



बैंक नोट पेपर मिल् इण्डिया प्रा. लिमिटेड
BANK NOTE PAPER MILL INDIA PVT LIMITED

JV of SPMCIL - A Govt. of India Enterprises & BRBNMPL - A Subsidiary of RBI

**TENDER DOCUMENT FOR DESIGN, MANUFACTURE, SUPPLY, ERECTION AND COMMISSIONING OF
TWO LINES OF 6000 TPA EACH FOR BANKNOTE PAPER PRODUCTION AT MYSURU, KARNATAKA,
INDIA.**

This tender document contains **306** Pages

Tender Enquiry No.	BNPM/GTE/498/2025-26
Tender issuing date	13.02.2026
Pre-bid meeting date & time	13.03.2026 at 1100 hrs.
Due date & time for bid submission	10.04.2026 at 1100 hrs.
Mode of bid submission	OFFLINE (SEALED ENVELOPE)
Type of tender	GLOBAL TENDER ENQUIRY (GTE)
Details of contact person	Deputy General Manager (SCM) 0821-2401111/158/180/177

Registered & Corporate Office:

Administrative Building
Gate 1, Paper Mill Compound
Note Mudran Nagar, Mysuru - 570 003.

Karnataka, India.

Telephone No. 0821 - 2401 111

e-mail: scm.tender@bnpmindia.com

website: www.bnpmindia.com

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SECTION I: NOTICE INVITING TENDER (NIT)

1. Notice Inviting Tender (NIT)

Bank Note Paper Mill India Private Limited (hereinafter referred to as **BNPM/ Purchaser/ Procuring Entity**) is a joint venture company of Security Printing & Minting Corporation of India Limited (**SPMCIL**), a public sector undertaking wholly owned by Government of India under Ministry of Finance and Bhartiya Reserve Bank Note Mudran Private Limited (**BRBNMPL**), a wholly owned subsidiary of RBI. The company is located in heritage city of Mysuru (Karnataka) and is engaged in manufacturing of Banknote paper.

Now, the Procuring Entity invites bids for entering into a contract for Supply of Two Lines of 6000 TPA each for banknote paper production (hereinafter referred to as 'Goods'). The successful bidder shall be responsible for Design, Manufacture, Supply, Erection, Commissioning and Stabilization of the complete process plant from Cotton bales feeding to finished product packing. This Tender Document reference number, **BNPM/GTE/498/2025-26** (hereinafter referred to as 'the Tender Document'), gives further details.

2. The Tender Document

2.1 Bidders must read the complete 'Tender Document'

This NIT is an integral part of the Tender Document and serves a limited purpose of invitation, and does not purport to contain all relevant details for submission of bids. 'Tender Information Summary' (TIS) appended to this notice gives a salient summary of the tender information. Bidders must go through the Tender Document for details before submission of their Bids.

2.2 Availability of the Tender Document

The Tender Document shall be published on the BNPM website. It shall be available for download after the date and time of the start of availability till the deadline for availability as mentioned in TIS.

2.3 Clarifications

A Bidder requiring any clarification regarding the Tender Document may ask in writing/ electronically from Office/ Contact Person as mentioned in TIS, provided they are raised before the clarification end date mentioned in TIS.

3. Eligibility Criteria for Participation in this Tender

Participation in this Tender Process is open to all bidders who fulfil the 'Eligibility' and 'Qualification criteria. Bidder should meet the following eligibility criteria as of the date of his bid submission and should continue to meet these till the award of the contract. Bidder shall be required to declare fulfilment of Eligibility Criteria in Form 1.2 (Eligibility Declarations). The Bidder:

1) Must:

- a) be a natural person, private entity, or public entity (State-owned enterprise or institution).
- b) not be (or proposes to be, a Joint Venture/ Consortium (an association of several persons, firms, or companies - hereinafter referred to as JV/C).
- c) be a manufacturer of the Goods offered (OEM) (or) have a valid agreement/tie-up with manufacturer of goods.

SECTION I: NOTICE INVITING TENDER (NIT)

2) Must:

- a) not be insolvent, in receivership, bankrupt or being wound up, not have its affairs administered by a court or a judicial officer, not have its business activities suspended and must not be the subject of legal proceedings for any of these reasons.
- b) (including their affiliates or subsidiaries or Vendors/ sub-vendors for any part of the contract)
 - (i) Not stand declared ineligible/ blacklisted/ banned/ debarred by Security Printing & Minting Corporation India Limited (SPMCIL)/ Bharatiya Reserve Bank Note Mudran (P) Limited (BRBNMPL)/ BNPM/ RBI/ Department of Economic Affairs (DEA)/ Department of Expenditure (DoE) from participation in its Tender Processes; and/ or
 - (ii) Not be convicted (within three years preceding the last date of bid submission) or stand declared ineligible/ suspended/ blacklisted/ banned/ debarred by departments/ agencies of Government of India as mentioned in subclause (i) above from participation in Tender Processes of all of its entities, for:
 - a. offences involving moral turpitude in business dealings under the Prevention of Corruption Act, 1988 or any other law; and/or
 - b. offences under the Bharatiya Nyaya Sanhita or any other law for causing any loss of life/ limbs/ property or endangering Public Health during the execution of a public procurement contract and/ or
 - c. suspected to be or of doubtful loyalty to the Country or a National Security risk as determined by appropriate agencies of the Government of India.
 - (iii) Not have changed its name or created a new business entity as covered by the definition of "Allied Firm", consequent to having been declared ineligible/ suspended/ blacklisted/ banned/ debarred as above;
 - (iv) Not have an association (as a bidder/ partner/ director/ employee in any capacity) of the near relations of executives of Procuring Entity involved in this Tender Process
- c) Not have a conflict of interest, which substantially affects fair competition. The prices quoted should be competitive and without adopting any unfair/ unethical/ anti-competitive means. No attempt should be made to induce any other bidder to submit or not to submit an offer for restricting competition.

3) must fulfil any other additional eligibility condition, if any, as may be prescribed, in TIS or elsewhere in Tender Document.

4) must provide such evidence of their continued eligibility to the Procuring Entity if so requested. of Class-II Local Suppliers and Non-Local Suppliers (as defined in Make-in-India policy) shall be eligible subject to certain conditions as detailed in the ITB-clause 4.1.

5) from specified countries having land borders with India (but not in development partnership with India) shall be eligible subject to certain conditions as detailed in the ITB-clause 3.3.

4. Purchase Preference Policies of the Government

As detailed in the Tender Document, the Procuring Entity reserves its right to grant preferences to eligible Bidders under various Government Policies/ directives (policies relating to Make in India; MSME; Start-ups etc.).

5. Pre-bid Conference:

Bidders are requested to attend a Pre-bid conference for clarification on the Tenders' technical specifications and commercial conditions, on the time, date, and place mentioned therein. Participation in such a Pre-bid Conference is not mandatory. If a bidder does not participate or

SECTION I: NOTICE INVITING TENDER (NIT)

submit any query, then no subsequent representations from them regarding the Technical/commercial specifications/ conditions shall be entertained.

6. Submission of Bids:

- 1) Bids (Physically) must be submitted in sealed cover and acknowledgement be obtained before the bid submission deadline at mentioned venue. If the office is closed on the deadline for physical submission of originals, it shall stand extended to the next working day at the same time and venue.
- 2) Bidders must furnish Bid Security/Earnest Money deposit (EMD) or Bid Securing Declaration (BSD) as per Form 7, as applicable, in their bid as per format given therein. The EMD/BSD shall be drawn in favour of the authority stipulated in TIS. Bids not complying with these provisions shall be rejected.
- 3) **Integrity Pact:** All Bidders shall have to sign the Integrity Pact with the Procuring Entity as per 'Form 8: Integrity Pact'. Bids without a signed Integrity Pact shall be rejected.

7. Bid Opening

Bids received shall be opened at the specified date and time given in TIS. If the office is closed on the specified date of opening of the bids, the opening shall be done on the next working day at the same time.

8. Disclaimers and Rights of Procuring Entity

The issue of the Tender Document does not imply that the Procuring Entity is bound to select bid(s), and it reserves the right without assigning any reason to

- a) reject any or all of the Bids, or
- b) cancel the tender process; or
- c) abandon the procurement of the Goods; or
- d) issue another tender for identical or similar Goods

Yours faithfully,

For and on behalf of BNPMIPL

-sd-

(Bhartendra Pratap Singh)

Deputy General Manager

APPENDIX: Tender Information Summary (TIS)

APPENDIX TO NIT: TENDER INFORMATION SUMMARY

Tender Information Summary (TIS)			
1.0 Basic Tender Details			
Tender Title	DESIGN, MANUFACTURE, SUPPLY, ERECTION AND COMMISSIONING OF TWO LINES OF 6000 TPA EACH FOR BANKNOTE PAPER PRODUCTION AT MYSURU, KARNATAKA, INDIA.		
Tender Reference Number	BNPM/GTE/498/2025-26		
Tender Type	Global Tender Enquiry	No. of Covers	Three Envelopes
Bidding System	Single Stage	Procuring Organization/ Entity	Bank Note Paper Mill India Private Limited
Authority on whose behalf Tender is invited	Managing Director	Address of Procuring Entity	Registered & Corporate Office, Paper Mill Compound, Note Mudran Nagar, Mysuru-570003, Karnataka, India
2.0 Requirement Details (ITB-clause 5.0)			
Evaluation Basis	Overall L1	Part quotation allowed or not	Not Allowed
Inspection Type	Pre-dispatch inspection at Factory	Inspection Agency	BNPM (or) any third party authorized by BNPM.
Consignee/ State:	Karnataka, India		
Terms of Delivery	DPU, BNPM, Mysuru	Completion Period	24 Months from the date of issuance of LOA.
3.0 Critical Dates			
Published date	13.02.2026	Bid Validity (Days from the date of Bid Opening) – ITB-clause 9.3	300 days
Bid Submission Closing Date & Time	10.04.2026 11:00 hrs. (Indian Standard Time (IST))	Bid Opening (Techno-commercial bid) Date & Time	10.04.2026 11:30 hrs. (Indian Standard Time (IST))
Bid Opening (Techno-commercial & Financial bid) Date & Time	Will be intimated to pre-qualified bidders.		
4.0 Eligibility to Participate (NIT-clause 3 and ITB-clause 3.2)			
Is this item reserved for exclusive procurement from MSEs	NO		

APPENDIX TO NIT: TENDER INFORMATION SUMMARY

Minimum local content for eligibility to Participate ITB-clause 4.1 (Make in India Policy)	No restriction.
Classes of Local Suppliers eligible to participate ITB-clause 4.1 (Make in India Policy)	No restriction.
5.0 Thresholds for Eligibility to Participate and Preference under Make in India Policy (ITB-clause 4.1)	
Classification of Local Suppliers based on Minimum local content	Class-I Local Supplier: 50% and above. Class-II Local Supplier: more than 20% but less than 50%. Non-Local Supplier: less than 20%.
The margin of purchase preference	20%
Is the requirement divisible for preference	NO
Would the contract be split among more than one bidder	NO
6.0 Obtaining the Tender Document and clarifications (ITB-clause 7.0)	
Cost of tender document	NIL
Office/ Contact Person/ email for clarifications	Contact No.- 0821 -2401 111/158/180/177. scm.tender@bnpmindia.com
7.0 Pre-bid Conference (ITB-clause 8)	
Pre-bid Conference applicable or not	Applicable
Place, time, and date of the Pre-bid Conference	13.03.2026 11:00 hrs. (IST) Bank Note Paper Mill India Private Limited, Registered & Corporate Office, Paper Mill Compound, Note Mudran Nagar, Mysuru - 570 003. Karnataka. India.
Time and date before which Written queries for the Pre-bid conference must be received	06.03.2026 15:00 hrs. (IST)
Time and date before which registration of participants for the Pre-bid conference must be received	12.03.2026 15:00 hrs. (IST)
8.0 Preparation and Submission and Opening of Bids (ITB-clause 9.0 and 10.0)	
Bids to be Addressed to	The Managing Director, Bank Note Paper Mill India Private Limited, Registered & Corporate Office, Paper Mill Compound, Note Mudran Nagar, Mysuru - 570 003. Karnataka. India.
Instructions for bid Submission	Sealed envelope
Bid Opening Place	Bank Note Paper Mill India Private Limited, Registered & Corporate Office, Paper Mill Compound, Note Mudran Nagar, Mysuru - 570 003. Karnataka. India.
Alternate Bids allowed or not ITB-clause 9.1.6	NO

APPENDIX TO NIT: TENDER INFORMATION SUMMARY

9.0 Bid Security (ITB-clause 9.4) and Performance Security (ITB-clause 13.1.3)			
EMD Amount	INR – 48,50,00,000/- (or) USD – 5,309,000/- (or) EUR – 4,470,000/- (or) GBP – 3,871,000/- (or) YEN – 826,939,000/- (or) Equivalent in any other freely convertible currency.	Performance Security	5% of total contract value
10.0 Additional Clauses			
Clause	Description		
Integrity Pact to be Signed and Submitted along with bid ITB-clause 9.2.1	YES		
Independent External Monitor, Name and Contact Details	1. Vice Admiral Arun Kumar Bahl (retd.) E-mail id: arunkbahl@gmail.com . 2. Ms. Melattur Viswanathan Bhanumathi Email: bhanumathimv@gmail.com .		
Price Variation	Not applicable.		
Quantity Splitting/ Parallel Orders	Not applicable.		

SECTION II: INSTRUCTIONS TO BIDDERS (ITB)

1. The Tender Document

1.1 Basic Tender Details

The tender document details the terms and conditions for entering into a contract for the supply of the Goods as detailed in Section IV: "Schedule of Requirements" (hereinafter referred to as 'Goods'). 'Tender Information Summary' (TIS) is appended to Section I: Notice Inviting Tender (NIT) for ready reference. The 'Good's may include incidental Services/ Works if so indicated. In this Tender Document, any generic reference to 'Goods' shall be deemed to include such incidental Services and Works.

1.2 Interpretations, Definitions, Abbreviations and Document Conventions

Section III: Conditions of Contract (CC), Tenets of interpretation (CC-clause 1.1), Definitions (CC-clause 1.2), Document conventions (CC-clause 1.3) and Abbreviations (CC-clause 1.4), which shall also apply to the rest of the Tender Document.

1.3 Overview of Contents

- 1) The Sections, Forms, Formats and Annexures comprising of this Tender Document are described in ITB-clauses 1.4, 1.5, 1.6 and 1.7 below. Any generic reference to Tender Document shall also imply a reference to any/ all the sections, Forms, Formats and the Annexures or other files that comprising of this Tender Document.
- 2) Bidder must submit the bid in the Forms/ Formats mentioned in ITB-clauses 1.6 and 1.7 below. The sections mentioned in ITB-clause 1.4 below need not be signed by the bidders; however, Bidder must declare in his bid Form (Form 1) that he has read, understood, complied, and stands bound by all requirements of these sections:

1.4 Sections of the Tender Document

1.4.1 Sections of the Tender Document

The Tender Document contains the following sections, which are described in subsequent sub-clauses:

- 1) Section I: Notice Inviting Tender (NIT) and its Appendix: Tender Information Summary (TIS).
- 2) Section II: Instructions to Bidders (ITB).
- 3) Section III: Conditions of Contract (CC).
- 4) Section IV: Schedule of Requirements.
- 5) Section V: Technical Specifications and Scope of Work.
- 6) Section VI: Qualification Criteria.
- 7) Section VII: Financial Bid.

1.4.2 Section I: Notice Inviting Tender (NIT) and its Appendix: Tender Information Summary (TIS)

Section I – Notice Inviting Tender (NIT) and its Appendix – Tender Information Summary (TIS)



SECTION II: INSTRUCTIONS TO BIDDERS (ITB)

provides a synopsis of information relevant for a Bidder to decide on participating in the Tender. Any generic reference to NIT shall also imply a reference to TIS as well. Bidders must fill up 'Form 5: Terms and Conditions - Compliance' regarding any deviations from this Schedule.

1.4.3 Section II: Instructions to Bidders (ITB)

Section II: "Instructions to Bidders" - ITB provides the relevant information as well as instructions to assist the prospective Bidders in preparation and submission of Bids. It also includes the mode and procedure adopted for receipt/ opening, scrutiny/ evaluation of Bids, and contract award. Bidders must fill up 'Form 5: Terms and Conditions - Compliance' regarding any deviations from this Schedule.

1.4.4 Section III: Conditions of Contract (CC)

Section III –Conditions of Contract (CC) describe the conditions that shall govern the resulting contract. In case of any conflict, provisions of CC shall prevail over those in ITB. Bidders must fill up 'Form 5: Terms and Conditions - Compliance' regarding any deviations from terms and conditions of this and other Schedules.

1.4.5 Section IV: Schedule of Requirements

Section IV – Schedule of Requirements describes the Goods required; HSN codes; Quantities and Units; Delivery Requirements, Destination and State; transportation; terms of delivery (F.O.R. etc.); scope of supply (concomitant accessories; spare parts and incidental Works/ Services). The requirements may consist of more than one schedule. Each schedule may contain more than one item of Goods. Bidders must fill up 'Form 2: 'Schedule of Requirements - Compliance' regarding this Schedule.

1.4.6 Section V: Technical Specifications and Scope of Work

Section V – Technical Specifications and Scope of Work lay down the technical and quality of the Goods required. Bidders must fill up 'Form 3: 'Technical Specifications and Scope of Work - Compliance' regarding this Schedule. Bidder should provide the required details, information, confirmations, etc., accordingly, failing which its bid shall be liable to be rejected as nonresponsive.

1.4.7 Section VI: Qualification Criteria:

Section VI: Qualification Criteria lay down the Qualifying Criteria for a bid/ bidder to be considered a responsive bid/ bidder for further evaluation. Bids/ bidders not meeting these Qualification criteria shall be rejected as nonresponsive. It may indicate the extent of dispensation allowed for Start-ups under ITB 4.3.2-2) and MII under ITB 4.1. Bidders must fill up 'Form 4: Qualification Criteria Compliance' regarding this Schedule. Bidders shall attach statements and documents to confirm conformity to Qualification Criteria in this appendix.

SECTION II: INSTRUCTIONS TO BIDDERS (ITB)

1.5 Section VII: Financial Bid:

Section VII: Financial Bid provides tables for submission of prices. Bidders must fill up prices in relevant tables provided in Section VII. Bidders should not indicate prices anywhere in the bid except for Section VII, which needs to be submitted as Part-C of the three-envelope system. Indication of prices other than Part-C shall be liable for disqualification.

1.6 Forms (To be filled and submitted by Bidders)

Please refer to clause 1.4 above to relate the following forms to the corresponding Sections.

1. Form 1: Bid Form (**To serve as a covering letter**)
 - a) Form 1.1: Bidder Information.
 - b) Form 1.2: Eligibility Declarations.
 - c) Form 1.3: Declaration by Agents/ Associates of Foreign Principals/ OEMs.
2. Form 2: Schedule of Requirements – Compliance.
3. Form 3: Technical Specifications and Scope of Work – Compliance.
4. Form 4: Qualification Criteria – Compliance.
5. Form 5: Terms and Conditions – Compliance.
6. Form 6: Checklist for the Bidders.
7. Form 7: Bid Security Declaration.
8. Form 8: Integrity Pact.
9. Form 9: Schedule of Essential & Maintenance Spares.
10. Form 10: Schedule of Maintenance Tools & Tackles.
11. Form 11: Schedule of Start-Up & Commissioning Spares.
12. Form 12: Schedule of Instruments for Performance Tests.
13. Form 13: Schedule of Manufacture, Shipment to Site.

1.7 Other Formats

- a) Format 1: Bank Guarantee Format for Earnest Money Deposit (EMD).
- b) Format 2: Bank Guarantee Format for Performance Security.
- c) Format 3: Authorization for Attending Pre-bid Conference/Bid Opening. (To be filled up, if required, by the Bidder)

2. Procuring Entity - Rights and Disclaimers

2.1 The Procuring Entity

Bids are to be addressed to the Managing Director, Bank Note Paper Mill India Private Limited. The Tender Inviting Authority is the designated officer for publishing and clarifying this Tender Document. The procuring entity may designate, as required, Inspection Agency/ Officer and interim/ ultimate Consignee(s) and Paying authority who shall discharge designated function during contract execution.

2.2 Right to Intellectual Property and confidentiality

- 1) The Tender Document and associated correspondence are subject to copyright laws and shall always remain the property of the Procuring Entity and must not be shared with third parties or



SECTION II: INSTRUCTIONS TO BIDDERS (ITB)

reproduced, whether in whole or part, without the Procuring Entity's prior written consent.

- 2) However, Bidders may share these to prepare and submit its bid with its employees, sub vendor(s), or holding Company. Bidders shall obtain from them an undertaking of confidentiality similar to that imposed on Bidder under this clause.
- 3) This condition shall also apply to bidders who do not submit a bid after downloading it or who are not awarded a contract in the process.
- 4) The obligation of the Bidders under sub-clauses above, however, shall not apply to information that:
 - a) now or hereafter is or enters the public domain through no fault of Bidder;
 - b) is legally possessed by Bidder at the relevant time and was not previously obtained, directly or indirectly, from the Procuring Entity; or
 - c) otherwise lawfully becomes available to Bidder from a third party that has no obligation of confidentiality.
- 5) The provisions of this clause shall survive completion or termination for whatever reason of the Tender Process or the contract.

2.3 Right to Reject any or all Bids

The Procuring Entity reserves its right to accept or reject any or all Bids, abandon/ cancel the Tender process, and issue another tender for the same or similar Goods at any time before the award of the contract. It would have no liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for such action(s).

2.4 Disclaimers

2.4.1 Regarding Purpose of the Tender Document

The Tender Document is neither an agreement nor an offer to prospective Bidder(s) or any other party hereunder. The purpose of the Tender Document is to provide the Bidder(s) with information to assist them in participation in this Tender Process.

2.4.2 Regarding Documents/ guidelines

The Tender Document, ensuing communications, and Contracts shall determine the legal and commercial relationship between the bidders/ vendors and the Procuring Entity. No other Government or Procuring Entity's document/ guidelines/ Manuals including its Procurement Manual (for internal and official use of its officers), notwithstanding any mention thereof in the Tender Document, shall have any locus standii in such a relationship. Therefore, such documents/ guidelines/ Manuals shall not be admissible in any legal or dispute resolution or grievance redressal proceedings.

2.4.3 Regarding Information Provided

Information contained in the Tender Document or subsequently provided to the Bidder(s) is on the terms and conditions set out in the Tender Document or subject to which that was provided. Similar terms apply to information provided in documentary or any other written communication by the Procuring Entity or any of its employees or associated agencies.

SECTION II: INSTRUCTIONS TO BIDDERS (ITB)

2.4.4 Regarding Tender Document:

- 1) The Tender Document does not purport to contain all the information Bidder(s) may require. It may not address the needs of all Bidders. They should conduct due diligence, investigation, and analysis, check the information's accuracy, reliability, and completeness, and obtain independent advice from appropriate sources. Information provided in the Tender Document to the Bidder(s) is on a wide range of matters, some of which may depend upon interpreting the law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Procuring Entity, its employees and other associated agencies accept no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.
- 2) The Procuring Entity, its employees and other associated agencies make no representation or warranty for the accuracy, adequacy, correctness, completeness or reliability, assessment, assumption, statement, or information in the Tender Document. They have no legal liability, whether resulting from negligence or otherwise, for any loss, damages, cost, or expense that may arise from/ incurred/ suffered howsoever caused to any person, including any Bidder, on such account.

3. Bidders - Eligibility and Preferential Policies

3.1 Bidders

Subject to provisions in the following clauses in this section and provisions in Tender Document, this invitation for Bids is open to all bidders who fulfil the 'Eligibility Criteria' and 'Qualification Criteria' stipulated in the Tender Document.

3.2 Eligibility Criteria for participation in this Tender

Subject to provisions in this Tender Document, participation in this Tender Process is open to all bidders who fulfil the 'Eligibility' and 'Qualification criteria'. Bidder should meet (as on the date of his bid submission and should continue to meet till the award of the contract, as applicable) the 'Eligibility Criteria' detailed in NIT-clause 3, which shall be considered to be part of this clause of ITB. Bidder shall submit a declaration about the 'Eligibility Criteria' compliance in Form 1.2 – Eligibility Declarations.

3.3 Eligibility of bidders from specified countries

Orders issued by the Government of India restricting procurement from bidders from certain countries that share a land border with India shall apply to this procurement.

- a) Any bidder (as defined in CC-clause 1.2) from a country that shares a land border with India, excluding countries as listed on the website of the Ministry of External Affairs, to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects (hereinafter called 'Restricted Countries') shall be eligible to bid in this tender only if Bidder is registered with the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT). Bidders shall enclose the certificate in this

SECTION II: INSTRUCTIONS TO BIDDERS (ITB)

regard in Form 1 - Bid Form. Further, any bidder (including bidder from India) having specified Transfer of Technology (TOT) arrangement with an entity from a country which shares a land border with India, shall also require to be registered with the same competent authority.

- b) In Bids for Turnkey contracts, including Works contracts, the successful bidder shall not be allowed to sub-contract works to any vendor from such Restricted Countries unless such vendor is similarly registered. In such cases, the bidders shall enclose the certificate in Form 1: Bid Form.
- c) If Bidder has proposed to sub-contract Services or incidental Goods directly/ indirectly from the vendors from such countries, such vendor shall be required to be registered with the Competent Authority. However, if Bidder procures raw material, components, and sub-assemblies from such countries' vendors, such vendors shall not require registration.
- d) "Bidder from such Restricted Countries" means: -
 - a) An entity incorporated, established, or registered in such a country; or
 - b) A subsidiary of an entity incorporated, established, or registered in such a country; or
 - c) An entity substantially controlled through entities incorporated, established, or registered in such a country; or
 - d) An entity whose beneficial owner is situated in such a country; or
 - e) An Indian (or other) agent of such an entity; or
 - f) A natural person who is a citizen of such a country; or
 - g) A consortium/ joint venture where any member falls under any of the above
- e) The beneficial owner shall mean:
 - 1) In a company or Limited Liability Partnership, the beneficial owner is the natural person(s). Whether acting alone or together or through one or more juridical persons, controlling ownership interest or exercises control through other means.

Explanation:-

- i. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five percent of the company's shares or capital, or profits.
- ii. "Control" shall include the right to appoint a majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholder agreements or voting agreements;
- 2) In the case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together or through one or more juridical persons, has ownership of entitlement to more than fifteen percent of capital or profits.
- 3) In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;
- 4) Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official.
- 5) In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.
- f) An agent is a person employed to do any act for any another, or to represent another in dealings with third persons.
- g) A bidder is permitted to procure raw material, components, sub-assemblies etc. from the vendors from countries which shares a land border with India. Such vendors will not be required to be



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registered with the competent authority, as it is not regarded as sub-contracting.

- h) However, in case a bidder has proposed to supply finished goods procured directly/indirectly from the vendors from the countries sharing land border with India, such vendor will be required to be registered with the competent authority.
- i) The registration shall be valid at the time of submission of bid and at the time of acceptance of bid.

3.4 Conflict of Interest.

Bidders having a conflict of interest shall not be eligible to participate in the tender process unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Procuring Entity throughout the Tender process and execution of the Contract. Bidder have to abide by the code of integrity of public procurement. The bidder shall be considered to have a conflict of interest in this tender process and execution of the resultant contract in the following situations:

- a) If its personnel have a close personal, financial, or business relationship with any personnel of the procuring entity who are directly or indirectly related to the procurement or execution process of the contract, which can affect the decision of the procuring entity directly or indirectly;
- b) The bidder (or his allied firm as defined by DOE, MOF, GOI) provided services for the need assessment/procurement planning of the Tender process in which it is participating;
- c) A principal can authorize only one agent, and an agent should not represent or quote on behalf of more than one principal. However, this shall not debar more than one Authorized distributor (with/ or without the OEM) from quoting equipment manufactured by an Original Equipment Manufacturer (OEM) in procurements under Proprietary Article Certificate or
- d) A bidder participates in more than one bid in this tender process. Participation in any capacity by a Bidder (including the participation of a Bidder as a partner/ JV member or sub-vendor in another bid or vice-versa) in more than one bid shall result in the disqualification of all bids in which he is a party. However, this does not limit the participation of an entity as a sub-vendor in more than one bid if he is not bidding independently in his own name or as a member of a JV.

3.5 Regulation of Indian Agents/ Associates of Foreign Principals

Wherever the Foreign Principal desires to involve in this tender process, an Indian Agent/ associate, their dealings shall be regulated. Foreign Principals and their Agents/ Associates must provide required declarations in Form 1.3 – Declaration by Agents/ Associates of Foreign Principals/OEMs:

1. The name and address of the Foreign Principals, if any, indicating their nationality as well as their status, i.e., whether manufacturer or agents of manufacturer holding the Letter of Authority of the principal authorizing them specifically to make an offer in India in response to tender either directly or through the agents/ representatives.
2. Such Agents/ Associates shall provide self-attested documentary evidence about their identity, business details to establish that they are a bona fide business and conform to regulations.
3. The Bidder/ Foreign Principal must commit to submitting after the financial bid opening, due to price-sensitive information, the Agreement between them, including the amount of commission/ remuneration included in the price (s).
4. Confirmation on behalf of the Foreign Principals that the commission/ remuneration, if any, reserved for Indian Agents/ Associates in the quoted price(s), shall be paid in India in equivalent

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Indian Rupees on satisfactory completion of the Project or supplies of Goods and Spares.

5. Failure to furnish correct and detailed information shall render Foreign Principal's bid liable to be rejected as nonresponsive in addition to other punitive actions against the Foreign Principal and their Indian Agents/ Associates for violation of Code of Integrity as per the Tender Document.

4. Policies of the Government

The Procuring Entity reserves its right to grant preferences to the following categories of eligible Bidders under various Government Policies/ Directives:

- 1) Class I Local Suppliers under Public Procurement (Preference to Make in India) Order 2017" (MII) of Department for Promotion of Industry and Internal Trade, (DPIIT - Public Procurement Section) as revised from time to time.
- 2) Bidders from Micro and/ or Small Enterprises (MSEs) under Public Procurement Policy for the Micro and Small Enterprises (MSEs) Order, 2012 as amended from time to time.
- 3) Start-ups Bidders under Ministry of Finance, Department of Expenditure, Public Procurement Division OM No F.20\212014-PPD dated 25.07.2016 and subsequent clarifications; and/ or
- 4) Any other category of Bidders, as per any Government Policies, announced from time to time, if so, provided in the TIS/ ITB.

4.1 Make in India Order

Orders issued by the Government of India regarding eligibility to participate and for purchase preference to "Local Suppliers" to encourage 'Make in India' and promote manufacturing and production of goods and services in India shall apply to this procurement, as per Public Procurement (Preference to Make in India) Order, 2017 and subsequent amendments.

4.2 Support/ Preferential Treatment to Micro & Small Enterprises (MSEs)

Policies of the Government to support Micro and Small Industries in comparison to non-MSE enterprises shall apply to this procurement.

4.3 Support to Start-ups

4.3.1 Definition of Start-up Enterprises

- 1) As defined by DPIIT, an entity shall be considered as a 'Start-up':
 - a. Up to a period of ten years from the date of incorporation/ registration, if it is incorporated as a private limited company (as defined in the Companies Act, 2013) or registered as a partnership firm (registered under section 59 of the Partnership Act, 1932) or a limited liability partnership (under the Limited Liability Partnership Act, 2008) in India, and
 - b. Turnover of the entity for any of the financial years since incorporation/ registration has not exceeded one hundred crore rupees, and
 - c. The entity works towards innovation, development or improvement of products or processes or services or a scalable business model with a high potential for employment generation or wealth creation.
- 2) Provided that an entity formed by splitting up or reconstructing an existing business shall

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not be considered a 'Start-up'.

3) A Start-up so identified under the above definition shall be required to obtain and submit along with his bid a certificate of an eligible Start-up from the inter- Ministerial Board of Certification to obtain support.

4.3.2 Support to Start-ups

The Government of India has ordered the following support to Start-ups (as defined by the Department of Promotion of Industrial and Internal Trade - DPIIT).

- 1) Exemption from submission of Bid Security:** Such Start-ups shall be exempted from submission of Bid Security. (as per ITB-clause 9.4 below, they shall be required only to submit Bid Security Declaration)
- 2) Relaxation in Prior Turnover and Experience:** The Procuring Entity reserves its right to relax the condition of prior turnover and prior experience for start-up enterprises subject to meeting of quality & technical specifications. The decision of the Procuring Entity in this regard shall be final.

5. The Goods, Eligible Goods and Basis of Evaluation

5.1 Eligible Goods –Origin and Minimum Local Content

All 'Goods' and 'incidental Works/ Service' to be supplied under the contract must conform to i) restrictions on certain countries with land-borders with India (ITB-clause 3.3); ii) minimum local content (Make in India Policy – ITB-clause 4.1). If Bidder avails benefits under any preferential policy as Class-I Local Supplier or as MSE or Start-up enterprise, the Goods must not circumvent the provisions relating to such benefits.

5.2 Basis of Evaluation for Schedules/ packages

Evaluation of financial ranking of bids shall be done on **Overall L-1 price basis**, and Bidder has to submit its quotation for all schedules/ packages. Bidder shall quote for the complete Goods & Services as stipulated in the schedule: Section-VII.

6. Bid Prices, Taxes and Duties

6.1 Prices

6.1.1 Competitive and Independent Prices

- a) The prices should be arrived at independently, without restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to:
 - i. those prices; or
 - ii. the intention to submit an offer; or
 - iii. the methods or factors used to calculate the prices offered.
- b) The prices should neither be nor shall be knowingly disclosed by the Bidder, directly or

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indirectly, to any other bidder or competitor before bid opening or contract award unless otherwise required by law.

6.1.2 Price Components

1. Bidder shall indicate in the Price Schedule all the specified components of prices shown therein, including the unit prices and total bid prices.
2. **The break-up of Prices based on Origin of Goods:** The quoted prices for Goods offered from India and those offered from abroad should be indicated separately in the applicable Price Schedules. The prices in the corresponding price schedule shall be entered separately in the following manner:
 - a) **Domestic Goods:** For Goods offered indigenously, the prices in the corresponding price schedule shall be entered separately in the following manner:
 - i. The price of the Goods quoted ex-factory, as applicable, shall be assumed to include all taxes and duties like GST, customs duty, etc. already paid or payable on the components and raw material used in the manufacture or assembly of the Goods or on the previously imported Goods of foreign origin.
 - ii. Any GST, which shall be payable on the Goods in India if the contract is awarded.
 - iii. Charges towards inland transportation, insurance, and other local costs incidental to the delivery of the Goods to BNPM as stipulated in Section IV: Schedule of Requirements.
 - iv. The price of incidental Works/ Services, as and if mentioned in Section IV: Schedule of Requirements.
 - b) **Foreign Goods:** For Goods offered from abroad, the prices in the corresponding price schedule shall be entered separately in the following manner:
 - i. The price of Goods quoted FOB port of shipment or CIF port of entry in India or DPU, BNPM as indicated in the Schedule of Requirements.
 - ii. The charges for inland transportation, insurance, and other local costs incidental to the delivery of the Goods from the port of entry in India to BNPM unloaded, as stipulated in the Schedule of Requirements.
 - iii. The charges for incidental Works/ Services, as and if mentioned in the Schedule of Requirements, showing break-up as per their country of origin.
 - iv. Unless otherwise explicitly indicated in the contract, the terms FOB, CIF, DPU etc. for imported Goods offered from abroad shall be governed by the rules & regulations prescribed in the 2020 edition of INCOTERMS® and subsequent amendments, if any, published by the International Chamber of Commerce, Paris.
 - v. The need for an indication of all such price components by the Bidders, as required in this clause (viz., ITB clause 6.1.3), is for comparison of the Bids by the Procuring Entity and shall no way restrict the Procuring Entity's right to award the contract on the selected Bidder on any of the terms offered.
 - vi. In case of CIF / DPU shipments, custom duty shall be paid by BNPM. In DPU shipments, custom clearance shall be the responsibility of the vendor, in-line with 2020 edition of INCOTERMS® and subsequent amendments, if any.

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3. Price Components in case of Capital Goods/ Machinery and Plant

Following price components shall be provided in Form 2: Schedule of Requirements – Compliance and Form 3: Technical Specifications and Scope of Work – Compliance:

a) Essential Spares / Maintenance Spares for Two Year's after warranty period

The bidders shall also quote in their financial bids the prices of essential spares / maintenance spares and their quantities required for trouble-free operation of equipment for two years beyond the warrantee period. The total cost of such spares shall be added to the cost of equipment and incidental works/ services to evaluate financial bids. These spares shall be supplied along with the main equipment. In cases where additional spares are required beyond those listed by bidder in their bid during normal operations, the same shall be supplied by the vendor to the procuring entity at no cost until two years after warranty period. In this connection, Clause (14) of Section V of this tender shall also be applicable.

b) Insurance

The Bidders shall also quote in their financial bids the cost of Insurance of the consignment of the equipment and spares up to the place of delivery. If not explicitly quoted, it shall be assumed to be included in the process quoted for the equipment.

c) Prices of Other Spares usually needed for Maintenance

The Bidders shall also quote in their financial bids the indicative prices of crucial spares and their quantities estimated to be required for maintenance of equipment beyond the above mentioned two years period. This information is for future spares ordering, and the prices would not be added to the bid amount. The successful bidder/ vendor shall endeavour to maintain such prices over a reasonable period. The Bidders who are OEM must give undertaking for supply of spare parts for a period of the expected life of the machine/equipment. Other tenderers must submit undertakings from their OEM to supply spare parts for a period of the expected life of the machine/equipment. In this connection, CC-6.4 (Spare Parts) shall also be applicable.

d) Incidental Works/ Services

The Bidders shall provide the specified incidental works/ services (e.g., Installation, Commissioning, Training of Operator etc.). The Bidders may quote separate prices for these. Otherwise, it shall be assumed to be included in the prices of the main equipment price.

4. The indication of such price components is to compare the Bids and shall not restrict the Procuring Entity's right to award the contract on any terms offered.

6.1.3 Price Schedule

- 1) Bidders are to fill the price in Price Schedule (as per Section VII) after entering the relevant fields without any alteration/ deletion/ modification of other portions of the Form. All the columns shown in the price schedule should be filled up as required.
- 2) Bidders shall fill in their rates other than zero value in the specified cells without keeping it blank.
- 3) The quoted price shall be considered to include all relevant financial implications, including inter-alia the scope of the Goods to be supplied, location of the bidder, location of the

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consignee(s), terms of delivery, extant rules and regulations relating to taxes, duties, customs, transportation, environment, labour of the bidder's country and in India.

6.1.4 Provisions of GST

- 1) Break up of different price elements, i.e., as per GST Act, shall be indicated separately, along with its associated HSN code and GST rate.
- 2) While quoting the basic rate, the bidder should offset the input credit available/ to be availed as per the GST Act.
- 3) Please refer to ITB-clause 6.3 for further details.

6.1.5 Currencies of Bid and Payment

For goods and services, which the BIDDER will be supplying, the prices shall be quoted in Indian Rupees (or) US Dollars (or) Euros (or) Pound Sterling (or) Yen. However, for the goods and services the BIDDER sources from India, the price shall be quoted in Indian Rupees (INR) only.

For evaluation, all quoted prices shall be converted into Indian Rupees as per the procedure mentioned in ITB-clause 12.4.2.

- a) Regarding price(s) for incidental Works/ Services, if any required with the Goods, the same shall be quoted in Indian Rupees if such Works/ Services are sourced from India.
- b) Commission for Indian Agent, if any and if payable, shall be indicated in the space provided in Form 1.3 and quoted in Indian Rupees only.

6.1.6 Non-compliance

Tenders, where prices are quoted in any other way, shall be rejected as nonresponsive.

6.2 Firm/ Variable Price

Prices quoted by Bidder shall remain firm and fixed during the currency of the contract and not subject to variation on any account.

6.3 Goods and Services Tax (GST)

6.3.1 GST Registration Status:

- 1) All the bidders/ Bidders should ensure that they are GST compliant and their quoted tax structure/ rates as per GST Act/ Rules. Bidder should be registered under GST and furnish GSTIN and GST Registration Certificate in their offer unless they are specifically exempted from registration under specific notification/ circular/ section/ rule issued by statutory authorities.
- 2) **GST Registration Number (15-digit GSTIN).** If the bidder has multiple business verticals in a state and has separate registration for each vertical, the GSTIN of each vertical is concerned with the supply and service involved, as per the scope of Schedule of Requirements and Price Schedule quoted. If the supply/ service provided is from multiple states, the bidder should mention GST registration numbers for each state separately.

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- 3) **Composition scheme:** If the Bidder has opted for a composition levy under Section 10 of CGST, he should declare the fact while bidding along with GSTIN and GST registration certificate.
- 4) **Exemption from Registration:** If a bidder is not liable to take GST registration, i.e., having turnover below threshold, he shall submit undertaking/ indemnification against tax liability. Bidder claiming exemption in this respect shall submit a valid certificate from practising Chartered Accountant (CA)/ Cost Accountant with Unique Document Identification Number (DIN) to the effect that Bidder fulfils all conditions prescribed in notification exempting him from registration. Such bidder/ dealer shall not charge any GST in the bill/ invoice. In such case, applicable GST shall be deposited under Reverse Charge Mechanism (RCM) or otherwise as per GST Act by the Procuring Entity directly to concerned authorities. Bidder should note that his offer would be loaded with the payable GST under the RCM. Further, Bidder should notify and submit to the Procuring Entity within 15 days from the date of becoming liable to registration under GST.
- 5) The Procuring Entity's state-wise GSTINs are indicated in Section IV – Schedule of Requirements and/ or TIS.

6.3.2 HSN Code and GST Rate:

- 1) HSN (Harmonized System of Nomenclature) code for the goods provided in this Tender Document is only indicative. It shall be the responsibility of Bidder to ensure that they quote the exact HSN Code and corresponding GST rate for the goods being offered by them.
- 2) As per the GST Act, the bid and contract must show the GST Tax Rates and GST Amount explicitly and separate from the bid/ contract price (exclusive of GST). If the price is stated to be inclusive of GST, the current rate included in the price must be declared by the bidder.
- 3) If a Bidder asks for GST to be paid extra, the rate and nature of such taxes applicable should be shown separately. Bidders should quote 'GST' if payable extra on the total basic rate of each cost element and quote GST in '%' inclusive of cess.
- 4) If GST, other taxes, duties are not specified, or column is left blank in the price schedule, it shall be presumed that no such tax/ levy is applicable or payable by the Procuring Entity.
- 5) **Applicability to Imported Goods/ Services:** Following the implementation of GST, the import of commodities shall not be subject to such erstwhile applicable duties like safeguard duty, education cess, basic customs duty, anti-dumping duty, etc. All these supplementary custom duties are subsumed under GST. The supply of commodities or services or both, if imported into India, shall be considered as supply under inter-state commerce/ trade and shall attract integrated tax (IGST). The IGST rate shall be applicable on the 'Custom Assessable Value' plus the 'Basic Customs Duty & Social Welfare Surcharge applicable thereon'.

6.4 Payments

Payment terms laid down in clause CC 10.3 shall be applicable.

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7. Downloading the Tender Document; Corrigenda and Clarifications

7.1 Downloading the Tender Document

The Tender Document shall be published and be available for download as mentioned in TIS. The Bidders can obtain the Tender Document after the date and time of the start of availability till the deadline for availability. If the office happens to be closed on the deadline for the availability of the Tender Document, the deadline shall not be extended.

7.2 Corrigenda/ Addenda to Tender Document

Before the deadline for submitting bids, the Procuring Entity may update, amend, modify, or supplement the information, assessment or assumptions contained in the Tender Document by issuing a corrigenda and addenda. The corrigenda and addenda shall be published in the same manner as the original Tender Document. However, the bidders' responsibility is to check the website(s) for any corrigenda/ addenda. Any corrigendum or addendum thus issued shall be considered a part of the Tender Document. To give reasonable time to the prospective bidders to take such corrigendum/ addendum into account in preparing their bids, the Procuring Entity may suitably extend the deadline for the bid submission, as necessary. After the procuring entity makes such modifications, any Bidder who has submitted his bid in response to the original invitation shall have the opportunity to either withdraw his bid or re-submit his bid superseding the original bid within the extended time of submission as per ITB-clause 10.3.1 below.

7.3 Clarification on the Tender Document

A Bidder may seek clarification of the Tender Document from Office/ Contact Person/e-procurement Help Desk as mentioned in TIS, provided the clarifications are raised before the clarification end date mentioned in TIS. The query and clarification shall be shared on the portal with all the prospective bidders. Any modification of the Tender Document that may become necessary due to the clarification shall be made by the Procuring Entity through an Addendum/ Corrigendum issue under the sub-clause above.

8. Pre-bid Conference

- 1) Prospective bidders interested in participating in this tender may attend a Pre-bid conference to clarify techno-commercial conditions of the Tenders at the venue, date and time specified in the TIS. Participation in the Pre-bid conference is restricted to prospective bidders who have downloaded the Tender Document.
- 2) Participation is not mandatory. However, if a bidder chooses not to (or fails to) participate in the Pre-bid conference or does not submit a written query, it shall be assumed that they have no issues regarding the techno/ commercial conditions.
- 3) The date and time by which the written queries for the Pre-bid must reach the authority and the last date for registration for participation in the Pre-bid conference are also mentioned in the TIS.
- 4) Delegates participating in the Pre-bid conference must provide a photo identity and an authorization letter as per the format in Format 3: "Authorization for attending a Pre-bid Conference/Bid Opening" from their Company/ Principals; else, they shall not be allowed to participate. The pre-bid conference may also be held online at the discretion of the Procuring Entity.

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5) After the Pre-bid conference, if required, a clarification letter and corrigendum to Tender Document shall be issued, containing amendments of various provisions of the Tender Document, which shall form part of the Tender Document. As per ITB clause 7.2 above, to give reasonable time to the prospective bidders to take such clarifications into account in preparing their bids, the Procuring Entity may suitably extend, as necessary, the deadline for the bid submission.

9. Preparation of Bids

9.1 The bid

9.1.1 Language of the bid

The bid submitted by Bidder and all subsequent correspondence and documents relating to the bid exchanged between Bidder and the Procuring Entity shall be written in English. However, the language of any printed literature furnished by Bidder in connection with its bid may be written in any other language provided a translation accompanies the same in the bid language. For purposes of interpretation of the bid, translation in the language of the bid shall prevail.

9.1.2 Acquaintance with Local Conditions and Factors

The Bidder, at his own cost, responsibility, and risk, is encouraged to visit, examine, and familiarize himself with all the site/ local conditions and factors. The Bidder acknowledges that before the submission of the bid, he has, after a complete and careful examination, made an independent evaluation of the Site/ local conditions, the legal, environmental, infrastructure, logistics, communications and any other conditions or factors of which would have any effect on the price to be quoted by him or affecting performance/ completion of the contract. Bidders shall themselves be responsible for compliance with Rules, Regulations, Laws and Acts in force from time to time at relevant places. On such matters, the Procuring Entity shall have no responsibility and shall not entertain any request from the bidders in these regards.

9.1.3 Cost of Bidding

The Bidder(s) shall bear all direct or consequential costs, losses and expenditure associated with or relating to the preparation, submission, and subsequent processing of their Bids, including but not limited to preparation, copying, postage, delivery fees, expenses associated with any submission of samples, demonstrations, or presentations which the Procuring Entity may require, or any other costs incurred in connection with or relating to their Bids. All such costs, losses and expenses shall remain with the Bidder(s), and the Procuring Entity shall not be liable in any manner whatsoever for the same or any other costs, losses and expenses incurred by a Bidder(s) for participation in the Tender Process, regardless of the conduct or outcome of the Tender Process.

9.1.4 Interpretation of Provisions of the Tender Document

The provisions in the Tender Document must be interpreted in the context in which these appear. Any interpretation of these provisions far removed from such context or other contrived or in between-the-lines interpretation is unacceptable.

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9.1.5 Quote Quantities/ Prices in both Numerals and Words

The bidders are advised to ensure that there is no ambiguity in this regard.

9.1.6 Alternative Bids not Allowed

Conditional offers, alternative offers, multiple bids by a bidder shall not be considered.

9.2 Documents comprising the bid:

9.2.1 Prequalification bid/cover

"Prequalification Bid" shall include inter-alia the original of the following documents. *No price details should be given or hinted at in the prequalification bid:*

- 1) **Bid Security/Earnest Money Deposit (EMD) (or) Form 7:** Bid Security Declaration (BSD) in lieu of bid security in the format provided therein.
- 2) **Form 1: Bid Form:** (to serve as covering letter and declarations applicable for both the technical bid and financial bid);
 - a) Form 1.1: Bidder Information;
 - b) Form 1.2: Eligibility Declarations;
 - c) If applicable. Form1.3: Declaration by Agents/ Associates of Foreign Principals/ OEMs (ITB-clause 3.5 above)
- 3) **Form 4: 'Qualification Criteria - Compliance':** Documentary evidence needed to establish the Bidder's qualifications as stipulated in Section VI: Qualification Criteria as follows. Besides the stipulated documents, other supporting documents, literature, pamphlets may also be attached.
- 4) **Form 6- Checklist for the Bidders:** Bidder must also submit the Checklist given in the Tender Document as Form 6 to confirm that he has complied with all the instructions in the Tender Document, and nothing is inadvertently left out. This checklist is only for general guidance and is not comprehensive, and does not absolve Bidder from complying with all the requirements stipulated elsewhere in the Tender Document.
- 5) Duly signed **Form 8: Integrity Pact.** The Integrity Pact shall be executed on stamp paper of Rs. 500 as per The Karnataka Stamp Act. If the Integrity Pact has to be executed by an authorized signatory residing in a foreign country, the authorized signatory shall sign the Integrity Pact in his/her country or execute Power of Attorney in favour of his / her representative in India authorizing the Power of Attorney holder to sign the Integrity Pact in India on his / her behalf. In both cases, the agreement or Power of Attorney shall either be: (i) Notarised in the country of the Bidder and be apostilled or (ii) be attested by authorized official of the concerned Indian Consulate / Embassy. The Power of Attorney shall also be stamped in India as per the Indian Stamp Act, 1899

9.2.2 Techno-commercial bid/ Cover

"Techno-commercial Bid" shall include inter-alia the original of the following documents. *No price details should be given or hinted at in the technical bid:*

- 1) **Form 2: Schedule of Requirements - Compliance:** Bidders should fill this form to detail the Schedules of Goods offered by them, maintaining the same numbering and structure. They may add additional details not covered elsewhere in their bid. They should

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highlight here any deviations/ exceptions/ reservations regarding Section IV: 'Schedule of Requirements', in a chart form, without any ambiguity or conditionality along with justification and supporting documents. Even in case of no deviation, please fill in confirmations and nil deviation statements. If mentioned elsewhere in the bid, such deviations shall not be recognized and null and void.

