorides, sulphates, nitrates, carbonates and other salts, mg/l.

18. Rates and Measurements

18.1 Rates

The contractor's quoted rates shall be inclusive of making observations, establishing the ground level and co-ordinates of the location of each bore hole, test pit etc. No extra payment shall be made for conducting Standard Penetration Test, Collecting, Packing, Transporting of all samples and cores, recording and submittal of results on approved format.

19. Measurements

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

20. Specific Requirements for Geo-Technical Investigation at River Crossings Location

20.1 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 the geo-technical investigation modified to the extent given below.

20.2 Requirements

20.2.1 Bore holes shall be executed to specified depth of 40 M (*ref. Clause 5.b*). If refusal strata is reached (i.e. SPT-N value is greater than 100 continuously for 5m depth) with characteristics of rock the bore hole may be terminated at shallower depth, i.e. at 5 M in refusal strata, with prior approval of the Owner.

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

20.2.3 Geo-Technical Report must furnish the following:

- a) Geo-Technical Investigation Scheme.
- b) Bore-logs indicating soil stratification, with IS classification, sampling details and SPT N values.
- c) Soil cross- sections along various bore holes 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 (Unconfined Un-drained) to be done on saturated soil samples.
- g) Bearing capacity of soil at different levels.

-
- h) Scouring depth of river.
 - i) Highest Flood Level (HFL).
 - j) Maximum Discharge, Velocity etc. (from authenticated source such as PWD / Irrigation Department or appropriate State Authorities).
 - k) Recommendations regarding type of foundation to be adopted at the location.

20.2.4 A check list for reporting results of river crossing location details, details soil investigation and river values for river crossing are to be enclosed as per direction of E.I.C.

20.3 Soil Report (up to 40 M depth)

- N Value
- Cohesion (C) and friction angle (ϕ).
- Dry density & Submerged density of soil.
- Soil composition including bore log data.
- Soil strata distribution details depth wise.
- R.L. of ground (soil investigation and foundation location).
- Mean grain size.
- Silt factor calculations.
- Scour depth calculations.
- Special Recommendations, if any.
- River crossing [showing the position of bore holes]
- Any other details like bundle roads bridges etc. with their R.Ls.

River Values

- Maximum discharge.
- Maximum velocity (V_{MAX}).
- H.F.L.
- Clear waterway.
- River Meaning history.
- Navigable/Non navigable.
- Location reference of above River Values for crossing details.
- River bed level (R.L.).

21.0 Statutory Regulations and Standards.

- 21.1 Contractor is required to follow statutory regulation stipulated in Electricity (Supply) Act, 1948, Indian Electricity Rules and other local rules and regulations.
- 21.2 The codes and standards referred to in this specification shall govern. In case of a conflict between such codes/standards and the specification, the provisions of the code of latest amendment shall prevail.
- 21.3 Other internationally acceptable standards, which ensure equivalent or better performance than those specified, shall also be acceptable.

22.0 Field Quality Plan

A standard Field Quality Plan is to be maintained by contractor in consultation with the controlling officer.

23.0 Completion Period

The work as detailed in this specification shall be completed in all respect within 45(Forty five) days from date of issuance of handing over of respective sites.

Technical Specification of Soil Resistivity Test

Method : Method used for earth resistance measurement will be Wenner four pin method or Three-pin fall of potential method

Procedure : (i) Computed average value of apparent earth resistivity in Ohm-mtr
(ii) Computed maximum value of apparent earth resistivity in Ohm-mtr

If earth resistivity can't be computed then as alternative of (i) & (ii):

- (a) Measured maximum & average earth resistance in ohm :
- (b) Distance between adjacent electrodes in meter during earth resistance measurement:
- (c) Depth of electrodes in meter during earth resistance measurement (minimum depth of 0.5mtr is recommended) :
- (d) Length of the electrode in meter (required for three-pin method) :
- (e) Diameter of the electrode in meter (required for three-pin method) :
- (f) Provision of gravel filling as surface material is there or not :
- (g) Thickness of gravel filling, if provision is there :