- 2) **Form 3: Technical Specifications and Scope of Work - Compliance:** Bidder is required to provide clause by clause compliance/ deviation Statement in a chart form (without ambiguity or conditionality along with justification) relating to all parameters of Technical Specifications, Scope of Work. Even in case of no deviation, please fill in confirmations and nil deviation statements. If mentioned elsewhere in the bid, such deviations shall not be recognized and null and void.
- 3) **Form 5: Terms and Conditions - Compliance:** Bidder must comply with the entire commercial and other clauses of this Tender Document. Any deviations should be listed in a chart form without ambiguity or conditionality, along with justification and supporting documents. All such Statements and Documents shall be submitted as Form 5. Even in case of no deviation, please fill in confirmations and nil deviation statements. If mentioned elsewhere in the bid, such deviations shall not be recognised and null and void.
- 4) Bidder is required to provide details in **Form 9**: Schedule of Essential & Recommended Spares, **Form 10**: Schedule of Maintenance Tools & Tackles, **Form 11**: Schedule of Start-up & Commissioning Spares, **Form 12**: Schedule of Instruments for Performance tests & **Form 13**: Schedule of Manufacture, Shipment to Site.
- 5) Any other format/ form, if considered relevant by the bidder.

9.2.3 Financial bid/ Cover

"Financial bid" shall comprise the Price Schedule (To be submitted separately) considering all financially relevant details, including Taxes and Duties as per ITB clause 6.3. No additional technical details, which have not been brought out in the technical bid shall be brought out in the financial bid.

9.3 Bid Validity

- 1) Bid shall remain valid for a period **not less than 300 days from the deadline for the bid submission** as stipulated in TIS and extended date as per corrigenda, if any. A bid valid for a shorter period shall be rejected as nonresponsive.
- 2) In case the day up to which the bids are to remain valid falls on/ subsequently declared a holiday or closed day for the Procuring Entity, the bid validity shall automatically be deemed to be extended up to the next working day.
- 3) In exceptional circumstances, before the expiry of the original time limit, the Procuring Entity may request the bidders to extend the validity period for a specified additional period. The request and the bidders' responses shall be made in writing or electronically. A bidder may agree to or reject the request. A bidder who has agreed to the Procuring Entity's request for extension of bid validity, in no case, he shall be permitted to modify his bid.

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9.4 Bid Security/ Earnest Money Deposit (EMD)

Bid security/Earnest Money Deposit (EMD) as stipulated in TIS shall be furnished by any of the means as stipulated in ITB Clause 10.2 (a) (ii) valid for 345 days from the date of closing the tender in favour of Bank Note Paper Mill India Private Limited as EMD along with the techno-commercial bid.

For MSE Bidders:

- a) Submission of EMD is exempted for Micro and Small enterprises (MSEs) as per the Public Procurement Policy for MSEs Order, 2018.
- b) MSEs should be registered and also will continue to remain registered during the tender validity period with District Industries Centre (DIC) or Khadi and Village Industries Commission (KVIC) or Khadi and Industries Board (KVIB) or Coir Board or National Small Industries Commission (NSIC) or Directorate of Handicrafts and Handlooms or UDYAM Registered or Any other body specified by Ministry of MSME.
- c) Under MSE category, only manufacturers for goods and Service Providers for Services are eligible for exemption from EMD. Traders are excluded from the purview of this Policy.
- d) In case of a re-classification to "Medium" category, an enterprise may continue to avail EMD exemption of the category it was in before the re-classification, for a period of three years from the date of such reclassification.

For Start-up Bidders:

- a) Submission of EMD is exempted for Start-up bidders as per the Office Memorandum No. F/20/2/2014-PPD(Pt.) of Ministry of Finance dated 25.07.2017.
- b) Start-ups should be registered with Department for Promotion of Industry and Internal Trade (DPIIT) Bid Security Declaration as per Form 7 is to be submitted.

Documents to be submitted:

- i) **For MSE Bidders:** Valid NSIC / KVIC / KVIB / DIC / UDYAM Registration certificate.
- ii) **For Start-ups:** Certificate of recognition issued by DPIIT.
- iii) Bid Security Declaration as per FORM 7 is to be submitted by bidders along with its Technical bid claiming exemption to EMD.

For Non-MSE/Non-Start-up bidders:

- 1) EMD is to be submitted.
- 2) The BSD is required to protect the Procuring Entity against the risk of the Bidder's unwarranted conduct as amplified under the sub-clause below.
- 3) The BSD provides for automatic suspension of the Bidder from being eligible for bidding in any tender in Ministry/ Department of Procuring Organization for 2 years from the date of such enforcement. This declaration shall stand enforced if Bidder breaches the following obligation(s) under the tender conditions:
 - a) withdraws or amends his bid or impairs or derogates from the bid in any respect within the period of validity of its bid; or
 - b) after having been notified within the period of bid validity of the acceptance of his bid by the Procuring Entity:
 - i. refuses to or fails to submit the original documents for scrutiny or the required Performance Security within the stipulated time as per the conditions of the Tender

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Document.

ii. fails or refuses to sign the contract.

4) Unsuccessful Bidders' Bid-Securing Declaration shall expire, if the contract is not awarded to them, upon:

- receipt by Bidder of the Procuring Entity's notification
 - of cancellation of the entire tender process or rejection of all bids or
 - of the name of the successful bidder or
- forty-five days after the expiration of the bid validity or any extension thereof

5) The bid-Securing Declaration of the successful bidder shall stand expired only when Bidder has furnished the required Performance Security and signed the Agreement.

9.5 Non-compliance with these provisions

Bids are liable to be rejected as nonresponsive if a Bidder:

- fails to provide and/ or comply with the required information, instructions etc., incorporated in the Tender Document or gives evasive information/ reply against any such stipulations.
- furnishes wrong and/ or misguiding data, statement(s) etc. In such a situation, besides rejection of the bid as nonresponsive, it is liable to attract other punitive actions under relevant provisions of the Tender Document for violation of the Code of Integrity.

10. Signing and Submission of Bids

10.1 Signing of bid

The individual signing the bid or any other connected documents should submit an authenticated copy of the document(s), which authorizes the signatory to commit and submit bids on behalf of the bidder in Form 1.1: Bidder Information.

10.2 Submission of Bids

- PART-A:** Pre-qualification bid in a closed, sealed and super scribed on the envelope as "Pre-qualification bid" comprising of following documents,
 - Form 1: Bid Form: (to serve as covering letter for pre-qualification bid);
 - Form 1.1: Bidder Information;
 - Form 1.2: Eligibility Declarations;
 - Form 1.3: Declaration by Agents/ Associates of Foreign Principals/OEMs (ITB-clause 3.5 above) (If applicable).
 - Bid Security/Earnest Money Deposit (EMD) in one of the following formats (or) Bid Securing Declaration (BDS) as per Form 7,
 - Insurance Surety Bonds or
 - Account Payee Demand Draft or
 - Fixed Deposit Receipt or
 - Banker's cheque or
 - Bank Guarantee (including e-Bank Guarantee) issued/confirmed by scheduled Indian Commercial Bank or from an Indian Branch of a foreign bank or correspondent Indian bank of the foreign bank if not having a branch in India in the proforma given in Format-1 of this tender. For foreign bidders, such Bank

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Guarantees should be in the currency of the Bidder and must conform to Uniform Rules for Demand Guarantees (URDG 758) as published by International Chamber of Commerce (ICC).

- f. Online payment in an acceptable form.
The demand draft, fixed deposit receipt or banker's cheque shall be drawn on any scheduled commercial bank in India in favour of Bank Note Paper Mill India Pvt Ltd, Mysuru.
- iii. Complete set of documents in support of Qualification of the tender specified in Section VI of this tender document.
- iv. Audited Financial Statements of financial years i.e. 2021-22, 2022-23, 2023-24 and 2024-25 or calendar years 2021, 2022, 2023 and 2024 as applicable should be certified by accountants e.g. Chartered Accountant/ Cost Accountant in India or equivalent in relevant countries.
- v. The Purchaser shall be entering into an integrity pact with the bidders as per format enclosed vide Form 8: Integrity Pact of this tender document. All pages of the integrity pact are to be duly signed and submitted by the same signatory who signed the bid.
- vi. **Form 6 - Checklist for the Bidders:** Bidder must also submit the Checklist given in the Tender Document as Form 6 to confirm that he has complied with all the instructions in the Tender Document, and nothing is inadvertently left out. This checklist is only for general guidance and is not comprehensive, and does not absolve Bidder from complying with all the requirements stipulated elsewhere in the Tender Document.

b) **PART-B:** Techno-Commercial bids shall be submitted along with an un-editable soft copy of the same (CD/USB drive) in a closed, sealed and super scribed on the envelope as "Techno-Commercial bid" with all documents, terms and conditions, delivery schedule, payment terms etc., including un-priced bid (with prices alone blanked off) and signed. The techno-commercial bids shall cover all documents /information except price. In case of any discrepancy between soft copy and hard copy, the hard copy of the Techno-Commercial bid shall prevail.

c) **PART-C:** Financial bids shall be submitted as per the format attached, in a separate, sealed and super scribed on the envelope as "Financial Bid". The prices quoted should be firm. Offer with conditional prices will not be accepted. The financial bid copy with prices alone blanked off should also be submitted along with the Techno-Commercial Bid. The implications of taxes, duties, levies, should be shown clearly in the appropriate columns of the financial bid itself.

d) Envelopes/Packets containing (1) Pre-qualification bid; (2) Techno-commercial bid and (3) Financial bid as stated above, shall be put in separate sealed packets superscribed with the following details:

Name of the work:

Tender Ref.:

BID No.:

Bid closing date and time:

e) The bids shall be received at the following address on the bid closing date and time:
The Managing Director,

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Bank Note Paper India Private Limited,
Registered & Corporate Office,
Paper Mill Compound, Note Mudran Nagar,
Mysuru – 570 003. Karnataka. India.

10.2.1 Implied acceptance of procedures by Bidders

Submission of bid in response to the Tender Document is deemed to be acceptance of the tender procedures and conditions of the Tender Document.

10.3 Modification, Resubmission and Withdrawal of Bids

10.3.1 Modification & Resubmission

Resubmission of the bid by the bidders for any number of times superseding earlier bid(s) before the date and time of submission is allowed. Resubmission of a bid shall require submission of all documents, including financial bid afresh. Only the last bid submitted shall be considered as the valid bid.

10.3.2 Withdrawal

- 1) The bidder may withdraw his bid before the bid submission deadline, and it shall be marked as withdrawn and shall not get opened during the Bid opening.
- 2) No bid should be withdrawn after the deadline for the bid submission and before the expiry of the bid validity period. If a Bidder withdraws the bid during this period, the Procuring Entity shall be within its right to forfeiture of the Bid Security, in addition to other punitive actions provided in the Tender Document for such misdemeanor.

11. Bid Opening

The date & time of the opening bid is as stipulated in TIS. If the specified date of Bid Opening falls on is subsequently declared a holiday or closed day for the Procuring Entity, the Bids shall be opened at the appointed time on the next working day.

12. Evaluation of Bids and Award of Contract

12.1 General norms

12.1.1 Evaluation based only on declared criteria.

The evaluation shall be based upon scrutiny and examination of all relevant data and details submitted by Bidder in its/ his bid and other allied information deemed appropriate by Procuring Entity. Evaluation of bids shall be based only on the criteria/ conditions included in the Tender Document.

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12.1.2 Deviations/ Reservations / Omissions - Substantive or Minor

- 1) During the evaluation of Bids, the following definitions apply:
 - a) "Deviation" is a departure from the requirements specified in the Tender Document;
 - b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Tender Document; and
 - c) "Omission" is the failure to submit part or all of the information or documentation required in the Tender Document.
- 2) A deviation/ reservation/ omission from the requirements of the Tender Document shall be considered as a substantive deviation as per the following norm, and the rest shall be considered as Minor deviation:
 - a) which affects in any substantive way the scope, quality, or performance of the product;
 - b) which limits in any substantive way, inconsistent with the Tender Document, the Procuring Entity's rights or the Bidder's obligations under the contract; or
 - c) Whose rectification would unfairly affect the competitive position of other Bidders presenting substantively responsive Bids.
- 3) The decision of the Procuring Entity shall be final in this regard. Bids with substantive deviations shall be rejected as nonresponsive.
- 4) Variations and deviations and other offered benefits (techno-commercial or financial) above the scope/ quantum of the Goods specified in the Tender Document shall not influence evaluation Bids. If the bid is otherwise successful, such benefits shall be availed by the Procuring Entity, and these would become part of the contract.
- 5) The Procuring Entity reserves the right to accept or reject bids with any minor deviations. Wherever necessary; the Procuring Entity shall convey its observation as per ITB-clause 12.1.3 below, on such 'minor' issues to Bidder by registered/ speed post/ electronically etc. asking Bidder to respond by a specified date. If Bidder does not reply by the specified date or gives an evasive reply without clarifying the point at issue in clear terms, that bid shall be liable to be rejected as nonresponsive.

12.1.3 Clarification of Bids and shortfall documents

- 1) During the evaluation of Techno commercial or Financial Bids, the Procuring Entity may, at its discretion, but without any obligation to do so, ask Bidder to clarify its bid by a specified date. Bidder should answer the clarification within that specified date. The request for clarification shall be submitted in writing or electronically, and no change in prices or substance of the bid shall be sought, offered, or permitted that may grant any undue advantage to such bidder. Any clarification submitted by a Bidder regarding its Bid that is not in response to a request by the Purchasing Entity shall not be considered.
- 2) The Procuring Entity reserves its right to, but without any obligation to do so, to seek any shortfall information/ documents only in case of historical documents which pre-existed at the time of the Bid Opening, and which have not undergone change since then and does not grant any undue advantage to any bidder.

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12.1.4 Contacting Procuring Entity during the evaluation

From the time of bid submission to awarding the contract, no Bidder shall contact the Procuring Entity on any matter relating to the submitted bid. If a Bidder needs to contact the Procuring Entity for any reason relating to this tender and/ or its bid, it should do so only in writing or electronically. Any effort by a Bidder to influence the Procuring Entity during the processing of bids, evaluation, bid comparison or award decisions shall be construed as a violation of the Code of Integrity, and bid shall be liable to be rejected as nonresponsive in addition to other punitive actions for violation of Code of Integrity as per the Tender Document.

12.2 Evaluation of Bids

12.2.1 Preliminary Examination of Bids - Determining Responsiveness

A substantively responsive bid is complete and conforms to the Tender Document's essential terms, conditions, and requirements, without substantive deviation, reservation, or omission. Only substantively responsive bids shall be considered for further evaluation. The following are some of the crucial aspects for which a bid shall be liable to be rejected as nonresponsive:

1. The bid is not in the prescribed format or is not submitted as per the stipulations in the Tender Document.
2. Required EMD/Bid Security Declaration (Form 7) has not been provided.
3. Bidder is not eligible to participate in the bid as per laid down eligibility criteria;
4. The Goods offered are not eligible as per the provision of this tender.
5. Bidder has quoted Goods manufactured by a different firm without the required authority letter from the proposed manufacturer.
6. Bidder has quoted conditional bids or more than one bid or alternative bids
7. The EMD/bid validity is shorter than the required period.
8. The bid departs from the essential requirements stipulated in the bidding document;
9. Against a schedule in Section IV: Schedule of Requirements, Bidder has not quoted the entire Goods as stipulated in that schedule.
10. Non-submission of Integrity Pact.

12.2.2 The evaluation process

This Tender Process is for three cover bids. Initially, only the pre-qualification bid shall be opened on the stipulated date of opening of bids and evaluation shall be done whether these bids meet the eligibility & qualification criteria. After that, techno-commercial bids of pre-qualified bidders shall be opened and evaluation shall be done on techno-commercial aspects. Subsequent opening of financial bids and financial evaluation shall be done only of bids declared successful in techno-commercial evaluation.

12.3 Bid Evaluation

Only pre-qualified bids shall be evaluated for techno-commercial evaluation. In evaluating the techno-commercial bid, conformity to technical specifications, scope of work and commercial conditions of the offered Goods to those in the Tender Document is ascertained. Additional factors

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incorporated in the Tender Document shall also be considered in the manner indicated therein. Bids with substantive techno-commercial deviations shall be rejected as nonresponsive. Procuring entity reserves its right to consider and allow minor deviations in technical and Commercial Conditions as per ITB-clause 12.1.2.

12.3.1 Evaluation of eligibility

Procuring Entity shall determine, to its satisfaction, whether the Bidders are eligible as per ITB-clause 3.2 and NIT-clause 3 above to participate in the Tender Process as per submission in Form 1.2: Eligibility Declarations in Form 1: bid Form. Tenders that do not meet the required eligibility criteria prescribed shall be rejected as nonresponsive.

12.3.2 Evaluation of Qualification Criteria

Procuring Entity shall determine, to its satisfaction, whether the Bidders are qualified and capable in all respects to perform the contract satisfactorily (subject to dispensation, if any, for Start-ups as per ITB-Clause 4.3 above) as per submission in Form 4. This determination shall, inter-alia, consider the Bidder's financial, technical and production or other prescribed capabilities for satisfying requirements incorporated in the Tender Document. The determination shall not consider the qualifications of other firms such as the Bidder's subsidiaries, parent entities, affiliates, sub-vendors (other than specialized sub-vendors if permitted in the bidding document), or any other firm(s) different from the Bidder.

12.3.3 Evaluation of Conformity to Schedule of Requirements and Technical Specifications and Scope of Work

Procuring Entity shall evaluate schedule-wise conformity of the description, scope of supply, quantity, delivery schedules, terms of delivery, transportation of the offered goods to Section IV- Schedule of requirements as per submissions in Form 2: 'Schedule of Requirements - Compliance'. Technical specifications, drawings, scope of work and other technical terms and conditions of the Bids shall be examined, as per Form 3: 'Technical Specifications and Scope of Work - Compliance'.

12.3.4 Evaluation of Conformity to Commercial and Other Clauses

Bidder must comply with all the Commercial and other clauses of the Tender Document as per submissions in Form 5. The Procuring Entity shall also evaluate the commercial conditions quoted by Bidder to confirm that all terms and conditions stipulated in the Tender Document have been accepted without substantive omissions/ reservations/exception/ deviation by the Bidder. Deviations from or objections or reservations to critical provisions such as those concerning Governing laws and Jurisdiction (CC Clause 3), Vendor's Obligations and Restrictions of its Rights (CC Clause 5), Performance Bond/ Security (CC Clause 5.8), General Technical Requirements for Maintenance of Plant during Guarantee Period (CC Clause 6.5), Force Majeure (CC Clause 9.13), Taxes & Duties (CC Clause 10.2) and Code of Integrity (CC Clause 13) will be deemed to be a material deviation.

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12.3.5 Declaration of pre-qualified bidders, Techno-commercially Suitable Bidders and Opening of Financial Bids

Bidders found qualified in pre-qualification evaluation shall be considered for techno-commercial evaluation. Date/time and venue for the opening of their techno-commercial bids shall be intimated individually to all pre-qualified bidders.

Subsequently, bidders found qualified in techno-commercial evaluation shall be considered for financial bid evaluation. Date/time and venue for the opening of their financial bids shall be intimated individually to all techno-commercially qualified bidders.

12.4 Evaluation of Financial Bids and Ranking of Bids

12.4.1 Ranking of Financial Bids

1. Evaluation of the financial bids shall be on the price criteria only. Financial Bids of all Techno-commercially suitable bids are evaluated and ranked to determine the lowest priced bidder.
2. The comparison of the responsive Bids shall be on total outgo from the Procuring Entity's pocket, to be paid to the vendor or any third party, including all elements of costs as per the terms of the proposed contract, on FOR destination basis, duly delivered, commissioned, etc. as the case may be, including any taxes, duties, levies etc., freight, transit Insurance, loading/ unloading/ stacking, insurance etc.
3. The financial ranking of bids shall be done based on all schedules put together. The bid shall not be considered if the complete requirements prescribed in are not included in the bid;
4. If any bidder offers conditional discounts/ rebates in his bid or suo motu discounts and rebates after the Bid Opening (techno-commercial or financial), such rebates/ discounts shall not be considered for ranking the offer. But if such a bidder does become L-1 without discounts/ rebates, such discounts/ rebates shall be availed and incorporated in the contracts;
5. The Procuring Entity reserves its option to give purchase preferences to eligible categories of Bidders as indicated in the Tender Document.
6. Evaluation of Bids shall include and consider the following taxes/ duties, as per ITB-clause 6.3 above:
 - a) in the case of Goods manufactured in India or Goods of foreign origin ready located in India, GST & other similar duties, which shall be contractually payable, on the Goods if a contract is awarded on the bidder;
 - b) The offers shall be evaluated based on the GST rate quoted by each bidder, and the same shall be used for determining the inter-se ranking. The Procuring Entity shall not be responsible for any misclassification of HSN Number or incorrect GST rate if quoted by the bidder. Any increase in GST rate due to misclassification of HSN number shall have to be absorbed by the supplier; and
 - c) If GST is quoted extra, but with the provision that it shall be charged as applicable at the time of delivery, the offer shall be evaluated for comparison purposes by loading the maximum existing rate of GST for the product/ HSN code.

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7. **Ambiguous Financial bid:** If the financial bid is ambiguous and leads to two equally valid total price amounts, it shall be rejected as nonresponsive.

12.4.2 Currency of Tender:

For goods and services, which the BIDDER will be supplying, the prices shall be quoted in Indian Rupees (or) US Dollars (or) Euros (or) Pound Sterling (or) Yen. However, for the goods and services the BIDDER sources from India, the price shall be quoted in Indian Rupees (INR) only.

12.4.3 Evaluation of Offers

1. For financial evaluation, all Bids shall be converted to Indian Rupees based on the "Bill for Collection (BC) selling" exchange rate on the last deadline for the bid submission (Techno-commercial offer) from State Bank of India.
2. In case the BIDDERs are given an opportunity to resubmit the financial bids after all clarifications during the evaluation of technical bids, the date for the conversion of foreign currency quoted by the BIDDERs in their bids will be the last date for the resubmission of financial bids.
3. The offers would be compared based on the principle of the total outgo from Procuring Entity's pockets, including all applicable taxes and duties (Customs duty and IGST).
4. The bidders are to quote prices on DPU (Delivered at Place Unloaded) – BNPM, Mysuru basis. as stipulated in the Tender Document. The terms FOB, CIF, DPU etc., shall be governed by the rules & regulations prescribed in INCOTERMS® 2020 and subsequent amendments if any, published by the International Chamber of Commerce (ICC), Paris. However, BNPM reserves the right to place the final contract/order on FOB/CIF basis at its discretion at price quoted in Section VII – Financial bid
5. If both Indian and foreign bidders have quoted in the tender, the comparison of the offers would be done based on FOR destination, including all applicable taxes and duties (on the principle of the total outgo from Procuring Entity's pockets) as below:

a) Cost calculation for foreign bidders: (DPU Shipments)

S No	Description	Amount
1.	CIF price(s) (Port of entry in India) as per FINANCIAL BID	
2.	Conversion to INR (Exchange rate) based on the BC selling rate of SBI prevailing as on last deadline for bid submission	
3.	CIF price (Port of entry in India) in INR	= 1*2
4.	Basic Customs Duty (BCD) on CIF price (% as on date of opening of FINANCIAL BID for the HSN quoted in bid).	= 3*4
5.	Social Welfare Surcharge on BCD (% as on date of opening of	=4*5

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	FINANCIAL BID for the HSN quoted in bid).		
6.	GST (on CIF price + BCD + SWS) (% as on due date of submission of BID)		
7.	GST Amount	$= (3+4+5)*6$	
8.	Landed price at Port of entry in India	$= 3+4+5+7$	
9.	Custom Clearance, Inland transportation and unloading charges at BNPM, Mysuru (i.e. DPU price less CIF price as per FINANCIAL BID converted to INR at conversion rate mentioned in S No (2))		
10.	Landed price at BNPM, Mysuru	$= 8+9$	
11.	Charges quoted for installation, commissioning, training etc. converted to INR (at conversion rate in S No (2))		
12.	Total Landed Cost of Import Goods & services (in INR)	$= 10+11$	
13.	FOR price for Indigenous goods as per FINANCIAL BID (in INR)		
14.	Total Landed Cost of Import & Indigenous Goods & services at BNPM, Mysuru (in INR)	$= 12+13$	

b) Cost calculation for Indian bidders:

Sl. No.	Description	Amount
1.	FOR price as per FINANCIAL BID for Goods & services (in INR)	

12.4.4 Cartel Formation/ Pool Rates

If Procuring Entity decides this to be a case of Cartel/ Pool Rates, leading to “Appreciable Adverse Effect on Competition” (AAEC) as identified in Competition Act, 2002, as amended from time to time, it reserves its rights to consider it as a violation of the Code of Integrity and reject the bid(s) as nonresponsive in addition to other punitive actions provided in this regard in the Tender Document. In addition to such remedies, the Procuring Entity also reserves the right to refer the matter to the Competition Commission of India (CCI) for obtaining necessary relief. In addition, the attention of the bidders is drawn to Chapter VI of the “The Competition Act 2002”, which deals with Penalties. Such actions shall be in addition to other rights and remedies available to the Procuring Entity under the contract and Law.

12.4.5 Reasonableness of Rates Received

Procuring Entity shall evaluate whether the rates received in the Bids in the zone of consideration are reasonable. If the rates received are considered abnormally low or unreasonably high, it reserves its right to take action as per the following sub-clauses, or as per ITB-clause 2.3, reject any or all Bids; abandon/ cancel the Tender process and issue another tender for the identical or similar Goods.

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12.4.6 Consideration of Abnormally Low Bids

An Abnormally Low bid is one in which the bid price, in combination with other elements of the bid, appears so low that it raises substantive concerns as to the Bidder's capability to perform the contract at the offered price. Procuring Entity shall in such cases seek written clarifications from the Bidder, including detailed price analyses of its bid price concerning scope, schedule, allocation of risks and responsibilities, and any other requirements of the Tender Document. If, after evaluating the price analyses, procuring entity determines that Bidder has substantively failed to demonstrate its capability to deliver the contract at the offered price, the Procuring Entity shall reject the bid/ proposal, and evaluation shall proceed with the next ranked bidder.

12.4.7 Price Negotiation

The Procuring Entity reserves its right to negotiate with the lowest acceptable bidder (L-1), who is techno-commercially suitable and on whom the contract would have been placed but for the decision to negotiate.

13. Award of Contract

13.1 Letter of Award (Acceptance - LoA) and Signing of Contract

13.1.1 Selection of Successful Bidder(s)

The Procuring Entity shall award the contract to the Bidder(s) whose bid(s) is Techno-commercially suitable and bid price(s) is lowest and reasonable, as per evaluation criteria detailed in the Tender Document.

13.1.2 Letter of Award (LoA)

The Bidder, whose bid has been accepted and documents verified (at the discretion of Procuring Entity), shall be notified of the award by the Procuring Entity before the expiration of the Bid-Validity period by written or electronic means. This notification (hereinafter and in the Conditions of Contract called the "Letter of Award - LoA") shall state the sum (hereinafter and in the contract called the "Contract Price") that the Procuring Entity shall pay the vendor in consideration of the supply of the Goods. The Letter of Award (LoA) shall constitute the legal formation of the contract, subject only to the furnishing of performance security as per the provisions of the sub-clause below. The Procuring Entity, at its discretion, may directly issue the contract subject only to the furnishing of performance security, skipping the issue of LoA.

13.1.3 Performance Security

- 1) Within 21 days of receipt of the Letter of Award (LoA, or the contract if LoA has been skipped), performance Security as per details in CC-5.8 shall be submitted by the vendor to the Procuring Entity.
- 2) If the vendor, having been called upon by the Procuring Entity to furnish Performance Security, fails to do so within the specified period, it shall be lawful for the Procuring Entity at its discretion to annul the award and enforce Bid Securing Declaration (in lieu

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of forfeiture of the Bid Security), besides taking any other administrative punitive action like 'Removal from List of Registered Suppliers' etc.

- 3) If the bidder, whose bid is the lowest evaluated bid withdraws or whose bid has been accepted, fails to sign the procurement contract as may be required or fails to provide the security as may be required for the performance of the contract or otherwise withdraws from the procurement process, the Procuring Entity shall cancel the procurement process.

13.1.4 Signing of Contract

- 1) On receiving performance security, the Procuring Entity shall execute the contract with the successful Bidder.
- 2) The contract shall be taken to be legally effective from the date of Letter of Award (LOA).

13.1.5 Expiry of bid securing declarations

Upon the furnishing by the successful Bidder of the Performance Security, the Procuring Entity shall promptly notify the other Bidders that their Bids have been unsuccessful. The Bid Securing Declarations of unsuccessful bidders shall expire on receipt of this notification by them, in terms of ITB-clause 9.4 above. The bid-Securing Declaration of the successful bidder shall expire when Bidder has furnished the required Performance Security and signed the Agreement.

14. Grievance Redressal/ Complaint Procedure

1. Bidder has the right to submit a complaint or seek de-briefing regarding the rejection of his bid, in writing or electronically, within 10 days of declaration of pre-qualification or techno-commercial or financial evaluation results. The complaint shall be addressed to the Tender Inviting Authority.
2. Within 5 working days of receipt of the complaint, the Tender Inviting Officer shall acknowledge the receipt in writing to the complainant indicating that it has been received, and the response shall be sent in due course after a detailed examination.
3. The Tender Inviting Officer shall convey the final decision to the complainant within 15 days of receiving the complaint. No response shall be given regarding the confidential process of evaluating bids and awarding the contract before the award is notified, although the complaint shall be kept in view during such a process. However, no response shall be given regarding the following topics explicitly excluded from such complaint process:
 - a) Only a bidder who has participated in the concerned Tender Process, i.e., pre-qualification, bidder registration or bidding, as the case may be, can make such representation.
 - b) Only a directly affected bidder can represent in this regard.
 - i. In case of pre-qualification bid has been evaluated before the bidding of Technical/ financial bids, an application for review concerning the technical/ financial bid may be filed only by a bidder who has qualified in pre-qualification bid;
 - ii. In case a technical bid has been evaluated before the opening of the financial bid, an application for review concerning the financial bid may be filed only by a bidder whose technical bid is found to be acceptable.
 - c) Following decisions of the Procuring Entity shall not be subject to review:
 - i. Determination of the need for procurement.

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- ii. Complaints against specifications except under the premise that they are either vague or too specific to limit competition
- iii. Selection of the mode of procurement or bidding system;
- iv. Choice of the selection procedure.
- v. Provisions limiting the participation of bidders in the Tender Process, in terms of policies of the Government
- vi. Provisions regarding purchase preferences to specific categories of bidders in terms of policies of the Government
- vii. The decision to enter into negotiations with the L-1 bidder; and
- viii. Cancellation of the Tender Process except where it is intended to subsequently re-tender the same Goods.

15. Code of Integrity in Public Procurement, Misdemeanours and Penalties:

Procuring authorities, bidders, suppliers, vendors, and consultants should observe the highest standard of integrity and not indulge in prohibited practices or other misdemeanours, either directly or indirectly, at any stage during the Tender Process or during the execution of resultant contracts. CC-clause 13 (including the penalties prescribed therein) shall be considered to be part of this clause of ITB even though it is not being reproduced here for the sake of brevity) and shall apply *mutatis mutandis* during the pre-award tender process. Section II: Instructions To Bidders (ITB).

16. Accommodation/Conveyance/Site Facilities

- a) Arranging office space & accommodation for the VENDOR and their representatives shall be sole responsibility of the VENDOR.
- b) Arranging for secretarial assistance & other facilities shall be in the scope of the VENDOR.
- c) VENDOR shall make necessary arrangement for communication, internet, etc.
- d) Local conveyance shall be arranged by the VENDOR.
- e) In case of illness or accident of any of his personnel, the VENDOR shall ensure and arrange at his own expense the necessary medical assistance and treatment in India/Abroad. However, the PURCHASER shall provide medical or clinical first aid at the VENDOR's expenses. Furthermore, the PURCHASER shall, if required, provide transport to the nearest hospital and/or a return flight at the VENDOR's expenses.
- f) All costs associated with the site visits in connection with the job undertaken by the VENDOR shall be borne by the VENDOR.

SECTION III – CONDITIONS OF CONTRACT

1. General

1.1 Tenets of Interpretation

Unless where the context requires otherwise, throughout the contract:

- 1) The heading of these conditions shall not affect the interpretation or construction thereof.
- 2) Writing or written includes matter either whole or in part, in digital communications, manuscript, typewritten, lithographed, cyclostyled, photographed, or printed under or over signature or seal or digitally acceptable authentication, as the case may be.
- 3) Words in the singular include the plural and vice-versa.
- 4) Words importing the masculine gender shall be taken to include other genders, and words importing persons shall include any company or association or body of individuals, whether incorporated or not.
- 5) Terms and expression not herein defined shall have the meanings assigned to them in The Indian Contract Act, 1872 (as amended) or the Sale of Goods Act, 1930 (as amended) or the General Clauses Act, 1897 (as amended) or of INCOTERMS, (2020 edition published by the International Chamber of Commerce, Paris) as the case may be.
- 6) Any reference to 'Goods' shall be deemed to include the incidental Works/ Services also.
- 7) Any reference to 'Contract' shall be deemed to include all other documents (inter-alia CC) as described in CC-clause 2.5.
- 8) Any reference to any legal Act, Government Policies or orders shall be deemed to include all amendments to such instruments, from time to time, till date.

1.2 Definitions

In the contract, unless the context otherwise requires:

- 1) "Agent" is a person employed to do any act for another or represent another in dealings with a third person. In the context of public procurement, an Agent is a representative participating in the Tender Process or Execution of a Contract for and on behalf of its principals.
- 2) "Allied Firm" are all business entities that are within the 'controlling ownership interest' (ownership of or entitlement to more than twenty-five percent of the company's shares or capital or profits) or 'control'(including the right to appoint a majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholder agreements or voting agreements) of the principal firm acting alone or together or through one or more juridical persons. All successor firms or assigns of the principal firm shall be considered allied firms.
- 3) "Bid" (including the term 'tender', 'offer', 'quotation' or 'proposal' in specific contexts) means an offer to supply goods, services or execution of works made as per the terms and conditions set out in a document inviting such offers.
- 4) "Bidder" (including the term 'Bidder', 'consultant' or 'service provider' in specific contexts) means any person or firm or company), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a Tender Process.
- 5) "Bill of Quantities" (including the term Price Schedule or BOQ) means the priced and completed Bill of Quantities forming part of the bid.
- 6) "Commercial Bank" means a bank, defined as a scheduled bank under section 2(e) of the Reserve Bank of India Act, 1934.

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- 7) "Consignee" means the person to whom the goods are required to be delivered as stipulated in the contract. A contract may provide the goods to be delivered to an interim consignee for further despatch to the ultimate consignee.
- 8) "Contract" (including the terms 'Purchase Order' or 'Supply Order' or 'Withdrawal Order' or 'Work Order' or 'Consultancy Contract' or 'Contract for Services', 'rate contract' or 'framework contract' or 'Letter of Award – LoA' (letter or memorandum communicating to the vendor the acceptance of his bid) or 'Agreement' or a 'repeat order' accepted/ acted upon by the vendor or a 'formal agreement', under specific contexts), means a formal legal agreement in writing relating to the subject matter of procurement, entered into between the Procuring Entity and the vendor on mutually acceptable terms and conditions and which are in compliance with all the relevant provisions of the laws of the country;
- 9) "Day", "Month", "Year" shall mean calendar day/ month or year (unless reference to financial year is clear from the context).
- 10) "Drawing" means the drawing or drawings stipulated in or annexed to the Specifications or the Tender Document/ Contract;
- 11) "General Conditions" means the Conditions of Contract, also referred to as CC.
- 12) "Goods" (including the terms 'Stores', 'Material(s)' in specific contexts) includes all articles, material, furniture, fixtures, consumables, spare parts, instruments, machinery, equipment, industrial plant, subassemblies, accessories, a group of machines comprising an integrated production process or such other categories of goods or intangible, products like technology transfer, licenses, patents or other intellectual properties), procured or otherwise acquired by a Procuring Entity. Any reference to Goods shall be deemed to include specific small work or some services that are incidental or consequential to the supply of such goods;
- 13) "Government" means the Government of India or an Indian State Government as the case may be and includes agencies and Public Sector Enterprises under it, in specific contexts;
- 14) "Inspection" means activities such as measuring, examining, testing, analysing, gauging one or more characteristics of the goods or services or works, and comparing the same with the specified requirement to determine conformity.
- 15) "Inspecting Officer" means the person or organisation stipulated in the contract for inspection under the contract and includes his/ their authorized representative;
- 16) "Intellectual Property Rights" (IPR) means the rights of the intellectual property owner concerning a tangible or intangible possession/ exploitation of such property by others. It includes rights to Patents, Copyrights, Trademarks, Industrial Designs, Geographical indications (GI).
- 17) "Parties": The parties to the contract are the "Vendor" and the Procuring Entity, as defined in this clause;
- 18) "Performance Security" (includes the terms 'Security Deposit' or 'Performance Bond' or 'Performance Bank Guarantee' or other specified financial instruments in specific contexts) means a monetary guarantee to be furnished by the successful Bidder or Vendor in the form prescribed for the due performance of the contract;
- 19) "Place of Delivery" the delivery of the Goods shall be deemed to take place on delivery of the Goods, after approval by the Inspecting Officer (If provided in the contract) at following places as per the terms and conditions of the contract -
 - a) The consignee at his premises; or
 - b) Where so provided, the interim consignee at his premises; or
 - c) A carrier or other person named in the contract for transmission to the consignee; or
 - d) The consignee at the destination station in case of a contract stipulating for delivery of

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Goods at the destination station.

- 20) "Procurement" (or 'Purchase') means the acquisition of Goods/ Services/ works by way of purchase, lease, license or otherwise of goods, works or services or any combination thereof, by a Procuring Entity, whether directly or through an agency with which a contract for procurement services is entered into, but does not include any acquisition without consideration. The term "procure"/ "procured" or "purchase"/ "purchased" shall be construed accordingly;
- 21) "The Procuring Entity" means the entity in The Procuring Organization procuring Goods or Works or Services;
- 22) "Service(s)" (including the term 'non-consultancy services' or 'Outsourcing of Services' in specific contexts) are defined by exclusion as services that cannot be classified as Consultancy Services. Services (non-consultancy) involve routine, repetitive physical, procedural, and non-intellectual outcomes for which quantum and performance standards can be tangibly identified and consistently applied and are bid and contracted on such basis but does not include the appointment of an individual made under any law, rules, regulations, or order issued in this behalf. Any reference to Services shall be deemed to include the supply of goods or performance of consultancy service or small works, which are incidental or consequential to such services;
- 23) "Specification" or "Technical Specification" means the drawing/ document/standard or any other details governing the construction, manufacture or supply of goods or performance of services that prescribes the requirement to which goods or services have to conform as per the contract.
- 24) "Signed" means ink signed or digitally signed with a valid Digital Signature as per IT Act 2000 (as amended from time to time). It also includes stamped, except in the case of Letter of Award or amendment thereof.;
- 25) "Tender"; "Tender Document"; "Tender Enquiry" or "Tender Process": 'Tender Process' is the whole process from the publishing of the Tender Document till the resultant award of the contract. 'Tender Document' means the document (including all its sections, appendices, forms, formats, etc.) published by the Procuring Entity to invite bids in a Tender Process. The Tender Document and Tender Process may be generically referred to as "Tender" or "Tender Enquiry", which would be clear from context without ambiguity.
- 26) "Test" means such test as is prescribed by the particulars governing the construction, manufacture or supply of Goods as may be prescribed by the contract or considered necessary by the Inspecting Officer whether performed or made by the Inspecting Officer or any agency acting under the direction of the Inspecting Officer;
- 27) "Vendor" (including the terms 'Supplier' or 'Service Provider' or 'Consultant' or 'Firm' or 'Contractor' or 'Manufacturer' or 'Successful Bidder' under specific contexts) means the person, firm, company with whom the contract is entered into and shall be deemed to include the vendor's successors (approved by the Procuring Entity), agents, sub-vendor, representatives, heirs, executors, and administrators as the case may be unless excluded by the terms of the contract;
- 28) "Works" refer to any activity involving construction, fabrication, repair, overhaul, renovation, decoration, installation, erection, excavation, dredging, and so on, which make use of a combination of one or more of engineering design, architectural design, material and technology, labour, machinery, and equipment.

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1.3 Document Conventions

All words and phrases defined in CC-clause 1.2 are written as 'Capitalised word' and shall have the defined meaning. The rest of the words shall be as per grammar, interalia 'Goods' & 'Services' shall indicate definition as given in the CC while 'goods' shall have usual dictionary meaning.

1.4 Abbreviations:

Abbreviation	Definition
BNS	Bharatiya Nyaya Sanhita
BSD	Bid Securing Declaration
CGST	Central Goods and Services Tax
DoE	Department of Expenditure
DPIIT	Department for Promotion of Industry and Internal Trade
EFT	Electronic Funds Transfer
ERV	Exchange Rate Variation
FOR	Free on Road/Rail (named Destination)
CC	Conditions of Contract
GST	Goods and Services Tax
GTE	Global Tender Enquiry (International Competitive Bidding)
HSN	Harmonized System of Nomenclature
IEM	Independent External Monitor
IPR	Intellectual Property Rights
INR	Indian Rupee
ITB	Instructions To Bidders
ITC (HS)	Indian Tariff Classification (Harmonised System)
LoA	Letter of Award (Acceptance)
MII	Make in India
MOF	Ministry of Finance
MSE	Micro and Small Enterprises
MSME	Micro, Small and Medium Enterprises
NIT	Notice Inviting Tender
OEM	Original Equipment Manufacturer

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PAN	Permanent Account Number
PPD	Procurement Policy Division
PQB	Pre-Qualification Bidding
RCM	Reverse Charge Mechanism
TDS	Tax Deducted at Source
TIA	Tender Inviting Authority
TIS	Tender Information Summary

2. The Contract

2.1 Language of Contract

The contract shall be written in the Official Language or English. All correspondence and other contract documents, which the parties exchange, shall also be written/ translated accordingly in that language. For purposes of interpretation of the contract, the English documents/ translation shall prevail.

2.2 The Entire Agreement

This Contract and its documents (referred to in CC-clause 2.5 below) constitutes the entire agreement between the Procuring Entity and the vendor and supersedes all other communications, negotiations, and agreements (whether written or oral) of the Parties made before the date of this Contract. No agent or representative of either Party has the authority to make, and the Parties shall not be bound by or be liable for, any statement, representation, promise or agreement not outlined in this Contract.

2.3 Severability

If any provision or condition of this Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of this Contract.

2.4 Parties

The parties to the contract are the vendor and the Procuring Entity, as defined in CC-clause 1.2 above and nominated in the contract.

2.5 Contract Documents and their Precedence

The following conditions and documents in indicated order of precedence (higher to lower) shall be considered an integral part of the contract, irrespective of whether these are not appended/ referred to in it. Any generic reference to 'Contract' shall imply reference to all these documents as well:

- 1) Valid and authorized Amendments issued to the contract;
- 2) the Agreement consisting of the initial paragraphs, recitals and other clauses set forth immediately before the CC and including the formats annexed to it and signatures of Procuring

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Entity;

- 3) the Letter of Award (LoA);
- 4) Final written submissions made by the vendor during negotiations, if any;
- 5) the tender document;
- 6) the vendor's bid;
- 7) Integrity Pact.

2.6 Modifications/ Amendments, Waivers and Forbearances

2.6.1 Modifications/ Amendments of Contract

- 1) If any of the contract provisions must be modified after the contract documents have been signed, the modifications shall be made in writing and signed by the Procuring Entity, and no modified provisions shall be applicable unless such modifications have been done. No variation in or modification of the contract terms shall be made except by a written amendment signed by the Procuring Entity. Requests for changes and modifications may be submitted in writing by the vendor to the Procuring Entity. At any time during the currency of the contract, the Procuring Entity may suo-moto or, on request from the vendor, by written order, amend the contract by making alterations and modifications within the general scope of the Contract.
- 2) If the vendor does not agree to the suo-moto modifications/ amendments made by the Procuring Entity, he shall convey his views within 14 days from the date of amendment/ modification. Otherwise, it shall be assumed that the vendor has consented to the amendment.
- 3) Any written arrangement abandoning, modifying, extending, reducing, or supplementing the contract or any of the terms thereof shall be deemed conditional and shall not be binding on the Procuring Entity unless and until the same is incorporated in a formal instrument and signed by the Procuring Entity, and till then the Procuring Entity shall have the right to repudiate such arrangements.

2.6.2 Waivers and Forbearances

The following shall apply concerning any waivers, forbearance, or similar action taken under this Contract:

- 1) Any waiver of a Procuring Entity's rights, powers, or remedies under this Contract must be in writing, dated, and signed by an authorized representative of the Procuring Entity granting such waiver and must specify the terms under which the waiver is being granted.
- 2) No relaxation, forbearance, delay, or indulgence by Procuring Entity in enforcing any of the terms and conditions of this Contract or granting of an extension of time by Procuring Entity to the vendor shall, in any way whatsoever, prejudice, affect, or restrict the rights of Procuring Entity under this Contract, neither shall any waiver by Procuring Entity of any breach of Contract operate as a waiver of any subsequent or continuing breach of Contract.

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3 Governing Laws and Jurisdiction

3.1 Governing Laws and Jurisdiction

- 1) This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Laws of India for the time being in force.
- 2) Irrespective of the place of delivery, or the place of performance or the place of payments under the contract, the contract shall be deemed to have been made at Mysuru, Karnataka, India.
- 3) All matters relating to the validity, meaning and performance of the contract shall be decided in accordance with the laws and statutes of Republic of India and subject to the exclusive jurisdiction of competent court of Mysuru, Karnataka, India.
- 4) The vendor warrants that all goods purchased under the Contract shall conform to all the applicable City, State and Central laws, ordinances and regulations valid on the date of contract signature. Further, the vendor shall defend and save the PURCHASER harmless from direct cost or damage by reason of any actual or alleged violation thereof.
- 5) The vendor shall arrange to complete registration of foreign personnel at the nearest Police Station and other formalities as may be required for foreigners deputed to India as per Indian law.
- 6) The vendor shall not offer any employment to the officials of the PURCHASER without his written permission till the end of warranty period.

3.2 Changes in Laws and Regulations

If after the last deadline for the bid submission (Techno-commercial), any law, regulation, ordinance, order or bye-law having the force of law is enacted, promulgated, abrogated, or changed in India (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Delivery Date and/ or the contract Price, then such Delivery Date and/ or Contract Price shall be correspondingly increased or decreased, to the extent that the vendor has thereby been affected in the performance of any of its obligations under the contract. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable.

4 Communications

4.1 Communications

- 1) All communications under the contract shall be served by the parties on each other in writing, in the contract's language, and served in a manner customary and acceptable in business and commercial transactions.
- 2) The effective date of such communications shall be either the date when delivered to the recipient or the effective date mentioned explicitly in the communication, whichever is later.
- 3) No communication shall amount to an amendment of the terms and conditions of the contract, except a formal letter of amendment of the contract, so designated.
- 4) Such communications would be an instruction or a notification or an acceptance or a certificate from the Procuring Entity, or it would be a submission or a notification from the vendor. A notification or certificate which the contract requires must be communicated separately from

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other communications.

4.2 The person signing the Communications

For all purposes of the contract, including arbitration, thereunder all communications of the vendor shall be signed by the person who has signed the contract on behalf of the vendor. A person signing communication in respect of the contract or purported to be on behalf of the vendor, without disclosing his authority to do so, shall be deemed to warrant that he has authority to bind the vendor. If it is discovered at any time that the person, so signing has no authority to do so, the Procuring Entity reserves its right to, without prejudice to any other right or remedy, to terminate the contract for default in terms of the contract and avail any or all the remedies thereunder and hold such person personally and/ or the vendor liable to the Procuring Entity for all costs and damages arising from such remedies.

4.3 Address of the parties for sending communications by the other party.

For all purposes of the contract, including arbitration, thereunder the address of parties to which the other party shall address all communications and notices shall be:

- a. The address of the vendor as mentioned in the contract unless the vendor has notified the change of address by a separate communication containing no other topic to the Procuring Entity. The Vendor shall be solely responsible for the consequence of an omission to notify a change of address in the manner aforesaid, and
- b. The address of the Procuring Entity shall be the address mentioned in the contract.

5 Vendor's Obligations and restrictions on its Rights

5.1 Changes in Constitution/ financial stakes/ responsibilities of a Contract's Business

The Vendor must proactively keep the Procuring Entity informed of any changes in its constitution/ financial stakes/ responsibilities during the execution of the contract. Where the vendor is a partnership firm, the following restrictions shall apply to changes in the constitution during the execution of the contract:

- 1) a new partner shall not be introduced in the firm except with the previous consent in writing of the Procuring Entity, which shall be granted only upon execution of a written undertaking by the new partner to perform the contract and accept all liabilities incurred by the firm under the contract before the date of such undertaking.
- 2) On the death or retirement of any partner of the vendor firm before the complete performance of the contract, the Procuring Entity may, at his option, terminate the contract for default as per the Contract and avail any or all remedies thereunder.
- 3) If the contract is not terminated as provided in Sub-clause (2) above notwithstanding the retirement of a partner from the firm, that partner shall continue to be liable under the contract for acts of the firm until a copy of the public notice given by him under Section 32 of the Partnership Act, has been sent by him to the Procuring Entity in writing or electronically.

5.2 Obligation to Maintain Eligibility and Qualifications

The contract has been awarded to the vendor based on specific eligibility and qualification criteria.

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The Vendor is contractually bound to maintain such eligibility and qualifications during the execution of the contract. Any change which would vitiate the basis on which the contract was awarded to the vendor should be pro-actively brought to the notice of the Procuring Entity within 7 days of it coming to the Vendor's knowledge. These changes include but are not restricted to change regarding declarations made by it in its bid in Form 1.2: Eligibility Declaration.

5.3 Change in its qualification criteria submitted in its bid in Form 4: Qualification Criteria - Compliance and its sub-form(s). Restriction on Potential Conflict of Interests

Neither the vendor nor its subvendors nor the personnel shall engage, either directly or indirectly, in any of the following activities:

- 1) during the term of this Contract, any business or professional activities in India that would conflict with the activities assigned to them under this Contract.
- 2) after the termination of this Contract, such other activities as may be stipulated in the contract.

5.4 Consequences of a breach of Obligations

Should the vendor or any of its partners or its sub-vendors or the personnel commit a default or breach of CC-clause 5.1 to 5.7, the Vendor shall remedy such breaches within 21 days, keeping the Procuring Entity informed. However, at its discretion, the Procuring Entity shall be entitled, and it shall be lawful on his part, to treat it as a breach of contract and avail any or all remedies thereunder. The decision of the Procuring Entity as to any matter or thing concerning or arising out of CC clause 5.1 to 5.7 or on any question whether the vendor or any partner of the vendor firm has committed a default or breach of any of the conditions shall be final and binding on the vendor.

5.5 Assignment and Sub-contracting

- 1) The vendor shall not, save with the previous consent in writing of the Procuring Entity, sublet, transfer, or assign the contract or any part thereof or interest therein or benefit or advantage thereof in any manner whatsoever.
- 2) The vendor shall notify the Procuring Entity in writing all subcontracts awarded under the contract if not already stipulated in the contract. In its original bid or later, such notification shall not relieve the vendor from any of its liability or obligation under the terms and conditions of the contract. Subcontract shall be only for bought out items and incidental Works/ Services. Subcontracts must comply with and should not circumvent Vendor's compliance with its obligations under CC-clause 5.1 to 5.7, based on which the contract was awarded to him.
- 3) If the Vendor sublets or assigns this contract or any part thereof without such permission, the Procuring Entity shall be entitled, and it shall be lawful on his part, to treat it as a breach of contract and avail any or all remedies thereunder.

5.6 Indemnities for breach of IPR Rights

- 1) The vendor shall indemnify and hold harmless, free of costs, the Procuring Entity and its employees and officers from and against all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which may arise in respect of the Goods provided by the vendor under this Contract, as a result of any infringement or alleged infringement of any patent, utility model, registered

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design, copyright, or other Intellectual Proprietary Rights (IPR) or trademarks, registered or otherwise existing on the date of the contract arising out of or in connection with:

- a. any design, data, drawing, specification, or other documents or Goods provided or designed by the vendor for or on behalf of the Procuring Entity.
- b. The sale by the Procuring Entity in any country of the products produced by the Goods supplied by the vendor, and
- c. The installation of the Goods by the vendor or the use of the Goods at the Procuring Entity's Site.

2) Such indemnity shall not cover any use of the Goods or any part thereof or any products produced thereby:

- a. other than for the purpose indicated by or to be reasonably inferred from the contract.
- b. in association or combination with any other equipment, plant, or materials not supplied by the vendor.

3) If any proceedings are brought, or any claim is made against the Procuring Entity arising out of the matters referred above, the Procuring Entity shall promptly give the vendor a notice thereof. At its own expense and in the Procuring Entity's name, the vendor may conduct such proceedings and negotiations to settle any such proceedings or claim, keeping the Procuring Entity informed.

4) If the vendor fails to notify the Procuring Entity within twenty-eight (28) days after receiving such notice that it intends to conduct any such proceedings or claim, then the Procuring Entity shall be free to conduct the same on its behalf at the risk and cost to the vendor.

5) At the vendor's request, the Procuring Entity shall afford all available assistance to the vendor in conducting such proceedings or claim and shall be reimbursed by the vendor for all reasonable expenses incurred in so doing.

5.7 Confidentiality, Secrecy and IPR Rights

5.7.1 IPR Rights

All deliverables, outputs, plans, drawings, specifications, designs, reports, and other documents and software submitted by the vendor under this Contract shall become and remain the property of the Procuring Entity and subject to laws of copyright and must not be shared with third parties or reproduced, whether in whole or part, without the Procuring Entity's prior written consent. The vendor shall, not later than upon termination or expiration of this Contract, deliver all such documents and software to the Procuring Entity, together with a detailed inventory thereof. The vendor may retain a copy of such documents and software but shall not use it for any commercial purpose.

5.7.2 Confidentiality

All documents, drawings, samples, data, associated correspondence or other information furnished by or on behalf of the Procuring Entity to the vendor, in connection with the contract, whether such information has been furnished before, during or following completion or termination of the contract, are confidential and shall remain the property of the Procuring Entity and shall not, without the prior written consent of Procuring Entity neither be divulged by the vendor to any third party, nor be used by him for any purpose other than the design, procurement, or other services and work required for the performance of this Contract. If advised by the Procuring Entity, all copies of all such information in original

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shall be returned on completion of the vendor's performance and obligations under this contract.

5.7.3 Secrecy

If the Contract declares the subject matter of this Contract as coming under the Official Secrets Act, 1923 or if the contract is marked as "Secret", the vendor shall take all reasonable steps necessary to ensure that all persons employed in any connection with the contract, have acknowledged their responsibilities and penalties for violations under the Official Secrets Act and any regulations framed thereunder.

5.7.4 Obligations of the vendor

- 1) Without the Procuring Entity's prior written consent, the vendor shall not use the information mentioned above except for the sole purpose of performing this contract.
- 2) The vendor shall treat and mark all information as confidential (or Secret – as the case may) and shall not, without the written consent of the Procuring Entity, divulge to any person other than the person(s) employed by the vendor in the performance of the contract. Further, any such disclosure to any such employed person shall be made in confidence and only so far as necessary for such performance for this contract.
- 3) Notwithstanding the above, the vendor may furnish to its holding company or its Subvendor(s) such documents, data, and other information it receives from the Procuring Entity to the extent required for performing the contract. In this event, the vendor shall obtain from such holding company/ Subvendor(s) an undertaking of confidentiality (or secrecy – as the case may be) similar to that imposed on the vendor under the above clauses.
- 4) The obligation of the vendor under sub-clauses above, however, shall not apply to information that:
 - a) the vendor needs to share with the institution(s) participating in the financing of the contract;
 - b) now or hereafter is or enters the public domain through no fault of Vendor;
 - c) can be proven to have been possessed by the vendor at the time of disclosure and which was not previously obtained, directly or indirectly, from the Procuring Entity; or
 - d) otherwise lawfully becomes available to the vendor from a third party that has no obligation of confidentiality.
- 5) The above provisions shall not in any way modify any undertaking of confidentiality (or Secrecy – as the case may be) given by the vendor before the date of the contract in respect of the contract/ the Tender Document or any part thereof.
- 6) The provisions of this clause shall survive completion or termination for whatever reason of the contract.

5.8 Performance Bond/ Security

- 1) Within twenty-one days after the issue of Letter of Award (LoA) by the Procuring Entity, the vendor shall furnish to the Procuring Entity, performance security, valid up to sixty days after the date of completion of all contractual obligations by the vendor, including the warranty

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obligations.

- 2) The amount of Performance security shall be **5% of the contract Price** denominated in Indian Rupees or the currency of the contract and shall be in one of the following forms:
 - a) Account Payee Demand Draft or Fixed Deposit Receipt from a scheduled commercial bank in India, favouring the Bank Note Paper Mill India Private Limited, Administrative Building, Paper Mill Compound, Note Mudran Nagar, Mysuru 570003, Karnataka, India.
 - b) Bank Guarantee (including e-Bank Guarantee) issued by any scheduled Indian Commercial Bank or from an Indian Branch of a foreign bank or correspondent Indian bank of the foreign bank if not having a branch in India, in the prescribed form provided in Format 1.2.
 - c) Insurance Surety Bonds.
 - d) Online payment in an acceptable form.
- 3) If the vendor, having been called upon by the Procuring Entity to furnish Performance Security, fails to do so within the specified period, it shall be lawful for the Procuring Entity at its discretion to annul the award and forfeit Bid Security, besides taking any other administrative punitive action like 'Removal from List of Registered Suppliers' etc.
- 4) If the vendor during the currency of the Contract fails to maintain the requisite Performance Security, it shall be lawful for the Procuring Entity at its discretion:
 - a) to terminate the Contract for Default besides availing any or all contractual remedies provided for breaches/ default, or
 - b) without terminating the Contract:
 - i. recover from the vendor the amount of such security deposit by deducting the amount from the pending bills of the vendor under the contract or any other contract with the Procuring Entity or the Government or any person contracting through the Procuring Organisation or otherwise howsoever as per CC-clause 10.4, or
 - ii. treat it as a breach of contract and avail any or all availing any or all contractual remedies provided for breaches/ default.
- 5) In the event of any amendment issued to the contract, the vendor shall furnish suitably amended value and validity of the Performance Security in terms of the amended contract within twenty-one days of issue of the amendment.
- 6) The Procuring Entity shall be entitled, and it shall be lawful on his part,
 - a) to deduct from the performance securities or to forfeit the said security in whole or in part in the event of:
 - i. any default, or failure or neglect on the part of the vendor in the fulfilment or performance in all respect of the contract under reference or any other contract with the Procuring Organisation or any part thereof
 - ii. for any loss or damage recoverable from the vendor which the Procuring Entity may suffer or be put to for reasons of or due to above defaults/ failures/ neglect
 - b) and in either of the events aforesaid to call upon the vendor to maintain the said performance security at its original limit by making further deposits, provided further that the Procuring Entity shall be entitled, and it shall be lawful on his part, to recover any such claim from any sum then due or which at any time after that may become due to the vendor for similar reasons.
- 7) Subject to the sub-clause above, the Procuring Entity shall release the performance security without any interest to the vendor on completing all contractual obligations, including the warranty obligations, if any. Alternatively, for the duration of Warranty obligations, upon the vendor submitting a suitable separate Warranty Security, the original Performance Guarantee Security shall be released *mutatis-mutandis*.



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- 8) No claim shall lie against the Procuring Entity regarding interest on cash deposits or Government Securities or depreciation thereof.

5.9 Permits, Approvals and Licenses

Whenever the supply of Goods and incidental Works/ Services requires that the vendor obtain permits, approvals, and licenses from local public authorities, it shall be the vendor's sole responsibility to obtain these and keep these current and valid. Such requirements may include but not be restricted to export licence or environmental clearance if required. If requested by the vendor, the Procuring Entity shall make its best effort to assist the vendor in complying with such requirements in a timely and expeditious manner, without any dilution of the Vendor's responsibility in this regard.

5.10 Custody and Return of the Procuring Entity's Materials/ Equipment/ Documents loaned to Vendor.

- 1) No asset/ property/ drawings/ material/ samples/ equipment/ utility shall be provided or loaned to the vendor for the performance of the contract. Whenever such assets are required to be issued to the vendor (inter-alia in fabrication or design or development) as per the contract, these would be issued only as per terms and conditions and against appropriate safeguards (including Insurances, Bank Guarantee, Indemnity Bonds, Retention Money etc.) specified therein. The Vendor shall use such property for the execution of the contract and no other purpose whatsoever.
- 2) The vendors shall sign receipts for all tools, plants and materials or other assets/ properties made over to him by the Procuring Entity. All such assets shall be deemed to be in good condition when received by the vendor unless he has within twenty-four hours of the receipt thereof notified the Procuring Entity to the contrary. Otherwise, he shall be deemed to have lost the right to do so at any subsequent stage.
- 3) These assets shall remain the property of the Procuring Entity, and the vendor shall take all reasonable care of all such assets. The vendor shall be responsible for all damage or loss from whatever cause caused while such assets are possessed or controlled by the vendor, staff, workmen or agents.
- 4) Where the vendor insures such assets against loss or fire at the request of the Procuring Entity, such insurance shall be deemed to be by way of additional precaution and shall not prejudice the liability of the vendor as aforesaid
- 5) The Vendor shall return all such assets in good order or repair, fair wear and tear excepted, before the completion/ closure/ termination of the contract and shall be responsible for any failure to account for the same or any damage done to that as assessed by the Procuring Entity, whose decision shall be final and binding.

5.11 Labour Codes and Related Obligations

5.11.1 Independent Vendor

The vendor's status shall be that of an independent vendor and Primary Employer of staff deployed during the contract by him or his sub-vendors or other associates. The Vendor, its employees, agents, and subvendors performing under this Contract are not employees or

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agents of the Procuring Organisation or Procuring Entity or Central or State Government or their agencies/ Enterprises, simply by Services delivered under this Contract.

5.11.2 Obligations of the vendor under Labour Codes and Rules

- 1) In cases where Contract or part(s) thereof is to be performed by the vendor at the premises of the Procuring Entity or Consignee, the vendor shall comply with the provisions of the Labour Codes, which including Code on Wages, 2019, The Industrial Relations Code 2020, Code on the Social Security 2020, and The Occupational Safety, Health and Working Conditions 2020, as applicable and as modified from time-to-time, wherever applicable and shall also indemnify the Procuring Entity from and against any claims under the aforesaid Labour codes and the Rules.
- 2) The Vendor shall obtain a valid licence, if applicable, under the aforesaid Labour codes and the Rules as modified from time-to-time before the commencement of the contract and continue to have a valid licence until the completion of the contract. Any failure to fulfil this requirement, the Procuring Entity shall treat it as a breach of contract for default as per the contract and avail any or all remedies thereunder.
- 3) In respect of all labour directly or indirectly employed in the contract for the performance of the vendor's part of the contract, the vendor shall comply with or cause to comply with the provisions of the aforesaid Labour codes and the Rules wherever applicable. The vendor shall be solely responsible for submitting all the necessary returns under these Codes and the Rules. Nevertheless, the vendor shall submit monthly returns to the Procuring Entity to confirm compliance with such Codes and rules. Failure to do so shall entitle Procuring Entity to take any measure to ensure compliance to such codes and rules by the vendor and his associates, including, but not limited to, withholding vendor's on-account bills.
- 4) The Vendor shall pay the wages as per the Code on Wages to their workers not below the rate of minimum wages, as notified by the State Government or Central Government, whichever is higher, through the bank transfer. Notwithstanding the contract's provisions to the contrary, the Vendor shall cause to be paid the wages to labour directly or indirectly engaged on the contract, including any engaged by his Sub-Vendors in connection with the said contract as if he had immediately employed the labour. The Procuring Entity shall, without any commitments or being obliged to do, may at its discretion, monitor that such payments are being made. The Vendor shall be required to submit, every month, documentary evidence in the form of a Bank Statement of having transferred the gross minimum wages to each of the workers. Failure to do so shall entail Procuring Entity taking up any measure to ensure the payment of wages including, but not limited to, withholding vendors on account bills.
- 5) In every case in which, by virtue of the provisions of the aforesaid Labour codes and the Rules, the Procuring Entity is obliged to pay any amount of wages to a workman employed by the vendor or his Sub-Vendor in execution of the contract or to incur any expenditure in providing welfare and health amenities required to be provided under the aforesaid Labour codes and the Rules or to incur any expenditure on account of the contingent liability of the Procuring Entity due to the vendor's failure to fulfil his statutory obligations under the aforesaid Labour codes and the Rules the Procuring Entity shall recover from the vendor, the amount of wages so paid or the amount of expenditure so incurred, and without prejudice to the rights of the Procuring Entity

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under the aforesaid Labour codes and the Rules, the Procuring Entity shall be at liberty to recover such amount or part thereof by deducting it from the security deposit and/ or from any sum due by the Procuring Entity to the vendor whether under the contract or otherwise. The Procuring Entity shall not be bound to contest any claim made against it under the aforesaid Labour codes and the Rules except on the vendor's written request, and upon giving the Procuring Entity complete security for all costs, Procuring Entity might become liable in contesting such claim. The decision of the Procuring Entity regarding the amount actually recoverable from the vendor as stated above shall be final and binding on the vendor.

5.11.3 The obligation of Vendor to ensure awareness of Labour Codes

- 1) The Vendor has to mandatorily provide a comprehensive day-long training carried out by a certified Third-Party agency for the awareness of Labour codes and the Rules, grievance redressal mechanism and other provisions applicable to his and his Sub-vendor's staff, workers, labour employed by him directly or indirectly in delivery of service to the Procuring Entity. The Vendor must submit relevant documentary proof to Procuring Entity of having conducted such training to all workers as and when asked for
- 2) The Vendor must provide a comprehensive booklet (Procuring Entity approves that) containing all the relevant updated labour codes, rules, and other applicable provisions, to every worker at the outset of the contract in the local vernacular language.
- 3) Procuring Entity, without any commitments or being obliged to do, may at its discretion, provide following facilities for Vendor's Contract Labour working on this Contract:
 - a) Helpline for complaints from labour regarding payment of wages, worksite facilities, sexual harassment etc.
 - b) Provision for recording anonymous complaints from workers, citizens etc., regarding violation of Labour codes and the Rules by Vendor.

5.11.4 Guidelines of Sexual Harassment Act 2013

- 1) The Bidder shall be solely responsible for full compliance with the provisions of "the Sexual Harassment of women at workplace (Prevention, Prohibition and Redressal Act, 2013)". In case of any complaint of sexual harassment against its employee within the premises of the BNPM, the complaint will be filed before the Internal Complaints Committee constituted by the Bidder and the Bidder shall ensure appropriate action under the said Act in respect to the complaint.
- 2) Any complaint of sexual harassment from any aggrieved employee of the Bidder against any employee of the BNPM, shall be taken cognizance of by the Complaints Committee constituted by the BNPM.
- 3) The Bidder shall be responsible for any monetary compensation that may need to be paid in case the incident involves the employees of the vendor, for instance any monetary relief to BNPM employee, if sexual violence by the employee of the Bidder is proved.
- 4) The Bidder shall be responsible for educating its employees about prevention of sexual harassment at work place and related issues.
- 5) The Bidder shall provide a complete and updated list of its employees who are deployed within the BNPM premises.

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6 Scope of Supply and Technical Specifications

6.1 The Scope of Supply

- 1) This contract is for the supply of the Goods of the description, specifications, and drawings, and in the quantities outlined in the contract on the dates specified therein.
- 2) **Incidental Works/ Services:** The vendor shall be required to perform specified incidental Works/ Services (e.g., Installation, Commissioning, Training, Performance Tests etc.) as an integral part of the Goods in the contract.

6.2 Technical Specifications and Standards

The Goods & incidental Works/ Services to be provided by the vendor under this contract shall conform to the technical specifications and quality control parameters mentioned in 'Technical Specification and Scope of Work' under Sections V of the Tender Document. Wherever references are made in the Contract to codes and standards by which it shall be executed, the edition or the revised version of such codes and standards shall be those specified in the Contract. During Contract execution, any changes in any such codes and standards shall be applied only after approval by the Purchaser. For standards and requirements where no applicable specifications/ Scope of Work are mentioned, appropriate latest authoritative standards and quality assurance issued by the concerned institution shall be applicable. The Goods supplied shall be:

- 1) Entirely brand new, unused, and incorporate all recent improvements in design and materials unless prescribed otherwise by the Procuring Entity in the contract.
- 2) conform to materials, manufacture and workmanship as stipulated in the contract, free of all defects and faults using specified/ appropriate materials, manufacture, and workmanship throughout and consistent with the established and generally accepted standards for Goods of the type ordered and in full conformity with the contract specification, drawing or sample, if any.

6.3 Eligible Goods - Country of Origin and Minimum Local Content

The country of origin of 'Goods' and 'incidental Works/ Service' to be supplied under the contract shall have their origin in India or other countries and must conform to the declaration made by the vendor in its bid regarding but not limited to i) restrictions on certain countries with land-borders with India; ii) minimum local content and location of value addition (Make in India Policy); iii) Vendor's status as MSE or Start-up. The term "origin" used in this clause means where the goods (including subcontracted components) are mined, grown, produced, or manufactured or from where the incidental Works/ Services are arranged and supplied. For purposes of this Clause, the term 'Goods' shall have the meaning as defined in CC-clause 1.2.

6.4 Spare parts

- 1) The vendor shall supply/ provide any or all of the following materials, information etc. about spare parts manufactured and/ or supplied by them:
 - a) The spare parts as selected by the Procuring Entity to be purchased from the vendor, subject to the condition that such purchase of the spare parts shall not relieve the vendor of any contractual obligation including warranty obligations; and
 - b) In case the production of the spare parts is discontinued after 10 years from the date of

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completion of warranty period of the equipment supplied hereunder:

- i. At least 12 months advance notice to the Procuring Entity before such discontinuation to provide adequate time for it to purchase the required spare parts etc., and
- ii. Immediately following such discontinuation, as and if requested by the Procuring Entity, provide free of cost the designs, drawings, layouts, specifications, and alternative sources of supply of such spare parts.

2) the vendor shall carry sufficient inventories to assure ex-stock supply of consumable spares for the Goods so that the same is supplied to the Procuring Entity promptly on receipt of the order from the Procuring Entity.

6.5 General Technical Requirements for Maintenance of Plant during Guarantee Period

1. Definition

- a) The expression 'Guarantee Period' in respect of various types of contracts shall mean as given below unless specified otherwise in the tender document:

Mechanical guarantee for 12 months calculated from the date of commissioning.

2. Responsibilities

- a) The VENDOR shall, during the 'Guarantee Period' subject to the scope of works under the Contract:
 - i. Complete all outstanding works as on the date of commissioning and permitted by the PURCHASER to be completed during 'Guarantee Period', within the time schedule agreed with the PURCHASER.
 - ii. Execute all work of amendment, reconstruction and rectification of all unacceptable work or faults like shrinkages and other defects attributable to him arising out of faulty and defective materials, bad workmanship, vendor's faulty design and any act or omission of the vendor, save those which are due to fair wear and tear.
- b) All works referred to above, shall be executed by the VENDOR at his own cost, if such work is attributable to the VENDOR due to:
 - i. The use of material, plants, equipment or workmanship not in accordance with the Contract, or
 - ii. Where the VENDOR is responsible for the design of any part of works, any fault in such design or
 - iii. The PURCHASER shall give notice to the VENDOR in writing stating the nature of the any such defects together with all available evidence thereof, promptly following the discovery of it, the purchaser shall afford all reasonable opportunity for the VENDOR to inspect such defects. Upon receipt of such notice, the VENDOR shall, within the period specified in the contract, expeditiously repair or replace the defective goods or parts thereof, at no cost to the PURCHASER.
- c) In case of a default on the part of the VENDOR in carrying out such instructions within a reasonable time, the PURCHASER, after a notice of 1 month to the VENDOR, shall be entitled to carry out the work himself or by employing others at the risk and cost of the VENDOR if the VENDOR is liable for such works.

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- d) The 'Guarantee Period' shall be extended by a period equal to the period during which the works cannot be used, by reason of a defect or damage attributable to the VENDOR.
- e) If the replacement and renewals are of such nature which affect the performance of works, the PURCHASER may require the VENDOR to repeat the 'Performance Guarantee Tests', pertaining to the renewal / replacement to the extent necessary by a notice within 1 month of such renewal and replacement.
- f) If any defect or other fault in the works appears at any time prior to the end of 'guarantee period'; the purchaser may instruct the vendor to search under the directions of purchaser for the cause thereof. If such defect detected consequent to the vendor's search is one for which he is liable, in accordance with the provisions of the contract, the cost of the work in searching as aforesaid shall be borne by the vendor, and he shall, in such cases, remedy such defect at his own cost.

7 Inspection and Quality Assurance

7.1 Shop Inspection and Tests

a) General

- i. The plant and equipment covered by the Contract shall be subjected to inspection and testing. The VENDOR shall provide all services to establish and maintain quality of workmanship in his works and that of his Sub-VENDOR's works to ensure the mechanical accuracy of components, compliance with approved drawings, dimensions identification and acceptability of all materials, parts and equipment.
- ii. For the supply of plant / systems, the VENDOR shall, at the start of the Contract, furnish a total list of items in his scope of work. This list, giving a brief description of the item, quantity, names of probable Sub-VENDORS shall be submitted for information to the PURCHASER. The blank column shall be filled by PURCHASER. The list shall be submitted within two months from the date of signing the Contract.
- iii. The VENDOR shall give the PURCHASER written notice of any material being ready for testing. The notice period shall be seven (7) days for inspection of Indian components and twenty-five (25) days for inspection outside India. The PURCHASER, unless the inspection / test is virtually waived, shall fix a date for inspection with the VENDOR and attend such test within seven/twenty-five (7/25) days of the date on which the equipment is notified as being ready for test and inspection failing which, the VENDOR may proceed with the tests and shall forthwith forward to the PURCHASER duly certified copies of tests in triplicate.
- iv. The PURCHASER shall have the right to inspect any machinery, material, structures, equipment or workmanship furnished or used by the VENDOR and may reject any item which is defective or unsuitable for the use and purpose contractually intended, or which is not in accordance with the intent of the Contract. The VENDOR, upon demand by the PURCHASER, shall remedy or replace at the VENDOR's expense such defective or unsuitable items of the plant, or incase not done within reasonable time the PURCHASER may, at the expense of the VENDOR, remedy or replace of such defective or unsuitable items of the plant. PURCHASER and VENDOR shall mutually agree on the scope of items to be inspected, at a convenient date after effectiveness of the contract. PURCHASER shall carry out the inspection as per the agreed time schedule without hindering the production or dispatch of the suppliers.

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- v. The PURCHASER shall reserve the right to call for certificates of origin and test certificates for all raw material and equipment at any stage of manufacture.
- vi. The PURCHASER shall within fifteen (15) days from the date of inspection as defined herein give notice in writing to the VENDOR of any non-conformance pertaining to all or an equipment and workmanship which in his opinion is not in accordance with the Contract. The VENDOR shall give due consideration to such objections and shall make the modifications that may be necessary to meet the said objections. In case any suggested modifications are not required in the opinion of the VENDOR they shall confirm in writing to the PURCHASER giving adequate reasons therein stating that no modifications are necessary to comply with the Contract.
- vii. When the factory tests and documentation have been satisfactorily completed at the VENDOR's or Sub-VENDOR's works, the PURCHASER shall issue acceptance note or shipping release note or a certificate to this effect within fifteen (15) days after completion. But, if the tests are not witnessed by the PURCHASER, the certificate or comments thereof shall normally be issued within fifteen (15) days of the receipt of the VENDOR's test certificate by the PURCHASER. Failure of the PURCHASER to take such an action shall not prevent the VENDOR from proceeding with the work. The completion of these tests or the issue of the certificates shall not bind the PURCHASER to accept the equipment, should it, on further tests after erection, be found not to comply with the Contract.
- viii. Inspection and approval of the equipment or material by the purchaser does not absolve the vendor of the responsibilities of guarantee for the equipment/ material. It will be the sole responsibility of vendor to ensure that the equipment/ material supplied is complete in all respects and performs to their designed parameters in accordance with the contract. Should the PURCHASER waive the inspection of any item at VENDORS/Sub-VENDORS work, such waiver shall not relieve the VENDOR in any way from his obligation under the Contract. In the event of the PURCHASER's inspection revealing poor quality of goods, the PURCHASER shall be at liberty to specify additional inspection procedures, if required, to ascertain the VENDOR'S compliance with the equipment specifications.

b) Sub-Orders and Sub-Contracts placed on Sub-Vendors

- i. In order to facilitate the inspection of bought-out materials and plant, the VENDOR shall submit details of all sub orders and sub-contracts placed by him. VENDOR does not need to provide copy of order placed to sub-vendor. However, VENDOR shall ensure to provide address of sub-vendors with details of items ordered on them.

7.2 Consequence of Rejection

Upon the Goods being rejected by the Inspecting Officer or Interim Consignee or Consignee at a place other than the premises of the vendor, the Procuring Entity shall be at liberty to:

- 1) Demand that such stores shall be removed by the vendor at his cost subject as hereinafter stipulated, within 21 days of the date of intimation of such rejection. Provided that the Inspecting Officer may call upon the vendor to remove dangerous, infected, or perishable stores within 48 hours of the receipt of such communication and the decision of the Inspecting Officer in this regard shall be final in all respects. Provided further that where the price or part thereof has been paid, the consignee is entitled without prejudice to his other rights to retain the rejected stores till the price paid for such stores is refunded by the vendor or dispose-off such rejected

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Goods as per clause below save that such retention shall not in any circumstances be deemed to be acceptance of the stores or waiver of rejection thereon. The Vendor shall bear all cost of such replacement, including taxes and freight, if any, and replacing Goods without being entitled to any extra payment on that or any other account.

- 2) All rejected Goods shall, in any event, and circumstances remain and always be at the vendor's risk immediately on such rejection. If the vendor does not remove such Goods within the periods aforementioned, the Procuring entity /inspecting officer, as the case may be as per the place of rejection, may remove the rejected Goods. The Procuring Entity or Inspecting Officer may either return the same to the vendor at his risk and cost by such mode of transport as it may decide or dispose off such Goods at the vendor's risk and on his account and retain such portion of the proceeds from such disposal, as may be necessary to recover any expense incurred in connection with such disposals (or any price refundable as a consequence of such rejection). The Procuring Entity shall, in addition, be entitled to recover from the vendor ground rent/ demurrage charges on the rejected Goods after the expiry of the time-limit mentioned above.
- 3) Disposal of rejected goods in an aforesaid manner shall not exonerate vendor but still hold him liable to pay to the procuring entity, the dues as may arise as per the terms of contract besides the cost of goods if already paid to the vendor and any inspection charges. The Purchaser can take action as per contract terms if the vendor fails to pay the amount due to him. The vendor shall, if the Goods are rejected at destination by the consignee, be liable, in addition to his other liabilities, including a refund of price recoverable in respect of the Goods so rejected, to reimburse to the Procuring Entity the freight and all other expenses incurred by it in this regard. The Vendor shall be allowed to take back rejected Goods only after such refunds are received by the Procuring Entity.

7.3 Inspections at the last moment

- 1) If the contract stipulates pre-despatch inspection of the ordered Goods at Vendors premises, he shall put up the Goods for inspection well ahead of the delivery period to complete the inspection within that period.
- 2) In cases where only a portion of the Goods ordered is tendered for inspection at the last moments of the delivery period and also in cases where inspection is not completed in respect of the portion of the Goods tendered for inspection during the delivery period, the inspector shall carry out the inspection and complete the formality beyond the contractual delivery period at the specific written request by and at the risk and expense of the vendor. The fact that the Goods have been inspected after the contractual delivery period shall not amount to keeping the contract alive, and this shall be without any prejudice to the legal rights and remedies available to the Procuring Entity under the terms & conditions of the contract.
- 3) If the Goods tendered for inspection during or at the last moments of the delivery period are not found acceptable after carrying out the inspection, the Procuring Entity is entitled to cancel the contract in respect of the same at the risk and expense of the vendor. If the Goods tendered for inspection are found acceptable, the Procuring Entity may grant an extension of the delivery period subject to conditions mentioned in CC-clause 9.11 below.

7.4 Consignee's right of Rejection of Inspected Goods

- 1) Goods accepted by the Procuring Entity and/ or its inspector at the initial inspection and final inspection in terms of the contract shall in no way dilute the Procuring Entity's right to reject the

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same later if found deficient concerning 'Technical Specifications and Scope of Work'.

2) Notwithstanding any approval which the Inspecting Officer may have given in respect of the Goods or any materials or other particulars or the work or workmanship involved in the performance of the contract (whether with or without any test carried out by the vendor or the Inspecting Officer or under the direction of the Inspecting Officer) and notwithstanding delivery of the Goods where so provided to the interim consignee, it shall be lawful for the consignee, on behalf of the Procuring Entity, to inspect, test and, if necessary, reject the Goods or any part, portion or consignment thereof, after the Goods' arrival at the final destination within a reasonable time after actual delivery thereof to him at the place of destination stipulated in the contract, if such Goods or part, portion or consignment thereof is not in all respects in conformity with the terms and conditions of the contract whether on account of any loss, deterioration or damage before despatch or delivery or during transit or otherwise howsoever.

Note: Regarding materials pre-inspected at the firm's premises during manufacture or before delivery or dispatch, the consignee shall issue rejection advice within 90 days from the date of receipt.

8 Packing, Transportation, Insurance and Receipt

8.1 Packing Specifications and Quality

- 1) The marking of the Goods must comply with the Goods of the laws relating to merchandise marks for the time being in force in India.
- 2) The packing for the Goods to be provided by the vendor should be strong and durable enough to withstand, without limitation, the entire journey during transit, including transshipment (if any), rough handling, open storage etc., without any damage, deterioration etc. If necessary, the size, weights, and volumes of the packing cases, the remoteness of the goods' final destination, and availability or otherwise of transport and handling facilities at all points during transit up to the final destination shall also be considered.
- 3) The quality of packing, the manner of marking within & outside the packages, and accompanying documentation shall strictly comply with the 'Technical Specification and Scope of Work' and in the contract. If the packing requirements are amended due to any amendment to the contract, the vendor shall comply accordingly.
- 4) All containers (including packing cases, boxes, tins, drums, and wrappings) in which the vendor supplies the Goods shall be considered non-returnable and their cost included in the contract price.
- 5) If the contract provides that the containers shall be returnable, they must be marked 'returnable'. The cost of returnable containers as well as reverse transportation shall be borne by the vendor.

8.2 Packing instructions

The vendor shall mark each package on three sides with the following with indelible paint of proper quality:

- 1) An iconic graphical mark to visually identify a particular consignment.
- 2) Name of the Procuring Entity; contract number and date.
- 3) Brief description of Goods including quantity.
- 4) The gross weight of the package.
- 5) Serial number of this package and the total number of packages in the consignment.

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- 6) Packing list reference number.
- 7) Country of origin of goods.
- 8) Consignee's name and full address and;
- 9) Vendor's name and address.

8.3 Transfer of Title of Goods (In case of delivery terms – FOB / CIF)

- 1) Notwithstanding any inspection and approval by the Inspecting Officer on the vendor's premises, or any payments made to the vendor, property in the Goods (and resultant rights and liabilities) shall not pass on to the Procuring Entity until the Goods have been received, inspected, and accepted by the consignee. The Goods and every constituent part thereof, whether in the possession or control of the vendor, his agents or servants or a carrier, or the joint possession of the vendor, his agents or servants and the Procuring Entity, his agents, or servants, shall remain in every respect at the risk of the vendor, until their actual delivery to a person stipulated in the contract as the interim consignee for despatch to the consignee. The Vendor shall be responsible for all loss, destruction, damage, or deterioration of or to the Goods from any cause whatsoever while the Goods after approval by the Inspecting Officer are awaiting despatch or delivery or are in the course of transit from the vendor to the consignee or, as the case may be, interim consignee. The Vendor shall alone be entitled and responsible for making claims against any carrier in respect of non-delivery, short delivery, misdelivery, loss, destruction, damage, or deterioration of the Goods entrusted to such carrier by the vendor for transmission to the consignee or the interim consignee as the case may be.
- 2) Provided that where, under the terms of the contract, the Goods are required to be delivered to an interim consignee for despatch to the consignee, the Goods shall be at the Procuring Entity's risk after their delivery to the interim consignee.

8.4 Transportation

8.4.1 Instructions for transportation of domestic Goods

The vendor shall arrange transportation of the ordered Goods as per its procedure.

8.4.2 Shipping Arrangement for Foreign Contracts:

In the case of FOB contracts, shipping arrangements shall be made by the Procuring Entity. The Vendor shall give adequate notice to the Procuring Entity and its Forwarding Agents/ Nominees about the readiness of the cargo from time to time and at least six weeks' notice in advance of the required date of dispatch for finalising the shipping arrangements. In the case of CIF contracts, the vendor shall arrange the shipment as per the instructions from the Procuring Entity.

8.4.3 Airlifting

Should the Procuring Entity intend to airlift all or some of the Goods, the vendor shall pack the Goods accordingly upon receiving intimation to that effect. Such deliveries shall be agreed upon well in advance and paid for as may be mutually agreed.

8.4.4 Distribution of Despatch Documents for Clearance/ Receipt of Goods

The vendor shall send all the relevant despatch documents well in time to the Procuring Entity to enable it to clear or receive (as the case may be) the Goods in terms of the contract. Unless otherwise stipulated in the contract, the usual documents involved and the drill to be

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followed in general for this purpose are as follows:

- 1) **For Domestic Goods** within 24 hours of despatch, the vendor shall notify the Procuring Entity, consignee, and others concerned, if mentioned in the contract, the complete details of despatch and also supply the following documents (as relevant) to them by registered post/ speed post/ courier besides advance intimation by digital means:
 - a) The vendor's Invoice indicating, inter alia description and specification of the Goods, quantity, unit price, total value;
 - b) Packing list;
 - c) Insurance certificate;
 - d) Railway receipt/ Road Consignment note;
 - e) Manufacturer's guarantee certificate and in-house inspection certificate;
 - f) Inspection certificate (or) waiver certificate issued by the Procuring Entity.
 - g) Expected date of arrival of goods at destination and
 - h) Any other document(s), as and if mentioned explicitly in the contract.
- 2) **For Imported Goods**, within 3 days of despatch, the vendor shall notify the Procuring Entity, consignee and other concerned, the complete details of despatch and also supply the following documents to the bank, besides advance intimation by digital means:
 - i. Complete set of clean on-Board Airway Bill/Bill of Lading (negotiable), made to order and blank endorsed wherever applicable. The Bill of lading should be endorsed by the shipper freight collect basis for FOB shipments / Freight Prepaid basis for CIF shipments.
 - ii. Invoice showing the value of the items, in quadruplicate (2 original + 2 copies), drawn in the name of PURCHASER and manually signed by the VENDOR's authorized official. All the invoices shall bear the following certificates; the original copies being manually signed by the VENDOR:
 - a. The materials covered by the invoice have passed the test and inspection of manufacturer and conforms in all respects to the contract requirement and is packed in accordance with the contract conditions. The invoice is correct in every aspect and no other invoice has been raised previously in respect of the article charged for".
 - iii. Certificate of test/inspection from VENDOR and also copy of the pre-dispatch inspection carried out and issued by the PURCHASER or copy of inspection waiver certificate. In the circumstances as mentioned in 20.5.1 (c) VENDOR'S self-certification of the test shall form the part of the shipping documents.
 - iv. Certificate of origin from Chamber of Commerce of the VENDOR's country.
 - v. One copy of certificates from the VENDOR to the effect that the contents in each case matches the items described in the invoices and packing lists and the quality of goods are guaranteed as new and as per the relevant technical specifications.
 - vi. Four (4) copies of packing list (1 original and 3 copies).
 - vii. Dangerous Cargo Certificate, if any.
 - viii. Insurance Policy of 110% if CIF contract.

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- ix. Goods receipt certificate issued by PURCHASER, if DPU contract.
- 3) It is the responsibility of the VENDOR to ensure that all shipping documents are dispatched promptly after the shipment. Otherwise, the expenses, if any, incurred by the PURCHASER on account of late/defective receipt of documents will be to the account of the VENDOR which will be deducted from his/his agent's bill.
- 4) Advice to Shipping Company for issue of delivery order – It is to be ensured by the VENDOR that immediately after encashment of Letter Of Credit, the VENDOR authorizes the Shipping Company to issue delivery order of the consignment to the PURCHASER against an undertaking from the PURCHASER that bank release original documents shall be produced after receipt thereof (In case a bank document not reaches by the time the consignment reaches the port of discharge).

8.5 Insurance

The vendor shall arrange for insuring the Goods against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery in the following manner:

- 1) In case of domestic goods supply on FOR destination basis/import goods supply on DPU basis, the vendor shall be responsible until the entire Goods contracted arrive in good condition at destination. The vendor shall cover the transit risk in this respect by getting the Goods duly insured at its own cost. The vendor shall obtain the insurance cover in its name and not in the name of the Procuring Entity or its Consignee.
- 2) In FOB offers for the import of Goods, the insurance shall be arranged by the Procuring Entity. However, the vendor must give sufficient notice to the Procuring Entity before the date of shipment so that the Insurance Cover for the shipment can be activated. The Vendor must co-ordinate to ensure that the Shipment sails only with Insurance cover in place.
- 3) In case of import of goods, even when the Procuring Entity pays the insurance, it shall entirely be the vendor's responsibility to make good loss/ damage without waiting for settlement of insurance claim so that equipment is commissioned within the time stipulated in the contract. After the insurance claim settlement, reimbursement shall be made by the Procuring Entity to the vendor.

8.6 Receipt of Consignment

8.6.1 Preliminary Acknowledgement

At the time of the delivery at the destination, the consignee shall receive the Goods and shall issue the preliminary receipt to acknowledge having received the consignment.

9 Terms of Delivery and delays

9.1 Effective Date of Contract

The effective date of the contract shall be the date of Letter of Award (LOA) by the Procuring Entity. The dates of deliveries shall be counted from effective date. No notice to commence the contract shall be issued separately.

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9.2 Time is the essence of the contract

The time for and the date for delivering the Goods stipulated in the contract or as extended shall be deemed to be of the essence of the contract. Delivery must be completed not later than the date(s) so specified or extended.

9.3 Destination Places

The destination(s) where the Goods are to be delivered shall be as stipulated in the contract or Section IV – Schedule of Requirements.

9.4 Terms of Delivery

- 1) Terms of delivery (e.g., FOR destination/ CIF/ DPU etc.) shall determine the point at which the responsibilities and property in goods passes over from the vendor to the Procuring Entity. These terms also determine the time of delivery.
- 2) the vendor shall either deliver free or FOR or CIF at the place/ places or otherwise as detailed in the contract, the quantities of the Goods detailed therein, and the Goods shall be delivered or despatched not later than the dates stipulated in the contract. The delivery shall not be complete unless the Goods are inspected and accepted by the Consignee as provided in the contract. No Goods shall be deliverable to the consignee on Sundays and public holidays or outside designated working hours without the written permission of the consignee.
- 3) the vendor shall not despatch the Goods after the expiry of the delivery period. The Vendor must apply to the Procuring Entity to extend the delivery period and obtain the same before despatch. If the vendor despatches the Goods without obtaining an extension, it would be doing so at its own risk, and no claim for payment for such supply and/ or any other expense related to such supply shall lie against the Procuring Entity.

9.5 Part Supplies

Part-shipments and/ or transhipments are allowed.

9.6 Planning And Scheduling of Work

1) Scope

This specification covers general requirements of planning and scheduling of work and progress reporting by the VENDOR.

2) Planning And Scheduling of Work

Within a mutually agreed period from the date of signing contract, the vendor shall furnish documents as indicated, to the purchaser. The vendor shall furnish the dates of manufacture, testing, dispatch, completion of erection and commissioning or stages of work. Work shall be divided into parts and items, showing the order to be adopted for the execution and ensuring that periods do not exceed the periods indicated in the contract. Vendor shall provide a detailed schedule in the form of a PERT / CPM chart covering his complete scope of works as per the contract.

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3) Progress Reports

- a. During manufacture or the execution of the Contract the VENDOR shall furnish monthly progress reports to the PURCHASER. The report shall indicate the progress achieved during the month and total progress up to the month as against scheduled program. Anticipated completion dates in respect of key phases of work such as release of drawings for fabrication, procurement of raw material, fabrication, inspection, testing and shipment shall be indicated.
- b. Corrective action for the slippage, if any, in the schedule shall be highlighted in the progress report.

9.7 Notification of Delivery

Notification of delivery or despatch regarding every instalment shall be made to the Procuring Entity immediately on despatch or delivery. The Vendor shall further supply to the BNPM packing list of the consignment and the contract references. All packages, containers, bundles, and loose materials part of every instalment shall be fully described in the packing list, and complete details of the contents of the packages and quantity of materials shall be given to enable the BNPM to check the Goods on arrival at destination. The Consignment Note or Bill of Lading/Air-way bill shall be forwarded to the BNPM by registered post/ Courier/ by hand/ electronic mode immediately on the despatch of Goods. The Vendor shall bear and reimburse the Procuring Entity demurrage/ wharfage or other charges, if any, paid because of delay on the vendor's part in forwarding the Consignment Note or Bill of Lading/Air-way bill, as applicable.

9.8 Dispatches at the last moment or after the expiry of the delivery

- 1) If the vendor locally supplies a consignment after the expiry of the contracted delivery date, BNPM may either refuse to receive it or receive it without prejudice to the rights of the Procuring Entity under the terms and conditions of the contract. Such consignments shall lie at the risk and responsibility of the vendor. Such a receipt by the consignee shall not acquiesce or condone the late delivery and shall not intend or amount to an extension of the delivery period or keeping the contract alive. The Vendor must obtain an extension of the delivery date/period from the Procuring Entity.
- 2) As regards supplies coming from outside, if the vendor dispatches the Goods after the expiry of the delivery period, it shall be at his own risk and responsibility, and that the consignee is not liable for any demurrage, wharfage, and deterioration of Goods at the destination station and, in his interest, the vendor shall get an extension of the delivery period from the contracting Entities.
- 3) In the case of imports, the vendor must not dispatch the consignment after the expiry of the delivery period without taking a prior extension of the delivery period. Otherwise, payment against the LC shall be denied. If dispatched, it shall be at the risk and responsibility of the vendor and procuring entity shall not take any responsibility for such consignments.

9.9 Delay in the vendor's performance

If the vendor fails to deliver the Goods or any instalment thereof or delays incidental Work/ Services (e.g. installation, commissioning, operator training etc.) within the period fixed for such delivery in the contract or as extended or at any time repudiates the contract before the expiry of such period, the Procuring Entity may without prejudice to his other rights:

- 1) recover from the vendor liquidated damages as per clause 9.12 below, or

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2) treat the delay as a breach of contract as per clause 12.1 below and avail all the remedies therein.

9.10 Inordinate Delays

Inexcusable delays of more than one-fourth (25%) of the total completion period shall be treated as inordinate delays. Such inordinate delays shall be noted as poor performance and be held against the vendor in future tenders. A show-cause notice shall be issued to the vendor before declaring it a poor performance. Such delays may be considered as a breach of the contract at the option of the Procuring Entity.

9.11 Extension of Delivery Period:

1) If at any time during the currency of the contract, the vendor encounters conditions hindering timely delivery of the Goods and performance of incidental Works/ Services, he shall promptly inform the Procuring Entity in writing about the same and its likely duration. He must make a request to the Procuring Entity for an extension of the delivery schedule. On receiving the vendor's communication, the Procuring Entity shall examine the situation and, at its discretion, may agree to extend the delivery schedule, with or without liquidated damages and with and without denial clause by issuing an amendment to the contract.

2) **Conditions for Extension of Delivery Period:** When the period of delivery is extended due to unexcused delay by the vendor, the amendment extending the delivery period shall, inter alia, be subject to the following conditions:

a. **Liquidated Damages:** The Procuring Entity shall recover from the vendor, under the provisions of this clause, liquidated damages on the Goods and incidental Works/ Services, which the vendor has failed to deliver within the delivery period stipulated in the contract.

b. **Denial Clause:**

- i. No increases in price on account of any statutory increase in or fresh Imposition of GST, customs duty or on account of any other taxes/ duty/ cess/ levy), leviable in respect of the Goods and incidental Works/ Services stipulated in the said contract which takes place after the original delivery date, shall be admissible on such of the said Goods, as are delivered after the said date; and
- ii. Notwithstanding any stipulation in the contract for an increase in price on any other ground, including price variation clause or foreign exchange rate variation, or any other variation clause, no such increase after the original delivery date shall be admissible on such goods delivered after the said date.
- iii. Nevertheless, the Procuring Entity shall be entitled to the benefit of any decrease in price on account of reduction in or remission of GST, customs duty or on account of any other Tax or duty or any other ground as stipulated in the price variation clause or foreign exchange rate variation or any other variation clause which takes place after the expiry of the original delivery date.

9.12 Liquidated damages (Subject to CC clause 9.11)

- 1) Delivery and completion dates are binding on the VENDOR and no variation of delivery & completion dates can be permitted except with prior written permission from the PURCHASER.
- 2) In case the vendor fails to provide engineering services for the plant within agreed completion date with the PURCHASER for reasons attributable to VENDOR, the PURCHASER may without

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any prejudice to all its other remedies available under the contract shall deduct from contract price as liquidated damages, a sum equivalent to 0.5% of engineering fee for each week of delay until completion of engineering, subject to a maximum deduction of 10% of the total engineering fee.

- 3) In case the VENDOR fails to successfully commission the plant within agreed completion date with the PURCHASER for reasons attributable to VENDOR, the PURCHASER may without any prejudice to all its other remedies of the contract shall deduct from contract price as liquidated damages, a sum equivalent to 0.5% of total contract value for each week of delay until successful commissioning, subject to a maximum deduction of 10% of the total contract value. Once the maximum is reached, PURCHASER reserves the right to terminate the contract pursuant to CC-clause 12 of the tender.
- 4) Levy/ imposition of liquidated damage shall be made with the exception of "Force Majeure" conditions, as mentioned below or any other reasons not attributable to VENDOR.
- 5) The maximum amount of liquidated damage on any account shall not exceed 10% of the total contract value.

The VENDOR agrees that, he shall not dispute the aforesaid percentage and ceiling amount in any manner.

Levy of such liquidated damages shall not absolve the VENDOR of its other obligations under the contract and the VENDOR shall continue to provide services and support during the guarantee period and thereafter as per the terms and conditions of the contract.

9.13 Force Majeure

- 1) On the occurrence of any unforeseen event, beyond the control of either Party, directly interfering with the delivery of Services arising during the currency of the contract, such as war, hostilities, acts of the public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes, lockouts, or acts of God, the affected Party shall, within a week from the commencement thereof, notify the same in writing to the other Party with reasonable evidence thereof. Unless otherwise directed by the Procuring Entity in writing, the vendor shall continue to perform its obligations under the contract as far as reasonably practicable and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event. If the force majeure condition(s) mentioned above be in force for 90 days or more at any time, either party shall have the option to terminate the contract on expiry of 90 days of commencement of such force majeure by giving 14 days' notice to the other party in writing. In case of such termination, no damages shall be claimed by either party against the other, save and except those which had occurred under any other clause of this contract before such termination.
- 2) Notwithstanding the remedial provisions contained in CC-clause 9.12 or 12.1, none of the Party shall seek any such remedies or damages for the delay and/ or failure of the other Party in fulfilling its obligations under the contract if it is the result of an event of Force Majeure.

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10 Prices and Payments

10.1 Prices

10.1.1 Charged Prices

Prices to be charged by the vendor for the supply of Goods and provision of incidental Works/ Services in terms of the contract shall not vary from the corresponding prices quoted by the vendor in its bid or during negotiations, if any, and incorporated in the contract except for any price adjustment authorized in the contract.

10.1.2 Price Components and Incidental Works/ Services

The Procuring Entity shall not pay for consignment of incomplete components unless the full useable Scope of Goods (as per the contract/ Schedule of Requirements) has been received. Deficiencies in incidental Works/ Services shall also amount to incomplete delivery. Spares would not be paid for unless the primary Goods are received.

10.1.3 Firm Prices

Prices shall be fixed and firm.

10.2 Taxes and Duties

- 1) the vendor shall be entirely responsible for all taxes, duties, fees, levies etc., incurred until delivery of the Goods to the Procuring Entity. Further instruction, if any, shall be as provided in the contract.
- 2) If applicable under relevant tax laws and rules, the Procuring Entity shall deduct from all payments and deposit required taxes to respective authorities on account of GST Reverse Charge Mechanism; Tax Deducted at Source (TDS) relating to Income Tax, labour cess, royalty etc.

3) Payment of GST Tax under the contract:

- a. The payment of GST to the vendor shall be made only on the latter submitting a GST compliant Bill/ invoice indicating the appropriate HSN code and applicable GST rate thereon duly supported with documentary evidence as per the provision of relevant GST Act and the Rules made there under. The delivery shall be shown being made in the name, location/ state, and GSTIN of the consignee only; the location of the procurement office of the procuring entity has no bearing on the invoicing.
- b. The supply of Goods or services or both, if imported into India, shall be considered as supply under inter-state commerce/ trade and shall attract integrated tax (IGST). The IGST rate shall be applicable on the 'Custom Assessable Value' plus the 'Basic Customs duty and Social Welfare Surcharge applicable thereon'.
- c. While claiming reimbursement of duties, taxes etc. (like GST) from the Procuring Entity, as and if permitted under the contract, the vendor shall also certify that in case it gets any refund out of such taxes and duties from the concerned authorities at a later date, it (the vendor) shall refund to the Procuring Entity, the Procuring Entity's share out of such refund received by the vendor. The Vendor shall also refund the appropriate amount to the Procuring Entity immediately on receiving the same from the concerned authorities.