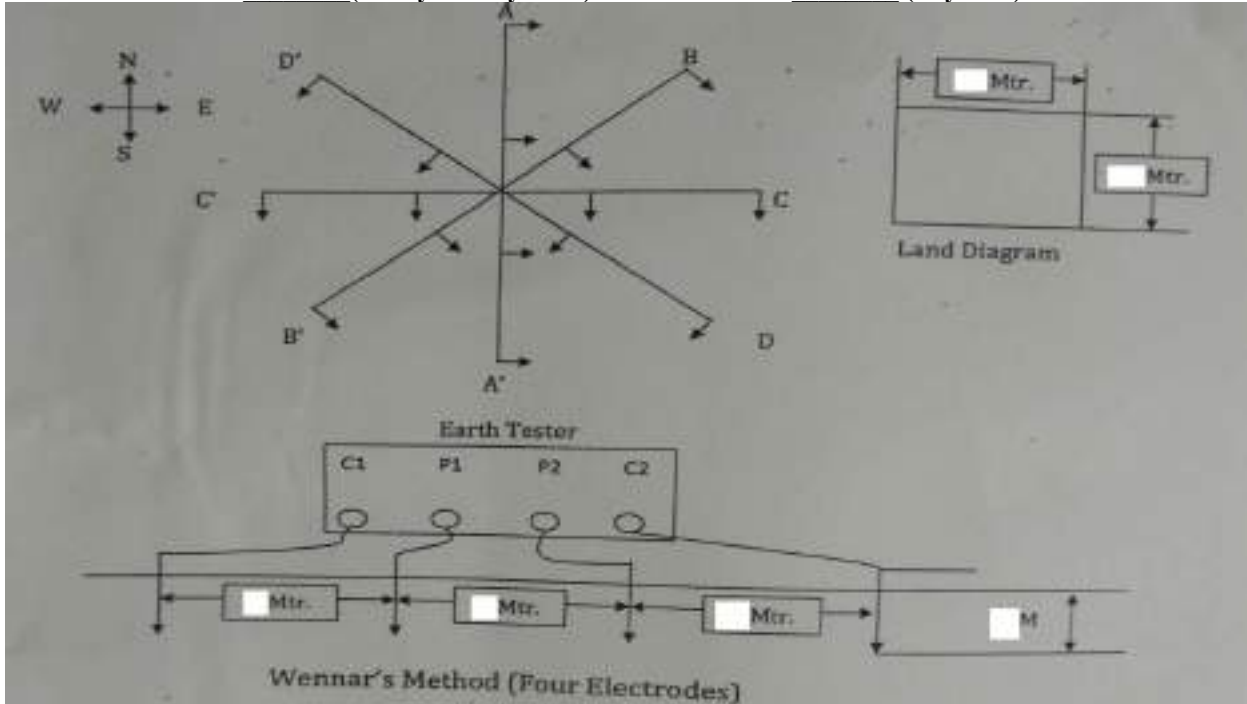
FORMAT FOR MEASUREMENT OF SOIL RESISTIVITY AT PROPOSED LOCATION

AT _____

UNDER _____ DIVISION ON ____/____/____

Temperature : _____ ° c Soil Type: _____ Time: _____

Weather Condition: _____ (Sunny/Cloudy/Rain) Soil Condition: _____ (Dry/Wet)



INSTRUMENT DETAILS :

MAKE: _____ SL. NO.: _____ RANGE: _____ SELECTED RANGE: _____

TEST RESULTS:

REMARKS :

DIRECTION	DISTANCE BETWEEN TWO CONSECUTIVE ELECTRODES (A)	MEASURED RESISTANCE (R) IN Ω	CALCULATED RESISTIVITY $\rho = 2\pi AR \Omega\text{-m}$
AA'			
BB'			
CC'			
DD'			

Maximum Resistivity: _____ Minimum Resistance: _____

Average Resistivity: _____

Recommendation, if any:



WBSEDCL

**“RATE CONTRACT” FOR SOIL INVESTIGATION AND SOIL
RESISTIVITY WORK THROUGHOUT THE JURISDICTION OF WBSEDCL**

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED

(A GOVT. OF WEST BENGAL ENTERPRISE)

VIDYUT BHAVAN, BLOCK- DJ, SECTOR - II

BIDHANNAGAR, KOLKATA - 700091

MARCH' 2016



WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED
(A GOVT. OF WEST BENGAL ENTERPRISE)
CIN : U40109WB2007SG113473

DISTRIBUTION HEAD QUARTERS, 1ST FLOOR, “D” BLOCK,
VIDYUT BHAVAN, BLOCK- DJ, SECTOR - II, BIDHANNAGAR, KOLKATA - 700091

OFFICE ORDER No. CED/121
2016

Dt. 28.03.

Sub: “Rate Contract” for Soil Investigation & Soil Resistivity work throughout the jurisdiction of WBSEDCL

Soil investigation and soil resistivity test is the preliminary and fundamental work to be carried out from the very inception of any new project for designing and estimation purpose.

To facilitate the soil investigation and soil resistivity work of different locations under the jurisdiction of WBSEDCL within the scope of different project and O&M works, uniform rates of different items related for these works at different terrains in West Bengal are hereby standardised as per enclosed schedule of works for early and smooth completion of the same, as per requirement of WBSEDCL.

This “Rate Contract” is hereby in force with effect from **28.03.2016** and will remain valid till issuance of further Office Order

Schedule of work for “Rate Contract” is enclosed herewith vide **Annexure - “X”**

The work of Soil investigation and Soil resistivity test will be guided by the enclosed Technical specification vide **Annexure - “Y” and latest PW (Roads) S.O.W**

The following terms and conditions shall be observed inter-alia:-

- i) The rates of different items of the Schedule of works are **firm** & inclusive of all Taxes, Duties, BOWCC Cess, Transportation but excluding Service Tax Service Tax, as applicable as per rule, will be paid extra by the WBSEDCL.
- ii) 1% BOWCC Cess, Income Tax (as applicable) will be recovered while releasing payment against the bill. Drawing and Disbursing authority will issue necessary TDS certificate accordingly.
- iii) The contractors enlisted under WBSEDCL & other Working and Experienced contractors under WBSEDCL, having persons preparing the report with minimum qualification of Graduation degree in the respective field, may be engaged for this work. However

deployment of contract by turn or rotation may be made considering past tract record and satisfactory performance of the contractor.

- iv) The contractor must have PAN/TAN, PTCC, Service Tax registration, PF registration number & ESI in their own name.
- v) The contractor must have own laboratory having equipments in conformity to IS provisions for soil sample testing, where WBSEDCL 's representatives have full access for witnessing the tests.
- vi) The contractor shall ensure compliance of statutory provisions as laid down in various Labour Laws.
- vii) No sub-letting of contract will be allowed to the Contractor for execution of the work.
- viii) Individual execution order shall be placed with the contractor observing usual terms and conditions as per standard Civil works policy of WBSEDCL by the Controlling Officers.
- ix) The contractor, to whom execution order will be place, shall have to deposit initial Security deposit @ 10 % of the order value to the controlling officer in the form of Demand Draft from any Nationalised/ Schedule bank in favour of “West Bengal State Electricity Distribution Company Limited” payable at the area under the jurisdiction of controlling officer. This initial security deposit will be refunded after expiry of security period of 6 months from the date of successful completion of the respective job.
- x) The financial power for placement of execution order shall be guided by the present **“Revised Schedule of Delegation of Power”** of WBSEDCL issued vide **O/O no. 1011, dt. 04.11.2015** of the Director (HR) and its subsequent modifications/ revisions thereof.

The has got “In Principle” approval of the Chairman and Managing Director, WBSEDCL on 03.03.2016

Enclo: Annexure- “X” , “Y”

Sd/-

Chief Engineer, Distribution
W.B.S.E.D.C. L