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- d. All necessary adjustment vouchers such as Credit Notes/ Debit Notes for any short/ excess supplies or revision in prices or any other reason under the contract shall be submitted to the Procuring Entity in compliance with GST provisions.
- e. GST shall be paid as per the rate at which it is liable to be assessed or has been assessed provided the transaction of the sale is legally liable to such taxes and is payable as per the terms of the contract subject to the following conditions:
 - i. The Procuring Entity shall not pay a higher GST rate if leviable due to any misclassification of HSN number or incorrect GST rate incorporated in the contract due to vendor's fault. Wherever the vendor invoices the Goods at GST rate or HSN number, which is different from that incorporated in the contract, payment shall be made as per GST rate, which is lower of the GST rates incorporated in the contract or billed.
 - ii. However, the Procuring Entity shall not be responsible for the vendor's tax payment or duty under a misapprehension of the law.
 - iii. Bidder is informed that he shall be required to adjust his basic price to the extent required by a higher tax rate billed as per invoice to match the all-inclusive price mentioned in the contract.
 - iv. In case of profiteering by the vendor relating to GST tax, the Procuring Entity shall treat it as a violation of the Code of Integrity in the contract and avail any or all punitive actions thereunder, in addition to recovery and action by the GST authorities under the Act.
 - v. The vendor should issue Receipt vouchers immediately on receipt of all types of payments along with tax invoices after adjusting advance payments, if any, as per Contractual terms and GST Provisions.

4) Statutory Variation Clause:

Statutory increase in applicable GST rate only during the original delivery period shall be to Procuring Entity's account. Any increase in the rates of GST beyond the original completion date during the extended delivery period shall be borne by the vendor. The benefit of any reduction in GST rate must be passed on to the Procuring Entity during the original and extended delivery period. However, GST rate amendments shall be considered for quoted HSN code only, against documentary evidence, provided such an increase of GST rates after the last date of bid submission.

5) Customs Duty

Bidder shall specify the rate and the total amount of customs duty payable regarding imported goods. Bidder shall also indicate the corresponding Indian Tariff Classification (ITC-HS) applicable for the Goods in question.

10.3 Terms and Mode of Payment

a) Payment Terms for Engineering

1. 80% of the contract price for engineering services shall be paid through irrevocable Letter of Credit on submission of all drawings and documents as mentioned elsewhere in the tender document.

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2. 20% of the contract price for engineering services shall be paid through irrevocable Letter of Credit on verification and certification of all drawings and documents related to basic and detailed engineering by the PURCHASER.

b) Payment Terms for Imported Items - Supply of Plant and Machinery

1. 80% of the value of the goods shipped shall be paid through irrevocable Letter of Credit on production of the documents specified in CC-Clause 8.4.4 (2) through bank.
2. 20% payment shall be paid through irrevocable Letter of Credit on issuance of final acceptance certificate by BNPM.

c) Payment Terms for Indigenous Items - Supply of Plant and Machinery

1. 80% payment shall be paid within 30 days by Electronic Funds Transfer (EFT) after receipt of material at site.
2. 20% payment shall be paid within 30 days by Electronic Funds Transfer (EFT) on issuance of final acceptance certificate by BNPM.

Note: Foreign Exchange Conversion Charges (as applicable) for payment in INR to foreign vendor shall be borne by vendor.

d) Payment Terms for Imported & Indigenous Items – Essential & Maintenance spares for two years of operation after warranty period

100% payment for goods delivered at site shall be paid within 30 days by Electronic Funds Transfer (EFT).

e) Payment Terms for Erection, Testing & Commissioning

1. 70% shall be paid within 30 days by Electronic Funds Transfer (EFT) upon completion of erection and commissioning as certified by PURCHASER and upon receipt of the following documents:
 - a. Signed detailed invoice of VENDOR in 3 (three) copies.
 - b. Documents in support of the claim duly certified by PURCHASER.
2. 30% (ten percent) shall be paid within 30 days by Electronic Funds Transfer (EFT) on issuance of final acceptance certificate by BNPM.

f) Training of PURCHASER's Personnel in India and Abroad

100% payment for training shall be paid by Electronic Funds Transfer (EFT) on completion of training.

10.3.1 General Payment condition for payment

- 1) In Domestic Contracts, payments shall only be made in Indian Rupees. Payment to foreign bidders shall be made in the currency/ currencies authorized in the contract.
- 2) the vendor shall send its claim for payment in writing as per GST compliant Invoice and documents, when contractually due, along with relevant documents etc., as stipulated in Contract and a manner as also specified therein.
- 3) While claiming payment, the vendor is also to certify in the bill that the payment being claimed is strictly in terms of the contract and all the obligations on the part of the vendor for claiming that payment has been fulfilled as required under the contract.

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- 4) Vendor is to furnish while claiming payment are:
 - a. Original Invoice (GST Compliant format).
 - b. Certificate of pre-despatch inspection/waiver certificate by the Procuring Entity, if applicable.
 - c. Manufacturer's test certificate, if applicable.
 - d. Certificate of Insurance, if applicable.
 - e. Clean on Bill of lading/ Airway bill/ Rail receipt or any other dispatch document, in case of payment against dispatch documents.
 - f. Consignee's Certificate confirming receipt and acceptance of Goods, in case of payment after receipt and acceptance.
 - g. Any other document specified.

10.4 Withholding and lien in respect of sums claimed:

- 1) Whenever any claim or claims for payment of a sum of money arises against the vendor, out of or under the contract, the Procuring Entity shall be entitled, and it shall be lawful on his part, to withhold and also have a lien to retain such sum or sums, in whole or in part pending finalisation or adjudication of any such claim from
 - a. Any security or retention money, if any, deposited by the vendor.
 - b. any sum(s) payable till now or hereafter to the vendor under the same Contract or any other contract with the Procuring Entity if the security is insufficient or if no security has been taken from the vendor.
- 2) Where the vendor is a partnership firm or a limited company, the Procuring Entity shall be entitled, and it shall be lawful on his part, to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner/ limited company, as the case may be, whether in his capacity or otherwise.
- 3) It is an agreed term of the contract that the sum(s) of money so withheld or retained under the lien referred above shall be kept withheld or retained till the claim arising out of or under the contract is determined under clause CC 11 and/ or 12. The vendor shall have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to supra and duly notified as such to the vendor.
- 4) **Lien in respect of Claims in other Contracts:** Any sum of money due and payable to the vendor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Procuring Entity or Government against any claim of the Procuring Entity or Government in respect of payment of a sum of money arising out of or under any other contract made by the vendor with the Procuring Entity or Government.

10.5 Payment Against Time-Barred Claims

All claims against the Procuring Entity shall be legally time-barred after three years calculated from the date when the payment falls due unless the payment claim has been under correspondence. The Procuring Entity is entitled to, and it shall be lawful for it to reject such claims.

10.6 Commissions and Fees

The Vendor shall disclose any commissions or fees that may have been paid or are to be paid to agents, representatives, or commission agents concerning the selection process or execution and

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performance of this Contract. The information disclosed must include the name and address of the agent, representative, or commission agent, the amount and currency, and the purpose of the commission or fee in a format similar to Form 1.3 of the Tender Document.

11 Resolution of disputes

11.1 If dispute or difference of any kind shall arise between BNPM and the vendor in connection with or relating to the contract, the parties shall make every effort to resolve the same amicably by mutual consultations. If the parties fail to resolve their dispute or difference by such mutual consultation within twenty-one days of its occurrence, then, either BNPM or the vendor may seek recourse to settlement of disputes through arbitration as per The Arbitration and conciliation Act 1996 as per following clause.

11.1.1 Arbitration Clause: - Any dispute or difference whatsoever arising between the Parties out of or relating to the construction, meaning, scope operation or effect of this Agreement or the validity or the breach thereof shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996 and subsequent amendments and under the Rules of Arbitration of the Indian Council of Arbitration and the award made in pursuance thereof shall be binding on the Parties. The Arbitral Tribunal shall consist of three Arbitrators. The venue of the Arbitration shall be Mysuru and it shall be conducted in English language.

11.2 Before resorting to arbitration, the parties may opt for mutual discussion or mediation (as per Mediation Act, 2023) for the resolution of disputes.

12 Defaults, Breaches, Termination, and closure of Contract

12.1 Termination due to Breach, Default, and Insolvency

12.1.1 Defaults and Breach of Contract

In case the vendor undergoes insolvency or receivership; neglects or defaults, or expresses inability or disinclination to honour his obligations relating to the performance of the contract or ethical standards or any other obligation that substantively affects the Procuring Entity's rights and benefits under the contract, it shall be treated as a breach of Contract. Such defaults could include inter-alia:

- 1) **Default in Performance and Obligations:** if the vendor fails to deliver any or all of the Goods or fails to perform any other contractual obligations (including Code of Integrity or obligation to maintain eligibility and Qualifications based on which contract was awarded) within the period stipulated in the contract or within any extension thereof granted by the Procuring Entity.
- 2) **Insolvency:** If the vendor being an individual or if a firm, any partner thereof, shall at any time, be adjudged insolvent or shall have a receiving order or order for the administration of his estate made against him or shall take any proceeding for composition under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or enter into any assignment or composition with his creditors or suspend payment or if the firm be dissolved under the Partnership

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Act, or

3) **Liquidation:** if the vendor is a company being wound up voluntarily or by order of a Court or a Receiver, Liquidator or Manager on behalf of the Debenture-holders is appointed, or circumstances shall have arisen which entitle the Court or Debenture-holders to appoint a Receiver, Liquidator or Manager

12.1.2 Notice for Default:

As soon as a breach of contract is noticed, a show-cause 'Notice of Default' shall be issued to the vendor, giving two weeks' notice, reserving the right to invoke contractual remedies. After such a show-cause notice, all payments to the vendor would be temporarily withheld to safeguard needed recoveries that may become due on invoking contractual remedies.

12.1.3 Terminations for Default

- 1) **Notice for Termination for Default:** In the event of unsatisfactory resolution of 'Notice of Default' within two weeks of its issue as per sub-clause above, the Procuring Entity, if so decided, shall by written Notice of Termination for Default sent to the vendor, terminate the contract in whole or in part, without compensation to the vendor.
- 2) Such termination shall not prejudice or affect the rights and remedies, including under sub-clause below, which have accrued and/ or shall accrue to the Procuring Entity after that.
- 3) the vendor shall continue to perform the contract to the extent not terminated.
- 4) All warranty obligations, if any, shall continue to survive despite the termination.

12.1.4 Contractual Remedies for Breaches/Defaults or Termination for Default

If there is an unsatisfactory resolution within this period, the Procuring Entity shall take one; or more of the following contractual remedies.

- 1) Temporary withhold payments due to the vendor till recoveries due to invocation of other contractual remedies are complete.
- 2) Call back any loaned property or advances of payment, if any, with the levy of interest at the prevailing Marginal Cost-based Lending Rates (MCLR) of State Bank of India as on the date of recovery.
- 3) Recover liquidated damages and invoke denial clause for delays.
- 4) Encash and/ or Forfeit performance or other contractual securities.
- 5) Prefer claims against insurances, if any.
- 6) Terminate contract for default, fully or partially including its right for Risk-and-Cost Procurement as per following sub-clause.
- 7) **Risk and Cost Procurement:** In addition to termination for default, the Procuring Entity shall be entitled, and it shall be lawful on his part, to procure Goods similar to those terminated, with such terms and conditions and in such manner as it deems fit at the "Risk and Cost" of the vendor. The Vendor shall be liable for any loss which the Procuring Entity may sustain on that account. The Vendor shall not be entitled to any gain on such procurement, and the manner and method of such procurement shall be in the entire discretion of the Procuring Entity.
- 8) Initiate proceedings in a court of law for the transgression of the law, tort, and loss, not addressable by the above means.

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12.1.5 Limitation of Liability

Except in cases of criminal negligence or willful misconduct, the aggregate liability of the vendor to the Procuring Entity, whether under the contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the vendor to indemnify the Procuring Entity concerning IPR infringement.

12.1.6 Escrow Arrangement

- 1) The Supplier shall deposit with a third party escrow agent mutually agreed to by the parties, a copy of Software and its source code and object code for safe keeping with instructions for it to be released forthwith to BNPM, in the event the Supplier fails to make the source code/object code accessible to BNPM whenever required and/or in the event the Supplier is likely to go into liquidation or goes into liquidation.
- 2) In the event, the Supplier apprehends that, it is likely to go into liquidation whether on account of liquidation proceedings commenced by a third party or in the event it anticipates filing for bankruptcy, then the Supplier shall inform BNPM in advance and engage with it to determine the sale and possession of BNPM's software and its source code. In the event Supplier fails to do so, the third-party escrow agent shall be instructed under the Escrow Agreement to release the Software and its source code to BNPM as noted above.
- 3) For the purpose of this Clause, the term 'Software' shall collectively mean, the full and final version of the Software to be delivered to BNPM in source code and object code forms, together with any and all improvements, corrections, modifications, updates, enhancements or other changes, whether or not included in the full and final version including all System Documentation and User Documentation.
- 4) The term 'System Documentation' shall mean any and all documentation used in the development and updating of the Software, including but not limited to, customer requirements and specifications design or development specifications, test and error reports, and related correspondence and memoranda. And the term 'User Documentation' shall mean the end-user instruction manual that usually accompanies the Software instructing end users in the use of the Software in both printed and electronic form.

12.2 Termination for Convenience of Procuring Entity and Frustration

12.2.1 Notice for Termination of Contract

- 1) The Procuring Entity reserves the right to terminate the contract, in whole or in part for its (the Procuring Entity's) convenience or frustration of contract as per sub-clause below, by serving written 'Notice for Termination of Contract' on the vendor at any time during the currency of the contract. The notice shall specify that the termination is for the convenience of the Procuring Entity or the frustration of the contract. The notice shall also indicate inter-alia, the extent to which the vendor's performance under the contract is terminated, and the date with effect from which such termination shall become effective.

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- 2) Such termination shall not prejudice or affect the rights and remedies accrued and/ or shall accrue after that to the Parties.
- 3) Unless otherwise instructed by the Procuring Entity, the vendor shall continue to perform the contract to the extent not terminated.
- 4) All warranty obligations, if any, shall continue to survive despite the termination.
- 5) The Goods and incidental Works/ Services that are complete and ready in terms of the contract for delivery and performance within thirty days after the vendor's receipt of the notice of termination shall be accepted by the Procuring Entity as per the contract terms. For the remaining Goods and incidental Works/ Services, the Procuring Entity may decide:
 - a. To get any portion of the balance completed and delivered at the contract terms, conditions, and prices; and/ or
 - b. To cancel the remaining portion of the Goods and incidental Works/ Services and compensate the vendor by paying an agreed amount for the cost incurred by the vendor, if any, towards the remaining portion of the Goods and incidental Works/ Services.

12.2.2 Frustration of Contract

- 1) **Notice of Frustration Event:** Upon a supervening cause occurring after the effective date of the contract, including a change in law, beyond the control of either party whether as a result of the Force Majeure clause or within the scope of section 56 of the Indian Contract Act, 1872, that makes it impossible to perform the contract within a reasonable timeframe, the affected party shall give a 'Notice of Frustration Event' to the other party giving justification. The parties shall use reasonable efforts to agree to amend the contract, as may be necessary to complete its performance. However, if the parties cannot reach a mutual agreement within 60 days of the initial notice, the Procuring Entity shall issue a 'Notice for Determining the contract' and terminate the contract due to its frustration as in the sub-clause above.
- 2) However, the following shall not be considered as such a supervening cause.
 - a. Lack of commercial feasibility or viability or profitability or availability of funds.
 - b. if caused by either party's breach of its obligations under this Contract or failure to act in good faith or use commercially reasonable due diligence to prevent such an event.

12.3 Closure of Contract and Release of Contract Securities

12.3.1 Closure of Contract

The contract shall stand closed upon,

- 1) successful performance of all obligations by both parties, including completion of warrantee obligations and final payment.
- 2) termination and settlements after that, if any, as per CC-clause 12.1 or 12.2 above.

12.3.2 No Claim Certificate and Release of Contract Securities

After mutual reconciliations of outstanding payments and assets on either side, the vendor shall submit a 'No-claim certificate' to the Procuring Entity requesting the release of its

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contractual securities, if any. The Procuring Entity shall release the contractual securities without any interest if no outstanding obligation, asset, or payments are due from the vendor. The vendor shall not be entitled to make any claim whatsoever against the Procuring Entity under or arising out of this Contract, nor shall the Procuring Entity entertain or consider any such claim, if made by the vendor, after he shall have signed a "No Claim" Certificate in favour of the Procuring Entity. The Vendor shall be debarred from disputing the correctness of the items covered by the "No Claim" Certificate or demanding a clearance to arbitration in respect thereof.

13 Code of Integrity in Public Procurement; Misdemeanours and Penalties

13.1 Code of Integrity

Procuring authorities as well as bidders, suppliers, vendors, and consultants – should observe the highest standard of ethics and should not indulge in following prohibited practices, either directly or indirectly, at any stage during the Tender Process or during the execution of resultant contracts:

- 1) "Corrupt practice" - making offer, solicitation or acceptance of a bribe, reward or gift or any material benefit, in exchange for an unfair advantage in the Tender Process or to otherwise influence the Tender Process;
- 2) "Fraudulent practice" - any omission or misrepresentation that may mislead or attempt to mislead so that financial or other benefits may be obtained or an obligation avoided. Such practices include a false declaration or false information for participation in a tender process or to secure a contract or in the execution of the contract;
- 3) "Anti-competitive practice" - any collusion, bid-rigging or anti-competitive arrangement, or any other practice coming under the purview of the Competition Act, 2002, between two or more bidders, with or without the knowledge of the Procuring Entity, that may impair the transparency, fairness, and the progress of the Tender Process or to establish bid prices at artificial, non-competitive levels;
- 4) "Coercive practice" - harming or threatening to harm persons or their property to influence their participation in the Tender Process or affect the execution of a contract;
- 5) "Conflict of interest" – Participation by a bidding firm or any of its affiliates who are either involved in the Consultancy Contract to which this procurement is linked; or if they are part of more than one bid in the procurement; or if their personnel have a relationship or financial or business transactions with any official of procuring entity who are directly or indirectly related to tender or execution process of contract; or improper use of information obtained by the (prospective) bidder from the Procuring Entity with an intent to gain unfair advantage in the Tender Process or for personal gain;
- 6) "Obstructive practice" - materially impede procuring entity's investigation into allegations of one or more of the above mentioned prohibited practices either by deliberately destroying, falsifying, altering; or by concealing of evidence material to the investigation; or by making false statements to investigators and/ or by coercive practices mentioned above, to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or by impeding the Procuring Entity's rights of audit or access to information;

13.2 Obligations for Proactive Disclosures:

- 1) Procuring authorities, bidders, suppliers, vendors, and consultants are obliged under this Code

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of Integrity to *suo-moto* proactively declare any conflict of interest (coming under the definition mentioned above - pre-existing or as and as soon as these arise at any stage) in any Tender Process or execution of the contract. Failure to do so shall amount to a violation of this code of integrity.

2) Any bidder must declare, whether asked or not in a bid-document, any previous transgressions of such code of integrity during the last three years or of being under any category of debarment by the Central Government or by the Ministry/ Department of the Procuring Organisation from participation in Tender Processes. Failure to do so shall amount to a violation of this code of integrity.

13.3 Misdemeanours and Penalties

The following shall be considered misdemeanours - if a bidder/ vendor either directly or indirectly, at any stage during the Tender Process or during the execution of resultant contracts:

- 1) commits any of the following misdemeanours:
 - a. violates the code of Integrity mentioned in CC-clause 13.1 or the Integrity Pact included in the Tender/ Contract;
 - b. any other misdemeanour, e.g., supply of sub-standard quality of material/ services/ work or non-performance or abandonment of contract or failure to abide by 'Bid Securing Declaration'.
- 2) commits any of the following misdemeanours:
 - a. has been convicted of an offence:
 - i.under the Prevention of Corruption Act, 1988; or
 - ii.the Bharatiya Nyaya Sahita (BNS), 2023 or any other law for the time being in force for causing any loss of life or property or causing a threat to public health as part of the execution of a public procurement contract.
 - b. is determined by the Government of India to have doubtful loyalty to the country or national security consideration.
 - c. Employs a government servant, who has been dismissed or removed on account of corruption or employs a non-official convicted for an offence involving corruption or abetment of such an offence, in a position where he could corrupt government servants or employs a government officer within one year of his retirement, who has had business dealings with him in an official capacity before retirement.

13.4 Penalties for Misdemeanours

Without prejudice to and in addition to the rights of the Procuring Entity to other remedies as per the Tender-documents or the contract, If the Procuring Entity concludes that a (prospective) bidder/ vendor directly or through an agent has committed a misdemeanour in competing for the tender or in executing a contract, the Procuring Entity shall be entitled, and it shall be lawful on his part to take appropriate measures, including the following:

13.4.1 if his bids are under consideration in any procurement

- 1) Enforcement of Bid Securing Declaration/forfeiture or encashment of Bid Security.
- 2) calling off of any pre-contract negotiations, and;
- 3) rejection and exclusion of Bidder from the Tender Process.

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13.4.2 if a contract has already been awarded

- 1) Termination of Contract for Default and availing all remedies prescribed thereunder;
- 2) Encashment and/ or Forfeiture of performance security relating to the procurement;
- 3) Recovery of payments including advance payments, if any, made by the Procuring Entity along with interest thereon at the prevailing rate of Marginal Cost-based Lending Rates (MCLR) of State Bank of India as on the date of recovery.

13.4.3 Remedies in addition to the above:

In addition to the above penalties, the Procuring Entity shall be entitled, and it shall be lawful on his part to:

- 1) File information against Bidder or any of its successors, with the Competition Commission of India for further processing, in case of anti-competitive practices;
- 2) Initiate proceedings in a court of law against Bidder or any of its successors, under the Prevention of Corruption Act, 1988 or the Bharatiya Nyaya Sanhita (BNS) or any other law for transgression not addressable by other remedies listed in this subclause.
- 3) Remove Bidder or any of its successors from the list of registered suppliers for a period not exceeding two years. Suppliers removed from the list of registered vendors or their related entities may be allowed to apply afresh for registration after the expiry of the period of removal.
- 4) Initiation of suitable disciplinary or criminal proceedings against any individual or staff found responsible.
- 5) Debar, a bidder/ vendor from participation in future procurements without prejudice to Procuring Entity's legal rights and remedies. Debarment shall automatically extend to all the allied firms of the debarred firm.

SECTION IV – SCHEDULE OF REQUIREMENTS

(Ref ITB-clause 1.4)

Note for Bidders: Regarding this Schedule, Bidders must fill **Form 2: 'Schedule of Requirements - Compliance'** with their technical bid.

Tender Title	DESIGN, MANUFACTURE, SUPPLY, ERECTION AND COMMISSIONING OF TWO LINES OF 6000 TPA EACH FOR BANKNOTE PAPER PRODUCTION AT MYSURU, KARNATAKA, INDIA (HS - 8439).	
Tender Reference No	BNPM/GTE/498/2025-26 dated 13.02.2026.	
Schedule No.	Description of Goods	Quantity (UoM)
1.	Engineering Services for System / Area in Bidder's Scope of Supply as per Section-V of tender.	1 Lumpsum
2.	Supply of Plant & Machinery except spares as per Section-V of tender.	1 Lumpsum
3.	Essential spares mentioned as per Section-V of the tender.	1 Lumpsum
4.	Maintenance Spares mentioned as per Section-V of the tender.	1 Lumpsum
5.	Training of Purchaser's personnel as per Section-V of tender.	1 Lumpsum
6.	Erection, Pre-commissioning, Commissioning and Performance Guarantee Test services as per Section-V of tender.	1 Lumpsum

1. Required Delivery Schedule:

Successful bidder shall have to deliver the materials (incl. equipment, operational, maintenance & essential spares and consumables., as ordered), complete installation, commissioning and impart training to BNPM personnel, obtain final acceptance of the project within a maximum period of **24 months** from date of issue of LOA/agreement/work order (whichever is earlier).

2. Required Delivery Terms:

a. For Goods:

- i. Imported goods of foreign bidders – DPU (Delivered at Place Unloaded) – BNPM, Mysuru basis.** However, BNPM reserves the right to place the final contract/order on FOB/CIF basis at its discretion at price quoted in Section VII – Financial bid.
- ii. Indigenous goods of foreign/domestic bidders – FOR, Unloaded – BNPM, Mysuru basis.**

b. For Services: At BNPM, Mysuru, Karnataka (except for training abroad).

3. Mode of Transportation: As desired by the bidder which should be in safe and secured manner.

Place of Delivery:

Bank Note Paper Mill India Private Limited,
Paper Mill Compound, Note Mudran Nagar,
Mysuru - 570 003. Karnataka. India.

SECTION V – TECHNICAL SPECIFICATIONS & SCOPE OF WORK

(Ref ITB-clause 1.4)

Note for Bidders: Regarding this Schedule, Bidders shall submit ***Form 3: 'Technical Specifications and Scope of Work - Compliance'*** with their technical bid.

The details, design data and specifications given in this chapter are indicative only and serve as guidelines to the BIDDER for designing the plant machineries for producing the minimum 6000 TPA CWBN paper (Finished production) on each line of production.

1.0 DESIGN DATA

The details of dimensioning mentioned below are indicative only and may serve as guidance. BIDDER shall be fully responsible for production throughput of minimum 6000 TPA finished banknote paper for each line.

1. Dimensioning basis for Process Plant:

Production throughput for each line shall be minimum 6000 TPA finished banknote paper.

The following denomination shall be produced in process plant:

S.No.	Denomination	Sheet Size (Machine Direction x Cross Direction)	No. of Banknotes in CD in one sheet	No. of Sheets in a Deckle at reel
a.	X	655mm X 758mm	6	3
b.	XX	655mm X 794mm	6	3
c.	L	685 mm X 695mm	5	3
d.	C	695mm X 730mm	5	3
e.	CC	695mm X 750mm	5	3
f.	D	695mm X 770mm	5	3
g.	Maximum sheet width possible	820 mm	-	3

2. Dimensioning of Cotton Comber Digestion & Bleaching Plant for each minimum 6000 TPA line:

Cotton comber digestion & bleaching plant includes dry cotton handling & cleaning section, digestion & bleaching section and fiber length adjusting/ pre-refining section.

- a) Production throughput
 - i. Design: 30 BD TPD
 - ii. Turn down ratio: 2:1
- b) Raw material (in bale form): Cotton Comber Noil
- c) Moisture content in cotton comber: Max 8%
- d) Pulp properties in pre-refined pulp storage chest
 - i. Brightness: Min. 85 % ISO
 - ii. pH of bleached pulp: 6.5-8.5
 - iii. UV fluorescence at 365 nm wave length: Inactive

SECTION V – TECHNICAL SPECIFICATIONS & SCOPE OF WORK

e) Total yield by mass for Indian cotton: not less than 95%
(Excluding dry cotton cleaning section)

3. Dimensioning of Cotton Linter/bleached comber sheet Pulp Preparation Section to supply both the lines:

a) Production throughput	
i. Design:	15 BD TPD
ii. Turn down ratio:	2:1
b) Total yield by mass:	min. 98%
c) Moisture content in cotton linter/comber pulp sheet:	Max. 10 %
d) Raw material (in sheet form):	Bleached Cotton linter/comber

4. Dimensioning basis of Paper Machine for each line:

a) Product	
i. Grade:	Banknote paper
ii. Basis weight:	35 to 110gsm
iii. PVA/PUD application:	1.5 to 5.0 gsm on each side
iv. Furnish	
Cotton comber pulp:	75 - 95%
Bleached Cotton linter/comber sheet pulp:	5 - 25%
Broke:	5 - 10%
b) Web width	
i. Forming width at mould:	min. 2780 mm
ii. Web width at PM reel:	2520 mm
iii. Trims from winder:	60 mm
iv. Web width after winder:	2460 mm
c) Machine Speed Data	
i. Dimensioning speed at reel:	110 mpm
ii. Design drive speed:	135 mpm
iii. Balancing speed:	165 mpm
iv. Spool/Core dimensioning speed:	not less than 600 mpm
v. Paper machine framing and dimensioning of rolls should be designed at balancing speed.	
d) Web Dryness	
i. Min. Web dryness after press section:	38%
ii. Minimum Web dryness before sizing:	98%

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- iii. Web dryness at reel: 95%
- e) Production
 - i. Prod. At PM reel (100% eff.): 30 TPD
 - ii. Finished Production: Minimum 6000 MT/annum
- f) Losses
 - i. Fiber losses: Max 2.5%
- g) Product Quality
 - i. Quality parameters of the paper should be as per the specification provided in Annexure 9.
 - ii. The product should be free from the fluff, shade variation, dirt & black spots, uneven thickness/ basis weight in machine direction as well as cross direction, creases, crushed water marks, unmarked missing threads, pinholes, fish eye, air specks, mould choking, cloud formation, thread stripping/ poor window formation defects, etc.

5. Design Input Data:

Bidder need to specify the utilities required at the battery limits as mentioned below:

- a) Data On Process Water.
 - i. Pressure.
 - ii. Maximum Temperature.
 - iii. Minimum Temperature.
 - iv. pH.
 - v. Total Hardness.
 - vi. Silica.
 - vii. Iron.
- b) Chilled Water.
 - i. Pressure.
 - ii. Supply Temperature.
 - iii. Return Temperature.
- c) Process Steam.
 - i. MP Steam Pressure.
 - ii. LP Steam Pressure.
- d) Compressed Air.
 - i. Compressed Air Pressure.
 - ii. Quality of Air.

SECTION V – TECHNICAL SPECIFICATIONS & SCOPE OF WORK

2.0 EXTENT OF SCOPE

1. Extent of Scope of Supply & Services:

- a) The scope of services for the process package, main plant & machinery supply could be categorized as follows:
 - i. Engineering Scope.
 - ii. Supply Scope.
 - iii. Erection Scope.
 - iv. Commissioning Scope.
 - v. Performance Guarantee Scope.
 - vi. Training of BNPM Operating & Maintenance personnel.
- b) The responsibility for the design, layout and engineering for the entire paper making facility from cotton comber-bale feed conveying system to the Automatic sheeting and packing machine, product quality and quantity requirements shall be in the scope of the BIDDER.
- c) The Basic/ Detailed Engineering scope for the plant mentioned in clause 4.0, the supply scope covering all the main process line equipment in the process package and erection & commissioning of the process package, makes the BIDDER responsible for the performance of the total plant as per the quantity & quality requirements and proving the same through performance guarantee trials.

2. Engineering:

- a) The responsibility for plant engineering starting from the cotton comber bales transfer from RMG, bale feeding system in the cotton comber cleaning section and extends up to and includes the automatic sheeting and packing machine, covering the entire main process line equipment in the cotton comber digestion & bleaching, cotton linter/bleached comber sheet pulping system, stock preparation, approach flow, paper machine, slitter re-winder, automatic sheeting and packing machine, mould cover preparation plant, quality control & laboratory equipment, etc. complete in all respects shall rest with the BIDDER.

3. Supply:

- a) The scope of supply starts with the equipment / systems for the bale feeding system in the cotton comber cleaning section and extends up to and includes the automatic sheeting and packing machine, covering the entire main process line equipment in the cotton comber digestion & bleaching, cotton linter pulping system, stock preparation, approach flow, paper machine, slitter re-winder, automatic sheeting and packing machine, auxiliary systems including mould cover preparation plant, quality control & laboratory equipment, chemical preparation and feeding system, security thread feed system, all other supporting systems. The section-wise / system-wise / equipment-wise comprehensive scope of supply, the battery limits and the exclusions are detailed in Clause No 3.0, 8.0 and 9.0.
- b) Equipment / systems that are in the scope of supply shall be optimally dimensioned

SECTION V – TECHNICAL SPECIFICATIONS & SCOPE OF WORK

/configured to arrive at cost effective solutions, while meeting the quality and quantity objectives.

4. Erection:

Erection of all items supplied by the BIDDER shall be the responsibility of the BIDDER only. The BIDDER shall deploy functional specialists from respective disciplines (mechanical/piping/electrical/ instrumentation /automation etc.) for the respective erection activities. The erection scope shall be as detailed in clause 5.0.

5. Commissioning:

The BIDDER shall pilot the start-up trials and start-up management. The responsibility for commissioning the plant within the time frame shall rest with the BIDDER. The detailed scope under commissioning is mentioned in clause 6.0.

6. Performance Guarantee:

The BIDDER shall conduct the performance guarantee trials to meet the specific quality and throughput parameters, details of which are provided in clause 7.0.

7. Training of BNPM's O&M Personnel:

The BIDDER should provide training to BNPM's O&M personnel at BNPM site and details of which are provided in Clause No.16.0.

8. BIDDER shall note that if any of the items specifically not included under PURCHASER's obligation but are considered as required by BIDDER for completion of work and for commercial production within BIDDER's battery limits shall be deemed to be within BIDDER's scope and responsibility and the same shall be notified by the BIDDER in the bid document.

3.0 SCOPE OF SUPPLY OF EQUIPMENT & MATERIALS (PROCESS PACKAGE)

All equipment and machinery as well as the described processes under this clause are indicative only and may serve as guidance. The BIDDER, based on his experiences, shall offer and supply all necessary machines, equipment and processes to ensure the required Banknote Paper product quality parameters as per Annexure 9. Broadly, the composite project scope for the process package would include the following sections/ systems:

- i. Cotton comber cleaning section including dust extraction and collection.
- ii. Cotton comber digestion & bleaching section with twin extruder.
- iii. Fiber length adjusting/Pre-refining section.
- iv. Cotton linter/comber sheet pulping system.
- v. Stock preparation section.
- vi. Excess white water & fiber recovery section.

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- vii. Approach flow system.
- viii. Broke pulping system.
- ix. Shower water system.
- x. Process water, sealing water and cooling water systems.
- xi. Vacuum system.
- xii. Steam & condensate system.
- xiii. Hood & ventilation system.
- xiv. Chemical preparation, addition, and control.
- xv. Paper based additives preparation, addition, and control.
- xvi. Paper Machine.
- xvii. Auxiliary systems/Components for Paper machine.
- xviii. Centralized lubrication system.
- xix. Hydraulic and Pneumatic systems.
- xx. Pumps, Agitators and Storage tanks.
- xxi. Process & utility piping.
- xxii. Machine clothing.
- xxiii. Mould cover preparation plant.
- xxiv. Quality control laboratory equipment & instruments.
- xxv. Online Web Inspection System at Wet End of Paper Machine.
- xxvi. Online Web Inspection System between PDS and Size Press of Paper Machine.
- xxvii. Online Web Inspection System at Dry End of Paper Machine.
- xxviii. Online Quality Control & Inspection System at Dry End of Paper Machine (QCS).
- xxix. Slitter re-winder including trim collection and dust extraction.
- xxx. Automatic sheeting and packing line including trim collection and dust extraction.
- xxxi. Online web Inspection system of sheeters.
- xxxii. Standalone Sheet Inspection System.

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- xxxiii. Knife Grinding machine.
- xxxiv. Guillotine machine.
- xxxv. Trimming, Baling & Dust extraction system.
- xxxvi. Roll Splitting station.
- xxxvii. Briquetting & collection system.
- xxxviii. Electrical System.
- xxxix. Instrumentation & automation.
- xl. Electric Overhead Travelling cranes.
- xli. General Points.

1. Cotton Comber Handling & Cleaning System:

- a) Complete cotton comber handling & cleaning system designed for min 6000 TPA finished banknote paper for each line should be in BIDDER's scope as per following details:
 - i. Bale conveyor with weighing system for cotton comber bales from RMG.
 - ii. Bale Plucker/ Opener with suitable fiber dust hood (openable) for prevention of loose fiber dust to ambient.
 - iii. Fans & Blowers suitable for Transporting Cotton Comber Fibers.
 - iv. Air Separator Unit for Air Balancing.
 - v. Heavy Waste Trap like Cyclone Separator.
 - vi. Step Cleaner.
 - vii. Fiber Openers for uniform comber bed formation & flow to contamination removal system.
 - viii. Contamination Removal System should include detection of impurities present in comber and inline ejection/ rejection of the same. System must be capable to remove impurities like color contrast particles, UV - optically brightened impurities, white & transparent polypropylene of size at least 2 mm and above. Rejection efficiency of the system should be greater than 90%.
 - ix. Metal Detector and Collection of Impurities.
 - x. Dust Extraction and Collection.
 - xi. Air Filtration Unit (Common for both lines) with standby unit of the same capacity.



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- xii. Briquetting with Collection System (Common for both lines) with standby unit of same capacity.
- xiii. Magnetic trap System to remove the ferrous based materials (wherever applicable like in Bale Opener, Heavy waste trap etc.)
- xiv. Dry cotton fiber recovery system.
- xv. Fiber dust/ fine dust trap systems to trap particles from ambient in the dry-cleaning section.

b) Supply shall be complete in all respects which shall include the fans, ventilation system, pipelines, motors, including field & integral instruments, isolation/ manual valves etc.

c) Any other equipment which is necessary for the satisfactory, reliable, efficient and environmentally safe operation and maintenance of the plant and required for achieving guaranteed performance of the plant shall be considered by BIDDER.

d) Adequate rejects handling system till battery limit shall be in BIDDER's scope.

e) The dry-cleaning system should have suitable fire suppression system. Necessary feedback/ interlocks shall be provided by the BIDDER to Multi-stage Fire/spark Detection and extinguishing system in Dry Cleaning section.

f) Interconnection of lines to divert the dry-cleaned cotton comber from one line to another line and vice versa to be provided.

g) Cotton comber bales dimensions shall be as follows:

a) Height	approx. 50-65cm
b) Width	approx. 45 – 55cm
c) Length	approx. 125 -135 cm
d) Weight	approx. 140 – 170 kg

2. Cotton Comber Digestion & Bleaching System:

- a) Complete cotton comber digestion & bleaching system designed for minimum 6000 TPA finished banknote paper for each line, to treat comber of Indian origin with fiber length in the range of 15 – 20 mm, should be in BIDDER's scope. The bleaching and digestion system should be of twin-screw extrusion type. The supply shall be complete in all respects which should include the tanks / chests, agitators, pumps, stock & utility piping, motors, including field & integral instruments, isolation/ manual valves, material handling systems, fiber recovery system etc.
- b) Adequate reject handling system till the battery limit should be in BIDDER's scope.
- c) Measuring equipment to get realistic material balance reports to be provided.
- d) Interconnection of lines to divert the bleached pulp from one line to another line and vice

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versa to be provided.

- e) Alternate freshwater connection for pulp mill from BNPM battery limit in addition to the water source from paper machine to be provided.

3. Fiber length adjusting/Pre-refining section:

- a) Complete fiber length adjusting/pre-refining section designed for min 6000 TPA finished banknote paper for each line including refiners for ensuring the desired fiber length and other quality properties (fiber length of 0.8-1.2 mm and freeness °SR of 20-25) of the pulp should be in BIDDER's scope.
- b) The supply should include the tanks/ chests, agitators, pumps, stock & utility piping, motors, field & integral instruments and isolation/ manual valves etc.
- c) The refiner supply shall be complete in all respects which shall include the complete refiner assembly with mounting frame and bolts and all other accessories vibration dampening parts as required, mechanical seal, complete seal water flow unit, loading units with its associated devices, motor, complete oil lubrication unit with its accessories, gear box- if any- with coupling, all integral instruments, electric drive motor, one set of spare refiner tackles for each refiner etc.
- d) One stand-by refiner in addition to required number of refiners for achieving the desired quality with all accessories should be in BIDDER's scope.
- e) Required lifting tools and tackles with monorail arrangements shall be provided for maintenance.
- f) Magnetic/Metal traps of bucket type for each pulp feeding line to refiners should be in BIDDER's scope of supply.
- g) 200KL capacity of unrefined Pulp storage tanks/chests and 2 numbers of 100KL each capacity of pre refined storage tanks/chest should be provided for each line.
- h) Interconnection of lines to divert the pre refined pulp from one line to another line and vice versa to be provided.
- i) The BIDDER should provide on line measurement equipment for bleached pulp and pre-refined pulp for the following properties:
 - i. pH.
 - ii. Brightness.
 - iii. Consistency.
 - iv. Freeness in °SR.
 - v. Average Fiber Length.

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- j) Measuring equipment to get realistic material balance reports to be provided.
- k) Material of construction for all chemical tanks shall be of SS 316L.
- l) Common unloading and storage facilities for chemicals coming in tanker should be designed for minimum 12000 TPA finished paper. The battery limit should be inlet flange of chemical unloading pump.
- m) All the chemical spillage pits to be provided with level sensors.

4. Cotton Linter/comber sheet Pulping Plant:

- a) Cotton linter/comber sheet pulping section should be common for both paper manufacturing lines. Designed throughput capacity of the Cotton linter/comber sheet pulp plant shall be 15 BD TPD.
- b) BIDDER should provide cotton linter/bleached comber sheet pulping section, including feed conveyor, medium consistency pulper, cleaners, refiners, pumps, agitators, tanks/chests etc. for ensuring the desired quality parameters (fiber length of 0.8 -1.2 mm & freeness 50° SR) of the linter/comber sheet pulp.
- c) Adequate cleaning system should be considered for removal of foreign materials like sand, pebbles etc.
- d) One stand-by refiner in addition to required no. refiners for achieving the desired quality with all accessories should be considered.
- e) BIDDER should provide one set of spare refiner tackles for each refiner.
- f) BIDDER should provide Dump chest(1No), Cycling chest(2Nos) and intermediate chest (1No) of capacity 30KL each for storage of cotton Linter/comber sheet pulp.
- g) The supply should be complete in all respects which shall include the tanks/ chests, agitators, pumps, pipelines, motors, field & integral instruments, isolation/ manual valves etc.
- h) Any other equipment which is necessary for the satisfactory, reliable and safe operation and maintenance of the plant and required for achieving guaranteed performance of the plant should be provided by the BIDDER and the same should be notified by the BIDDER during the pre-bid meeting.
- i) BIDDER should provide adequate rejects handling system till the battery limit.
- j) Bleached cotton linter /comber sheets bale dimensions shall be as follows:
 - i. Height approx. 50-65cm
 - ii. Width approx. 45-55 cm
 - iii. Length approx. 125-135 cm

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iv. Weight approx. 140 -170 kgs

k) Measuring equipment to get realistic material balance reports to be provided.

l) The BIDDER should provide on line measurement equipment for cotton linter/comber sheet pulp for the following properties:

- Consistency.
- Freeness in °SR.
- Average Fiber Length.

5. Stock Preparation Section:

- The stock preparation section designed for minimum 6000 TPA finished banknote paper for each line including refiners for ensuring the desired quality parameters of the stock.
- The supply shall be complete in all respects which shall include the tanks/ chests, agitators, pumps, stock & utility piping, motors, field & integral instruments, isolation/ manual valves etc.
- Freeness up to 65° SR and fiber length of 800 - 850 μm at mould vat/short former shall be considered while working out the requirement of the refiners & brushing/trim refiners by the BIDDER.
- One stand-by refiner in addition to required no. of refiners for achieving the desired quality with all accessories should be considered. Refiners shall be Claflin/Andritz/Valmet or equivalent make. The supply shall be complete in all respects which shall include the complete refiner assembly with mounting frame and bolts and all other accessories vibration dampening parts as required, mechanical seal, complete seal water flow unit, loading units with its associated devices, motor, complete oil lubrication unit with its accessories, gear box- if any- with coupling, all integral instruments, electric drive motor, one set of spare refiner tackles for each refiner etc.
- Magnetic/Metal traps of bucket type for each pulp feeding line to refiners should be in BIDDER's scope of supply.
- For working out the capacity of the stock tanks, i.e. Receiving pulp tank, recycling tank, refined pulp tank, mixing/blending tank, machine tank for 4hrs pulp holding capacity in total should be considered.
- The BIDDER should provide on line measurement equipment for the following properties wherever required:
 - Consistency.
 - Freeness in °SR.

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iii. Average Fiber Length.

iv. pH.

v. Temperature.

vi. Brightness.

6. Excess White water & Fiber Recovery System:

- a) BIDDER should provide suitable Dissolved Air Flotation (DAF) system or equivalent system designed for min 6000 TPA finished banknote paper for each line with clarity of filter water less than 30ppm. Secondary filtration unit for each line with clarity of water less than 5 ppm of TSS to be provided. The BIDDER should design the DAF and secondary filtration unit, such that its clear water can be used at the paper machine lubricating/cleaning (LP and HP) showers.
- b) DAF design should handle white water generated in paper machine system.
- c) The supply shall be complete in all respects which shall include the tanks / chests, agitators, pumps, pipelines, motors, including field & integral instruments, isolation/ manual valves etc.
- d) A minimum capacity of 50m³ each storage tank be provided for white water, clear water and super clear water storage.
- e) Material of construction for all inbuilt moving parts (carriage, spiral scoop, inlet pipe and distribution grid etc.) as well as flotation tank in flotation unit shall be constructed in stainless steel of superior quality.

7. Approach Flow System:

- a) BIDDER should provide a suitable approach flow system designed for minimum 6000 TPA finished banknote paper for each line.
- b) Approach flow system shall include basis weight valve, centri-cleaning system, pressure screen system etc.
- c) The supply shall be complete in all respects which shall include the white-water silo, pumps, pipelines, motors, field & integral instruments, isolation/ manual valves etc.
- d) The manifold discharge valves at Master vat should have control unit with auto actuating mechanism for GSM profile control in machine and cross direction.
- e) Centri-cleaning Systems
 - i. Centri-cleaning system should be of at least 2 Stage.
 - ii. Centri-cleaning system including cleaners with its headers and valves should be in BIDDER's scope. The number of stages of cleaners, materials of construction, cleaning

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efficiency and cleaning technology shall be indicated.

- iii. Maximum permissible fiber loss shall be 0.5%. The system shall be designed in such a way that the intermediate pumps will run close to their capacity. Low-pressure drop shall be ensured in the cleaner operations.
- iv. Inlet and outlet isolation valves for each Centri-cleaner bottle should be provided for maintenance, without disturbing the plant operations.
- v. Adequate reject handling for centri-cleaner rejects till drain line should be provided.

f) Screening System

- i. Separate primary screen suitable for cotton pulp for cylinder mould and short former with slotted basket type or any other better technology is preferred. Screen shall be of low pulse design and the accepts chamber shall have cotton ball finish.
- ii. Common secondary and tertiary screens to be provided.
- iii. Tertiary screens shall have auto cleaning system.
- iv. Maximum permissible fiber loss shall be 0.5%.
- v. The stock piping from primary screen to cylinder mould vat and short former shall be of Cotton Ball Finish to minimize flow disturbances, fiber accumulation etc.
- vi. Adequate rejects handling system for screen rejects till drain line shall be provided.

g) Suitably designed distributor system shall be employed to distribute, monitor, and control the pulp flow between the cylinder mould sections and to uniformly distribute the pulp across the deckle in both the cylinder mould sections.

h) The BIDDER should provide on line measurement equipment for the following properties wherever required:

- i. Consistency.
- ii. Freeness in °SR.
- iii. Average Fiber Length.
- iv. pH.
- v. Zeta potential.
- vi. ORP.
- vii. Temperature.

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8. Broke Pulping Plant:

- a) A suitable broke pulping system designed for each line of paper manufacturing separately, should be in BIDDER's scope.
- b) Complete broke pulping plant including necessary feed conveyor, high consistency dry broke pulper, wet broke pulper, suitable screening system for removing security thread, dumping screen, broke screen etc. should be in BIDDER's scope.
- c) The capacity of feed conveyor and high consistency dry broke pulper should be designed for minimum 4MT per day (24 operating hours in a day) in each line.
- d) Adequate system for handling wet broke generated in paper machine should be considered.
- e) BIDDER shall provide dump chest(1No), intermediate chest (1No) and broke storage tank(1No) of capacity 30KL each for storage of broke pulp.
- f) The supply shall be complete in all respects which shall include the tanks/ chests, agitators, pumps, pipelines, motors, field & integral instruments, isolation/ manual valves etc.
- g) Any other equipment which is necessary for the satisfactory, reliable and safe operation and maintenance of the plant and required for achieving guaranteed performance of the plant should be provided by the BIDDER and the same should be notified by the BIDDER in the pre-bid meeting.
- h) BIDDER should provide adequate rejects handling system till the battery limit.
- i) Interconnection of lines to divert the broke from one line to another line and vice versa to be provided.
- j) The BIDDER should provide on line measurement equipment for broke pulp for the following properties:
 - i. Consistency.
 - ii. °pH.
 - iii. Temperature.

9. Shower water system:

- a) Based on the capacity requirement, suitable LP shower and HP shower system designed for forming and press section.
- b) The supply should include storage tanks, pumps (LP and HP), relief valves, filter units, piping, fittings, isolation auto valves, instrumentation like pressure measurements, level measurements, flow measurements, VFD etc.
- c) Material of construction of storage tanks, piping and accessories should be of SS 316L.

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10. Process water, sealing water and cooling water system:

- a) BIDDER should provide suitable water systems designed for min 6000 TPA finished banknote paper for each line.
- b) The supply should include storage tanks, pumps, relief valves, filter units, piping, fittings, isolation auto valves, instrumentation like pressure measurements, level measurements, flow measurements, VFD etc.
- c) Multi cartridge auto filters should be provided for process water, sealing water and cooling water.
- d) Material of construction of storage tanks, piping and accessories should be of SS 316L.

11. Vacuum system:

- a) Based on the capacity requirement, BIDDER should provide suitable vacuum system for forming and press section of each line.
- b) The supply should include vacuum pumps, operating water tanks, pumps, cooling towers, separator tanks, extraction pumps, seal pits, piping, fittings, isolation auto valves, manual valves, instrumentation like temperature, pressure measurements, level measurements, flow measurements, VFD etc.
- c) Vacuum system should have sufficient stand by vacuum pumps and fans with VFD.
- d) White water from separator tanks, sealing pits and shower trays should be collected and transferred to white water recovery system.
- e) It is preferable to have single vacuum pumps with common header for all the applications and required tapping shall be taken for required vacuum applications along with necessary bleed valves and controls in each line. Water ring type or any other energy efficient vacuum pumps should be provided.
- f) Cooling towers for the sealing water system with screen/filter should be provided.

12. Steam and Condensate system:

- a) The BIDDER should provide the entire steam & condensate system including the flash steam separators, pumps, tanks, piping, safety relief valves, pressure reducing valves, steam traps, instruments (level, pressure, temperature and flow transmitters and gauges) etc.
- b) Separate Steam header line for LP and MP steam with required pressure regulating valves should be provided.
- c) Condensate tanks and pumps should be provided separately for each line and positioned outside the hood.
- d) Steam & condensate system should be of cascade type with thermo-compressor system for flash recovery. At least 90% of condensate recovery to be designed.

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e) All the tanks, piping and valves should be heat insulated.

13. Hood and ventilation system:

- Dryer section hoods with high dew point, which include the basement floor hood and ventilation system, should be provided. Maximum steam efficiency & minimum heat loss, accessibility & ease of maintenance, control of air flows & correct distribution of drying air etc., should be ensured with the design.
- The dryer hoods shall have sufficient number of hood lifting doors and hood lifting devices /panels including integral motors and instruments. The machine drive side shall have sliding doors. Hood lifting doors shall be of aluminum or of superior material of construction. The material shall be indicated in the bid. The hood panels and doors shall be properly insulated to avoid heat losses. Provision for good visibility shall be ensured. Fire detection and alarm, fire protection system and lighting inside hood should be provided.
- Pocket ventilation system, hot air blow fans, exhaust blower and heat recovery system with suitable auxiliaries should be provided for dryer section.

14. Chemical preparation plant:

- Based on the capacity requirement, a suitable chemical preparation plant designed for minimum 6000 TPA finished banknote paper for each line.
- The supply should be complete in all respects, which includes preparation tanks, make down vessels, storage tanks, Hot water systems, dust collectors, agitators, pumps suitable for chemical dosing, piping, fittings, valve, instrumentation like load cells, level measurements, flow measurements, VFD etc.
- Common unloading and storage facilities for chemicals coming in tanker shall be designed for minimum 12000 TPA finished paper. The battery limit should be inlet flange of chemical unloading pump.
- One standby chemical dosing pump in addition to working pump with all accessories shall be considered.
- Separate preparation tanks for different chemicals to be provided.
- Following chemicals should be considered for designing the preparation plant.

S.No.	Chemical	State	Description
a)	Caustic Lye (NaOH ~ 50 %)	Liquid	Tanker
b)	Hydrogen Peroxide (H ₂ O ₂ ~ 50 %)	Liquid	Tanker
c)	Sulfuric Acid (H ₂ SO ₄ ~ 98 %)	Liquid	Tanker
d)	Titanium Di Oxide	Solid Powder	25 kg bags
e)	Dyes (Four Numbers)	Liquid	Drums
f)	Polyurethane (PU)	Liquid	1 m ³ container
g)	Poly Vinyl Alcohol (PVA)	Solid Powder	20 kg bags

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S.No.	Chemical	State	Description
h)	Carboxy Methyl Cellulose (CMC)	Solid Powder	20 kg bags
i)	Wet strength Chemical	Liquid	1 m ³ container/ Tanker
j)	Broke pulping chemicals (NaOH and H ₂ O ₂)	Liquid	Tanker
k)	Mould & felt cleaning chemical (NaOH)	Liquid	Tanker To be received
l)	Defoamers (Separate dosing tank for each machine)	Liquid	Drums
m)	Biocide	Liquid	Drums
n)	Polymer	Liquid	1 m ³ container
o)	Coagulant	Liquid	1 m ³ container
p)	Crosslinker	Liquid	25 kg drum

- g) Any other equipment/system for other required chemicals not mentioned here which is necessary for the satisfactory, reliable and safe operation and maintenance of the plant and required for achieving guaranteed performance of the plant should be in BIDDER's scope.
- h) Material of construction of preparation tanks, make down vessels, storage tanks, piping should be of SS 316L.
- i) Overflow of tanks, leakages on pipe lines/joints shall be provided with additional collecting tray for all hazardous chemicals.
- j) Dye preparation units shall be provided with necessary strainers between preparation tank, working tank and dosing pumps.
- k) The dye dosing shall be through electrically operated diaphragm pumps with sufficient standby arrangement for all working pumps. 4 Nos of such dye preparation and dosing stations to be considered. The layout of pumps shall be of maintenance friendly and shall have sufficient space to execute maintenance.

15. Paper Based Additives Preparation Plant:

- a) A suitable paper based additive preparation plant designed for minimum 6000 TPA finished Indian banknote paper for each line.
- b) The supply shall be complete in all respects which shall include preparation tanks, make down vessels, storage tanks, agitators, pumps suitable for additive dosing, piping, fittings, valve, instrumentation like load cells, level measurements, flow measurements, VFD etc. Preparation tank should be of minimum 2m³ and storage tank should be of minimum 3m³.
- c) One standby additive dosing pump in addition to working pump with all accessories to be provided.
- d) Following details to be considered for designing the paper-based additives preparation plant.

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S.No.	Paper based Additive	State
a.	Additive 1	Powder
b.	Additive 2	Fibrous material

- e) The dosing pump of the above shall be progressive cavity pump with standby arrangement.
- f) All these pumps should have individual flushing lines.
- g) The valves used in these lines should be of suitable type to avoid any jamming issue.
- h) The layout of pumps should be of maintenance friendly and should have sufficient space to maintenance.

16. PAPER MACHINE:

a) General Requirement

- i. Paper machine components starting from the Former section up to pope reel designed for minimum 6000 TPA finished banknote paper for each line. Broad machine configuration with associated auxiliary components is as mentioned under this clause.
- ii. The supply shall include all the components/ features, which are necessary to meet the quantity & quality objectives in a cost effective (capital & operational expenditures) and operationally efficient manner, while maintaining the safety standards. To meet this objective, the BIDDER can also offer additional items/ technical features, which are not indicated in the broad supply scope/ technical features mentioned in this document, but are required for achieving the performance guarantee. Such items shall be listed and specifications should be furnished by BIDDER.

b) Former Section

- i. The former section with all proprietary accessories and controls shall be in BIDDER's scope. The sheet forming section shall have two-cylinder moulds, one with conventional vat with thread feeding system and the other with short former. The system shall be designed to ensure profile uniformity, uniform fiber and filler distribution with good formation and Machine Direction/Cross Direction stability. The design shall also ensure high level of mechanical and thermal stability to ensure profile uniformity. The distinct features of the offered system shall be substantiated with technical details.
- ii. Auto dilution control for cylinder mould system should be provided.
- iii. Suction couch roll with accessories for cylinder mould system should be provided.
- iv. The short former system should be able to form web in the range of 15 – 25 GSM.
- v. Diameter of cylinder mould should accommodate minimum six sheets in one circumference for the denominations mentioned in design data.
- vi. Expansion cylinder to be considered with a suitable set of mechanism enabling its

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diameter to be enlarged or reduced to accommodate the fitment of finished mould covers and various denominations sizes mentioned in design criteria, while fully maintaining geometrical precision and concentricity. Roundness of expansion cylinder mould should be within ± 0.3 mm at optimum diameter.

- vii. Two set of expansion cylinder mould for each line with required no. of ring sets to cover entire range of denominations.
- viii. A suitable cleaning bath for the cylinder mould with drive mechanism should be provided. Washing unit should be equipped with Fish tail shower along with connection to High pressure up to 20 bar. Suitable Hot water/NaOH connection should be provided.
- ix. Fishtail and needle jet type shower with oscillation system for cylinder mould cover should be provided.
- x. Suction boxes should be provided in forming section to maintain quality multi-toned water mark.
- xi. Octopus header or equivalent type of headbox for both formers to be provided.
- xii. Automatic Fabric guides, fabric-stretching mechanism, fabric over run protection mechanism, high / low pressure fabric cleaning showers, roll cleaning showers, oscillating doctors etc. shall be part of the supply. The former part showers shall have actuated mechanism with which the oscillation speed could be controlled in respect of the fabric speed, preferably electro mechanical mechanism. Showers shall have self-cleaning devices. Number of showers should be designed to keep the fabric contaminate-free. Trim squirt, traveling squirt, edge-cleaning showers, strategically located chemical cleaning showers, lubricating showers for doctors etc., should be provided as per the functional requirements.
- xiii. The oscillating doctors shall have pneumatically operated engaging /disengaging mechanism and should be provided with uniform loading mechanism across the width. The oscillating mechanism should be electro- mechanical type.
- xiv. Former section framing should be of cantilever type. The cantilevering mechanism for forming fabric along with the tools and tackles and local control panel etc. should be part of the supply.
- xv. Former section framing should be of SS 316 or superior. Forming fabric trays/pans/covers etc., should be part of the supply and the material of construction should be SS316 or superior. Material of construction for the former section accessories has to be mentioned in the Bid, for evaluation.
- xvi. Fully automated servo-controlled or stepper motor controlled trim squirt and travelling squirt unit with high accuracy of +/- 1mm to be provided with the nozzles with locking device.
- xvii. All the mechanical guards in the former section should be of SS316.

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c) Security Thread Feeding System

- i. Security thread feeding system for feeding 36 nos. Security threads with additional 12 numbers of standby bobbin station should be provided. The system shall have flexibility to adjust the position of thread feeding to suit all denominations of Indian banknote paper.
Security thread feeding system should be provided with auto splicing arrangement for 36 threads.
- ii. The thread feed should be provided with servo controlled oscillating mechanism and individual tension control. Oscillation system to be designed to provide oscillation up to +/_ 10mm from reference point.
- iii. Suitable thread guide system shall be provided to direct the thread into the vat in desired direction. The bobbin holder should be capable of holding not less than 10 kg of security thread bobbin. System should be capable to handle up to 6 mm wide security thread.
- iv. Local and remote-control of security thread feeding system should be provided.
- v. System should generate Security thread consumption reports for different types of threads.
- vi. The Security thread feeding system should be integrated with DCS for each line.
- vii. Wet web inspection system for detecting presence of security thread and correctness of thread surface should be provided between the forming section and press section.

d) Press Part

- i. The press section should be designed considering the following conditions:
 - (i) Dryness after press a minimum of 38%.
 - (ii) Minimum two sidedness in paper.
 - (iii) Uniform moisture profile.
- ii. Suction pick up / web transfer rolls should be provided. Close draw between former section & press part should be ensured.
- iii. Automatic felt guides, felt-stretching mechanism, felt over run protection mechanism, high / low pressure felt cleaning showers, roll cleaning showers, oscillating doctors etc. should be part of the supply. High/low pressure felt cleaning showers with suitable filters, electro – mechanical oscillating system, should be provided. UHLE boxes with ceramic covers of suitable quality should be part of the supply. Low-pressure showers for doctored rolls, lubricating showers for UHLE boxes, strategically located chemical cleaning showers etc., for the operation should be provided. Showers should be of self-cleaning type.

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- iv. Oscillating doctors should have pneumatically operated engaging /disengaging mechanism with uniform loading mechanism across the width. Rolls cooling arrangement should be provided. Suitable system to take wet sample across the CD for laboratory testing should be provided.
- v. Press section framing should be of cantilever type. The cantilevering mechanism for felts along with the tools and tackles and local control panel etc. should be part of the supply.
- vi. Spreader/bow rolls should be provided for the fabrics to improve the stability, wherever required.
- vii. Press section framing should be off SS316 or superior. Pan/ covers etc. should be part of supply and the material of construction should be of SS316 or superior. Material of construction for the press part supports, brackets and end covers should be of SS 316 or superior. Suitable Crosswalks should be provided in press section.
- viii. The fans, blowers and ducts for air exhaust/vacuum system with all accessories should be provided for the press part.
- ix. Trim carry-over sensing and alarm on drive and non-drive sides after press part should be provided.

e) Dryer Section

- i. Dryer section with all its suitable associated systems including steam dryer, electrically heated IR dryer, Air dryer, cooling rolls wherever applicable should be in BIDDER's scope.
- ii. The dryer section will consist of a pre dryer section, air float drying systems after surface sizing, post dryer section and cooling rolls. Between the pre dryer and post dryer, two impregnation/sizing sections for PVA and PU application will be located.
- iii. The dryer section design shall achieve good drying efficiency, runability with minimum curl and shrinkage in paper produced.
- iv. The initial dryers in pre & after dryers shall have non-sticky coating (chrome plated).
- v. The dryers shall have a diameter of about 1.5 meter (5 feet) and should be compatible with ASTME Sec VIII Div. I.
- vi. All dryers in the pre, after and cooling cylinders shall have oscillating doctors.
- vii. Contact-less drying unit (air dryer) should be considered. Steam would be used for the heating purpose. Drying efficiency, uniformity in drying, space optimization, energy efficiency, flash steam recovery etc., shall be prime considerations in designing of the air-drying unit.
- viii. Suitable heat recovery system should be provided for utilizing the flash steam heat content.

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- ix. Suitable condensate removal system should be provided in the dryers. Steam entry and condensate discharge shall be suitably positioned so that uniform temperature profile is achieved across the dryers.
- x. Dryer fabric guide controls, fabric stretching/ tension control mechanism, fabric over run protection mechanism, tail cutting mechanism, fabric cleaning showers etc. should be in BIDDER's scope.
- xi. The Sectional drives with AC variable frequency drive (VFD) including input shaft with universal coupling and with suitable gearboxes should be in BIDDER's scope.
- xii. Strategically positioned break detecting system should be provided in. The mounting accessories should be in BIDDER's scope.

f) Impregnation/Sizing Section for PVA/PU:

- i. The size press shall be designed to ensure uniform PVA/PU application and should have good runability. The system shall be designed for PVA/PU solution with solid content up to 8%.
- ii. Complete impregnation section framing shall be off SS316L or superior. Pan/ covers etc. shall be part of supply and the material of construction shall be of SS316 or superior. Material of construction for the impregnation section, part supports, brackets, end covers, supply tanks, screens, piping and crosswalks should be SS 316L or superior material. The associated controls and pumps should be provided.
- iii. All the transfer and dosing pumps (preferably progressive cavity pumps) should have standby arrangements with individual flushing line.
- iv. The spreader / Bow roll used should be of single sleeve at outer case, which can handle the temperature of (80-100) degree centigrade.

g) Soft Calendar

- i. A two-nip soft calendar (2x2) with swimming roll including all its accessories, safety controls and operational controls with a common frame should be provided.
- ii. The design considerations shall be for bulk preservation, low two - sidedness, uniform caliper profile.
- iii. Paper rolls should have individual drives.
- iv. The scope includes loading / unloading arrangement, hydraulic system, mechanical and electrical drive.
- v. The supply should include necessary oscillating doctors, nip loading and relieving devices and other hydraulic controls. All frames /supports /brackets etc. are part of the supply. Suitable material shall be selected for construction and the material of construction should be indicated in the Bid.

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- vi. Suitable safety devices/ controls should be incorporated in the calendar controls to separate the nip to avoid any damages, on detection of any problems.
- vii. Adequate static electricity eliminator should be considered to nullify the static currents generated in calendar.
- viii. Set of cooling rolls with necessary cooling arrangement before calendaring rolls should be in BIDDER's scope.

h) Pope Reel

- i. The pope reel system with all its accessories, mounting frames, supports, covers etc., should be provided.
- ii. Automatic reel turns up system should be provided.
- iii. A minimum of 10 numbers per each line of spools/expandable core with accessories should be provided.
- iv. Parent reel storage capacity between reel and slitter-winder should be for minimum 5 rolls and should be in BIDDER's scope. Parent roll diameter should be maximum 1.5 meter so that diameter of child reel is suitable to directly load on sheeter.
- v. Doctoring system for the pope reel with oscillation should be provided.
- vi. The BIDDER should make space provision between the soft calendar & pope reel for the installation of a Quality Control System Scanner, machine readable feature detection unit and Web Inspection system with its mounting frame and other accessories. The supply and installation of the scanner and web inspection system, including its mounting frame and accessories should be in provided.
- vii. Bow/spreader rolls as required, should be provided at the suitable places.
- viii. Web break monitoring system including its controls & accessories should be provided.
- ix. Arrangement for transfer of pope reel to unwind stand of slitter-rewinder should be provided.
- x. Jumbo roll transfer arrangement from line 1 pope reel to unwind stand of line 2 slitter-rewinder, and vice versa should be provided.
- xi. Auto synchronization of reel spool in primary arm with pope reel speed during roll changeover to be provided.

17. Auxiliary Systems/Components for Paper Machine:

a) Foot walks, Platforms and Ladders

BIDDER should include the foot walk systems with handrails including steps and ladders, providing good and safe access to all points on the machine as necessary for operation and

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maintenance, preferably of SS-316 in wet end, Press section, sizer, digestion and pulping, inspection system, etc., of the paper machine.

Working Platforms should be provided with proper access, safe railings, toe-guards wherever necessary.

b) Fabric Change Equipment

BIDDER should include all necessary fabric change equipment/fixtures as necessary for the change of fabrics viz., forming fabric, press felts and dryer screens on the machine.

c) Tail Threading System

Suitable tail threading system with rope should be provided.

All tail thread systems should be with individual loop drive and it should be provided with the tail threading system having dedicated drive and synchronized with paper machine speed.

d) Mechanical drive component

Mechanical part of the drive including the gear drive with coupling etc. should be provided.

e) Sole Plates for Paper Machine

- i. Sole plates for paper machine including anchor bolts and leveling screws from former section to pope reel should be provided.
- ii. Anchoring fasteners, levelling fasteners, T-head bolts, etc. used on sole plates of wet section shall be SS-316 grade with spring washer.
- iii. Sole plates/ mounting base for all the frames, cantilever beams, walkways etc., across the length of the machine should be provided.

f) ON Machine Local Controls

- i. Complete control elements for the pneumatic control functions/ operations, which are realized locally and which are integral to the machine should be provided.
- ii. The valves with accessories, which are mounted on the machine frame, for the pneumatic operation, and electric control parts such as push buttons, switches etc., and instruments, which are integral to the machine should be provided.

18. Centralized Lubrication System:

- i. Centralized lube oil system, complete with all accessories such as tanks, pumps, motors, instruments, heater / cooler, filtering system etc. should be provided. All the intermediate oil tanks/ reservoirs should be suitably sized to avoid oil overflows.
- ii. All lube oil piping & the return oil piping, complete with all fittings & valves, supply and

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return pipes / tubes to and from the main lines to the lube oil points, complete with all fittings & valves etc. should be provided. Material of construction for lube oil components should be of SS 316 or superior.

- iii. All the monitoring instruments / control elements including valves should be provided.
- iv. BIDDER should provide the centralized Grease lubrication system for paper machine includes wet end rolls, press section rolls, pre dryer rolls, size press rolls, post dryer, calender section, pope reel section etc.

19. Hydraulic / Pneumatic Components:

- i. These shall include, but not necessarily limited to, oil tanks, self-regulating pumps & motors, hydraulic piping materials, tubing materials, fittings, valves, joints, hoses, hydraulic cylinders etc. Hydraulic piping materials shall be of stainless steel. All control elements, which are part of the hydraulic circuit, such as solenoid valves, servo valves, throttling valves, complete hydraulic units, pressure switches, level switches, limit switches, directional valves, regulating valves, proportional valves, flow valves, hydraulic filters, oil coolers (if required) etc. should be provided.
- ii. The supply should cover all the pneumatic control elements such as pneumatic cylinders, solenoid valves, switches, direction control valves, precision regulating valves etc.
- iii. Pneumatic / hydraulic local panels, control boxes, mounting arrangements etc. should be provided.
- iv. The clauses mentioned above shall be applicable to all the hydraulic / pneumatic / electrical circuits from cotton comber cleaning system to Automatic sheeting machine.
- v. Portable Oil cleaning system of 3 sets should be provided for hydraulic stations to achieve the cleanliness level of NAS 5.

20. Pumps, Agitators and Storage tanks:

All the pumps including standby pumps wherever required for process package should be provided. Mounting base frame with anchor bolts and the connecting flanges should be provided. The supply should also include the coupling mechanism, mechanical seal and drive motor.

All the pump pedestals should have the draining arrangement so that the medium is not having contact with the pump base frame. It is preferable to use SS 316 frames on chemical pumps.

All the agitators including the coupling mechanism, mechanical seal and drive motor wherever required for process package should be provided.

All the metallic tanks and chests wherever required for process package with all accessories should be provided. BIDDER should provide Dilution water system inside the tanks including nozzles wherever required.

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Material of construction of all storage tanks/chests for pulp, water should be SS 316 L or superior.

21. Process and Utility Pipe lines:

- a) All interconnecting process piping, utility piping for the process package with in a battery limit should be provided. All the flanges, isolation valves, manual valves, field instruments etc. connected with the piping should be provided.
- b) The material of construction for all pipe lines and flanges should be of SS-316 L Grade and the fasteners shall be of A4 – 80 grades.
- c) All the pipe lines shall be coded (Color) as per IS standards for water, compressed air, instrumentation air, steam, condensate, pulp line, chemical lines, etc.
- d) Provision should be made to interconnection of Fresh Water/Back Water/Cooling Water between two production lines.
- e) Isolation valves should be provided on all the equipment (pumps, fans, vacuum pumps, refiners etc.) at suction and discharge to execute the maintenance work.
- f) All the incoming pipelines to chests/storage tanks should be provided with isolation manual valves.
- g) Manual isolation valves should be provided at tapping points of header where common pumps are used for multiple applications.

22. Machine Clothing:

One set of machine clothing i.e. forming fabric, press felts, dryer's screens with two spare sets for each line should be in BIDDER's scope. Anti-static dryer screens should be considered wherever necessary.

23. Mould Cover Preparation Plant:

- a) Mould cover preparation plant should be common for both the paper manufacturing lines and should be designed to cater the requirements of both paper machines.
- b) The mould cover manufactured by multilayer phosphor bronze wire mesh of adequate size shall be used in the cylinder mould to produce the High definition/ advance water marks, multi-tone portrait watermarks, electrotype and other water marks and should facilitate production of windowed security thread in the banknote paper. The wire mesh layers should consist of 1st layer/2nd layer with embossing of water marks; 3rd layer should be with cut off support and fourth one should be with plane surface. The assembly should be made by using fixtures and with highest precision considering the shrinkage of cotton substrate.
- c) Mould cover preparation plant should be capable to prepare 3 nos. mould covers in one calendar month with minimum possible joints.

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d) Mould cover preparation plant should have following features:

Mould cover preparation plant should be equipped with latest technologies to produce the High definition/ advance quality water.

- i. A Centralized design to maintain the standardized uniform water mark quality which consists of photoshop, illustrator, coreldraw, cimagraphi or equivalent (latest version), with one designer computer with all accessories should be provided.
- ii. The mould cover preparation system should also be capable of manufacturing mould cover without inter sheet trim within the permissible stretch limits.
- iii. Automatic CNC engraving machine to make mould dies along with laser attachment to make advance water mark.
- iv. Automatic embossing section including Automatic E- type welding machine.
- v. Automatic laser cutting machine with fume/ dust extraction and collection system.
- vi. Laser cutting machine for electro type water marks.
- vii. Welding & sub assembly section which includes spot welding machine, seam welding machine, manual spot welding (02 -two Nos), jockey assembly, etc.
- viii. Final assembly equipment with necessary fixtures.
- ix. Inspection & storage facility (minimum 40 numbers of trollies and two numbers battery operated fork lift).
- x. Any other equipment required should be provided and notified in the Pre-Bid meeting.
- xi. The Laser generator for E-type cutting and Wire cutting machine should be of same capacity (kW) and with provision of interchangeable in operation i.e. redundant for both machines.
- xii. Parallel redundant chiller units for E-type laser cutting and wire cutting machines.

e) Required materials for preparing four sets of usable mould covers for each denomination (24 mould covers which includes all four layers) mentioned in design data should be provided.

f) Mould Destruction Machine should be provided by the bidder for destruction of old/unused covers to a maximum size of 2 - 5 mm x 10 mm.

g) Specification of all consumables and materials required for manufacture of mould cover should be provided well in advance (within 6 months of signing the agreement) to ensure the procurement by PURCHASER of these materials for smooth continuous operations of both the lines.

h) Nitrogen generating system / or equivalent system should be included compatible with laser

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cutting.

i) All tools, tackles, fixtures, templates, instruments and mould cover handling equipment within the mould cover shop etc. required for preparation of mould cover should be provided.

24. Quality Control - Laboratory Instruments and Equipment:

a) Quality control laboratory for pulp and paper testing instruments & equipment should be common for both the paper manufacturing lines and should be designed to cater the requirements of both paper manufacturing lines.

b) All required pulp & paper testing instruments & equipment with all components, accessories and calibration accessories with digital display and printers should be provided.

c) Physical parameters of banknote paper should be tested in humidity and temperature-controlled room at 23 °C and 50 % RH.

d) All the required fixed table top with black granite and furniture for the lab should be in BIDDER's scope.

e) Consumables and Chemicals for the first fill for the lab set up should be provided by the BIDDER.

Indicative list of laboratory equipment for pulp & paper testing instruments & equipment is as follows.

S.No.	Testing Equipment	Property to be tested	No. of sets required
1.	Analytical Balance	To weigh samples	5
2.	Angular Spectrophotometer	To analyze color shift of security thread	1
3.	AOX Analyzer	To determine % AOX levels of samples	1
4.	Auto calibrated digital pH meter	To analyze pH of samples	5
5.	pH meter Probes for Auto calibrated digital pH meter	To measure pH of samples	10
6.	Auto Chemical dispenser	For safe dispensing of samples	2
7.	Auto Fiber-Stelometer	To determine the fiber bundle strength of cotton comber	2
8.	Auto Titrator (Acid or base)	To provide precise and consistent measurement of samples during chemical titration	3
9.	Bench Top TDS/Conductivity meter	To analyze Dissolved solids and conductivity of	3

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S.No.	Testing Equipment	Property to be tested	No. of sets required
		samples	
10.	Probes for Bench Top TDS/Conductivity meter	To measure Dissolved solids and conductivity of samples	5
11.	Bending Stiffness	To determine bending stiffness of paper	3
12.	Bending Stiffness Tester-Sample Punch	To prepare samples for bending stiffness	3
13.	Brightness Tester	To measure the shade (L*,a*,b*) and opacity of the paper	2
14.	Brookfield Viscometer-LV Model (Magnetic spindle coupling option)	To measure the viscosity of low viscous samples	3
15.	Brookfield Viscometer-RV Model (Magnetic spindle coupling option)	To measure the viscosity of medium viscous samples	1
16.	Burst Tester (PTA-Line Burst-Module)	To determine burst strength of paper	3
17.	Calibrated Scale-1 Meter	To measure length of samples	6
18.	Circulation Simulation tester	To subject samples to circulation and simulation in presence of various materials	1
19.	Climate chamber with expanded temperature and humidity range	to subject samples to weathering	1
20.	Climate Testing Cabinet	For conditioning samples	1
21.	Cobb Unger Device	To determine the water absorptiveness of paper	2
22.	Cotton Fiber Analyzer	To measure the neps, length, maturity and trash of cotton comber	1
23.	Cotton Fiber Maturity tester	To measure the maturity of cotton comber	1
24.	Dennison Wax Pick Full Set	To determine wax pick of Paper	4 Sets
25.	Dennison Wax Pick- 16A, 18A, 20 A ,23 A	To determine wax pick of Paper	5 Sets(16A), 5Sets(18A), 10 Sets(20A), 10 Sets(23A)
26.	Digital Elmendorf Tear Tester	To measure the tearing resistance of paper	3
27.	Digital Elmendorf Tear	To prepare samples for	3

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S.No.	Testing Equipment	Property to be tested	No. of sets required
	Tester- Sample Punch	tearing resistance	
28.	Digital Microscope	To magnify images of various samples	1
29.	Digital Stirrer	To homogenise samples	2
30.	Digital Vernier Caliper(0-150mm)	To measure dimensions of materials	1
31.	Digital Vernier Caliper(0-200mm)	To measure dimensions of materials	1
32.	Digital Vernier Caliper(0-300mm)	To measure dimensions of materials	1
33.	Disintegrator	To refine and homogenize samples	3
34.	Equalizer	To homogenise samples	6
35.	Fiber Morphology	To determine average length of fiber and to classify the fibers	2
36.	Folding Endurance Tester	To determine the number of double folds required to break the paper	6
37.	Formation tester with Watermark Quality Analyzer	To measure the intensity ratio, sharpness of watermark and relative PPF value of paper	1
38.	Gravimetric Trash Tester	To determine the trash content of the cotton comber	2
39.	Horizontal Tensile Tester	To measure the Dry & Wet tensile strength of the paper	3
40.	Horizontal Tensile Tester- Punch and Dye Cutter	To prepare samples for tensile strength	3
41.	Incubator	To incubate the samples at various temperature for microbial studies	2
42.	Karl Fischer Titrator	to determine moisture content of samples	2
43.	Line Tester for measuring properties of CWBN paper	To determine properties like Tensile strength, GSM, Caliper, Burst Strength, Optical properties like Opacity and brightness of paper	2
44.	Magnetic Stirrer	To homogenize samples	5
45.	Melting point apparatus	To determine melting point	2

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S.No.	Testing Equipment	Property to be tested	No. of sets required
		of samples	
46.	Micro pipettes - 1ml, 5ml, 10ml	To make precise measurement for experiments	2 each
47.	Moisture Balance	To measure moisture content of paper & input chemicals	3
48.	Movable Fume hood	To remove chemical fumes	3
49.	Multi Angle Mirrors	To measure samples at different angles	2 Sets
50.	Muffle Furnace	To determine the ash content of paper & input chemicals	3
51.	NBS Crumpler device with auto pressurizing facility	To enable crumpling of samples	2
52.	Oven	To determine moisture content of paper & input chemicals	4
53.	Pan Balance	To weigh samples	5
54.	Paper Based additives Transport System	For mounting the Paper Based additives sensor	6
55.	Particle Charge Demand with auto titrator	To measure the charge of pulp filtrate	3
56.	Point Micrometer (with sharp pointed measuring tips)	To determine caliper/thickness at points	4
57.	Portable Gas burner	To heat samples for R&D experiments	4
58.	Portable digital angle finder	To measure angle of surfaces	2
59.	Portable Hygrolog	To measure the temperature and relative humidity	5
60.	Portable Hygropalm	To measure the temperature and relative humidity	2
61.	Portable Vacuum Cleaner with Hose pipe	To remove accumulated cotton dust from filters in trash	4
62.	Precision AC to maintain 23°C and 50% RH for conditioning room	To condition Paper Samples	1
63.	Precision Sample Cutter 100 sq.cm	To prepare samples for basis weight	3

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S.No.	Testing Equipment	Property to be tested	No. of sets required
64.	Programmable Lab pulp Digester	To Cook pulp samples	1
65.	PTA Line Bendtsen	To measure the roughness and porosity of paper	3
66.	Pulp Viscometer	To measure the viscosity of pulp	1
67.	Rapid Kothen Sheet Former with 4 dryers	To prepare hand sheets of various pulp samples	2
68.	Refrigerator	For preservation of samples	2
69.	Sample Cutter 430 mm	To prepare samples for specific measurement	3
70.	Sand bath	To evenly heat samples for chemical reactions	2
71.	Schoppler Reigler Freeness Tester	To determine freeness of pulp	4
72.	Speed Dryer	For rapid drying of filtered pulp	2
73.	Spectroradiometer	To analyze color shift of security thread	1
74.	Stroboscope	To analyze Additives in moving paper	1
75.	Table top Surface pH Meter	To analyze surface pH of paper	4
76.	pH Probes for Surface pH Meter	To measure surface pH of paper	10
77.	ORP meter Probe	To measure ORP of solutions (probe compatible with Surface pH meter)	2
78.	Tensile stiffness Orientation tester	To automatically measure the orientation of fibers within the paper	1
79.	Thin Film Bar Coater	To coat different thickness layers over a paper to study various properties	2
80.	Turbidity Meter	To measure turbidity of pulp samples	3
81.	Universal Micrometer	To measure caliper of paper	3
82.	Universal Testing Machine	To measure the Pull & Peel strength of the security thread embedded in paper	2
83.	Universal Weathering	To determine the	1

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S.No.	Testing Equipment	Property to be tested	No. of sets required
	Instrument (Xenon Light fastness & Weathering)	weathering resistance of security thread embedded in paper	
84.	UV Cabinet	To determine UV active material	4
85.	UV Lamps	To determine UV active material	10
86.	UV Vis Spectrophotometer	To determine elemental content in samples	2
87.	Valley Laboratory Beater	To make refined pulp	2
88.	Vibratory Sieve Shaker	For sieving samples	1
89.	Video Spectral Comparator	To measure the intensity of fluorescence of security thread, to capture the motion threads, to measure the security thread and additive2 dimensions and to view and capture the samples by using various light sources	2
90.	Water bath	To incubate samples at constant temperatures for analysis	2
91.	Water Distillation Unit	To obtain deionized water	4
92.	Wax pick burner	To burn wax pick stick	10
93.	Zeta Potential	To measure surface charge of pulp	3
94.	Glass ware	To conduct experiments for incoming material and R&D	List shall be shared with successful bidder
95.	Chemical storage cabinets with HEPA filters	To store chemicals	4
96.	Anti-Vibration tables with granite top	To keep the instruments	As per the requirement

25. Online Web Inspection System at Wet End of Paper Machine:

- i. Wet web inspection system for detecting presence of security thread and correctness of thread surface should be provided between the forming section and press section.
- ii. Thread to be detected in defined area/ zone which shall be customized as per denomination layout.
- iii. System must be capable of recognizing two threads per note, approximately 15 - 36 threads/ deckle. Threads may be of different type and different width, mostly in the range of 1 mm to 8 mm. System should be able to detect the thread size of 1mm to 8mm.

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- iv. The system should detect different types of security threads like color shift, silver color, moving images, motion thread, thread with micro text, image shift, windowed thread, fully embedded thread etc.
- v. An alarm and flashing light need to be provided in case of thread flip, thread break and out of position.
- vi. Remote diagnostic facility to be provided in the system including LAN point inside the panel.
- vii. Server should have state of the art hardware with latest operating / package software and all the data storage devices should have DMR facility.
- viii. Proper platform to be should be provided for access during the maintenance.
- ix. Display monitors (1 display for each sheet) need to should be provided in the wet end control room or in the location required to display all threads simultaneously.
- x. Illumination system need to should be modular and plug & play type.
- xi. Adjustment of illumination intensity as per the customer's requirement need to be should be provided in the software.
- xii. Proper cooling system for illumination and server to should be provided.
- xiii. The supplied system to should be at least IP-65 / latest available in the market compliant.

26. Online Quality Control & Inspection System between PDS and Size Press of Paper Machine (QCS):

Online web inspection system should be capable of inspecting the basis weight and moisture in Machine Direction and Cross Direction. The system should be designed and located in between Pre dryer section and Size press section. System should be capable of inspecting full deckle or web width.

27. Online Web Inspection System at Dry End of Paper Machine:

- a) Dry End web inspection system should inspect following defects in the paper web:
 - i. Inclusion.
 - ii. Dirt top side & bottom side.
 - iii. Wrinkles/fold.
 - iv. Brightness.
 - v. Hole/ pinhole.
- vi. Security thread – break, width, position, oscillation, period, flip, bright, dark, text position and readability with template, moving images/ image shift, UV detection

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on both sides etc.

- vii. Thread window defects like opening, closing/ filling, number of windows.
- viii. Watermark and E-type position as per layout.
- ix. Sheet width and length as per layout.
- x. Skewness /squareness of the sheets across deckle.
- xi. Detection of marks like cut mark, start mark, skew mark, track-line etc.

b) Detection of above defects shall be available in Plain Area, Watermark area, E-type and must be able to classify defects by size, location, area, layers, sensitivity etc. Details will be shared with the successful bidder.

c) The location of the system is at dry end area preferably should be in-between the QCS and pope reel in Paper machine.

d) System must be capable of recognizing two threads per note, approximately 15 - 30 threads/ deckle. Threads may be of different type and different width, mostly in the range of 1 mm to 8 mm.

e) The system shall should be capable to work with all types of security threads that are available in the market like color shift, silver color, fluorescent thread, moving images, motion thread, thread with micro text, image shift, windowed thread, fully embedded thread etc.

f) The system should count the number of security fibers (active under UV light - 365 nm) in each note/ pre-defined area with average fiber distribution reading is required to be displayed in LED display at required location.

g) Provision for additive2 with closed loop feedback to DCS system for controlling the additive2 flow.

h) An alarm and flashing light need to be provided in case of defects, number of defects/ types shall be custom adjusted in the software.

i) Sheet needs to be marked in case of defects. The marking shall be decided by the customer for the type of selected defects. Provision of the same to be provided in the software. Adjustments for individual marker is customizable.

j) Markers need to be of instant dry type, marking size and shape is custom defined. Controller for each marker to be provided with a touch screen GUI.

k) There are multi lanes in the paper machine, provision for selecting number of lanes is to should be provided. (presently it is 3 lanes)

l) Necessary remote diagnostic facility to be should be provided in the system including LAN point inside panel of the system.



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- m) Server shall should have state of the art hardware with latest operating / package software.
- n) Proper platform to be provided for access during the maintenance.
- o) Display monitors (1 display for each lane) need to be provided in the dry end control room and a set of 3 numbers of 80 inches at the location required by the purchaser to display all threads simultaneously.
- p) Illumination system need to should be modular and plug & play type.
- q) Adjustment of illumination intensity as per the customer's requirement need to be provided in the software.
- r) Proper cooling system for illumination and server to should be provided.
- s) The system to should be at least IP-65/ latest available in the market compliant.
- t) All standard reports to should be generated roll wise. Back up reports to should be saved for at least 6 months. The purchaser to be provided the format the report.
- u) The system to have sufficient storage to save at least defect images for 30 days of production. Selecting filters for defect type, date range etc. need to should be provided.
- v) Provision for inspection of multi products and denominations in the same deckle to should be provided.
- w) Provision to inspect each note with a minimum of 10 watermarks, 10 E-types, 04 window threads, 04 fully embedded threads to should be provided.
- x) Provision to switch between note area inspection and whole sheet inspection to should be provided.
- y) Provision to inspect advance watermark and template creation to should be provided.
- z) Realtime graphics for defects, threads, watermarks etc., are required to be provided.
- aa) Standard tolerances for measurement adjustments need to should be provided.
- bb) System shall should have the provision for detecting planchettes, holograms and other industry standard products.
- cc) System shall have the provision of selection of required inspection channels with radio button selection or any suitable provision in the software.

28. Online Quality Control & Inspection System at Dry End of Paper Machine (QCS):

- a) The following parameters are envisaged through online QC scanner system for paper inspection as defined in QCS data sheet in Annexure – 4.

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- i. Speed in m/min.
- ii. Measurement & control of basis weight in gsm.
- iii. Measurement & control of caliper.
- iv. Measurement & control of Moisture.
- v. Measurement of Ash.
- vi. Measurement & control of L, a, b (color) values.

b) Provision for Compensating measured values in thread area should be incorporated.

c) System should be at least IP-68 compliant.

29. Slitter re-winder including trim collection and dust extraction:

a) Complete twin drum slitter re-winder suitable for water marked banknote paper register cutting, complete with all components, accessories and controls designed for each paper manufacturing line shall be in BIDDER's scope. General features of the slitter re-winder shall be as follows:

- i. Web width at PM reel : 2520 mm
- ii. Operating speed : 600 meter/min.
- iii. GSM range : 35-110
- iv. Minimum winding width : 600 mm
- v. Maximum parent reel diameter : 1500 mm
- vi. Minimum cutting width : 200 mm
- vii. Child reel core diameter : 127 mm

b) The winder drums should be suitably designed and covered, as required for processing 100% cotton-based paper of GSM range 35-110 GSM.

c) The slitter re-winder should have automatic web tension control, automatic registered web guiding with live track line view on screen, web static control & monitoring, reel ejection system, automatic positioning slitter knives, even edge profiling, automatic finished child reel marking (alphanumeric/ barcode) on the reel.

d) Material of construction for slitter knives tip shall be tungsten carbide. 05 sets (01 set = total installed knives) of spare slitter knives should be supplied for each line.

e) Adequate facility for transportation of baby roll from rewind side of slitter re-winder to unwind stand of sheeting line should be provided.

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- f) Synthetic core pipes of 150 nos. of one meter length for baby reels for each line should be provided.
- g) Proper illumination facility should be provided in slitter-rewinder machine for operator to carry out set-up and product changes.
- h) Slitter with integrated dust hood along with web dust extraction including web static elimination and collection system at slitter-rewinder shall be considered and should be provided. Necessary dust elimination measures should be provided to avoid customer complaints related to the dust. Dust extraction air to be sent to ambient atmosphere after filtration (not to be recirculated in section).
- i) Audio-visual alarms should be provided for slitter-rewinder related warnings & faults.
- j) Remote diagnostic facility should be provided in the system including hardware firewall and LAN point inside panel of the system.
- k) The pope reel and unwind stand of rewinder should be designed in such a way that the removed jumbo rolls are directly taken into rewinder machine with the same shaft arrangement and after slitting at rewinder, the core shaft is taken back to paper machine pope reel.
- l) Supply of all tools & tackles, including any special tools, required for complete operational maintenance of the slitter-rewinder for each line should be provided.

30. Automatic Sheeting & Packing Line:

- a) Automatic sheeting and packing line should be provided. General features of the automatic sheeting and packing line shall be as follows:
 - i. Number of sheeters : 3
 - ii. Maximum web width : 820 mm
 - iii. Minimum web width : 600 mm
 - iv. Maximum child reel diameter : 1500 mm
 - v. Core diameter of child reel : 127 mm
 - vi. Operating speed of each sheeter : 350 meter/min
- b) The automatic sheeting line should be of non-stop, double unwind, automatic register mark splicing, double-action rotary type decurling station, tandem crosscutting, have automatic web tension control, registered web guiding with live track view, web & sheet static control, automatic positioning slitter knives.
- c) Unwind station should be non-stop, double unwind stand with automatic splicing to register mark, automatic fine web tension control, automatic double-action rotary type decurling station, splice/ web tear detection. Necessary facility for reading of child reel

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details from alphanumeric/ barcode should be provided at Unwind station.

- d) Automatic web guiding control with live view of tracking line should be provided.
- e) Material of construction for cross cutter knives tip shall be tungsten carbide. 02 sets (01 set = total installed knives) of spare cross cutter knives should be supplied for each automatic sheeting line.
- f) The web should be cut into sheets of correct length, width and square-ness as per the requirement of various denomination banknote papers. Slitter with integrated dust hood & web dust extraction with static control and collection system at the place of web slitting & sheet cutting should be provided to prevent paper dust spilling on other areas of the paper. Necessary dust elimination measures should be provided to avoid customer complaints related to dust. Dust extraction air to be sent to ambient atmosphere after filtration (not to be recirculated in section). Suitable trim cutter should be provided for cutting side slit trims at Slitting station. 03 sets (01 set = total installed knives) of spare slitter knives should be supplied for each automatic sheeting line.
- g) Track & Trace system - Machine should have the facility to mark alphanumeric/ barcode at a pre-determined registered location on the edge of web (inline). This facility should be provided after slitting of the web to suitable width and before web quality inspection system of the sheeting line. This provision is to be made to ensure the tracking & tracing, as well as accountability, of each individual sheets produced from the reel. The mechanism of code marking, tracking and tracing should be such that the position of code marking should be adjustable as per denomination. The system should be able to track the sheets to the ream and subsequent packed box level. Necessary software and hardware systems & controls for the complete code marking system should be provided. The alphanumeric/ barcodes should be compatible so that, they can be read/ scanned by any compatible readers/ scanners.
- h) Automatic web quality inspection systems should be provided in the automatic sheeting and packing line to segregate accepted and rejected sheets and stack on different piles. Necessary facility for sampling of good & reject control sheets-should be provided. The inspection system should have the facility to inspect the parameters mentioned at clause no. 3.31.
- i) Facility for detection and warning for inter-sheet trim carryover, after tandem cut, should be provided.
- j) The quality defective sheets should be reported, rejected and stacked separately with provision for indicating roll change within the stack through tabbing system.
- k) Machine should have the facility to make a notch at a pre-determined registered location on the edge of web (inline notching). This provision is to be made to ensure the correctness of the direction of watermarks. The mechanism of notching should be such that the position of notch shall be adjustable and there should not be any burr hanging at the cut position. Necessary dust extraction and collection system at the place of notching should be provided to prevent paper dust spilling over the other areas of the paper sheets.

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- l) Accepted sheets should be stacked automatically to a ream of 500 sheets. Reams of 500 sheets each are moved on a conveyor for independent automatic counting at all four corners of sheet. Perfectly counted reams should be side-stamped on one side & moved to the next station where each ream is weighed. Suspected (wrong count) reams go off-line automatically for checking/counting. Action is taken to correct the ream to contain 500 sheets and then pushed to the accept line through necessary jogging and alignment station.
- m) Weighed reams should be moved to next station where a separator sheet (thick kraft sheet) is inserted on top & bottom of each ream for protection & separation.
- n) The ream should be automatically shrink wrapped on-line, labelled with all required information like Denomination, Weight, No. of sheets, Roll No, Date etc., and stacked on a wooden pallet. 15 Reams should be automatically stacked on a single pallet.
- o) Facility for stretch wrapping of stacked pallet should be provided. Final packing shall be done manually in plywood boxes.
- p) Proper illumination facility should be provided in automatic sheeting & packing line machine for operator to carry out set-up, product changes & maintenance.
- q) Non- contact claw type vacuum blowers should be considered for trim suction units of sheeter section.
- r) Audio-visual alarms should be provided for slitter-rewinder related warnings & faults.
- s) Remote diagnostic facility should be provided in the system including hardware firewall and LAN point inside panel of the system.
- t) Centralized Data Acquisition System for all the sheeters at common location within the section with the following features:
 - i. Should display with graphical user interface the complete status of all 3 sheeters, from unwinding station till palletizer.
 - ii. Should be able to provide real-time monitoring of machine parameters such as machine speed, number of cuts/minutes, cutting format values, run hours, shift-wise production data total & quality (cuts), acceptance, roll data etc.
 - iii. Should provide real-time data of current of critical motor/ drives of sheeting line.
 - iv. Should log alarms, faults of individual machines including historical data up to 07 days.
 - v. Should log data of current and other parameters for critical motors & drives diagnostics of sheeting line up to 07 days. Same should be reproducible in graphical format against individual motors & drives.
 - vi. Should log historical data of roll-wise production up to 750 rolls of each sheeting line.
 - vii. Should provide maintenance alerts as per OEM recommended maintenance schedule

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for critical components of sheeting line based on operational hours.

- viii. Should provide maintenance alerts for dust cleaning system of sheeting line based on filter condition (pressure difference).
- ix. Should provide facility for production reports generation and print.
- x. Should supply necessary hardware for monitoring and retrieving the data.
- xi. Any other data as required by the BNPM and to be discussed during pre-bid meeting.
- u) Supply of all tools & tackles, including any special tools, required for operational maintenance of the automatic sheeting & packing line for each line should be provided.
- v) Supply of spare machine transport belts of each line including necessary belt preparation tools and accessories should be provided. Supplier should provide 500 meters of each type of machine belt.
- w) Enclosures for sound-proofing of sheeting line and components ~~shall~~ should be provided to meet safety standards.
- x) All control voltage supply should be through UPS at Finishing House MCC.
- y) Lifting arrangements should be made at sheeters, rewinders and bale press equipment to handle heavy equipment like cross cutter assemblies, in feed roll drive motors and other heavy drives, etc.

31. Online Web Inspection System at Sheeters:

Web inspection system is required for each automatic sheeting line.

- a) This system should inspect following defects in the paper web:
 - i. Inclusion.
 - ii. Dirt top side & bottom side.
 - iii. Wrinkles/fold.
 - iv. Brightness.
 - v. Hole/ pinhole.
 - vi. Security thread – break, width, position, oscillation, period, flip, bright, dark, text position and readability with template, moving images/ image shift, UV detection on both sides etc.
 - vii. Thread window defects like opening, closing/ filling, number of windows.
 - viii. Watermark and E-type position as per layout.

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- ix. Sheet width and length as per layout.
- x. Skewness /squareness of the sheets.
- xi. Detection of marks like cut mark, start mark, skew mark, track-line etc.

b) Detection of above defects should be available in Plain Area, Watermark area, E-type and must be able to classify defects by size, location, area, layers, sensitivity etc. Details will be shared with the successful bidder.

c) The location of the system is after slitting station of automatic sheeting line.

d) System must be capable of recognizing two threads per note, approximately 5 - 10 threads/ sheet. Threads may be of different type and different width, mostly in the range of 1 mm to 8 mm.

e) The system should be capable to work with all types of security threads that are available in the market like color shift, silver color, fluorescent thread, moving images, motion thread, thread with micro text, image shift, windowed thread, fully embedded thread etc.

f) System should count the number of Additive1 (active under UV light - 365 nm) in each note/ pre-defined area. The average count distribution reading should be displayed on LED display board at required location.

g) An alarm and flashing light should be provided in case of defects. Number of defects/ types should be custom adjusted in the software.

h) Remote diagnostic facility should be provided in the system including LAN point inside panel of the system.

i) Server should have state of the art hardware with latest operating / package software.

j) Proper platform should be provided for access during the maintenance.

k) Multi display monitors for each sheeting line should be provided in the sheeting section near operator station. An exclusive display should be provided for live monitoring of security threads.

l) Illumination system should be modular and plug & play type.

m) Adjustment of illumination intensity as per the customer's requirement should be provided in the software.

n) Proper cooling system for illumination and server should be provided.

o) The supplied system should be IP-65 / latest available in the market.

p) All standard reports should be generated roll wise. Back up reports should be saved for at least 6 months.

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- q) System should have sufficient storage to save at least 2 million defect images. Selecting filters for defect type, date range etc. should be provided. System should have facility to back up the stored images to external storage media.
- r) Provision to inspect each note with a minimum of 10 watermarks, 10 E-types, 04 window threads, 04 fully embedded threads should be provided.
- s) Provision to switch between note area inspection and whole sheet inspection should be provided.
- t) Provision to inspect advance watermark and template creation should be provided.
- u) Realtime graphics for defects, threads, watermarks etc., should be provided.
- v) Standard tolerances for measurement adjustments should be provided.
- w) System should have the provision for detecting planchettes, holograms and other industry standard security products.
- x) Sheet should be rejected by giving signal to sheeting line (for reject gate operation) in case of defects. The defect type should be decided by the customer.
- y) Provision for reading of alpha numeric / barcode should be provided. Inspection system should display and report each defect correlated with alpha numeric / barcode of sheet. Serial number printed on sheet by track & trace system should be same as for inspection system for records.
- z) System shall have the provision of selection of required inspection channels with radio button selection or any suitable provision in the software.

32. Standalone Sheet Inspection system:

- a) Standalone Sheet Inspection System with all components, accessories and controls should be provided. The following are the inspection requirements of sheet inspection system:
 - (i) Inspection of Watermarks (highlighted/electrotype and other).
 - (ii) Detection of displacement of the watermarks from their specified position.
 - (iii) Detection of squareness of paper.
 - (iv) Detection of oil/ grease marks, dirt spots, creases along with typical paper defects of lumps, pinholes etc.
 - (v) Detection of extreme thin places (formation).
 - (vi) Inspection of windowed & embedded thread, (moving/ motion/ image shift) (Position & presence).
 - (vii) Detection of double threads, missing threads, reverse threads.

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- (viii) Detection & reading of alphanumeric code marking in sheets with integration to Track & Trace system as per 5.3(g).
- (ix) Inspection of distribution of security fibers count.
- b) System should have automatic sheet feeding with sheet alignment, double sheet detection.
- c) Delivery should have automatic good sheet stacking system with pile jogging and tabbing system to indicate 500 sheet count.
- d) The quality defective sheets should be reported, rejected and stacked separately.
- e) System to have sufficient storage to save at least 2 million defect images. Selecting filters for defect type, date range etc. should be provided.
- f) Throughput of the system should be for inspection of minimum 5000 sheets per hour.
- g) Resolution of system should be 0.1 mm for paper defects and 0.05 mm for reading of micro text.
- h) Remote diagnostic facility should be provided in the system including LAN point and hardware firewall inside panel of the system.
- i) Audio-visual alarms should be provided for system related warnings & faults.

33. Knife Grinding Machines:

Knife grinding machines for grinding cross cutter knives, slitter knives, briquetting knives and roll splitting knives complete with all components, accessories and controls should be provided. Knife grinding machines shall be common for both the paper manufacturing lines.

34. Guillotine Machine:

A guillotine machine for removing the security threads from the rejected sheets complete with all components, accessories and controls should be provided. A guillotine machine should have scissor type cutting machine fitted with Tungsten Carbide tipped blade/knife for cut & remove the portion of sheet containing security threads. Guillotine machine shall be common for both the paper making lines and shall be designed to cater the requirements of both paper making lines. Supply of 02 set of spare knives should be provided. All tools & tackles for complete operational maintenance of guillotine machine should be provided.

35. Trimming, Baling & Dust extraction system:

- a) Side trims of slitter-rewinder & automatic sheeting line, non-threaded portions of Sheeting line reject and Quality defect sheets should be extracted and conveyed to the Baling system.
- b) Back strips (inter-sheet trim) of tandem crosscut of automatic sheeting line should be extracted and conveyed to the Briquetting system.
- c) Trimming System should ensure separation of side trims from inter-sheet trims. System

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should ensure prevention of jamming of strips in the conveying line/ blower to avoid fire hazards. Enclosures for sound-proofing of Trimming system and components should be provided.

d) A baling machine complete with all components, accessories and controls should be provided. One Baling machine should be for side trims of each paper making line. Feedback of the trimming & baling system should be provided to automatic sheeting line.

e) Dust extraction system should be provided to ensure removal of dust generated from trimming & baling system and exhaust to atmosphere through filtration.

36. Roll splitting station:

Roll splitting station for splitting of reject child reel from slitter-rewinder complete with all components, accessories and controls should be provided. Roll splitting station shall be common for both the paper manufacturing lines.

37. Briquetting & Collection system:

a) Briquetting system with all components (including guillotine for folded reel waste), accessories and controls for removing & converting thread strips of automatic sheeting line reject & jammed sheets and reel waste to paper briquette by conveying through conveyor for shredding and granulating should be provided.

b) Connections, including collection & storage of inter-sheet trims during breakdown of briquetting system, & controls to the trimming system should be for briquetting of inter-sheet trims of automatic sheeting line. Briquetting system should common for both the paper manufacturing lines.

c) Detection of metal impurities in the conveying system should be provided.

d) Feedback of the trimming system should be made to automatic sheeting line.

e) Enclosure for dust & sound-proofing of the Briquetting system should be provided.

f) Material to be shredded and granulated to maximum size of 8x8 mm. Briquetting system should be designed for 300 kg/hr output of briquettes. Briquette size should be 90mm (dia) x 65mm(length) approximately.

38. Electrical System & Equipment:

a) Scope of supply and erection covers complete electrical system of paper manufacturing lines from cotton comber cleaning system to finishing house.

b) MCC – Motor Control Centre: Requirements.

(i) Separate MCCs and Room layout for PM1, PM2, CPP, Mould Cover Shop, Pulp mill Line1, Pulp Mill Line2, Finishing house (Rewinder, Sheeter wise & Accessories).

(ii) 20% spare feeders, drives and other typical on MCC panels itself.



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- (iii) Capacitor-less Static VAR (IGBT/MOSFET based) APFC (Automatic Power Factor Correction).
- (iv) Single Phase (230V, 50Hz) UPS (Redundant, parallel operation with inbuilt isolation transformer and auto-changeover system of two sources) for supply to automation systems in MCC rooms.
- (v) Temperature and Humidity monitoring of MCC room zones and integration with DCS.
- (vi) Current Transformers for all Soft-starters and DOL feeders.
- (vii) Fan & Filter units for heat ventilation of MCC panels.
- (viii) VFDs for motors of rating 15kW and above to be considered.
- (ix) Openable type back panels with sufficient spare in MCCs for ease of maintenance.
- (x) 415 V Motor Control Centre (MCC).

- c) Sectionalized drives and Variable Speed AC drives panels for process equipment.
- d) 415V induction IE4 rated squirrel cage motors.
- e) Miscellaneous items such as local control push buttons, convenient receptacles from maintenance point of view.
- f) Single Phase (230V, 50Hz) UPS (Redundant, parallel operation, inbuilt isolation transformer with battery backup and auto-changeover system of two sources) for supply to Instrumentation Load and controls along with distribution panels.
- g) Cabling system comprising of LT power & control cables, cable terminations, cable trays and associated accessories (LT Cable - scope of BIDDER will start from MCC outgoing onwards). Input power cable to MCC of required capacity will be provided by PURCHASER. No. of MCC's requirement shall be furnished by BIDDER to design the configuration of upstream main PCC (Power Control Centre).
- h) Earthing system comprising of earthing strips/ conductors and associated accessories (Above Ground).
- i) Lighting system comprising of lighting fittings, coming in the main machine line up and hood lighting, Power socket, associated lighting switches/sockets, associated cable/conduit wiring up to the PURCHASER's board with ELCB's. (BIDDER to note that Plant lighting is excluded from BIDDER's scope).
- j) One set of tools and tackles for maintenance. List shall be provided to the successful bidder.
- k) Essential/Commissioning spares as required.
- l) Auxiliary steel / supporting steel for supporting the equipment, panels and cabling as well

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as related drilling, welding work, painting of supports etc.

m) BIDDER shall provide necessary documents, technical literature and drawings required for obtaining statutory clearances from Central Electricity Authority and other formalities involved in making paper plant functional.

39. Instrumentation & Control:

- a) DCS servers are to be in virtualized environment The virtual servers are of dual redundant type of operation.
- b) The CPUs, Communication processors, Network switches and Power supply to DCS panels and servers should have redundancy.
- c) MIS should be a part of DCS.
- d) Software of DCS, PLC, Operating System, application software / productivity suite should be of latest available versions with life-time license.
- e) Separate Engineering Server/station for DCS and QCS.
- f) All 24VDC supply to power the field and panel instruments is to be through voltage surge protectors. i.e., the 24VDC SMPS input to be through voltage surge protector.
- g) Field instruments and all valves (on-off & modulating) for all systems of the paper manufacturing line for each phase are in the scope of the BIDDER along with all erection hardware.
- h) Supply of completely wired Distributed Control Systems (DCS) with remote I/Os, Human Machine Interface Units (HMIs), rack mounted redundant servers, all hardware & software and printers including 24 V DC power supply units for the system as described in Annexure-4, for control & monitoring of Pulp Mill & Paper Machine Plant shall be in the scope of the BIDDER.
- i) Power Supply Distribution Boards for I&C systems shall be in the scope of the BIDDER.
- j) Supply of MIS interface PC with all hardware & software required for establishing the communication between the Paper Machine, Pulp Mill, Slitter re-winders & sheeting machines with the MIS system shall be in the scope of BIDDER as specified in Annexure-4.
- k) Supply of completely wired unit control desks for mounting of the HMIs, & MIS Interface PC shall be in the scope of the BIDDER.
- l) Supply of 2 Nos. Laptop with all necessary cables & connectors loaded with all software as per Annexure-4 shall be in the scope of the BIDDER.
- m) All instruments and completely wired PLC based control panel with all hardware & software as required for the mould cover preparation section shall be in the scope of supply of the BIDDER.

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- n) Supply of completely wired PLC based/microprocessor based local control panels with all hardware & software and power supply units as required for systems such as cotton combers handling & dry-cleaning section, cotton linter pulper, packaging & finishing section, pope reel, slitter re-winder etc. shall be in the scope of BIDDER. These PLC panels shall be interfaced with the Pulp Mill/ Paper machine DCS as per Annexure-4.
- o) Supply of completely wired QCS for the Paper Machine including 24 V DC power supply units (as required) shall be in the scope of the BIDDER. The QCS shall be integrated with the Paper Machine DCS.
- p) Supply of completely wired local control consoles with GIUs (Graphical Interface Units) as required for the various drives of the Pulp Mill & Paper Machine Plant shall be in the scope of supply of the BIDDER.
- q) The control systems for following utilities shall be interfaced to any one of the Paper Machine DCS on OPC connectivity for monitoring as described in Annexure-4:
 - i. PLCs for Boiler System (2 Nos.).
 - ii. PLCs for Compressors (2 Nos.).
 - iii. PLC for Water Treatment Plant and Fire protection system.
 - iv. PLCs of HVAC system.
- r) All hardware & software required at the DCS end for OPC data access from the above systems shall be in the scope of the BIDDER. BIDDER shall work in co-ordination with the PURCHASER to ensure proper connectivity between the PLC systems & DCS.
- s) Signals from the Fire Protection System for the plant shall be wired to one of the remote I/O panels in the Pulp Mill for monitoring as described in Annexure-4. The BIDDER shall provide the necessary I/Os for wiring the signals.
- t) Grounding for the I&C system shall be in the scope of the BIDDER. Supply & laying of cables up to the earth pits shall be in the scope of the BIDDER. Earth pits shall be provided by PURCHASER.
- u) All cables & cable trays for I&C system within the battery limits of this package shall be in the scope of supply of the BIDDER.
- v) Supply of hand-held HART configurator suitable for all SMART transmitters shall be in scope of BIDDER.
- w) Erection, testing & commissioning of all I&C system supplied by the BIDDER shall be in the scope of the BIDDER. All necessary erection hardware shall be provided by the BIDDER.
- x) Supply of all necessary tools, tackles, test & calibration instruments and experienced personnel for completion of the above erection, testing and commissioning works shall be in the scope of BIDDER.

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y) Factory acceptance tests & performance tests at site shall be in the scope of the BIDDER.

40. Electric Overhead Travelling Cranes:

- a) The required Cranes for pulp mill, paper machine, rewinder section, mould section etc., with appropriate capacity and lift details should be supplied and installed by BIDDER.

41. General

- a) The process fans and blowers should be supplied with twin bearing housings.
- b) The bidder should design in such a way that all the pumps, agitators, refiners should have mechanical seal arrangements.
- c) All the critical equipment as mentioned below should have online vibration and temperature monitoring system with remote and local display.
 - a. Refiners.
 - b. Pressure screens.
 - c. Heavy rolls.
 - d. Broke and linter pulper.
 - e. Vacuum pump.
 - f. Vacuum fans.
 - g. Fan pumps.
 - h. Bleaching system.
 - i. Slitter- rewinder.
 - j. Cross cutter.
- d) All the equipment like gearbox, motor, instruments, pulleys and couplings should be provided with safety guards and the MOC should be SS 316 or superior.
- e) Monorails, wherever required, for maintenance and shifting of equipment shall be under bidder's scope.
- f) Operator tables with required chairs to be supplied by the BIDDER for Control rooms, DCS room and sheeters.
- g) Provision shall be made for easy removal of the rolls from the paper machine for replacement or repair.

SECTION V – TECHNICAL SPECIFICATIONS & SCOPE OF WORK

4.0 ENGINEERING SCOPE

1. General Requirement:

- a) The extent of engineering services to be delivered by the BIDDER should cover the complete engineering requirements – layout engineering, process engineering, basic engineering/ specifications, foundation & civil engineering details and detailed engineering - for the entire process package and its connected systems.
- b) The bidder should hold single point responsibility for all the engineering services for the plant –plant lay out engineering, foundation and civil engineering details, plant process engineering, plant basic engineering and plant detailed engineering.

2. Layout Engineering:

- a) The scope of layout engineering should consider the entire process plants starting from the cotton comber bale feeding, cleaning section, digestion & bleaching section, pre-refining section, cotton linter plant, chemical preparation plant, stock preparation, approach flow, paper machine with auxiliary systems, broke preparation section, slitter re-winder, automatic sheeting and packing line, finished goods storage, Quality control facility with laboratory and operating control stations, MCC room, DCS room, mould cover preparation plant, various control rooms etc., for both the lines.
- b) Space Reservation Off-Line Foil Application Considering 1000 mm Deckle Width Shall Be Considered in the Layout Engineering.
- c) The layout engineering should be done in such a way that all the systems/ equipment in the process plant configuration shall be suitably and optimally accommodated in the available mill site space, without compromising on maintenance, service & access requirements and aesthetic considerations.
- d) The tentative overall plot plan for the project site shall be shared with the successful BIDDER after the award of LOA. The BIDDER has to develop and submit the layouts, which are specific to the configuration offered.
- e) The layout engineering should be accurate enough to derive the building dimensions and to provide the same to process plant civil construction activities.
- f) In the layout, location shall be earmarked to keep the spare rolls for both machines, to keep the special tools for various applications of dry end and wet end, Engineering workshop inside the plant, Oil and grease storage area, FH maintenance /tool/store room and for pulping plant maintenance / Tool / Store area, felt storage room etc.
- g) It is to be ensured that sufficient space is available on front and drive side of the paper machines, so that heavy maintenance activities including all the roll removal with EOT crane is possible.

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3. Process Engineering:

- a) Detailed process engineering should cover the entire process plant systems/sub -systems from the bale feeding in cotton comber cleaning section up to and including the slitter-re-winder, automatic sheeting & packing line and mould cover preparation plant.
- b) The process engineering should provide P&I diagrams showing complete information on flow rates, consistencies, temperature, pressure etc., & instrumentation points and process control loops. The P&I diagram shall include all the pumps, motors, tanks, vessels and equipment with conventional legends.
- c) The process engineering should provide the utility data – water, compressed air, power, steam and condensate. The utility distribution diagram within the battery limits should also form a part of the process engineering.
- d) Arriving at mass balance calculations- consumption figures of utilities, chemicals & stocks, effluent discharge & exhaust air figures etc., are part of the process engineering.
- e) Process controls in respect of group starting, sequential logic schemes, requirement for special controls and all process control circuits should be available after the process engineering.
- f) Complete equipment lists, dimensioning / design capacities for the equipment / process vessels /tanks / chests etc., should be part of the process engineering.

4. Piping Engineering:

- a) The piping details including its dimensions, material, flow volumes, substance carried etc., should be provided as part of the basic engineering which should include the piping from the bale feed system in the cotton cleaning section to the automatic sheeting and packing line and the piping for the auxiliary systems.
- b) The piping and equipment should be properly dimensioned so that their efficient operation is secured in all situations, both with minimum and maximum production levels.

5. Foundation & Civil Engineering Details:

- a) BIDDER should provide the foundation layout for the machine sections with load details indicating the static and dynamic loading of the machine and other relevant details to design the foundation. The temperature distribution pattern for the concrete section in the dryer part should be provided by the BIDDER.
- b) BIDDER should provide the loading details for floors and structures in the machine building. Floor drawings showing machine foundations, openings, drainage slopes, embedded steels and wall & roof drawings showing openings and special structures are to be provided by the BIDDER. Suitable hatch for lifting material from ground floor to the paper machine floor shall also be provided in the layout.
- c) BIDDER should provide the foundation plan and loading details for the paper machine

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sectional drives. The foundation plan in the floor drawing shall consider the convenience of maintenance, walkways and cut outs for cable inlets.

d) BIDDER should provide the necessary foundation load details for all the other equipment in the Cotton comber digestion & bleaching plant, cotton linter plant, Chemical preparation plant, Paper Machine, stock preparation, approach flow and other auxiliary systems, Slitter-winder, automatic sheeting and packing line etc., which are part of the scope of supply.

6. Electrical Engineering:

a) BIDDER should submit the section wise Electrical Loads List, Sizing of various equipment like LT Switchgear, VFD and UPS System, Cable sizing, Cable Schedule and preparation of Interconnection cable schedule.

b) BIDDER should submit the Electrical General arrangement drawings for electrical substation including 0.433 kV switchgear, UPS system, VFD panels and Control Room etc.

c) BIDDER should submit the Lighting layout and circuiting required in the hood of the paper machine lines, power receptacles (15A) and emergency lighting etc.

d) BIDDER should submit the Control schematics of Sectionalized drive along with the power consumption table and drive points for machine. The BIDDER should provide the detailed data sheets for the sectional drives, specifying the drive numbers drive designations, drive ratings, motor types, motor ratings & motor speeds.

e) The BIDDER should carry out design and detailed engineering for various Equipment and system as listed below and submit documents (including design calculations & data-sheets) / Drawings (Single Line Diagrams) and specifications along with Bill of quantity for all Electrical equipment/system as mentioned below for PURCHASER's approval.

- (i) 415 System – Motor Control Centre (MCC), Power Distribution Board (PDB) etc.
- (ii) LT Motors along with motor numbering, designation, voltage rating, frequency rating, power requirement, rotational speed, operating duty cycle, type, frame & size, type of enclosure, method of fastening, type of drive and GD2 value as applicable.
- (iii) Cabling system, comprising of LT Power & Control cables, Cable Terminations, cable trays and associated accessories.
- (iv) Earthing system, comprising of earthing strips/ conductors and associated accessories (Above Ground) including double earthing to all Motors.
- (v) Miscellaneous items, such as Local control push buttons, Convenient Receptacles from maintenance point of view etc.

f) The BIDDER should prepare and update following documents/ drawings incorporating equipment details of procured items for PURCHASER's approval and Record.

- (i) Equipment general arrangement drawings.

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- (ii) Load List.
- (iii) Single Line Diagram.
- (iv) Cabling Layout.
- (v) Earthing Layout.
- (vi) Lighting Layout only for machine lineup.
- (vii) Power and Control Cable schedule and interconnection schedule.

7. Automation & Instrumentation Engineering:

The scope of services of BIDDER should include design of entire Instrumentation and Control System for all systems for the Cotton comber preparation plant, Digestion and Bleaching system, Linter pulping system, Chemical preparation plant, Stock preparation system, Approach Flow, Paper Machine Plant, Mould Cover Preparation Section, Slitter re-winder and Finishing & Packing Section including field instruments, DCS, power distribution system, air distribution system, junction boxes, earthing for the I&C system.

8. Detailed Engineering:

- a) BIDDER should provide the complete engineering details for the construction / fabrication / erection of all the tanks / vessels / process systems / equipment / electrical systems /automation systems & instruments. The detail engineering requirements should be from the cotton comber bale feeding, cleaning section, digestion & bleaching section, pre-refining section, cotton linter plant, chemical preparation plant, stock preparation, approach flow, paper machine with auxiliary systems, slitter-re-winder, automatic sheeting and packing line, finished goods storage, laboratory facility, mould cover preparation plant, various control rooms etc. Any other engineering details which are not indicated above, but necessary for the completion of the activities for the start-up of all the process line equipment should be in the BIDDER's scope.
- b) Detailed piping engineering, which should include – pipe locations, piping layouts, pipe routes, pipe dimensions, support types & locations, piping stress calculations (for steam & condensate system) as required, list of pipe lines, list of manual valves, isometric piping drawings (for pipes of diameter greater than or equal to 2 inch), pipe support lists & support drawings, insulation details, IBR piping details & pipe stress analysis calculations. For piping engineering design basis refer Annexure-4.
- c) Detailed engineering for tanks/vessels, which should include mechanical data sheet of equipment and should indicate the thicknesses and other fabrication details.
- d) Detailed Electrical engineering should include – Engineering of MCCs /PDB, UPS, VFD, cables (LT) along with the accessories, motors etc. for the complete electrical system from cotton comber cleaning system to finishing house.
- e) It should also include development of General arrangement drawings, ELCB's, Earthing and

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Lightning Protection Layouts, cable layouts & cable schedules interconnection details. Electrical design basis for reference is as attached in Annexure-3.

- f) Detailed automation & field instrumentation engineering, which should include – Instrument List, configuration drawings & control logic diagrams for DCS & PLC systems, control room layout, sizing of instruments such as flow elements, control valves etc., sizing of UPS for the I&C system, alarm list, power supply distribution schemes for I&C system, instrument location plans, development of cable tray layouts & cable schedules (with termination details, as applicable), hook up drawings for the instruments, air supply piping/tubing layout with air distribution headers. Instrumentation design basis for reference is as attached in Annexure-4.
- g) Detailed engineering for equipment including pumps & agitators should include – equipment layouts, details of the approach platforms & walkways, hoist beams, stairs & ladders, equipment supports, as applicable. Preparation of general arrangement drawings in plans & sections, identifying location of all equipment in plan & elevation. The painting specifications are as attached in Annexure-2.
- h) Cut-outs/openings required in slabs, roof, walls etc., for the entry of cable trays/ cables, pipes etc., and requirement of trenches for routing cables should be provided.
- i) Requirement of embedded steel parts in building columns, beams, walls etc., should be specified.
- j) The BIDDER should provide following engineering documents and drawings as required by various statutory authorities. BIDDER should be responsible for obtaining approvals.
 - (i) IBR isometrics.
 - (ii) Single line diagrams.
 - (iii) Substation Layout.
 - (iv) Earthing Layout.
 - (v) Radioactive materials (Atomic Energy Regulatory Board).
 - (vi) Pressure vessels, Weights and Measures, Lifting tools and tackles.

5.0 ERECTION SCOPE

1. Unloading at site, placing at a storage area, shifting of goods from storage to place of erection, unpacking of packing cases and storage of debris at a designated place should be in BIDDER's scope.
2. The erection / installation of all equipment, plant machinery, piping, cabling, field instruments etc. within battery limits (from cotton comber cleaning system to finishing house and the other systems / equipment), are in the scope of BIDDER.

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3. The BIDDER should deploy the required number of personnel/specialists from respective functional areas, to carry out complete erection activities and should offer exclusive expert instructions / guidance at the time of erection/installation. A Chief Erector / Chief Specialist should lead the team. BIDDER should allow PURCHASER's personnel to be part of the erection team and should provide guidance wherever necessary.
4. The BIDDER should submit a detailed time-bound activity schedule, expected to be carried out during the erection phase sufficiently in advance. BIDDER should provide Daily / weekly / monthly reports to PURCHASER referring to these activity schedule. The BIDDER should provide the work procedures, quality assurance plan, and safety & health standards, as applicable to the erection activities and monitor to ensure that these are strictly adhered to. Competent safety personnel should be deployed during erection and commissioning activities. Competent safety personnel should have necessary qualification as per Karnataka Factories Act.
5. The scope of erection would include the checking of the civil engineering foundation drawing and physical checking of the foundations within one week of submission. The scope of erection should cover all the erection of mechanical equipment/ items / piping & tubing / instrumentation & automation systems / electrical systems / hydraulic & pneumatic systems / lubrication systems, Electrical safety with ELCB's, etc.
6. The scope of erection extends up to the startup of the plant. The start-up of the plant should commence only when the plant is brought to operational status. The plant is considered as having reached the operational status when all the erection activities are completed in all respects and the mechanical functionality has been tested (Dry test).
7. The BIDDER should provide a detailed deployment schedule / chart of the specialist's team, which should include the number of specialists, their areas of specialization, specific tasks of each member of the team, duration of their presence at site etc. sufficiently in advance.
8. The lump sum charges for the erection activities should be quoted for complete scope of erection based on deployment schedule, for the total erection period. The lump sum charges shall also include erection for the erection period for both paper manufacturing lines.
9. Monorails, wherever required, for maintenance and shifting of equipment shall be under bidder's scope. To be included in tools and tackles.
10. PURCHASER reserves the right to evaluate the deployment schedule / chart proposed by the BIDDER and to suggest suitable modifications, if required.

6.0 COMMISSIONING SCOPE

1. After the completion of all the erection activities (mechanical /instrumentation & automation /electrical etc.) and the completion of the mechanical functionality checking, the start-up activities (pre-commissioning) would commence.
2. Start-up activities should be integrated, covering all the process systems / mechanical systems, including hydraulic & pneumatic / instrumentation & automation systems / electrical systems.

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3. Trial runs (wet trials) with checking of all control schemes / control logics and functional / operational requirements, setting of control variables, fine-tuning of operational parameters etc. are to be completed during the start-up phase. All the process systems / equipment / electrical systems / instrumentation & automation systems in the process package, from cotton comber cleaning system to finishing house and connected auxiliary systems, are made functional to the normal operating conditions at the completion of the start-up phase.
4. The BIDDER should hold single point responsibility for carrying out the commissioning activities of the process package. The BIDDER should lead and take the overall control of all activities related to commissioning during the period.
5. BIDDER should deploy the required number of personnel/specialists and resources to carry out the commissioning activities.
6. For any defect to any of the equipment/ components etc. attributable to the BIDDER, during the startup and commissioning phases, which are not part of the normal wear and tear, the BIDDER should arrange for the repair/ replacement of the same immediately, without effecting the completion of commissioning activities within the schedule date.
7. A detailed time-bound schedule of activities with clearly demarcated functional responsibilities for all the agencies that are part of the start-up and commissioning should be produced by BIDDER after award of contract.
8. All the operating & maintenance manuals, specific operational & maintenance instructions, guidance, preventive maintenance schedules for weekly, monthly, yearly maintenance, predictive maintenance with trouble shooting etc., should be supplied well in advance for putting a particular unit into operation.
9. As built drawings for all the engineering deliverables should be provided by the BIDDER before handing over of the project.

7.0 PERFORMANCE GUARANTEE

1. Performance Guarantee Figures For each line of pulp mill:

- a) Quality Performance for Pulp in Digestion & Bleaching plant at design capacity

(i)	Input Comber for Pulping:	Min. 1400 kg/ hour
(ii)	Brightness:	Min. 85%
(iii)	pH of bleached pulp:	6.5 – 8.5
(iv)	UV fluorescence at 365 nm wave length:	Inactive
(v)	Fiber length of pre-refined bleached pulp:	0.8 – 1.2 mm
(vi)	Freeness of pre-refined bleached pulp:	20 – 25 deg SR

- b) Production capacity of Digestion & bleaching plant

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- (i) The BIDDER should guarantee the production from the Digestion & Bleaching Plant (including dry cotton comber handling & cleaning, fiber length adjusting/Pre-refining section) should produce not less than 30 Metric tons of cotton comber pulp (Bone Dry) / day of 24 hrs per each line, with desired quality during the 5 days performance test run.
- (ii) The production capacity of bleached pulp is calculated from the consistency and flow from the pre-refined pulp storage tank (i.e. after pre- refiners). The pulp samples are to be taken and analyzed in laboratory in terms of consistency. If the consistency from the consistency meter differs from laboratory analysis, the laboratory analysis should be used for calculation and consistency meter should be re-calibrated. The sampling frequency is one sample in every 2 hours. Sampling & analysis should be carried out as per the standard mill practice/mutual agreement between PURCHASER & BIDDER.
- (iii) The calculated quantity of produced bleached pulp as tons of bone-dry pulp during the test will be used to calculate the production capacity of digestion and bleaching plant.

c) Yield By Mass at Comber Digestion & Bleaching section

- (i) Yield by mass must be at least 95 %. The guarantee of the total yield by mass in cotton comber digestion & bleaching section (excluding dry cotton handling & cleaning section, digestion & bleaching section & fiber length adjusting/pre refining section) calculated on effective, uninterrupted operation at designed capacity of the digestion & bleaching plant.
- (ii) The total yield by mass is determined by calculating the total raw material (cotton comber) mass entering the bale opener feed conveyor and the quantity of pulp output after pre-refiners with desired quality during the 5 days performance test run.
- (iii) The raw material weight fed to the digester & bleaching plant is calculated from the amount of cotton comber bale feed in feed conveyor of bale opener during the performance test. The weight of the cotton comber is calculated from the readings of the weighing machine/Weight of the cotton comber lot, before the feed conveyor of bale opener and the average value of cotton comber moisture content analysis. The samples for the cotton comber moisture content analysis are to be taken from the feed conveyor at the point where cotton comber is entering the bale opener. The sampling frequency is, one sample from every 50 cotton comber bales, during the 5 days performance test run. Sampling & analysis shall be carried out as per the standard mill practice/mutual agreement between PURCHASER & BIDDER.
- (iv) The calculated amount of raw material as tons of bone-dry cotton comber, and the calculated quantity of bleached pulp as tons of bone-dry pulp during the test, will be used to calculate the total yield by mass.

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(v) The method of measurement shall be mutually agreed between PURCHASER & BIDDER.

2. Performance Guarantee Figures For cotton comber/linter sheet pulping system:

a) Quality Performance for cotton Comber/linter sheet pulp

(i)	Sheet conveying & pulping capacity	Min. 15BD TPD
(ii)	Brightness	Min. 85%
(iii)	pH of pulp	6.5 – 8.5
(iv)	UV fluorescence at 365 nm wave length	Inactive
(v)	Fiber length	0.7 – 1.0 mm
(vi)	Freeness pulp	45 – 50 deg SR

b) Production capacity of Cotton comber/Linter sheet pulping system

(i) The BIDDER should guarantee the production from the Cotton comber/linter sheet pulping system during performance test run should produce not less than 15 Metric tons cotton linter pulp (Bone Dry) / day of 24 hrs. with desired quality during the 2 days performance test run.

(ii) The production capacity of pulp is calculated from the consistency and flow from the cotton linter pulp storage tank with corrections of storage tank levels during the performance test. Also pulp samples are to be taken and analyzed in laboratory in terms of consistency. If the consistency from the consistency meter differs from laboratory analysis, the laboratory analysis shall be used for calculation and the consistency meter shall be re-calibrated. The sampling frequency is one sample every 2 hours. Sampling & analysis shall be carried out as per the standard mill practice/mutual agreement between PURCHASER & BIDDER.

(iii) The calculated quantity of produced pulp as tons of bone-dry pulp during the test will be used to calculate the production capacity of cotton linter plant.

3. Performance Guarantee Figures for each line of Paper machine:

a) Quality Performance for paper machine

(i) Quality parameters with tolerance limit of the paper should be as per the specification provided by PURCHASER in Annexure 9.

(ii) The product should be free from the fluff, paper dust, shade variation, surface blemishes spots, uneven thickness/ basis weight in machine direction as well as cross direction, creases, crushed water marks, unmarked missing security threads, pinholes, fish eyes, air specks, mould chocking, cloudy formation, thread

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stripping/ poor window formation defects, waviness, slipperiness etc.

b) Production capacity of Paper Machine

- (i) The BIDDER shall guarantee the production from each line of Paper Machine not less than 30MT/24hr for the maximum deckle size of 2520mm. The production shall be calculated for reference grade denominations as per the respective deckle size. The rejection loss due to all defects connected with paper machine should be less than 5%.
- (ii) Production shall be measured at the pope reel.

c) Fiber Loss

- (i) The fiber loss from approach flow cleaning, approach flow screening, broke screening, paper machine together should be a maximum of 2.5% of the total daily production capacity at pope reel at reference grade & speed of the paper machine.
- (ii) The fiber loss is determined by calculating the total fiber loss from stock preparation, approach flow cleaning, approach flow screening, broke screening, paper machine and the total daily production capacity at pope reel at reference grade & speed of the paper machine with desired quality during the 15 days performance test run.

Note: BIDDER to be share the method for determining fiber losses and it should be mutually agreed.

- (iii) The amount of fiber loss from approach flow cleaning, screening and broke screening is calculated from the consistency and flow of rejects during the performance test. Samples are to be taken at specified time intervals and analyzed in laboratory in terms of consistency & volume. Laboratory analysis should be used for the final calculation. The sampling frequency is one sample every hour. Sampling & analysis shall be carried out as per the standard mill practice/mutual agreement between PURCHASER & BIDDER.
- (iv) The information of the amount of fiber loss as tons of bone dry and the information of total production at pope reel at reference grade & speed of the paper machine as tons of bone-dry paper, will be used to calculate the total fiber loss.
- (v) The method of measurement shall be mutually agreed between PURCHASER & BIDDER.

d) Dryness after Press Section

- (i) The BIDDER should guarantee that the dryness after the press, during the operation of reference grade at a reference speed with a specified quality parameter, should be $\geq 38\%$.

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- (ii) The above off-press dryness shall be achievable after the last press nip of press section.
- (iii) The off- press dryness value will be checked on the basis of mean values from at least 5 samples. Samples from center shall also be taken.

4. Performance Guarantee for slitter rewinder:

a) Production capacity of Slitter -rewinder

- (i) The BIDDER shall guarantee the machine speed of each slitter rewinder not less than 600 meters per minute during performance test run of 95 +/- 3 gsm paper for 5 days. Each jumbo rolls to be slit and rewound into baby rolls at 600 meters per minute speed during test run without any interruptions.
- (ii) Further BIDDER should guarantee the test run of 35 +/- 2 gsm paper for a duration of maximum one day.
- (iii) The test run should be carried out without any web break, which is attributed to rewinder.
- (iv) Baby rolls generated should be free from wrinkles, uneven winding, overlapping etc.

5. Performance Guarantee Figures for Automatic Sheeting & Packing Line:

a) Quality Performance for each Automatic Sheeting & Packing Line at 330 +/- 20 meter/minutes.

- (i) Cutting tolerance on width: ± 0.2 mm
- (ii) Cutting tolerance by register mark distance on acceleration and deceleration

7.5.a.ii.1 Single Cut : ± 0.5 mm

7.5.a.ii.2 Tandem Cut : ± 1.0 mm

- (iii) Cutting tolerance by register mark distance at constant speed

7.5.a.iii.1 Single Cut : ± 0.3 mm

7.5.a.iii.2 Tandem Cut : ± 0.4 mm

b) Production capacity of Automatic Sheeting and Packing line

- (i) The BIDDER should guarantee the production from each automatic sheeting and packing line at not less than 27MT/24 hours operation of shrink-wrapped reams with sheet size of reference grade 'D' denomination during 5 days of performance test run.

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- (ii) Production capacity of saleable water marked banknote paper sheet (deducting the weight of separator sheets, shrink wrapping etc.) shall be measured at the output of the automatic sheeting and packing line.
- (iii) The rejection loss due to all defects connected with sheeting and packing line should be less than 5%.

6. Performance Test Run Conditions:

- a) BIDDER should guarantee and demonstrate the performance of the machine within 3 months from the date of commissioning. PURCHASER & the BIDDER shall mutually agree upon the exact time for the test runs.
- b) The BIDDER should provide the performance requirements as per mile stones mentioned in Annexure 8.
- c) The duration of performance test run for each line of pulp mill shall be for 5 days.
- d) The duration of performance test run for cotton comber/linter sheet pulping system shall be for 2 days.
- e) The duration of performance test run for each line of paper machine for each reference grade shall be for 15 days.
- f) The duration of performance test run for each sheeter for 5 days with any one reference grade denomination as decided by the Purchaser.
- g) The test runs shall be carried out with quality parameters as described in Annexure 9 for a period of continuous 15 days for reference grade. Two number of reference grades as decided by the PURCHASER shall be run in each line of paper machine for the performance test. During the period of each reference grade performance run, a maximum period of 2 hours interruption shall be considered within every 48 hours of plant operation. If the total interruption time extends beyond the 2-hour period within 48 hours of plant operation, performance test run shall be repeated.
 - (i) Reference grade denominations for 1st line of paper machine shall be 'X' and 'D'.
 - (ii) Reference grade denominations for 2nd line of paper machine shall be 'L' and 'CC'.
- h) In addition to the above mentioned two reference grades of performance run in each paper machine, a test run shall be carried out with 35 +/- 2 gsm water marked banknote paper grade with machine speed not less than 90 meter/minute. Duration of trial shall be for maximum one day.
- i) All the performance guarantee figures/ parameters shall be within prescribed limits. In case the PURCHASER does not sign the acceptance certificate, purchaser shall state its reasons in writing within 10 working days after the completion of acceptance test. In the event of non-achieving the prescribed performance guarantee figures/ parameters, the BIDDER shall take necessary corrective actions and shall conduct subsequent acceptance test(s) within

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a mutually agreed time frame. In case of short fall in meeting the performance guarantees, liquidated damages shall be assessed and recovered from the BIDDER as per the provisions mentioned in the tender document.

- j) In the event of faulty engineering, error or omission in respect of the work performed by the BIDDER, the BIDDER should furnish corrective solutions and engineering as may be required without any additional cost to PURCHASER within a mutually agreed time frame. Such corrective actions should be implemented immediately without any additional cost to the PURCHASER.
- k) BIS/ TAPPI / ISO Standard Test Methods shall be used for Quality Parameters for Pulp & Paper Testing.
- l) The results of the Final Acceptance Test will be evaluated in a joint protocol between the BIDDER and the PURCHASER. Minor defects will be recorded in the "Acceptance Certificate" and will be solved by the BIDDER within a reasonable time. The signature of the Acceptance Certificate acknowledges the acceptance by PURCHASER of the scope of works to be performed by BIDDER under this contract.
- m) In the event of a failure of the Acceptance Test for reasons for which the BIDDER is responsible, all the necessary measures such as repair, replacement or modification of Contract Equipment shall be carried out by the BIDDER within a period of time to be agreed between the two PARTIES in order to create the prerequisites for a new Acceptance Test.

7. Steam Consumption:

The BIDDER shall indicate and guarantee the specific steam consumption (Ton of steam/Ton of saleable paper) in the techno-commercial bid for the digestion & bleaching plant and paper machine, calculated on effective uninterrupted operation at reference speed of the paper machine, when it is running on reference grade. Production of paper shall be measured at the output pope reel.

8. Power Consumption:

The BIDDER shall indicate and guarantee the specific power consumption (kWh/Ton of saleable paper) in techno-commercial bid for the digestion & bleaching plant for cotton comber, cotton linter plant, stock preparation, approach flow, paper machine with auxiliaries inclusive of slitter re-winder calculated on effective uninterrupted operation at reference speed of the paper machine, when it is running on reference grade. Production shall be measured at the output of the pope reel.

9. Mechanical Guarantee:

BIDDER should provide guarantee for the following Plant and Machinery/Systems supplied under the scope of supply for a period of 12 months, from the date of final acceptance by PURCHASER.

- i. All supplied equipment will be free from any mechanical defect and substandard workmanship. All electrical, mechanical, electronic parts which fail during the warranty

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period shall be replaced free of cost by the BIDDER.

- ii. Mechanically the paper machine shall be dimensioned for a design speed as mentioned in clause no. 1.04.c).
- iii. Vibration levels shall not exceed the SSG 3030 or DIN ISO 10816 – 3 or equivalent Indian standards to vibration classification values.
- iv. During PG test all the major rolls, equipment will be checked for sound level, temperature and vibration and BIDDER to ensure that the readings are well within limit as per IS standards / OEM recommendation.
- v. Sound level of the plant and machineries during the PG test should be within the limits prescribed under Karnataka factories act.

8.0 BATTERY LIMITS

The battery limits for the Process package equipment should be as specified in above mentioned Clauses as far as supply & engineering scopes are concerned. General guidelines are as provided below:

S No	Item	Description of Terminal Point
(a)	RAW MATERIAL	
I.	Cotton comber	Transportation of cotton comber bales from raw material go-down to feed conveyor of bale plucker/ opener onwards, is in the scope of BIDDER.
II.	Cotton Linter/comber sheet	Transportation of cotton linter bales from raw material go-down to feed conveyor of pulper, onwards, is in the scope of BIDDER.
III.	Dry Broke	Collection & Transportation of dry broke in paper machine building to feed conveyor of pulper shall be in PURCHASER's scope. Feed conveyor of pulper onwards, is in the scope of BIDDER.
IV.	Chemicals coming through tankers	Inlet flange of the unloading pump and onwards is in the BIDDER's scope.
V.	Chemicals coming through containers/drums/bags	Handling & Transportation of Chemicals containers/drums/bags from misc. go-down to feeding funnel/feed hopper of storage tank/dissolver shall be in PURCHASER's scope. Feeding funnel/feed hopper of storage tank/dissolver onwards shall be in BIDDER's scope.
(b)	UTILITY BATTERY LIMIT	
I.	Fresh/mill Water	PURCHASER will provide supply header with isolation valve within 5 meters from Digestion & bleaching plant Building and Paper Machine building face. Water line tapping and distribution with on/Off (Auto) Valves will be under the scope of BIDDER.

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S No	Item	Description of Terminal Point
II.	Chilled Water	PURCHASER will provide supply header with isolation valve within 5 meters from Digestion & bleaching plant Building, Paper Machine building face. Chilled Water line tapping and distribution will be under the scope of BIDDER.
III.	Cooling Water	Cooling Tower for vacuum system, lubrication system, Pulping Plant requirement, cooling rolls of paper machine etc. and cooling water distribution system shall be in bidder's scope for Pulping Plant and Paper machine.
IV.	Medium Pressure Steam	PURCHASER will provide supply header with isolation valve within 5 meters from Paper Machine/Pulp mill building face. Steam line tapping and distribution with Pressure Regulating Valve shall be under the scope of BIDDER.
V.	Low Pressure Steam	PURCHASER will provide supply header with isolation valve within 5 meters from Digestion & bleaching plant Building, Paper Machine/Pulp mill building face. Steam line tapping and distribution with Pressure Regulating Valve shall be under the scope of BIDDER.
VI.	Steam Condensate	Condensate discharge point shall be at one end of the paper machine building. BIDDER shall supply all the items from the condensate pump till this discharge point within paper machine building.
VII.	Compressed Air	PURCHASER shall provide compressed air/instrument air with isolation valve within 5 meters from digestion & bleaching plant, Paper machine building. Closed loop pipe distribution along with required air receivers, flowmeter, FLR, etc. at any part of machinery system should be in the scope of BIDDER.
VIII.	Fire detection and protection	Fire detection and protection arrangement within the dryer hood, dry cleaning equipment, sheeter or any equipment which requires fire protection should be in BIDDER's scope. Tap off from the fire hydrant network shall be taken from the nearest point in the paper machine building area.
(c)	EFFLUENT	
I.	Effluent	All internal connections of effluent from the digestion & bleaching plant and paper machine of both the lines up to a common point (drain channels) should be in the scope of BIDDER. Connecting collection pit with effluent treatment plant shall be in the scope of PURCHASER. Related civil works for connecting paper machine effluent to the ETP shall be in the scope of PURCHASER. All internal connections for the process effluent within a paper machine building through the pipe line should be the scope of BIDDER. BIDDER should provide necessary drawings for related civil works sufficiently in advance to the PURCHASER.

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S No	Item	Description of Terminal Point
II.	Rejects (high solid content)	BIDDER should provide portable collection bin for collecting rejects (high solid content) wherever required in digestion & bleaching plant, Paper machine building, finishing house etc. Handling of collection bin shall be in PURCHASER's scope. BIDDER should provide reject handling system wherever required.
(d)	Electrical Power supply	Adequate incoming Power Supply up to the MCC shall be provided by PURCHASER. Complete Electrical Distribution system including MCC for all process equipment/ systems supplied should be in BIDDER's scope.

9.0 EXCLUSIONS

1. Summary of exclusions to the scope of the BIDDER are as indicated below. These are general in nature and for information only. The details shall be applicable as per the provisions of respective clause.
2. Civil engineering and civil construction work for raw material godown, digestion & bleaching plant building, paper machine building, finishing house building, equipment foundations etc.
3. Building ventilation: BIDDER shall provide heat dissipation loads from machines based on which ventilation system design shall be done by PURCHASER.
4. Building lighting: BIDDER to indicate lighting requirements, based on which lighting shall be provided by PURCHASER.
5. Raw materials and chemicals: Cotton (comber/linter) and all other required chemicals to produce CWBN paper shall be procured by the PURCHASER.
6. Oil & Lubricants except initial/first fill shall be procured by the PURCHASER.
7. Fire detection, alarm & protection system for digestion & bleaching plant, Paper Machine building, finishing house etc. shall be provided by PURCHASER. Fire detection, alarm & protection system for specific machinery is in BIDDER's scope as mentioned in clause no. 8.0 (b) VIII.
8. Access control and security surveillance system shall be provided by PURCHASER.
9. Material handling equipment like forklifts and pallet trucks shall be provided by PURCHASER.
10. Utility packages like steam generation & supply, raw water treatment & supply, compressed air supply, telecommunication package etc shall be provided by PURCHASER.
11. BIDDER to specify any other requirement not covered under the scope mentioned above which are required as per his offered equipment/system for the efficient & smooth operation of paper plant, during the pre-bid meeting with proper justification.

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10.0 TECHNICAL INFORMATION TO BE PROVIDED IN THE BID

1. Consumption figures of raw materials, chemicals, fresh water, steam, compressed air, power, etc. per MT of paper as per table given below:

S No	Description	Consumption figure
(a)	Raw material - Cotton Comber - Bleached Cotton Linter/comber Pulp Sheets	..... MT/MT of finished Paper MT/MT of finished Paper
(b)	Chemicals - Bleaching chemicals - Wet end chemicals (list out items & consumption figure) - PVA/ PU - Other Chemicals (list out items & consumption figure)	..... kg/MT of Comber Pulp kg/MT of finished Paper kg/MT of finished Paper kg/MT of finished Paper
(c)	Fresh water - Digestion & Bleaching plant - Paper machine with auxiliaries' system	..... M ³ /MT of Pulp M ³ /MT of Finished Paper
(d)	Steam - LP steam - MP steam	..... MT/MT of finished Paper MT/MT of finished Paper
(e)	Power	..... kWh/MT of Pulp kWh/MT of Finished Paper
(f)	Compressed Air	..... NM ³ /hr
(g)	Chilled water	..... M ³ /MT of finished paper
(h)	Cooling Water	..... M ³ /MT of finished paper

2. Quantity & quality of effluent from process plants as per table given below:

S.No.	Description	Digestion & bleaching plant	Paper Machine with auxiliaries' system
(a)	Quantity of effluent	..... M ³ /MT of Comber Pulp	..... M ³ /MT of finished paper
(b)	Quality of effluent: - pH - Temperature - Turbidity - TSS - TDS - BOD - COD - Oil & grease - Colour - Zinc - Copper °C (Max.) NTU mg/l mg/l mg/l mg/l mg/l K ₂ Cr ₂ O ₇ TCU mg/l mg/l °C (Max.) NTU mg/l mg/l mg/l K ₂ Cr ₂ O ₇ TCU mg/l

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		mg/l
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3. Proposed tentative layout general arrangement drawings of the digestion & bleaching plant, paper machine, and other major items of the equipment, illustrating the main features of the design.
4. Proposed tentative layout and load plan of process plants.
5. List of all equipment and machinery for the entire process plants, including all auxiliary facilities.
6. List of Sub-VENDORS of major items proposed to be bought from outside.
7. Specifications and materials of construction for all major items of equipment, machinery, piping and ducting.
8. Detailed schedule for pumps, agitators, tanks, insulation and cladding, valves, pipes, steam traps and instruments.
9. Detailed information by way of drawings, catalogues, leaflets etc. to illustrate the features of the Equipment.
10. Flow sheet for process plants, including all auxiliary facilities showing consistency, process parameters, such as one pass retention of fibers and fillers at the former, dryness of paper at various sections on the paper machine, drying capacity of pre-and post-dryers and specific consumption of steam, water, power etc. should be specified and guaranteed.
11. Power requirement for the process plants, such as cotton cleaning system, digestion & bleaching plant, stock preparation, paper machine, slitter re-winder, automatic sheeting & packing line, Mould cover preparation plant, Laboratory, etc. The drives should be specified in terms of Normal Running Load (NRL), Recommended Drive Capacity (RDC) and/or installed horse power, for each sectional drive (Electrical load list). The Bidder shall provide single line diagram from 415V MCC onwards, tentative MCC room lay out, and make of components considered for electrical system.
12. An outline program covering the period from commencement of contract to commercial production showing the main dates for freezing design and layout, manufacture, shipping, erection and commissioning, performance test run and handing over of the plant.
13. Filled-in data sheet for DCS & QCS (as provided in Annexure-4).
14. A clear exclusion list, with detailed specification to be provided to facilitate PURCHASER for the procurement, which will make the system complete and operational to meet the performance guarantees.
15. BIDDER shall enclose un-priced bid format along with techno-commercial bid.

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11.0 TECHNICAL INFORMATION TO BE PROVIDED AFTER AWARD OF CONTRACT

BIDDER should provide the following drawings and documents including necessary drawings, documents and manuals and all information as detailed in Clause 2.0, 3.0 (Scope of Supply & Services) and Clause 4.0 (Engineering scope):

1. Necessary engineering drawings like layout of plant and machinery including electrical equipment.
2. All piping drawings.
3. Process and utility flow diagram including P&I diagram.
4. Detailed specifications and calculation sheets for pumps.
5. Detailed drawings showing control circuit, connection drawings and other service requirements.
6. Detailed drawings showing foundation requirement with load details.
7. Detailed erection drawings and manuals.
8. Electrical Load List & MCC room layouts.
9. Heating Load of MCC rooms to be provided.
10. MMIs is to be replaced with HMI.
11. Single Line Diagram for power distribution system.
12. Power Cable Layout & Cable schedule.
13. Earthing Layout.
14. Instrumentation & Controls.

S No	Details
(a)	Overall System Configuration Diagram.
(b)	Control, operation & redundancy philosophy.
(c)	Instrument list with tag numbers, Makes and Model nos., Service, Type of instrument.
(d)	Data sheets & catalogues for instruments & valves.
(e)	Installation sketches for instruments & valves along with erection bill of quantities.
(f)	Sizing calculation for control valves, flow elements & thermo-wells.
(g)	Total power consumption & air consumption for the I&C system for the paper machine plant.
(h)	Data Sheets & catalogues for I&C cables and power cables.
(i)	Loop Diagrams.

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S No	Details
(j)	Following drawings for Local control consoles with operator interfaces, PLC System Control Panels, DCS Panels, QCS panel, Remote I/O panels, junction boxes etc. i. Front facia layout showing all instruments with cut-outs, bezel dimensions, construction details, foundation details and interior G.A. drawings showing interior layout of various modules, instruments etc. ii. Internal wiring diagrams indicating termination details of each component. iii. Bill of Material (B.O.M.) indicating tag no., quantity, service & model no. of the various modules/instruments/items.
(k)	Following drawings / documents for DCS system. i. Configuration drawing. ii. Make, Model No., Catalogues, Data sheets for CPU modules, I/O modules, Communication modules and all other modules. iii. I/O list indicating grouping of various signals in each module (I/O assignment). iv. Sequence, interlock & logic diagrams and control schemes. v. Details of interfacing to other control systems. vi. Operating manual. vii. Hardware and software manuals for application & engineering software.
(l)	Following drawings for Servers: i. Data sheets of hardware including communication protocol details. ii. Catalogues. iii. Graphic Screen Layout. iv. Log sheets & report sheets. v. Details of Software Package in the servers indicating various functions & facilities available.
(m)	Following drawings for MMIs: i. Data sheets of hardware including communication protocol details. ii. Listing of alarm messages. iii. Catalogues. iv. Screen Layout. v. Log sheets & report sheets. vi. Control Schemes for MMI. vii. Details of Software Package in the MMIs indicating various functions & facilities available.
(n)	Following drawings / documents for QCS system i. Make, Model No., Catalogues, and Data sheets for QCS system, Communication modules and all other associated modules. ii. I/O list indicating list of various inputs/outputs to be connected to QCS.

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S No	Details
	iii. Sequence, interlock & logic diagrams and control schemes.
	iv. Details of interfacing to other control systems.
	v. Operating manual.
	vi. Hardware and software manuals for application & engineering software.
(o)	Following drawings / documents for PLC/Microcontroller based systems <ul style="list-style-type: none"> i. Make, Model No., Catalogues, and Data sheets for PLC/ Microcontroller based system, Communication modules and all other associated modules. ii. I/O list indicating list of various inputs/outputs to be connected to PLC/ Microcontroller based system. iii. Sequence, interlock & logic diagrams and control schemes. iv. Details of interfacing to other control systems. v. Operating manual. vi. Hardware and software manuals for application & engineering software.
(p)	Data Sheet & Catalogue for Operator Interfaces in the Local control consoles.
(q)	Annunciation List.
(r)	Power Supply Distribution Scheme for the I&C systems indicating and type, rating & quantity of each feeder in each PDB (as applicable).
(s)	Drawings/ documents, load calculations & QAP for Uninterrupted Power Supply System (UPS).
(t)	Data sheet and load calculations for DC power supply units.
(u)	QAPs for DCS/QCS/PLC and all items like panel mounted instruments, panels, power distribution boards, I&C cables & power cables.
(v)	Control Room Layout.
(w)	Earthing drawings.
(x)	Instrument Location Plans.
(y)	Cable tray layout drawings.
(z)	Cable Schedules and Interconnection cable schedules.
(aa)	Standard FAT & SAT for the specified systems, performance guarantee test procedure for I&C system.
(bb)	Test Certificates including calibration reports, degree of protection certificates & ex-proof certificates for instruments.
(cc)	'As Built' drawings.
(dd)	Instruction manual for installation and start-up.
(ee)	System operation and maintenance manual.

15. Detailed planning network diagram within a month from the date of signing the Contract through manufacture, shipment, erection, commissioning and performance run.

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16. Test certificates for all plant and machinery.
17. "As-built" Drawings before handing over of the project.

12.0 PROJECT QUALITY PLAN – GENERAL REQUIREMENTS

1. The project quality plan provides the outline for the Project Quality System to be developed and implemented by the BIDDER. The objective of the project quality plan is that the complete facility complies with the project specifications, regulatory requirements and generally accepted engineering, and fabrication practices.

2. Quality Assurance Program (QAP):

To achieve the objective of the project quality plan, the BIDDER should follow a suitable quality assurance program. This program shall be outlined by the successful BIDDER and shall be finally accepted by the PURCHASER after discussions before award of contract.

3. Quality Assurance Documents:

BIDDER should submit Factory test results as per applicable codes and standards referred in the specifications.

4. The PURCHASER shall be given reasonable notice of all tests, shall have the right to witness all tests, and shall have access to the works of BIDDER and SUB-VENDOR at all times for the purpose of carrying out system audits, conducting quality surveillance witnessing of tests and inspection etc. upon mutual agreement.

5. The PURCHASER or his authorized representative may periodically check the work and the BIDDER's method of operation to assure that quality control practices are followed. At the time of PURCHASER's visit all quality documentation pertaining to test, qualifications etc., shall upon request be made readily available.

6. All reports of tests and inspections as per Quality Control Practices and Quality Plans should be furnished to the PURCHASER.

a) Material Tests

i. In the event of the PURCHASER being supplied with the certified particulars of tests, which have been carried out for the BIDDER by the supplier of material, the PURCHASER may, at his own discretion, accept the same as proper evidence of compliance with the requirements of appropriate specifications for the materials.

ii. Critical materials used in manufacture of the equipment and construction of the plant covered by the Contract may also be subjected to one or more of the Non-Destructive Tests (NDT) as called for in the specifications or as mutually agreed. Salvaging of material, due to unacceptable defect, is to be attempted by the BIDDER only after getting specific concurrence from the PURCHASER and according to the approved procedures.

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b) Welding

- i. All welding involved in construction and fabrication of the plant and items covered under the Contract should be carried out in accordance with specifications and applicable codes.
- ii. Recommendations of applicable codes should be followed for non -destructive tests, wherever applicable.
- iii. Copies of all welding procedures, procedure qualification records, welder's performance qualification certificates, post-heating and stress relieving records, NDT records and other test results should be made available upon request of the PURCHASER.

c) Fabrication And Inspection

Fabrication and inspection procedures for vessels, heat exchangers, pipes, tubes and valves etc. should be in accordance with procurement specifications, quality plan, applicable codes or any other approved guidelines.

13.0 DRAWINGS, ENGINEERING DOCUMENTS, PROGRAM BACKUPS & INSTRUCTION MANUALS

1. Drawings And Documents:

- a) All drawings and documents submitted by the BIDDER including those submitted at the time of bid shall be with sufficient detail to indicate the type, size, arrangement, the external connections, fixing arrangements required, the dimensions required for installation and interconnection with other equipment and materials, clearance and spaces required between various portions of equipment and any other information specifically requested in tender document.
- b) Following should be the category of documents that are to be submitted by the BIDDER along with the supply.
 - i. Operation instruction Manuals for all individual Equipment/Systems.
 - ii. Maintenance-Mechanical, Electrical and Electronics Manuals.
 - iii. Mechanical Sub-assembly drawings (with part numbers mentioned).
 - iv. Electrical/Electronic Drawings.
 - v. Parts Manual (Separate manuals for Mechanical, Electrical/Electronic with specifications to be provided) and Part List with part ID.
 - vi. PLC Catalogue with program description.
 - vii. Catalogues for all bought out items.
 - viii. Foundation Details.

SECTION V – TECHNICAL SPECIFICATIONS & SCOPE OF WORK

- ix. The editable program backups and passwords of the DCS, PLCs, HMIs, AC/DC/Servo-drives, Safety devices and any other programmable device are to be provided in separate storage media for all supplied equipment of the bidder.
- x. All necessary software tool, interface hardware to communicate and access the DCS, PLC, HMI, AC/DC/Servo-drives, Safety devices and any other programmable device is to be provided with life-time license.
- xi. All Software and programs including communicating hardware like Laptop, communicator should be in English Language.

2. Categorization Of Drawings and Documents:

- a) The drawings and documents submitted by the BIDDER are generally categorized under the following three heads:
 - i. Drawings and documents which are to be reviewed and approved (Category FA).
 - ii. Drawings and documents which are to be reviewed and commented but are not for approval (Category FR).
 - iii. Drawings and documents which are for information and records only (Category FI).
- b) The category of each drawing and document shall be decided by the PURCHASER.

3. List of Drawings and Documents:

After signing of Contract, the BIDDER should furnish a detailed drawing and document schedule with descriptive title and expected dates of submission within the time as specified in the tender document.

4. Quality of Drawings and Documents:

- a) The BIDDER should prepare all necessary detailed drawings, documents and designs etc., giving full and complete information to enable the PURCHASER to properly review the design of work.
- b) Drawings and documents provided by the Sub-VENDORS should be checked thoroughly by the BIDDER so that they conform to the requirements and to the intent of the tender document and the BIDDER should approve with date before submitting the same to the PURCHASER.

5. Sequence Of Submission of Drawings and Documents:

- a) Drawings and documents shall be submitted without delay in line with the agreed schedule. Number of copies submitted to the PURCHASER should be as per the document distribution schedule of the Contract.
- b) The sequence of submission of drawings and documents should be such that all information and data is available for reviewing each drawing and document when it is received.

SECTION V – TECHNICAL SPECIFICATIONS & SCOPE OF WORK

- c) Revised drawings and documents shall be immediately re-submitted for approval unless directed otherwise by the PURCHASER.
- d) The drawings and documents submitted by the BIDDER shall be reviewed by PURCHASER as far as practicable within two (2) weeks of receipt and shall be marked up with comments, if any.
- e) One print of such drawings and documents shall be returned to the BIDDER duly signed by the PURCHASER clearly identifying the review status of the drawing or document. The BIDDER shall incorporate such modifications and/or corrections and submit the final drawings and documents for approval.
- f) Any delays arising out of failure by the BIDDER to rectify the drawings and documents to the satisfaction of the PURCHASER in good time should not alter the Contract completion date.
- g) Further work by the BIDDER should be in strict accordance with these drawings and documents and no deviations shall be permitted without the written approval of the PURCHASER.
- h) The PURCHASER's approval of the BIDDER's and Sub-VENDOR's drawings and documents shall not relieve the BIDDER from his responsibility for errors or omissions which may exist, even though work is done in accordance with such approved drawings and documents. When such errors or omissions are discovered later, these should be made good by the BIDDER at his expense irrespective of any approval of the PURCHASER.

6. Revision Of Drawings and Documents:

- a) Any manufacturing and fabrication work carried out prior to the approval of the drawings and documents should be at the BIDDER's own risk and expenses.
- b) Final drawings and documents of the work as completed ('As-Built' drawings) should be prepared by the BIDDER and forwarded to the PURCHASER.

7. As-Built Drawings:

- a) 'As-Built' drawings and documents should be submitted before issue of Final Acceptance Certificate.
- b) Upon completion of the installation, the BIDDER should furnish a complete set of drawings and documents. The BIDDER should make in a neat and accurate manner, a complete record of all changes and revisions to the original design, as installed in the completed work. These drawings and documents should be submitted to the PURCHASER for records and these become the property of the PURCHASER.

8. Engineering Data:

- a) All engineering data provided by the BIDDER should be in accordance with the schedule for each set of equipment as specified in the technical specifications and the same should be in

SECTION V – TECHNICAL SPECIFICATIONS & SCOPE OF WORK

English Language and in metric units unless specified otherwise. Review of these data by the PURCHASER will cover only general conformance of the data to the specifications and documents interfaces with the equipment provided under the specifications, external connections, and of the dimensions which might affect plant layout.

b) All engineering data submitted by the BIDDER after final process including review and approval by the PURCHASER shall form part of the Contract and the entire works covered under these specifications should be performed in strict conformity, unless expressly advised otherwise by the PURCHASER in writing.

9. Instruction Manuals:

a) The BIDDER should submit to the PURCHASER for their review, the preliminary instruction manuals for all the equipment, covered under the contract within the time agreed upon between the PURCHASER and the BIDDER. The final instruction manuals complete in all respects should be submitted by the BIDDER within thirty (30) days before the first shipment of the equipment. The instruction manuals should contain full details for all the equipment furnished, the erection procedures, testing procedures, operation and maintenance procedures of equipment. As-built drawings will be submitted to the purchaser within 2 - 3 months after commissioning.

b) If, after the commissioning and Start-up operation of the plant, the instruction manuals require any modification/additions/changes, the same should be incorporated and the updated final instruction manuals should be submitted in the form of one (1) reproducible original and number of copies should be as per document distribution schedule of the tender document.

14.0 SPARES, CONSUMABLES, MAINTENANCE TOOLS & TACKLES

1. Consumables & Wear Parts:

a) Raw material (Cotton Comber/Linter and Additives), wet end consumables, PVA and other chemicals from the beginning shall be provided by the PURCHASER. Oil and Lubricants for the initial fill shall be provided by the BIDDER and subsequent requirement shall be met by the PURCHASER.

b) Supply of all the wear parts for the start-up, commissioning, and performance trials of the Paper Machine and other process line equipment supplied by the BIDDER shall be the responsibility of the BIDDER only. These shall include, machine clothing, ropes for threading, doctor blades, filters, strainers, trim squirt nozzles, mould cover material as mentioned at clause 3.23, first fill oil, etc.

c) The specification for all the chemicals and consumables including clothing, and its consumption pattern and sources of supply shall be provided by the BIDDER, well in advance (within 6 months of signing the Contract), to procure these items for the start-up, commissioning, performance test run and continuous trouble-free operation after taking over the plant from the BIDDER.

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d) The above-mentioned chemicals, raw material etc. shall be provided by the purchaser with the condition that the BIDDER shall complete the performance test satisfactorily within the prescribed time, and the maximum performance trial shall be limited to three times for each line for all denominations.

2. Essential/Mandatory Spares:

(a) These are the spares required for regular operation of the paper manufacturing line. The BIDDER should provide all essential/mandatory spares for all the systems /equipment supplied by the BIDDER along with list for **two (2) years beyond the warranty period** for trouble free operation. These items shall include spares for different machine components, spare components for systems like digestion & bleaching line, slitter re-winder and automatic sheeting and packing line, mould cover preparation plant etc. The list of essential/mandatory spares shall also include for other process line equipment supplied by the BIDDER.

(b) Spare Change Rolls:

- i. Change rolls (fully assembled rolls – ready for mounting) which require frequent cleaning /grinding, should be provided by the BIDDER as mention below.
 1. Short former cylinder roll (One Number for each line).
 2. Suction Couch roll (One Number for each line).
 3. Pre suction roll (One Number for each line).
 4. Suction Press roll (One Number for each line).
 5. Bottom press roll (One Number for each line).
 6. Top press roll (One Number for each line).
 7. Felt rolls (One number for each size for each line).
 8. Dryer fabric rolls (One number for each size for each line).
 9. Dryer Blowing roll (One number for each size for each line).
 10. Wire rolls (One number for each size for each line).
 11. Paper rolls (One number for each size for each line).
 12. Bow/spreader rolls (One number for each size for each line).
 13. Size press roll, Fixed (One Number for each line).
 14. Size press roll, Movable (One Number for each line).
 15. Cooling roll (One Number for each line).

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16. Calendar roll top, soft Nip (One Number for each line).
17. Calendar roll bottom, Chilled iron roll (One Number for each line).
- ii. The cost of the essential spares shall be the part of main supply and shall be considered for the financial bid evaluation.

3. Commissioning Spares:

The commissioning spares are the spares that could be required till successful commissioning and completion of performance test run. The BIDDER should provide all commissioning spares as felt necessary for all the systems /Equipment supplied by the BIDDER.

4. Recommended Maintenance Spares:

- i. The BIDDER should provide a detailed list of all recommended maintenance spares (mechanical, hydraulic / pneumatic, electrical, electronic & instruments) for the trouble-free operation of the plant for **two (2) years beyond the warranty period**.
- ii. The list should cover the spares for all the items covered under the scope of supply, including the process line equipment and hydraulic / pneumatic subsystem components, DCS controls, PCB, etc.
- iii. For all the bought-out items, the BIDDER shall provide the specifications for purchase with contact details of SUB VENDORS.
- iv. Lump sum price for 2 years maintenance spares shall be submitted in financial bid.
- v. BIDDER while submitting the detailed list with unit price shall indicate the items to be covered under insurance.

5. Continued support for supply of spares:

BIDDER should guarantee continued support for supply of all the spare parts required for maintaining the plant and machinery supplied under the scope of this tender for normal operation of the mill, for a period of 10 years from the date of completion of warranty period. A certificate to this effect should be submitted by the BIDDER along with Bid document and the same should be evaluated.

6. General:

- i. All spares and maintenance tools and tackles should be designed to enable maintenance to be carried out in the least time and at the least cost and support resources without affecting the performance and safety aspects.
- ii. The bidder should give the list of spares to be procured from respective OEM / Sub-VENDOR, with specifications as recommendation like Bearing, Valves, Pumps, gearboxes, agitators, lubricants, oils, couplings, etc.
- iii. BIDDER to give clearance in written to their SUB-VENDORS for all the bought-out items to



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support BNPM directly for supply of required spare parts.

- iv. All spares supplied shall be strictly inter-changeable with the parts for which these are intended to be replacements.
- v. Each spare shall be clearly marked and labeled on the outside of its packing with its description and purpose. When more than one spare is packed in a single case, a general description of the contents shall be shown on the outside of such case and a detailed list enclosed. All cases, containers and other packages should be suitably marked and numbered for the purposes of identification.

7. Maintenance Tools and Tackles:

- i. The BIDDER should indicate and include in the scope of supply, all the necessary tools, tackles, appliances and lifting devices for the effective maintenance and servicing of the equipment and its components. The BIDDER should list the maintenance tools and tackles offered by him in 'Schedule of Maintenance Tools and Tackles'. PURCHASER reserves the right to exclude any of the above items from the BIDDER's scope of supply. The dispatch of tools, tackles, appliances and lifting devices should be synchronized with the dispatch of the related equipment.
- ii. The tools and tackles with the appropriate tool boxes, are to be handed over to the PURCHASER before issue of final acceptance certificate.

15.0 GENERAL TECHNICAL REQUIREMENTS FOR EQUIPMENT START-UP UPTO TAKING OVER

1. Scope:

This specification covers General Technical Requirements of the BIDDER during equipment start-up, commissioning, commercial operation and final acceptance by the PURCHASER.

2. Start-Up And Commissioning:

- i. Upon satisfactory completion of erection, the BIDDER, assisted by the PURCHASER's personnel, should initiate pre-commissioning checks, inspections, tests, adjustments and trial runs, required to put the plant into satisfactory, reliable and unrestricted commercial use. The PURCHASER's personnel shall carry out the activities under the supervision of BIDDER'S representatives. The BIDDER'S representative should carry out/advise and supervise at every step of start-up and commissioning activities so that work is carried out correctly, safely and efficiently.
- ii. Insurance coverage for the complete plant during this activity will be arranged by the PURCHASER, against breakdown and damage.
- iii. BIDDER should handover SOPs of startup procedure for all the equipment to the PURCHASER which shall include the following:
 1. Thorough inspection of all equipment and ancillaries to ensure that they can be started, availability of power supply at the equipment, checking of lubricant for all moving equipment, Gland cooling water circulation, etc.
 2. Checking direction of rotation of motor drives for moving equipment before coupling.

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3. Checking of alignment and vibration of the equipment.
4. Internal cavities of equipment to be free of any debris or foreign material.
5. Availability of instrumentation for safe operation of equipment and auxiliaries.
6. Trial run and no-load runs of all equipment.
7. Test all interlocks, instrumentation and safety devices.

- iv. The BIDDER should arrange all apparatus and instruments as may be required from time to time.
- v. If the completed plant or any portion thereof, for reasons attributable to the BIDDER found to be defective or fails to fulfill the requirements of the contract, has abnormal wear and tear and shows defects due to material, assembly, improper erection, the PURCHASER shall give the BIDDER notice setting forth particulars of such defects or failure, and the BIDDER shall forthwith make the defective plant good or alter the same to make it comply with the requirements of the Contract. Should he fail to do so within a reasonable time, the PURCHASER may reject and replace at the cost of the BIDDER the whole or any portion of the plant, as the case may be, which is defective or fails to fulfill the requirements of the Contract. The decision of the PURCHASER given in writing, as to whether the goods supplied/works executed conforms to the tender specifications will be binding on the BIDDER.
- vi. Those materials and components of the plant, which are subjected to normal, wear and tear, shall be replaced from stock of essential spares, if available, as procured by the PURCHASER.

16.0 TRAINING OF PURCHASER'S O&M PERSONNEL (INDIA & ABROAD):

- i. Operation / maintenance staff of PURCHASER shall be trained during testing/start-up / commissioning activities under the guidance of the BIDDER's specialists at project site in India.
- ii. The training abroad shall cover training for approximately 32 personnel (Approx. 12 Operating crew, 12 Maintenance crew (Mechanical/Electrical/Instrumentation), 2 Mould cover making crew, 4 Laboratory testing personnel and 2 others) for 2 weeks (5 working days in a week).
- iii. In addition to the above, the BIDDER shall train approximately 80 personnel (operating crew, maintenance crew, mould cover making and laboratory testing personnel) for 12 weeks (for both lines put together) as a follow up training at project site (Mysuru) after commissioning of paper manufacturing line. This package shall cover the cotton comber preparation/ digestion & bleaching system/stock preparation/approach flow/ paper machine up to reel, including auxiliaries system/ slitter-re-winder/automatic sheeting & packing line/Quality control and laboratory equipment /mould cover preparation / maintenance – mechanical, electrical, instrumentation as applicable. The offered package shall be oriented so as to make the PURCHASER's staff, proficient in operating and maintaining the equipment. Training shall also be considered for the operation of equipment, which are procured by the BIDDER from sub-VENDORS.
- iv. All the training shall be conducted in English language only.

SECTION VI – QUALIFICATION CRITERIA

(Ref ITB-clause 1.4)

Note for Bidders: Regarding this Schedule, Bidders shall submit **Form 4: 'Qualification Criteria - Compliance'** with their technical bid.

Category	Qualification Criteria	Documents required in support of qualification criteria
Experience & Past Performance	<p>1. Bidder should be a manufacturer / Having a valid agreement /tie-up with manufacturer for supply of similar* machines for production of banknote paper.</p> <p>*Similar machines shall include either (or) all of (i) Paper Machine; (ii) Mould Cover Making; (iii) Pulp Mill; (iv) Sheeting Lines.</p> <p>2. Bidder should have successfully designed, manufactured, supplied, installed & commissioned at-least 1 (One) Paper Machine along with (i) Mould Cover Making; (ii) Pulp Mill; (iii) Sheeting Lines for Production of Banknote paper as on 31.01.2026.</p> <p>The above experience should be covered in not more than Three (3) orders.</p> <p>[AND]</p> <p>3. Supplied paper machine should be in successful operation for at least 1 (One) year.</p>	<p>Self-declaration duly signed by bid signatory in case of manufacturer. (or)</p> <p>Valid tie-up agreement(s) with machine manufacturer(s).</p> <p>The bidder shall submit copy of signed:</p> <ul style="list-style-type: none"> i. Purchase order / Work order / Agreement / Contract. ii. Documents evidencing successful supply, installation & commissioning. iii. Documents evidencing successful operation of paper machine for at least 1 year period as on the date of bid opening. <p>Note: BNPM reserves the right to seek additional documents related to the documents submitted against qualification criteria.</p>
Financial Standing	<p>Average annual turnover of the bidder firm during last three year's period ending 31.03.2025 (for FY) (or) 31.12.2024 (for CY) as applicable should be at least INR 1,455 Crores (Rupees One Thousand Four Hundred and Fifty-Five Crores only) (or) USD 159,278,000/- (or) EUR 134,101,000/- (or) GBP 116,121,000/- (or) YEN 24,808,184,000/- (or)</p>	<p>Audited Balance Sheet (BS) and Profit & Loss (P&L) statement for,</p> <p>Financial years (FY): 2024-25, 2023-24, 2022-23 and 2021-22.</p> <p>[OR]</p> <p>Calendar Years (CY) 2024; 2023; 2022 and 2021.</p>

SECTION VI – QUALIFICATION CRITERIA

Category	Qualification Criteria	Documents required in support of qualification criteria
	<p>In equivalent currency of country of origin of goods.</p> <p><u>Relaxation for Start-ups & MSE's:</u> Average Annual Turnover is relaxed for Start-ups & MSE's. Eligible start-ups & MSE's are required to have an average annual turnover of at least INR 1,091 Crores/- (Rupees One Thousand Ninety-One Crores only) during last three financial year's period ending 31.03.2025.</p> <p>Net worth of the bidder firm should not be in negative as on 31.03.2025 (for FY) (or) 31.12.2024 (for CY) and should have not eroded [Ref Note (ii)] by more than 30% (Thirty percent) year-on-year basis as well as cumulative basis in the last three financial year period ending 31.03.2025 (or) calendar year period ending 31.12.2024.</p>	

Note:

- i. BNPM reserves the right to verify all credentials submitted by bidders towards qualification criteria.
- ii. Erosion shall be calculated only on account of reported loss in the statement of P&L account, which has led to reduction in capital. Net-worth (NW) erosion will be calculated as below,

For Financial Year (FY):

Year - on - Year basis	Cumulative basis
<u>(NW of FY 2024-25 – NW of FY 2023-24)</u> (NW of FY 2023-24)	
<u>(NW of FY 2023-24 – NW of FY 2022-23)</u> (NW of FY 2022-23)	<u>(NW of FY 2024-25 – NW of FY 2021-22)</u> (NW of FY 2021-22)
<u>(NW of FY 2022-23 – NW of FY 2021-22)</u> (NW of FY 2021-22)	

For Calendar year (CY):

Year - on - Year basis	Cumulative basis
<u>(NW of CY 2024 – NW of CY 2023)</u> (NW of CY 2023)	
<u>(NW of CY 2023 – NW of CY 2022)</u> (NW of CY 2022)	<u>(NW of CY 2024 – NW of CY 2021)</u> (NW of CY 2021)
<u>(NW of CY 2022 – NW of CY 2021)</u> (NW of CY 2021)	

SECTION VI – QUALIFICATION CRITERIA

Bidder to furnish stipulated documents in support of fulfillment of qualifying criteria. Non-submission or incomplete submission of documents may lead to rejection of offer.

All experience & past performance data should be certified by the authorized signatory of the bidder firm. The credentials regarding experience and past performance to the extent required as per qualification criteria submitted by bidder may be verified from the parties for whom work has been done.

We confirm that, we are competent and legally authorized to submit the tender and / or to enter into legally binding contract. We (Name of the company) have submitted the required documents in support of the qualification criteria mentioned above.

Authorized Signature with stamp & date

SECTION VII: FINANCIAL BID

Bidders shall note the following while filling out the financial bid as per format attached to this tender:

1. Bidder shall not alter the format of this schedule of prices.
2. **Currency of bidding:** Foreign bidders are allowed to quote a price (and get paid) in RBI's notified basket of foreign currencies - US Dollar, Euro, Pound Sterling, Yen etc., in addition to the Indian Rupees - except for expenditure incurred in India (including agency commission if any) which should be stated in Indian Rupees. Indian Bidders are to quote in Indian Rupees only.
3. Use separate sheets for each serial number of each table to list out all the items for detailed cost break up.
4. This format, duly filled in and signed, should be submitted along with Pre-qualification and Techno- Commercial bids in a separate envelope as per instructions provided in Section II: ITB.
5. Bidder to list out major items and provide details of country of origin.
6. In Table 2 & 8, the prices quoted against sections shall include cost of equipment, piping, valves and specialties, PLC panels (as applicable), field instruments along with erection hardware, motors, drives along with drive control system) wherever applicable.

SECTION VII: FINANCIAL BID

Financial Bid Format – Summary Sheet for Imported Items

To be filled in by the Bidder

Bidder's name & Address :

Offer / Bid No. & date :

Country of origin of services offered :

Validity of offer :

Delivery period :

Bidder shall furnish the summary of prices below, same as mentioned in Table No 1 to Table No 6.

Table No	Item Description	Price (in
1.	Engineering Services for System / Area in Bidder's Scope of Supply mentioned under clause 4.0 of Section V of the tender.	
2.	Supply of Plant and Machinery under clause 3.0 of Section V of the tender except maintenance spares mentioned at 14.2 & 14.5.	
3.	Essential spares mentioned as per clause 14.2 of Section V of the tender.	
4.	Maintenance Spares mentioned as per clause 14.5 of Section V of the tender.	
5.	Training of Purchaser's Personnel under clause 16.0 of the tender.	
6.	Erection, Pre-commissioning, Commissioning and Performance Guarantee Test Services under clause 5.0, 6.0 and 7.0 of Section V of the tender.	
Total		

Total Amount (in) in Words:

Authorized Signatory

Name & Designation

Company Seal

Dated:.....

SECTION VII: FINANCIAL BID

Table 1 – Engineering Services for System / Area in Bidder's Scope of Supply

(To be filled in by the Bidder)

S No	Item Description	Price (in	Price (in
		(Line-1)	(Line-2)
1.	Engineering Services for complete plant		

Total Amount (in) for **Engineering Services** in Words:

.....

(Bidder to list HS codes as applicable.)

Remarks

- Income tax as applicable will be deducted at source for Services as per IT Act.
- Bidder to list out the activities / services offered by him.

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Table 2 – Supply of Plant and Machinery for 2 lines of 6000 TPA each.

To be filled in by the Bidder

S No	Item Description	Item-wise Total price (in) (FOB)	Item-wise Total price (in) (FOB)
		(Line-1)	(Line-2)
1.	Cotton comber handling & cleaning section including all accessories		
2.	Cotton comber digestion & bleaching section with twin extruder including pre-refining section 2.1 Refiners 2.2 Tanks/Chests 2.3 Agitators 2.4 Pumps 2.5 Fiber recovery system 2.6 Remaining Items Sub Total		
3.	Stock preparation section equipment 3.1 Refiners 3.2 Tanks/Chests 3.3 Agitators 3.4 Pumps 3.5 Remaining Items including online measuring Equipment Sub Total		
4.	Process water, sealing water, cooling water, shower water, white water & fiber Recovery System equipment 4.1 DAF system 4.2 Tanks/Chests 4.3 Agitators 4.4 Pumps and filters 4.5 Secondary filtration system 4.6 Remaining Items Sub Total		
5.	Approach flow section equipment 5.1 Centri-cleaning system 5.2 Screening system 5.3 Tanks/Chests 5.4 Agitators 5.5 Pumps and trim refiners 5.6 Remaining Items Sub Total		

SECTION VII: FINANCIAL BID

S No	Item Description	Item-wise Total price (in) (FOB)	Item-wise Total price (in) (FOB)
		(Line-1)	(Line-2)
6.	Cotton Linter feeding and processing plant 6.1 Pulping system 6.2 Tanks/Chests 6.3 Agitators 6.4 Pumps 6.5 Remaining Items Sub Total		
7.	Broke feeding and processing plant 7.1 Dry broke pulping system 7.2 wet broke pulping system 7.3 Tanks/Chests 7.4 Agitators 7.5 Pumps 7.6 Broke pulp screening system 7.7 Remaining Items Sub Total		
8.	Chemical Preparation Plant		
9.	Paper Based additives Preparation Plant		
10.	Paper Machine 10.1 Complete former section assembly 10.2 Complete press assembly 10.3 Complete dryer section assembly 10.4 Complete hood & ventilation assembly with heat recovery system 10.5 Complete IR dryer system 10.6 Complete contact-less air dryer system 10.7 Complete Impregnation section 10.8 Complete soft nip calendar (2 x 2) roll assembly 10.9 Complete pope reel assembly with shaft puller system 10.10 Spare reel spools/core (10 Nos) 10.11 Security Thread Feeding system 10.12 Remaining Items Sub Total		
11.	Auxiliary System/component for Paper Machine 11.1 Fabric change equipment 11.2 Vacuum system 11.3 Centralized Lubrication System 11.4 Tail Feeding system 11.5 Pneumatic/Hydraulic system		

SECTION VII: FINANCIAL BID

S No	Item Description	Item-wise Total price (in) (FOB)	Item-wise Total price (in) (FOB)
		(Line-1)	(Line-2)
	11.6 Steam and condensate system with heat recovery system. 11.7 Remaining Items Sub Total		
12.	Web Inspection System 12.1 wet end 12.2 dry end 12.3 One unit in each sheeter 12.4 Standalone sheet inspection system Sub Total		
13.	Slitter re-winder		
14.	Automatic sheeting and packing line (Line 1 – 2 Sheeters; Line 2 – 1 Sheeter)		
15.	Mould cover preparation plant 15.1 Studio Equipment 15.2 Automatic CNC Engraving & Milling Machine 15.3 Automatic Embossing system 15.4 Automatic Laser Cutting Machine 15.5 Laser Cutting Machine for E-Type 15.6 Welding and Sub Assembly section with necessary Bowl fixture, etc 15.7 Final Assembly Fixture, etc 15.8 Remaining Items Sub Total		
16.	Quality Control Laboratory Instruments and Equipment		
17.	Machine clothing		
18.	Knife grinding machine		
19.	Guillotine and paper briquetting machine		
20.	Electrical items covering the following:		
20.1.	415 V Motor Control Centres (MCC) including structural steel supports		
20.2.	Sectionalized drives and VFD panels for process Equipment		
20.3.	415V squirrel cage induction motors- IE3 and above		
20.4.	Misc. items such as local control push buttons convenient receptacles		
20.5.	240V, 1ph, AC UPS System comprising of parallel redundant UPS with servo-		

SECTION VII: FINANCIAL BID

S No	Item Description	Item-wise Total price (in) (FOB)	Item-wise Total price (in) (FOB)
		(Line-1)	(Line-2)
	controlled voltage stabilizer, static bypass with backup VRLA battery bank, battery isolating switch and UPS distribution boards for the instrumentation load and controls		
20.6.	Cabling system comprising of LT Power & Control cables, Cable Terminations, cable trays and associated accessories including structural steel supports for cabling system. Input power cable to MCC of required capacity will be provided by others.		
20.7.	Earthing system comprising of Earthing strips/ conductors and associated accessories (Above Ground)		
20.8.	Lighting system comprising of lighting fittings, coming in the main machine line up and hood lighting, Power socket, associate lighting switches/sockets, associated cable/conduit wiring.		
20.9.	Electrical maintenance tools and tackles, special tools.		
21.	Instrumentation and controls covering the following:		
21.1.	DCS including all items as per Annexure-4 for:		
21.1.1.	For Pulp Mill		
21.1.2.	For Paper Machine Plant		
21.2.	MIS Interface PC loaded with all software & printers as per Annexure-4 including associated cables & termination accessories.		
21.3.	Quality Control System with scanners, actuators & completely wired cabinets as per Annexure-4.		
21.4.	Power Supply Distribution System for the supplied I&C system including power distribution boards with MCBs, terminals etc. as per Annexure-4.		
21.5.	Grounding for I&C system as per scope in Annexure-4.		
21.6.	I&C Cables including all communication cables along with double compression cable		

SECTION VII: FINANCIAL BID

S No	Item Description	Item-wise Total price (in) (FOB)	Item-wise Total price (in) (FOB)
		(Line-1)	(Line-2)
	glands and termination accessories as per Annexure-4.		
21.7.	Cable trays of hot dipped galvanized steel along with all structural steel supports as per Annexure-4.		
21.8.	Hand held HART configurator as per Annexure-4.		
21.9.	Inline measurement instruments like pH, brightness, consistency, freeness, fiber length, temperature, zeta potential, charge demand etc.		
21.10.	Field instrument like control valves, on off valves, transmitters, loadcells, gauges, sensors etc.		
21.11.	Instrumentation maintenance tools and tackles, special tools.		
22.	Baling Machine		
23.	Overhead cranes for total package		
24.	Piping and fittings		
25.	Consumables		
26.	Essential Spares The unit price of each essential spare along with list (list out items and quantity)		
27.	Start-up and commissioning spares (list out items and quantity)		
28.	Tools and Tackles including safety items like lifting tackles, slings, chain blocks etc		
29.	Any other item that are required as per tender which are not covered above		
30.	Any other items not mentioned in the tender but required by the Bidder for proving the performance guarantee (Item wise list with Price shall be provided)		
31.	Total for items 1 to 30 (on FOB – Port of Origin basis)		
32.	Total for items 1 to 30 (on CIF – port in India basis)		
33.	Total for items 1 to 30 (on DPU – BNPM, Mysuru basis)		

SECTION VII: FINANCIAL BID

Total Amount (in) for **Supply of Plant and Machinery (in FOB/CIF/DPU)** in Words

.....

(Bidder to list HS codes as applicable.)

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Table 3 – Essential Spares

(Essential spares for 2 years of trouble-free operation after guarantee / warrantee period for complete plant)

To be filled in by the Bidder

S No	Item Description	Quantity	Price (FOB) Unit Rate (in)	Price (FOB) Total Price (in)
1.				
2.				
3.				
Total (FOB – Port of Origin basis)				
Total (CIF – _____ port (of entry) in India basis)				
Total (DPU – BNPM, Mysuru basis)				

Total Amount (in) for **Essential Spares** in Words

.....

(Bidder to list HS codes as applicable.)

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Table 4 – Maintenance Spares

(Maintenance spares for 2 years of trouble-free operation after guarantee / warrantee period for complete plant)

To be filled in by the Bidder

S No	Item Description	Quantity	Price (FOB) Unit Rate (in)	Price (FOB) Total Price (in)
1.				
2.				
3.				
Total (FOB – Origin port basis)				
Total (CIF – _____ port (of entry) in India basis)				
Total (DPU – BNPM, Mysuru basis)				

Total Amount (in) for **Maintenance Spares** in Words

.....

(Bidder to list HS codes as applicable.)

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Table 5 – Training of Purchaser's Personnel

To be filled in by the Bidder

S No	Personnel	Quote rates for services	
		Abroad (At Vendor's site) "B"	
		No of Persons and Duration	Total Price (in
1.	32 personnel (Approx. 12 Operating crew, 12 Maintenance crew (Mechanical/Electrical/ Instrumentation), 2 Mould cover making crew, 4 Laboratory testing personnel and 2 others) for 2 weeks (5 working days in a week).	32 Persons for 2 weeks	
2.	Total Amount		

Total Amount (in) for **Training of Purchaser's Personnel** in Words

.....

(Bidder to list HS codes as applicable.)

Remarks

- TDS as applicable will be deducted at source for Services as per prevailing rules.

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Table 6 – Erection, Pre-commissioning, Commissioning and Performance Test Services

To be filled in by the Bidder

S No	Item Description	Lump Sum price (in _____)	Lump Sum price (in _____)
		(Line-1)	(Line-2)
1.	Erection, Pre-commissioning, Commissioning and Performance Test Services for complete plant		

Total Amount (in) for **Erection, Pre-commissioning, Commissioning and Performance Test Services** in Words:

.....

(Bidder to list HS codes as applicable.)

Remarks

- TDS as applicable will be deducted at source for Services as per prevailing rules.

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Financial Bid Format – Summary Sheet for Indigenous Items

To be filled in by the Bidder

Bidder's name & Address :

Offer / Bid No. & date :

Currency in which prices are quoted : Indian Rupees

Validity of offer :

Delivery period :

Bidder shall furnish the summary of prices below, same as mentioned in Table No 1 to Table No 6.

Table No	Item Description	Price (in INR)
7.	Engineering Services for System / Area in Bidder's Scope of Supply mentioned under clause 4.0 of Section V of the tender.	
8.	Supply of Plant and Machinery under clause 3.0 of Section V of the tender except maintenance spares mentioned at 14.2 & 14.5.	
9.	Essential spares mentioned as per Clause 14.2 of Section V of the tender.	
10.	Maintenance Spares mentioned as per clause 14.5 of Section V of the tender.	
11.	Training of Purchaser's Personnel under clause 16.0 of the tender.	
12.	Erection, Pre-commissioning, Commissioning and Performance Guarantee Test Services under clause 5.0, 6.0 and 7.0 of Section V of the tender.	
Total		

Total Amount (in INR) in Words:

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Table 7 – Engineering Services for System / Area in Bidder's Scope of Supply

To be filled in by the Bidder

S No	Item Description	Price (in INR)
1.	Engineering Services for complete plant	
2.	GST	
3.	Total Amount (1 + 2)	

Total Amount (in INR) for **Engineering Services** in Words:

.....

(Bidder to list SAC as applicable.)

Remarks

- Income tax as applicable will be deducted at source for Services as per IT Act.

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Table 8 – Supply of Plant and Machinery

To be filled in by the Bidder

S No	Item Description	Item -wise Total price (Ex-works in INR)	Item -wise Total price (Ex-works in INR)
		(Line-1)	(Line-2)
1.	Cotton comber handling & cleaning section including all accessories		
2.	Cotton comber digestion & bleaching section with twin extruder including pre-refining section 2.1 Refiners 2.2 Tanks/Chests 2.3 Agitators 2.4 Pumps 2.5 Fiber recovery system 2.6 Remaining Items Sub Total		
3.	Stock preparation section equipment 3.1 Refiners 3.2 Tanks/Chests 3.3 Agitators 3.4 Pumps 3.5 Remaining Items including online measuring Equipment Sub Total		
4.	Process water, sealing water, colling water, shower water, white water & fiber Recovery System equipment 4.1 DAF system 4.2 Tanks/Chests 4.3 Agitators 4.4 Pumps and filters 4.5 Secondary filtration system 4.6 Remaining Items Sub Total		
5.	Approach flow section equipment 5.1 Centri-cleaning system 5.2 Screening system 5.3 Tanks/Chests 5.4 Agitators 5.5 Pumps and trim refiners 5.6 Remaining Items Sub Total		

SECTION VII: FINANCIAL BID

S No	Item Description	Item -wise Total price (Ex-works in INR)	Item -wise Total price (Ex-works in INR)
		(Line-1)	(Line-2)
6.	Cotton Linter feeding and processing plant 6.1 Pulping system 6.2 Tanks/Chests 6.3 Agitators 6.4 Pumps 6.5 Remaining Items Sub Total		
7.	Broke feeding and processing plant 7.1 Dry broke pulping system 7.2 wet broke pulping system 7.3 Tanks/Chests 7.4 Agitators 7.5 Pumps 7.6 Broke pulp screening system 7.7 Remaining Items Sub Total		
8.	Chemical Preparation Plant		
9.	Paper Based additives Preparation Plant		
10.	Paper Machine 10.1 Complete former section assembly 10.2 Complete press assembly 10.3 Complete dryer section assembly 10.4 Complete hood & ventilation assembly with heat recovery system 10.5 Complete IR dryer system 10.6 Complete contact-less air dryer system 10.7 Complete Impregnation section 10.8 Complete soft nip calendar (2 x 2) roll assembly 10.9 Complete pope reel assembly with shaft puller system 10.10 Spare reel spools/core (10 Nos) 10.11 Security Thread Feeding system 10.12 Remaining Items Sub Total		
11.	Auxiliary System/component for Paper Machine 11.1 Fabric change equipment 11.2 Vacuum system		

SECTION VII: FINANCIAL BID

S No	Item Description	Item -wise Total price (Ex-works in INR)	Item -wise Total price (Ex-works in INR)
		(Line-1)	(Line-2)
	11.3 Centralized Lubrication System 11.4 Tail Feeding system 11.5 Pneumatic/Hydraulic system 11.6 Steam and condensate system with heat recovery system. 11.7 Remaining Items Sub Total		
12.	Web Inspection System 12.1 wet end 12.2 dry end 12.3 One unit in each sheeter 12.4 Standalone sheet inspection system Sub Total		
13.	Slitter re-winder		
14.	Automatic sheeting and packing line (Line 1 – 2 Sheeters; Line 2 – 1 Sheeter)		
15.	Mould cover preparation plant 15.1 Studio Equipment 15.2 Automatic CNC Engraving & Milling Machine 15.3 Automatic Embossing system 15.4 Automatic Laser Cutting Machine 15.5 Laser Cutting Machine for E-Type 15.6 Welding and Sub Assembly section with necessary Bowl fixture, etc 15.7 Final Assembly Fixture, etc 15.8 Remaining Items Sub Total		
16.	Quality Control Laboratory Instruments and Equipment		
17.	Machine clothing		
18.	Knife grinding machine		
19.	Guillotine and paper briquetting machine		
20.	Electrical items covering the following:		
20.1.	415 V Motor Control Centres (MCC) including structural steel supports		
20.2.	Sectionalized drives and VFD panels for process Equipment		

SECTION VII: FINANCIAL BID

S No	Item Description	Item -wise Total price (Ex-works in INR)	Item -wise Total price (Ex-works in INR)
		(Line-1)	(Line-2)
20.3.	415V squirrel cage induction motors- IE3 and above		
20.4.	Misc. items such as local control push buttons convenient receptacles		
20.5.	240V, 1ph, AC UPS System comprising of parallel redundant UPS with servo-controlled voltage stabilizer, static bypass with backup VRLA battery bank, battery isolating switch and UPS distribution boards for the instrumentation load and controls		
20.6.	Cabling system comprising of LT Power & Control cables, Cable Terminations, cable trays and associated accessories including structural steel supports for cabling system. Input power cable to MCC of required capacity will be provided by others.		
20.7.	Earthing system comprising of Earthing strips/ conductors and associated accessories (Above Ground)		
20.8.	Lighting system comprising of lighting fittings, coming in the main machine line up and hood lighting, Power socket, associate lighting switches/sockets, associated cable/conduit wiring.		
20.9.	Electrical maintenance tools and tackles, special tools.		
21.	Instrumentation and controls covering the following:		
21.1.	DCS including all items as per Annexure-4 for:		
21.1.1.	For Pulp Mill		
21.1.2.	For Paper Machine Plant		
21.2.	MIS Interface PC loaded with all software & printers as per Annexure-4 including associated cables & termination accessories.		
21.3.	Quality Control System with scanners, actuators & completely wired cabinets as per Annexure-4.		

SECTION VII: FINANCIAL BID

S No	Item Description	Item -wise Total price (Ex-works in INR)	Item -wise Total price (Ex-works in INR)
		(Line-1)	(Line-2)
21.4.	Power Supply Distribution System for the supplied I&C system including power distribution boards with MCBS, terminals etc. as per Annexure-4.		
21.5.	Grounding for I&C system as per scope in Annexure-4.		
21.6.	I&C Cables including all communication cables along with double compression cable glands and termination accessories as per Annexure-4.		
21.7.	Cable trays of hot dipped galvanized steel along with all structural steel supports as per Annexure-4.		
21.8.	Hand held HART configurator as per Annexure-4.		
21.9.	Inline measurement instruments like pH, brightness, consistency, freeness, fiber length, temperature, zeta potential, charge demand etc.		
21.10.	Field instrument like control valves, on off valves, transmitters, loadcells, gauges, sensors etc.		
21.11.	Instrumentation maintenance tools and tackles, special tools.		
22.	Baling Machine		
23.	Overhead cranes for total package		
24.	Piping and fittings		
25.	Consumables		
26.	Essential Spares The unit price of each essential spare along with list (list out items and quantity)		
27.	Start-up and commissioning spares (list out items and quantity)		
28.	Tools and Tackles including safety items like lifting tackles, slings, chain blocks etc		
29.	Any other item that are required as per tender which are not covered above		

SECTION VII: FINANCIAL BID

S No	Item Description	Item -wise Total price (Ex-works in INR)	Item -wise Total price (Ex-works in INR)
		(Line-1)	(Line-2)
30.	Any other items not mentioned in the tender but required by the Bidder for proving the performance guarantee (Item wise list with Price shall be provided)		
31.	Total for items 1 to 30		
32.	Inland transportation charges from Ex-works to site at Mysuru, Karnataka		
33.	Insurance charges for transit up to site including unloading.		
34.	All other local costs which Bidder may deem necessary/relevant		
35.	GST		
Total for items 31 to 35			

Total Amount (in INR) for **Supply of Plant and Machinery** in Words

.....

(Bidder to list HSN/SAC as applicable.)

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Table 9 – Essential Spares

(Essential spares for 2 years of trouble-free operation after guarantee / warrantee period for complete plant)

To be filled in by the Bidder

S No	Item Description	Quantity	Price (in INR) Unit Rate	Price (in INR) Total Price
1.				
2.				
3.				
4.	Sub- Total (Ex-work price of spares)			
5.	Freight charges to site at Mysuru, Karnataka			
6.	Insurance charges for transit up to site including unloading			
7.	All other local costs which Bidder may deem necessary/relevant			
8.	GST			
9.	Total Amount			

Total Amount (in INR) for **Essential Spares** in Words

.....

(Bidder to list HSN/SAC as applicable.)

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Table 10 – Maintenance Spares

(Maintenance spares for 2 years of trouble-free operation after guarantee / warrantee period for complete plant)

To be filled in by the Bidder

S No	Item Description	Quantity	Price (in INR) Unit Rate	Price (in INR) Total Price
1.				
2.				
3.				
4.	Sub- Total (Ex-work price of spares)			
5.	Freight charges to site at Mysuru, Karnataka			
6.	Insurance charges for transit up to site including unloading			
7.	All other local costs which Bidder may deem necessary/relevant			
8.	GST			
9.	Total Amount			

Total Amount (in INR) for **Maintenance Spares** in Words

.....

(Bidder to list HSN/SAC as applicable.)

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Table 11 – Training of Purchaser's Personnel

To be filled in by the Bidder

S No	Training for Packages/ Machinery / Equipment's	Quote rates for services (On Site)	
		Period	Price (in INR)
1.	80 personnel (operating crew, maintenance crew, mould cover making and laboratory testing personnel) for 12 weeks (for both lines put together) as a follow up training at project site (Mysuru) after commissioning of paper manufacturing lines.	12 weeks	
2.	Sub-total		
3.	GST		
4.	Total Amount		

Total Amount (in INR) for **Training of Purchaser's Personnel** in Words

.....

(Bidder to list HSN/SAC as applicable.)

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Table 12 – Erection Services

To be filled in by the Bidder

S No	Item Description	Lump Sum Price (in INR)	Lump Sum Price (in INR)
		(Line-1)	(Line-2)
1.	Erection, Pre-commissioning, Commissioning and Performance Test Services for complete plant		
2.	GST		
3.	Total Amount (1 + 2)		

Total Amount (in INR) for **Erection, Pre-commissioning, Commissioning and Performance Test Services for complete plant in Words:**

.....

Remarks

- TDS as applicable will be deducted at source for Services as per prevailing rules.

(Bidder to list HSN/SAC as applicable.)

Authorized Signatory

Name & Designation

Company Seal

Dated:

SECTION VII: FINANCIAL BID

Table 13 – Other Spares

(Other spares crucial for trouble-free operation after 3 years period from date of Factory Acceptance for complete plant)

To be filled in by the Bidder

S No	Item Description	Quantity	Price (Imported) Unit Rate (in)	Price (Indigenous) Unit Rate (in)
1.				
2.				
3.				
4.				
5.				
6.				
7.				

(This price sheet shall not form part of financial bid evaluation.)

Authorized Signatory

Name & Designation

Company Seal

Dated:

FORM 1: BID FORM (COVERING LETTER)

FORM 1: BID FORM (COVERING LETTER)

(Ref ITB-clause 9.2)

(To be submitted as part of pre-qualification bid, along with supporting documents, if any)

(On Bidder's Letter-head)

(Strike out alternative phrases not relevant to you)

Bidder's Name _____

[Address and Contact Details]

Bidder's Reference No. _____ Date.....

To

Bank Note Paper Mill India Pvt Ltd,
Registered & Corporate Office,
Gate 1, Paper Mill Compound,
Note Mudran Nagar, Mysuru – 570 003.
Karnataka. India.

Ref: Tender Document No. **BNPM/GTE/498/2025-26 dated 13.02.2026**; Tender Title: **Design, Manufacture, Supply, Erection and Commissioning of Two Lines of 6000 TPA each for Banknote Paper Production at Mysuru, Karnataka, India.**

Sir/ Madam,

Having examined the abovementioned Tender Document, we, the undersigned, hereby submit our Pre-qualification bid, Techno-commercial and Financial bid (Price Schedule) for the supply of Goods and incidental Works/ Services in conformity with the said Tender Documents.

1. Our Credentials:

- a. We are submitting this bid: -
on our behalf, and there are no agents/ dealers involved in this tender, and hence no agency agreement or payments/ commissions/ gratuity is involved. Our company law and taxation regulatory requirements and authorization for signatories and related documents are submitted in Form 1.1 (Bidder Information).
- b. We are proven, established, and reputed manufacturers with factories at which are fitted with modern equipment and where the production methods, quality control, and testing of all materials and parts manufactured or used by us shall be open to inspection by the representative of the Procuring Entity.

2. Our Eligibility and Qualifications to participate

We comply with all the eligibility criteria stipulated in this Tender Document, and the relevant declarations are made along with documents in Form 1.2 of this bid-form. We fully meet the qualification criteria stipulated in this Tender Document, and the relevant details are submitted along with documents in Form 4: 'Qualification Criteria - Compliance.'

FORM 1: BID FORM (COVERING LETTER)

3. Our Bid to supply Goods

We offer to supply the subject Goods of requisite quality and within Delivery Schedules in conformity with the Tender Document. The relevant details are submitted in Form 2: 'Schedule of Requirements – Compliance' and Form 3: 'Technical Specifications and Scope of Work - Compliance.'

4. Prices

We hereby offer to supply the subject Goods and perform the Services at our lowest prices and rates mentioned in the separately submitted Price-Schedule. It is hereby confirmed that the prices quoted therein by us are:

- a. based on terms of delivery and delivery schedule confirmed by us; and
- b. Cost break-up of the quoted cost, showing inter-alia costs (including taxes and duties thereon) of all the included incidental Goods/ Works considered necessary to make the proposal self-contained and complete, has been indicated therein, and
- c. based on the terms and mode of payment as stipulated in the Tender Document. We have understood that if we quote any deviation to terms and mode of payment, our bid is liable to be rejected as nonresponsive, and
- d. have been arrived at independently, without restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to:
 - i. those prices; or
 - ii. the intention to submit an offer; or
 - iii. the methods or factors used to calculate the prices offered.
- e. have neither been nor shall be knowingly disclosed by us, directly or indirectly, to any other bidder or competitor before bid opening or contract award unless otherwise required by law.

5. Affirmation to terms and conditions of the Tender Document

We have understood the complete terms and conditions of the Tender Document. We accept and comply with these terms and conditions without reservations, although we are not signing and submitting some of the sections of the Tender Document. Deviations, if any, are submitted by us in Form 5: 'Terms and Conditions - Compliance'.

6. Bid Security / Bid Securing Declaration

We have submitted the Bid Security / Bid Securing Declaration (BSD, in lieu of Bid Security) in stipulated format vide Form 7: 'Documents Relating to bid security.'

7. Abiding by the Bid Validity

We agree to keep our bid valid for acceptance for a period up to **300 days**, as required in the Tender Document or for a subsequently extended period, if any, agreed to by us and are aware of penalties in this regard stipulated in the Tender Document in case we fail to do so.

FORM 1: BID FORM (COVERING LETTER)

8. Non-tampering of Tender Document

We confirm that we have not changed/ edited the contents of the Tender Document. We realise that any such change noticed at any stage, including after the contract award, shall be liable to punitive action in this regard stipulated in the Tender Document. We also confirm that copies of documents/ affidavits/ undertakings submitted along with our technical bid are valid, true, and correct to the best of our knowledge and belief. If any dispute arises related to the validity and truthfulness of such documents/ affidavits/ undertakings, we shall be responsible for the same. Upon accepting our financial bid, we undertake to submit for scrutiny, on-demand by the Procuring Entity, originals, and self-certified copies of all such certificates, documents, affidavits/ undertakings.

9. A Binding Contract

We further confirm that, if our bid is accepted, all such terms and conditions shall continue to be acceptable and applicable to the resultant contract, even though some of these documents may not be included in the contract Documents submitted by us. We do hereby undertake that, until a formal contract is signed or issued, this bid, together with your written Letter of Award (LoA), shall constitute a binding contract between us.

10. Performance Guarantee and Signing the contract

We further confirm that, if our bid is accepted, we shall provide you with performance security of the required amount stipulated in the Tender Document for the due performance of the contract. We are fully aware that in the event of our failure to deposit the required security amount and/ or failure to execute the agreement, the Procuring Entity has the right to avail any or all punitive actions laid down in this regard, stipulated in the Tender Document.

11. Signatories:

We confirm that we are duly authorized to submit this bid and make commitments on behalf of M/s Supporting documents are submitted in Form 1.1 annexed herewith. We acknowledge that our signature is valid and legally binding.

Rights of the Procuring Entity to Reject bid(s):

We further understand that you are not bound to accept the lowest or any bid you may receive against your above-referred Tender Document.

.....

(Signature with date)

.....

(Name and designation)

Duly authorized to sign bid for and on behalf of

[name & address of Bidder and seal of company]

FORM 1.1: BIDDER'S INFORMATION

(Ref ITB-clause 9.2)

(To be submitted as part of Pre-qualification bid)

(On Company Letter-head)

(Along with supporting documents, if any)

Bidder's Name_____

[Address and Contact Details]

Bidder's Reference No._____ Date.....

Tender Document No. **BNPM/GTE/498/2025-26** dated **13.02.2026**; Tender Title: **Design, Manufacture, Supply, Erection and Commissioning of Two Lines of 6000 TPA each for Banknote Paper Production at Mysuru, Karnataka, India.**

Note: Bidder shall fill in this Form following the instructions indicated below. No alterations to its format shall be permitted, and no substitutions shall be accepted. Bidder shall enclose certified copies of the documentary proof/ evidence to substantiate the corresponding statement wherever necessary and applicable. Bidder's wrong or misleading information shall be treated as a violation of the Code of Integrity. Such Bids shall be liable to be rejected as nonresponsive, in addition to other punitive actions provided for such misdemeanours in the Tender Document.

(Please tick appropriate boxes or strike out sentences/ phrases not applicable to you)

1) Bidder/ Vendor particulars:

- a) Name of the Company:.....
- b) Corporate Identity No. (CIN):
- c) Registration, if any, with The Procuring Entity:
- d) Place of Registration/ Principal place of business/ manufacture
- e) Complete Postal Address:
- f) Pin code/ ZIP code:
- g) Telephone nos. (with country/ area codes):
- h) Mobile Nos.: (with country/ area codes):
- i) Contact persons/ Designation:
- j) Email IDs:

Submit documents to demonstrate eligibility as per NIT-Clause 3 and ITB-clause 3.2 – A self-certified copy of registration certificate – in case of a partnership firm – Deed of Partnership; in case of Company – Notarized and certified copy of its Registration; and in case of Society – its Byelaws and registration certificate of the firm.

2) Taxation Registrations: (To be filled only if applicable)

- a) PAN number:
- b) Type of GST Registration as per the Act (Normal Taxpayer, Composition, Casual Taxable Person, SEZ, etc.):
- c) GSTIN number: in Consignor and Consignee States
- d) Registered/ Certified Works/ Factory where the Goods would be mainly manufactured and Place of Consignor for GST Purpose:
- e) Contact Names, Nos. & email IDs for GST matters (Please mention primary and secondary contacts):

FORM 1.1: BIDDER'S INFORMATION

We solemnly declare that our GST rating on the GST portal/ Govt. official website is not negative/ blacklisted.

Documents to be submitted: Self-attested Copies of PAN card and GSTIN Registration.

3) Authorization of Person(s) signing the bid on behalf of the Bidder

- a) Full Name: _____
- b) Designation: _____
- c) Signing as:

- A sole proprietorship firm. The person signing the bid is the sole proprietor/ constituted attorney of the sole proprietor,
- A partnership firm/Limited Liability Partnership (LLP) Firm. The person signing the bid is duly authorised being a partner to do so, under the partnership agreement or the general power of attorney,
- A company. The person signing the bid is the constituted attorney by a resolution passed by the Board of Directors or in pursuance of the Authority conferred by Memorandum of Association.

Documents to be submitted: Registration Certificate/ Memorandum of Association/Partnership Agreement/ Power of Attorney/ Board Resolution

4) Bidder's Authorized Representative Information

- a) Name:
- b) Address:
- c) Telephone/ Mobile numbers:
- d) Email Address:

(Signature with date)

.....

(Name and designation)

Duly authorized to sign bid for and on behalf of

[name & address of Bidder and seal of company]

DA: As above

FORM 1.2: ELIGIBILITY DECLARATIONS

(Ref ITB-clause 9.2)

(To be submitted as part of Pre-qualification bid)

(On Company Letter-head)

(Along with supporting documents, if any)

Tender Document No. BNPM/GTE/498/2025-26 dated 13.02.2026; Tender Title: Design, Manufacture, Supply, Erection and Commissioning of Two Lines of 6000 TPA each for Banknote Paper Production at Mysuru, Karnataka, India.

Bidder's Name_____

[Address and Contact Details]

Bidder's Reference No._____ Date_____

Note: The list below is indicative only. You may attach more documents as required to confirm your eligibility criteria.

Eligibility Declarations

(Please tick appropriate boxes or cross out any declaration not applicable to the Bidder)

We hereby confirm that; we comply with all the stipulation of NIT-clause 3 and ITB clause 3.2 and declare as under and shall provide evidence of our continued eligibility to the Procuring Entity as may be requested:

1. Legal Entity of Bidder: _____
2. OEM/ Manufacturer/ Agent/ Dealership Status: _____
3. We are not a JV/Consortium.
4. We solemnly declare that we (including our affiliates or subsidiaries or constituents):
 - a. 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 are not the subject of legal proceedings for any of these reasons;
 - b. (including our Vendors/ sub-vendors for any part of the contract):
 - i) Do not stand declared ineligible/ blacklisted/ banned/ debarred by Security Printing & Minting Corporation India Limited (SPMCIL)/ Bharatiya Reserve Bank Note Mudran (P) Limited (BRBNMPL)/ BNPM/ RBI/ Department of Economic Affairs (DEA)/ Department of Expenditure (DoE) from participation in its Tender Processes; and/ or
 - ii) Are not convicted (within three years preceding the last date of bid submission) or stand declared ineligible/ suspended/ blacklisted/ banned/ debarred by departments/agencies of Government of India as mentioned in subclause (i) above from participation in Tender Processes of all of its entities, for offences mentioned in Tender Document in this regard. We have neither changed our name nor created a new "Allied Firm", consequent to the above disqualifications.
 - iii) Do not have any association (as bidder/ partner/ Director/ employee in any

FORM 1.2: ELIGIBILITY DECLARATIONS

capacity) with such retired public official or near relations of such officials of Procuring Entity, as counter-indicated, in the Tender Document.

- iv) We certify that we fulfil any other additional eligibility condition if prescribed in Tender Document.
- v) We have no conflict of interest, which substantially affects fair competition. The prices quoted are competitive and without adopting any unfair/ unethical/ anti-competitive means. No attempt has been made or shall be made by us to induce any other bidder to submit or not to submit an offer to restrict competition.

5. Restrictions on procurement from bidders from a country or countries, or a class of countries under Rule 144 (xi) of the General Financial Rules 2017: We certify as under:
"We have read the clause regarding restrictions on procurement from a bidder of a country / bidder having Transfer of Technology arrangement, which shares a land border with India and on sub-contracting to vendors from such countries, and solemnly certify that we fulfil all requirements in this regard and are eligible to be considered. We certify that:

- a. *we are not from such a country / have transfer of technology arrangement or, if from such a country / have transfer of technology arrangement, we are registered with the Competent Authority (copy enclosed). and;*
- b. *we shall not subcontract any work to a vendor from such countries unless such vendor is registered with the Competent Authority.*

6. Start-up status: (To be filled if applicable)

We confirm that we are/ are not a Start-up entity as per the definition of the Department of Promotion of Industrial and Internal Trade – DPIIT.

7. MSME Status: (To be filled if applicable)

Having read and understood the Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 (as amended and revised till date), and solemnly declare the following:

- a) We are - Micro/ Small/ Medium Enterprise/ SSI/ Govt. Dept. / PSU/Others:.....
- b) We attach herewith, Udyam Registration Certificate with the Udyam Registration Number as proof of our being MSE registered on the Udyam Registration Portal. The certificate is the latest up to the deadline for submission of the bid.
- c) Whether Proprietor/ Partner belongs to SC/ ST or Women category. (Please specify names and percentage of shares held by SC/ ST Partners):.....

8. Make in India Status:

Having read and understood the Public Procurement (Preference to Make in India PPP - MII) Order, 2017 (as amended and revised till date) and related notifications from the relevant Nodal Ministry/ Department, and solemnly declare the following:

- a) Certificate from statutory auditors/ cost accountant for Class-I or Class-II Local Suppliers containing details of local content and location(s) at which value addition is made as follows:

Local Content and %age	
Location(s) of value addition	

FORM 1.2: ELIGIBILITY DECLARATIONS

Therefore, we certify that M/s _____ qualify for the following category of the supplier

(tick the appropriate category):

- Class-I Local Supplier/
- Class-II Local Supplier/
- Non-Local Supplier.

b) We also declare that

- There is no country whose bidders have been notified as ineligible on a reciprocal basis under this order for an offered Goods, or
- We do not belong to any Country whose bidders are notified as ineligible on a reciprocal basis under this order for the offered Goods.

9. Self-Declaration by Indian Agents/ Associates of Foreign Principals

- a) Self-attested documentary evidence about their identity (PAN, Aadhar Card, GSTIN registration, proof of address, etc.), business details (ownership pattern and documents, type of firm, year of establishment, sister concerns etc.) to establish that they are a bonafide business as per Indian Laws – are submitted as part of Form 1.1 annexed herewith.
- b) Agency Agreement shall be submitted with Form 1.3. It shall cover
 - i) the precise relationship, services to be rendered, mutual interests in business - generally and/ or specifically for the tender and
 - ii) any payment the agent or associate receives in India or abroad from the foreign OEM/ principal, whether a commission or a general retainer fee.
- c) Our Foreign Principals, explicitly authorizing us to make an offer in response to the tender, either directly or in association with them, are listed in Form 1.3 annexed herewith. That also indicates their name, address, nationality, status (i.e., whether manufacturer or agents of manufacturer holding the Letter of Authority of the principal).
- d) The amount of commission/ remuneration included in the price (s) quoted by Bidder for agents or associated bidder is detailed in Form 1.3.
- e) Confirmation is given in Form 1.3 annexed herewith from the Foreign Principals that the commission/ remuneration, reserved for Bidder in the quoted price(s), if any, shall be paid by the Procuring Entity in India, in equivalent Indian Rupees on satisfactory completion of the Project or supplies of Goods and Spares.

10. Penalties for false or misleading declarations:

We hereby confirm that the particulars given above are factually correct and nothing is concealed and undertake to advise any future changes to the above details. We understand that any wrong or misleading self-declaration would violate the Code of Integrity and attract penalties as mentioned in this Tender Document.

FORM 1.2: ELIGIBILITY DECLARATIONS

.....

(Signature with date)

.....

(Name and designation)

Duly authorized to sign bid for and on behalf of

.....

.....

[name & address of Bidder and seal of company]

FORM 1.3: DECLARATION BY AGENTS/ ASSOCIATES OF FOREIGN PRINCIPALS/ OEM'S

(Required only for Agents/ Associates of Foreign Principals)
(Ref Clause 3.5 of ITB)

(On Company Letter Head)
(Along with supporting documents, if any)
(To be submitted as part of Pre-qualification bid)

Agent's Name_____

[Address and Contact Details]

Principal's Reference No._____ Date.....

The Managing Director,
Bank Note Paper Mill India Pvt Ltd,
Registered & Corporate Office,
Gate 1, Paper Mill Compound,
Note Mudran Nagar, Mysuru – 570 003.
Karnataka. India.

Dear Sir,

Ref: Tender Document No. **BNPM/GTE/498/2025-26 dated 13.02.2026**; Tender Title: **Design, Manufacture, Supply, Erection and Commissioning of Two Lines of 6000 TPA each for Banknote Paper Production at Mysuru, Karnataka, India.**

1. We, are a bonafide business as per Indian Laws. We have been retained as agent/ associates by our Foreign Principals/ OEM, Messrs..... (*name and address of the principal*) to associate with them for participation in this Tender Process.
2. We understand that any failure or non-disclosures, or mis-declarations by us, shall be treated as a violation of the Code of Integrity. Our Bids shall be liable to be rejected as nonresponsive, in addition to other punitive actions by the Procuring Entity as per the Tender Document.
3. The required details as per ITB-clause 3.5 are as follows.
 - a) Name of the Agent/ Associate:.....
 - b) Documents regarding ownership pattern: as appropriate - Bye Laws/ Registration Certificate/ Memorandum of Association/ Partnership Agreement/ Power of Attorney/ Board Resolution.
 - c) Year of establishment.....
 - d) Sister Concerns.....,
 - e) Corporate Identity No. (CIN):
 - f) Aadhar Card of Owner/ CEO/ Partner
 - g) PAN number:
 - h) Complete Postal Address:
 - i) Pin code/ ZIP code:
 - j) Telephone nos. (with country/ area codes):
 - k) Mobile Nos.: (with country/ area codes):

FORM 1.3: DECLARATION BY AGENTS/ ASSOCIATES OF FOREIGN PRINCIPALS/ OEM'S

l) Contact persons/ Designation:

m) Email IDs:

n) Type of GST Registration (Registered, Unregistered, Composition, SEZ, RCM etc.):

o) GSTIN number: in Consignor and Consignee States

p) Registered office from where agency/ association services would be mainly provided for GST Purpose:

q) Contact Names, Nos. & email IDs for GST matters (Please mention primary and secondary contacts):

4. Details required under ITB-clause 3.5 regarding the Foreign Principal/ OEM are given below.

a) Name of the Company:.....

b) Nationality/ Country of operation/ incorporation.....

c) Status:

i) manufacturer or

ii) agents of manufacturer holding the Letter of Authority of the Principal, specifically authorizing the agent to make an offer in India in response to tender either directly or through the agents/ representatives.

d) Complete Postal Address:

e) Telephone nos. (with country/ area codes):

f) Mobile Nos.: (with country/ area codes):

g) Contact persons/ Designation:

h) Email IDs:

5. *Because of price-sensitive information, agency/ any other agreement with Foreign Principals/ OEM shall be submitted as per ITB-clause 3.5, on-demand, after the financial bid opening. It shall contain details of payments of all commissions, gratuities, or fees concerning the tender process or execution of the contract that we have paid/ received, or shall pay/ receive, as per the following format:*

Name of Recipient	Address	Services to be provided	Amount (in INR)

6. Our Principals have authorized us to confirm that the commission/ remuneration, if any, to us under the contract shall be paid in India, in equivalent Indian Rupees, on satisfactory completion of the Project or supplies of Goods and Spares.

7. We enclose herewith: as appropriate, our ----- Bye-Laws/ Registration Certificate/ Memorandum of Association/ Partnership Agreement/ Power of Attorney/ Board Resolution

Yours faithfully,

.....

.....

[signature with date, name, and designation]

for and on behalf of Messrs.....

[name & address of the OEM and seal of company]

DA: 1. As above

FORM 2: SCHEDULE OF REQUIREMENTS - COMPLIANCE

(Ref ITB-clause 9.2, Schedule IV: Schedule of Requirements)

(To be submitted as part of Technical bid)

(on Company Letter-head)

Tender Document No. **BNPM/GTE/498/2025-26** dated **13.02.2026**; Tender Title: **Design, Manufacture, Supply, Erection and Commissioning of Two Lines of 6000 TPA each for Banknote Paper Production at Mysuru, Karnataka, India.**

Bidder's Name_____

[Address and Contact Details]

Bidder's Reference No._____ Date.....

Note to Bidders: Fill up this Form regarding Section IV: Schedule of Requirements maintaining the same numbering and structure. Add additional details not covered elsewhere in your bid in this regard.

Deviations from Schedule of Requirements

Note to Bidders: Highlight deviations, if any, from Section IV: Schedule of Requirements in this Form.

Sl. No.	Ref of Tender Document Section, Clause		Subject	Confirmation/ Deviation/ Exception/ reservation	Justification/ Reason
	Section	Clause/ sub-clause			

We shall comply with, abide by, and accept without variation, deviation, or reservation all requirements detailed in Section IV: Schedule of Requirements in the Tender Document, except those mentioned above. If mentioned elsewhere in our bid, contrary terms and conditions shall not be recognised and shall be null and void.

.....
(Signature with date)

.....
(Name and designation)

Duly authorized to sign bid for and on behalf of

.....
[name & address of Bidder and seal of company]

FORM 3: TECHNICAL SPECIFICATIONS AND SCOPE OF WORK - COMPLIANCE

(Ref ITB-clause 9.2, Schedule VII: Technical Specifications and Scope of Work)

(To be submitted as part of Technical bid)

(on Company Letter-head)

Tender Document No. **BNPM/GTE/498/2025-26** dated **13.02.2026**; Tender Title: **Design, Manufacture, Supply, Erection and Commissioning of Two Lines of 6000 TPA each for Banknote Paper Production at Mysuru, Karnataka, India.**

Bidder's Name_____

[Address and Contact Details]

Bidder's Reference No._____ Date.....

Note to Bidders: *Highlight in this form deviations, if any, from Section V: Technical Specifications and Scope of Work, maintaining the same numbering and structure. Submit copies of original test certificates for standards/specification tests on the Goods and other relevant documents like technical data, literature, drawings, etc. Add additional details not covered elsewhere in your bid in this regard.*

Sl. No.	Ref of Technical Specification and Quality Assurance Clause		Subject	Confirmation/ Deviation/ Exception/ reservation	Justification/ Reason Section Clause/ sub-Clause
	Section	Clause/ sub-Clause			

We shall comply with, abide by, and accept without variation, deviation, or reservation all Technical Specifications, Scope of Work, Quality Assurance and Warranty requirements in the Tender Document, except those mentioned above. If mentioned elsewhere in our bid, contrary terms and conditions shall not be recognised and shall be null and void.

.....
(Signature with date)

.....
(Name and designation)

Duly authorized to sign bid for and on behalf of

.....
[name & address of Bidder and seal of company]

DA: Relevant documents like technical data, literature, drawings, and other documents

FORM 4: QUALIFICATION CRITERIA COMPLIANCE

(Ref ITB-clause 9.2, Schedule VI Qualification Criteria)

(To be submitted as part of Pre-qualification bid)

(on Company Letter-head)

Tender Document No. **BNPM/GTE/498/2025-26** dated **13.02.2026**; Tender Title: **Design, Manufacture, Supply, Erection and Commissioning of Two Lines of 6000 TPA each for Banknote Paper Production at Mysuru, Karnataka, India.**

Bidder's Name_____

[Address and Contact Details]

Bidder's Reference No._____ Date.....

Category	Qualification Criteria	Details of documents submitted in support of qualification criteria
Experience & Past Performance	<p>1. Bidder should be a manufacturer / Having a valid agreement /tie-up with manufacturer for supply of similar* machines for production of banknote paper.</p> <p>*Similar machines shall include either (or) all of (i) Paper Machine; (ii) Mould Cover Making; (iii) Pulp Mill; (iv) Sheeting Lines.</p> <p>2. Bidder should have successfully designed, manufactured, supplied, installed & commissioned at-least 1 (One) Paper Machine along with (i) Mould Cover Making; (ii) Pulp Mill; (iii) Sheeting Lines for Production of Banknote paper as on 31.01.2026.</p> <p>The above experience should be covered in not more than Three (3) orders.</p> <p>[AND]</p> <p>3. Supplied paper machine should be in successful operation for at least 1 (One) year.</p>	

FORM 4: QUALIFICATION CRITERIA COMPLIANCE

Category	Qualification Criteria	Details of documents submitted in support of qualification criteria
Financial Standing	<p>Average annual turnover of the bidder firm during last three year's period ending 31.03.2025 (for FY) (or) 31.12.2024 (for CY) as applicable should be at least INR 1,455 Crores (Rupees One Thousand Four Hundred and Fifty-Five Crores only) (or) USD 159,278,000/- (or) EUR 134,101,000/- (or) GBP 116,121,000/- (or) YEN 24,808,184,000/- (or)</p> <p>In equivalent currency of country of origin of goods.</p> <p>Relaxation for Start-ups & MSE's: Average Annual Turnover is relaxed for Start-ups & MSE's. Eligible start-ups & MSE's are required to have an average annual turnover of at least INR 1,091 Crores/- (Rupees One Thousand Ninety-One Crores only) during last three financial year's period ending 31.03.2025.</p> <p>Net worth of the bidder firm should not be in negative as on 31.03.2025 (for FY) (or) 31.12.2024 (for CY) and should have not eroded [Ref Note (ii)] by more than 30% (Thirty percent) year-on-year basis as well as cumulative basis in the last three financial year period ending 31.03.2025 (or) calendar year period ending 31.12.2024.</p>	

FORM 5: TERMS AND CONDITIONS - COMPLIANCE

(Ref ITB-clause 9.2)

(To be submitted as part of Technical bid)
(on Company Letter-head)

Bidder's Name_____

[Address and Contact Details]

Bidder's Reference No._____ Date.....

Tender Document No. **BNPM/GTE/498/2025-26** dated **13.02.2026**; Tender Title: **Design, Manufacture, Supply, Erection and Commissioning of Two Lines of 6000 TPA each for Banknote Paper Production at Mysuru, Karnataka, India.**

Note to Bidders: Fill up this Form regarding Terms and Conditions in the Tender Document, maintaining the same numbering and structure. Add additional details not covered elsewhere in your bid in this regard.

Sl. No.	Ref of Tender Document Section, Clause		Subject	Confirmation/ Deviation/ Exception/ reservation	Justification/ Reason
	Section	Clause/ sub-Clause			

We shall comply with, abide by, and accept without variation, deviation, or reservation all terms and conditions of the Tender Document, except those mentioned above. If mentioned elsewhere in our bid, contrary terms and conditions shall not be recognised and shall be null and void.

.....

(Signature with date)

.....

(Name and designation)

Duly authorized to sign bid for and on behalf of

.....

.....

[name & address of Bidder and seal of company]

DA: If any, at the option of the Bidder.

FORM 6: CHECK-LIST FOR BIDDERS

(Ref ITB-clause 9.2)

(To be submitted as part of Pre-qualification bid)
(on Company Letter-head)

Bidder's Name_____

[Address and Contact Details]

Bidder's Reference No._____ Date.....

Tender Document No. BNPM/GTE/498/2025-26 dated 13.02.2026; Tender Title: Design, Manufacture, Supply, Erection and Commissioning of Two Lines of 6000 TPA each for Banknote Paper Production at Mysuru, Karnataka, India.

Note to Bidders: This check-list is merely to help the bidders to prepare their bids, it does not over-ride or modify the requirement of the tender. Bidders must do their own due diligence also.

Sr	Documents submitted, duly filled, signed	Yes/ No/NA
1.	Form 1: Bid Form (to serve as covering letter and declarations applicable for both the Techno-commercial bid and financial bid)	
2.	Form 1.1: Bidder Information along with Power of attorney and Registration Certificates etc.	
2.a	Self-attested copy of Registration certificates etc. of the firm	
2.b	Self-attested copy of PAN	
2.c	Self-attested copy of GSTIN registration(s)	
2.d	Self-attested copy of Power of Attorney etc. authorizing signatories on stamp paper to sign the bid	
3.	Form 1.2: Eligibility Declarations, along with supporting Documents	
3.a	Self-attested copy of Registration certificate for bidders/ Sub-vendors from restricted neighbouring countries	
3.b	Self-attested copy of MSME registration	
3.c	Self-attested copy of Start-up registration/ status (if applicable)	
3.d	Self-attested copy of the certificate of Local Supplier Status for Make in India policy, from auditors/ cost accountant in case of Tenders above Rs 10 Crore	
4.	If applicable, Form 1.3: Declaration by Agents/ Associates of Foreign Principals/ OEMs	
4.a	Self-attested copy of Registration certificates etc., of the agent/ dealer.	
4.b	Self-attested copy of Power of Attorney etc. authorizing	

FORM 6: CHECK-LIST FOR BIDDERS

	signatories on stamp paper to sign Form 1.3 of Agent Dealer	
5.	Form 2: Schedule of Requirements – Compliance	
6.	Form 3: Technical Specifications and Scope of Work - Compliance	
6.a	Relevant documents like technical data, literature, drawings, and other documents, at the option of Bidder	
7.	Form 4: Qualification Criteria – Compliance	
7.a	Documents Attached supporting the compliance to qualification criteria	
8.	Form 5: Terms and Conditions - Compliance	
8.a	Documents if any at the option of Bidder, supporting deviation	
9.	Form 6: This Checklist	
10.	Form 7: Bid Security Declaration	
11.	Form 8: Duly signed Integrity Pact	
12.	Section VII - Filled Financial Bid	
13.	Any other requirements, if stipulated in TIS/ ITB; or if considered relevant by the Bidder	

.....
(Signature with date)

.....
(Name and designation)

Duly authorized to sign bid for and on behalf of.....

[name & address of Bidder and seal of company]

FORM 7: BID SECURITY DECLARATION

(Ref ITB-clause 9.2)

Note: To be submitted as part of Pre-qualification bid, along with supporting documents, if any. Submit as Form 7 as part of Pre-qualification bid, a Bid Securing Declaration In lieu of bid security in the following format. Bidders exempted from submission of bid security are also required to submit this.

(on Company Letter-head)

Bidder's Name_____

[Address and Contact Details]

Bidder's Reference No._____ Date.....

To

The Managing Director,
Bank Note Paper Mill India Pvt Ltd,
Registered & Corporate Office,
Gate 1, Paper Mill Compound,
Note Mudran Nagar, Mysuru – 570 003.
Karnataka. India.

Ref: Tender Document No. **BNPM/GTE/498/2025-26** dated **13.02.2026**; Tender Title: **Design, Manufacture, Supply, Erection and Commissioning of Two Lines of 6000 TPA each for Banknote Paper Production at Mysuru, Karnataka, India.**

Sir/ Madam,

We, the undersigned, solemnly declare that:

We understand that according to the conditions of this Tender Document, the bid must be supported by a Bid Securing Declaration In lieu of Bid Security.

We unconditionally accept the conditions of this Bid Securing Declaration. We understand that we shall stand automatically suspended from being eligible for bidding in any tender in Procuring Organisation up to 2 years from the date of opening of this bid if we breach our obligation(s) under the tender conditions if we:

- 1) withdraw/ amend/ impair/ derogate, in any respect, from our bid, within the bid validity; or
- 2) being notified within the bid validity of the acceptance of our bid by the Procuring Entity:
 - a. refused to or failed to produce the original documents for scrutiny or the required Performance Security within the stipulated time under the conditions of the Tender Document.
 - b. Fail or refuse to sign the contract.

We know that this bid-Securing Declaration shall expire if the contract is not awarded to us, upon:

- 1) receipt by us of your notification
 - a. of cancellation of the entire tender process or rejection of all bids or
 - b. of the name of the successful bidder or
- 2) forty-five days after the expiration of the bid validity or any extension to it.



FORM 7: BID SECURITY DECLARATION

(Signature with date)

.....
(Name and designation)

Duly authorized to sign bid for and on behalf of.....

[name & address of Bidder and seal of company]

Dated on day of [insert date of signing]

Place.....[insert place of signing]

DA:.....

FORM 8: INTEGRITY PACT

(To be signed on INR 500/- Non-Judicial Stamp Paper)

Tender No.: BNPM/GTE/498/2025-26 dated 13.02.2026.

The Bank Note Paper Mill India Private Limited having its registered and corporate office at Administrative Building, Entry Gate 1, Paper Mill Compound, Note Mudran Nagar, Mysuru 570003, Karnataka, India hereinafter referred to as the "PURCHASER"

AND

..... (Name & address of supplier) hereinafter referred to as the "SUPPLIER".

The PURCHASER has awarded, under laid down organizational procedures, contract(s) for The PURCHASER values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relations with its SUPPLIER

In order to achieve these goals, the PURCHASER will appoint an Independent External Monitor (IEM), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

1. Commitments of the PURCHASER

- 1.1 The PURCHASER commits itself to take all measures necessary to prevent corruption and to observe the following principles:
- 1.2 No employee of the PURCHASER, personally or through family members will in connection with the tender for, or the execution of a contract, demand, take a promise for, or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
- 1.3 The PURCHASER will during the tender process treat all BIDDER(s) with equity and reason. The PURCHASER will in particular, before and during the tender process, provide to all BIDDER(s) the same information and will not provide to any BIDDER(s) confidential /additional information through which the BIDDER(s) could obtain an advantage in relation to the tender process or the contract execution.
- 1.4 The PURCHASER will exclude from the process all known prejudiced persons.
 - a. If the PURCHASER obtains information on the conduct of any of its employees which is criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the PURCHASER will initiate necessary disciplinary proceedings or any other action as deemed fit including criminal proceedings.

2. Commitments of SUPPLIERS

- 2.1 The SUPPLIER commits itself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
 - (a) The SUPPLIER will not, directly or through any other person or firm, offer, promise or give to any of the PURCHASER's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally

FORM 8: INTEGRITY PACT

entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

- (b) The SUPPLIER will not enter with other SUPPLIERS into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- (c) The SUPPLIER will not commit any offence under the relevant IPC/PC Act, further the SUPPLIER will not use improperly, for purpose of competition or personal gain, or pass on to others, any information or document provided by the PURCHASER as part of the business relationship, regarding plans, technical proposals and business details including information contained or transmitted electronically.
- (d) The SUPPLIER of foreign origin shall disclose the name and address of the Agents/ representatives in India, if any. Similarly, the BIDDER of Indian Nationality shall furnish the name and address of the foreign Principles, if any. Further, all the payments made to the Indian agent/ representative have to be in Indian Rupees only.
- (e) The BIDDER will, when presenting his bid, disclose any and all payment he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- (f) A person signing Integrity pact shall not approach the Courts while representing the matters to IEMs and he/she will await their decision in the matter

2.2 The BIDDER(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

3. Disqualification from tender process and exclusion from future contracts:

If the SUPPLIER, before award or during execution has committed a transgression through a violation of Section 2, above or in any other firms such as to put his reliability or credibility in question, the PURCHASER is entitled to disqualify the bidder from the tender process or to take action as per the procedure mentioned in the "Guidelines on Banning of business dealings".

4. Compensation for damages:

- 4.1 If the PURCHASER has disqualified the BIDDER from the tender process prior to the award according to Section 3, the PURCHASER is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bids Security.
- 4.2 If the PURCHASER, has terminated the contract according to Section 3, or if the PURCHASER is entitled to terminate the contract according to Section 3, the PURCHASER shall be entitled to demand and recover from the SUPPLIER Liquidated damages of the contract value or the amount equivalent Performance Bank Guarantee.

FORM 8: INTEGRITY PACT

5. Previous Transgression:

- 5.1 The SUPPLIER declares that no previous transgressions occurred in the last three years in any other company in any country confirming to the anti-corruption approach or any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the SUPPLIER makes in correct statement on this subject, he can be disqualified from the tender process or action can be taken.

6. Equal treatment of all SUPPLIERS:

- 6.1 The SUPPLIER undertakes to demand from all sub-vendors a commitment in conformity with this Integrity Pact, and to submit it to the PURCHASER before contract signing.
- 6.2 The PURCHASER will enter into agreements with identical conditions as this one with all BIDDERS.
- 6.3 The PURCHASER will disqualify from the tender process all BIDDERS who do not sign this Pact or violate these provisions.

7. Criminal charges against violating SUPPLIER:

If the PURCHASER obtains knowledge of conduct of a SUPPLIER or of an employee or a representative or an associate of a BIDDER/ SUPPLIER/sub vendor which constitutes corruption, or if the PURCHASER has substantive suspicion in this regard, the PURCHASER will inform the same to the Chief Vigilance Officer of the company/ Managing Director of the Company.

8. Independent external monitor/monitors:

- 8.1 The PURCHASER has appointed independent external monitor for this pact as below: -

- a) Vice Admiral Arun Kumar Bahl (retd.)
E-mail id: arunkbahl@gmail.com.
- b) Ms. Melattur Viswanathan Bhanumathi
Email: bhanumathimv@gmail.com.

The task of the monitor is to review independently and objectively, whether and to what extent the parties compliant with the obligations under this agreement.

- 8.2 The monitor is not subject to instructions by the representatives of the parties and performs his function neutrally and independently and report to MD.
- 8.3 The SUPPLIER accepts that the Monitor has right to access without restriction to all project documentation of the PURCHASER including provided by the SUPPLIERS. The vendor will also grant the Monitor, upon his request and demonstration of a valid interest, un-restricted and un-conditional access to his project documentation. The same is applicable to sub-vendors.

The Monitor is under contractual obligation to treat the information and documents of the bidder with confidentiality.

FORM 8: INTEGRITY PACT

- 8.4 The PURCHASER will provide to the Monitor sufficient information about all meetings among the SUPPLIERS related to the project provided such meetings could have an impact on the contractual relation between the PURCHASER and the SUPPLIERS. The SUPPLIERS offer to the Monitor the option to participate in such meetings.
- 8.5 As soon as the Monitor notices, or believe to notice, a violation of this agreement, he will sole inform the Management of the PURCHASER and request the Management to discontinue or take corrective action, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- 8.6 The Monitor will submit a written report to the Managing Director, within 8-10 weeks from the date of reference or intimation to him by the PURCHASER and should the occasion arise, submit proposals for correcting problematic situations.
- 8.7 If the Monitor has reported to the Managing Director, a substantiated suspicion of an offence under relevant IPC/PC Act, and the Managing Director has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Chairman/Board of Directors.
- 8.8 The word 'Monitor' would include both singular and plural.

9. Pact Validity:

The validity of this Integrity Pact shall be from the date of its signing and valid for 60 days after complete conclusion of the contractual obligations to the complete satisfaction of both the PURCHASER and the BIDDER and after completion of warranty period. In case the BIDDER is unsuccessful this Integrity Pact shall expire after five months from the date of the signing of the contract. If any claim is made/ lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by Managing Director.

10. Other Provisions:

- 10.1 This agreement is subject to Indian Law; Place of performance and Jurisdiction is the Registered Office of the PURCHASER i.e. Mysuru.
- 10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- 10.3 If the vendor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- 10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Issues like warranty/ guarantee etc. shall be outside the purview of IEMs.

FORM 8: INTEGRITY PACT

10.6 In the event of any contradiction between the Integrity Pact and its Annexure, if any, the clause in the Integrity Pact will prevail.

For and on behalf of

**BANK NOTE PAPER MILL INDIA
PRIVATE LIMITED**

(Name of Authorised Signatory)

(Designation)

(PURCHASER)

Address:

Registered & Corporate Office, Paper Mill Compound, Note Mudran Nagar, Mysuru 570 003, Karnataka, India.

In the presence of:

Witness with Address:

1.

For and on behalf of

(NAME OF SUPPLIER'S COMPANY)

(Name of Authorised Signatory)

(Designation)

(SUPPLIER)

Address:

.....

In the presence of:

Witness with Address:

1.

FORM 9: Schedule of Essential & Maintenance Spares

Schedule of Essential & Maintenance Spares

Sl. No.	Equipment Tag Number	Description of Spare	Material of Construction	Manufacturer and Part Number	Quantity/ Set Recommended Per Unit Equipment	Delivery Period (Weeks) From Date of LOA	Remarks
A. Commissioning Spares For commissioning of plant (in addition to Essential Spares)							
1.							
2.							
3.							
B. Essential Spares for Two Years Trouble Free Operation after expiry of guarantee period							
1.							
2.							
3.							
4.							
C. Maintenance Spares for Two Years Trouble Free Operation after expiry of guarantee period							
1.							
2.							
3.							
4.							
5.							
COMPANY SEAL		SIGNATURE					
		NAME					
		DESIGNATION					
		COMPANY					
		DATE					

FORM 10: Schedule of Maintenance Tools & Tackles

The BIDDER shall indicate below Special Maintenance Tools and Tackles for the equipment, plant or system offered by him.

S NO	DESCRIPTION	QTY OR NUMBER OF SETS			REMARKS
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
COMPANY SEAL		SIGNATURE			
		NAME			
		DESIGNATION			
		COMPANY			
		DATE			

FORM 11: Schedule of Start-Up & Commissioning Spares

Schedule of Start-Up & Commissioning Spares

The BIDDER shall indicate below Start-up and Commissioning Spares for equipment, plant or system offered by him.

Sl. No.	Equipment Tag Number	Description of Spare	Material of Construction	Manufacturer and Part Number	Quantity/Set Recommended Per Unit Equipment	Delivery Period (Weeks) from Date of LOA	Remarks
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							

COMPANY SEAL	SIGNATURE	
	NAME	
	DESIGNATION	
	COMPANY	
	DATE	

FORM 12: Schedule of Instruments for Performance Tests

Schedule of Instruments for Performance Tests

The Bidder shall indicate below all the necessary instruments brought by him exclusively for carrying out performance tests, which are to be taken back by him.

S No	Measurement Point	Measured Variable and Its Accuracy	Method Of Measurement and Instrument Required	Quantity Required	Duration Of Use (Weeks)
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

The Bidder hereby confirms that all instruments shall have necessary calibration certificates as specified in the Enquiry Document.

COMPANY SEAL	SIGNATURE	
	NAME	
	DESIGNATION	
	COMPANY	
	DATE	

FORM 13: Schedule of Manufacture, Shipment to Site

Schedule of Manufacture, Shipment to Site

The BIDDER shall indicate below the time for manufacture, dispatch and completion of each equipment and shipment time from the date of Letter of Award (LOA) as shown below:

Sl. No.	Equipment	Time For Manufacture from Date of LOA (Weeks)	Time For Tests at Works, Dismantling, Packing and Ready for Despatch from Works (Weeks)	Time For Shipment to Site (Weeks)	Total Time from Date of LOA to Receipt at Site (Weeks)
1	2	3	4	5	6 = (3+4+5)
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					

The BIDDER hereby undertakes to meet the above time schedule from the date of LOA

COMPANY SEAL	SIGNATURE	
	NAME	
	DESIGNATION	
	COMPANY	
	DATE	

FORMAT 1: BANK GUARANTEE FOR EARNEST MONEY DEPOSIT

..... (Insert: Bank's Name, and Address of Issuing Branch or Office)

Beneficiary:

Bank Note Paper Mill India Private Limited
Administrative Building,
Paper Mill Compound, Note Mudran Nagar,
Mysuru- 570003, Karnataka, India

Date:.....

Bank Guarantee No:.....

Whereas.....(hereafter Called the "Tenderer") has submitted its quotation dated.....for the supply of..... (hereinafter called the "tender") against Bank Note Paper Mill India Private Limited's tender enquiry No.....Know all persons by these presents that we.....of (hereinafter called the "Bank") having our registered office at.....

Are bound unto Bank Note Paper Mill India Private Limited (hereinafter called the "BNPMIPL") in the sum of for which payment will and truly to be made to the said BNPMIPL, the Bank binds itself, its successors and assigns by these presents.

Sealed with the Seal of the said Bank this.....day of.....20.....

The conditions of this obligation are -

- 1) If the Tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.
- 2) If the tenderer having been notified of the acceptance of his tender by BNPMIPL during the period of its validity: -
 - a) Fails or refuses to furnish the performance security for the due performance of the contract.
 - b) Fails or refuses to accept/ execute the contract.

We undertake to pay Bank Note Paper Mill India Private Limited up to the above amount upon receipt of its first written demand, without Bank Note Paper Mill India Private Limited having to substantiate its demand, provided that in its demand BNPMIPL will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition (s).

This guarantee will remain in force for a period of forty-five days after the period of tender validity and any demand in respect thereof should reach the Bank not later than the above date.

.....
Signature of the authorized officer of the Bank)

.....
Name, authorization/ signature no. and designation of the officer
Seal, Name & Address of the Bank and Address of the Branch



FORMAT 1: BANK GUARANTEE FOR EARNEST MONEY DEPOSIT

Checklist for Bank Guarantee:

EMD BG should be in line with / comply the following.

1. BG should be issued on not less than Rs. 300/- e-stamp / non-judicial stamp paper in case of paper Bank Guarantees (or) not less than Rs. 200/- e-stamp in case of e-Bank Guarantees.
2. Non judicial stamp paper / e-stamp paper should be purchased in the name of BG issuing bank only.
3. In case of stamp/e-stamp paper first party should be BG issuing bank and second party should be BNPM.
4. Date of sale of non-judicial / e stamp paper shown on the BG and the stamp paper (BG) issued is not more than six months prior to the date of execution of BG.
5. Executing officer of BG should indicate his name, designation and power of attorney number / signing power no etc. on each page of BG.
6. Name and address of the supplier, name and address of BNPM and value are to be mentioned clearly.
7. Overwriting / cutting if any in BG should be authenticated under signature and seal of authorized signatory of BG issuing Bank.
8. BG number and BG date should be mentioned in all pages of BG and all pages are endorsed / signed by authorized signatories of issuing bank.
9. Amount mentioned in figures and words are to be matched.
10. Validity of BG should be in line with **ITB-clause 9.4**.
11. BG should be unconditional.
12. Our Bank details is mentioned below:

Name of the Bank: **HDFC Bank**.

Name of the Branch: **Richmond Road Branch**.

Account No: **05230350002465**.

Branch Address: **No. 8/24, Salco Centre, Bangalore- 560025, Karnataka.**

IFSC: **HDFC0000523**.

FORMAT 2: BANK GUARANTEE FOR PERFORMANCE SECURITY

(Insert: Bank's Name, and Address of Issuing Branch or Office)

Beneficiary:

Bank Note Paper Mill India Private Limited
Administrative Building, Entry Gate 1,
Paper Mill Compound, Note Mudran Nagar,
Mysuru - 570003

Date:

Performance Guarantee No.:

WHEREAS.....(name and address of the supplier) (hereinafter called "the supplier") has undertaken, in pursuance of LOA (Letter of Award) no..... dated to supply (description of goods and services) (herein after called "the contract").

AND WHEREAS it has been stipulated by you in the said LOA that the supplier shall furnish you with a bank guarantee by a scheduled commercial bank recognized by you for the sum specified therein as security for compliance with its obligations in accordance with the LOA;

AND WHEREAS we have agreed to give the supplier such a bank guarantee;

NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of..... (amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the supplier before presenting us with the demand. We further agree that no change or addition to or other modification of the terms of the contract to be performed thereunder or of any of the contract documents which may be made between you and the supplier shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

We undertake to pay Bank Note Paper Mill India Private Limited up to the above amount upon receipt of its first written demand, without Bank Note Paper Mill India Private Limited having to substantiate its demand.

This guarantee will remain in force for a period of sixty days after the currency of this contract and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the authorized officer of the Bank)

Name, Authorization/ Signature no. and Designation of the officer

Seal, Name & Address of the Bank and Address of the Branch



FORMAT 2: BANK GUARANTEE FOR PERFORMANCE SECURITY

Checklist for Bank Guarantee:

Performance BG should be in line with / comply the following.

1. BG should be issued on not less than Rs. 300/- e-stamp / non-judicial stamp paper in case of paper Bank Guarantees (or) not less than Rs. 200/- e-stamp in case of e-Bank Guarantees.
2. Non judicial stamp paper / e-stamp paper should be purchased in the name of BG issuing bank only.
3. In case of stamp/e-stamp paper first party should be BG issuing bank and second party should be BNPM.
4. Date of sale of non-judicial / e-stamp paper shown on the BG and the stamp paper (BG) issued should not more than six months prior to the date of execution of BG.
5. Executing officer of BG should indicate his name, designation and power of attorney number / signing power no etc. on each page of BG.
6. Name and address of the bidding party, name and address of BNPM and value are to be mentioned clearly.
7. Overwriting / cutting if any in BG should be authenticated under signature and seal of authorized signatory of BG issuing Bank.
8. BG number and BG date should be mentioned in all pages of BG and all pages are endorsed / signed by authorized signatories of issuing bank.
9. Amount mentioned in figures and words are to be matched.
10. Validity of BG should be in line with the contract.
11. BG should be unconditional.
12. Our Bank details is mentioned below:

Name of the Bank: **HDFC Bank.**

Name of the Branch: **Richmond Road Branch.**

Account No: **05230350002465.**

Branch Address: **No. 8/24, Salco Centre, Bangalore- 560025, Karnataka.**

IFSC: **HDFC0000523.**

FORMAT 3: Authorization for Attending Pre-bid Conference / Bid Opening

To,

The Managing Director
Bank Note Paper Mill India Private Limited,
Administrative Building,
Paper Mill Compound,
Note Mudran Nagar, Mysuru 570 003

Subject: Authorization for attending pre-bid conference/ bid opening** on _____ (date) for the Tender of _____.

Following persons are hereby authorized to attend the pre-bid conference/ bid opening** for the tender mentioned above on behalf of _____ (Bidder) in order of preference given below.

Order of Preference	Name	Specimen Signatures
I.		
II.		
Alternate Representative		
Signatures of BIDDER or Officer authorized to sign the bid Documents on behalf of the BIDDER.		

Note:

1. Maximum of two representatives will be permitted to attend pre-bid conference/ bid opening**. In cases where it is restricted to one, first preference will be allowed. Alternate representative will be permitted when regular representatives are not able to attend.
2. Permission for entry to the hall where Pre-bid conference/ bid-opening is held may be refused in case authorization as prescribed above is not produced.

** Strike-out whichever is not applicable.

ANNEXURE – 1

Piping Engineering Design Basis

1.0 Scope

This specification covers the minimum technical requirements and essential particulars for the design of the piping systems included in the VENDOR'S scope as identified in the drawings and documents forming a part of this specification. The VENDOR shall demonstrate that the piping meets the specification and the applicable codes.

2.0 Codes And Standards

- 2.1 The design of pipes, pipe assemblies, pipe fittings, flanges and components, valves and specialties and any other pressure retaining part in a piping system shall be carried out in accordance with ASME B 31.3.
- 2.2 The design of the piping systems shall also meet the local statutory requirements. The design shall meet the requirements of the Indian Boiler Regulations (IBR) for systems under the purview of IBR.
- 2.3 Notwithstanding the recommendations and stipulations of the codes and standards mentioned above, the requirement of this specification shall be deemed minimum and shall be complied with fully.
- 2.4 All codes and standards referred shall be the latest version on the date of offer made by the Bidder unless otherwise indicated.
- 2.5 Nothing in this specification shall be construed to relieve the VENDOR responsibilities as above.

3.0 Basic Design Criteria

- 3.1 Piping shall be designed adequately to meet the system requirements of flow, pressure drop, etc., under all operating modes of the plant, both normal and abnormal. Planned and forced outages of equipment or systems shall be taken into account and it shall be ensured that realization of maximum feasible plant performance in terms of output and efficiency is not hampered by inadequacies in piping design.
- 3.2 It shall also be ensured that, under no circumstances, including malfunction or failure of an equipment or system, the safety of the plant, equipment or personnel is endangered by inadequate design of piping.
- 3.3 Piping systems shall also be designed and conceived in such a manner as to maximize plant or equipment availability. Provision of ring headers, sectionalizing valves, isolating valves, block valves, bypass, streamline flow, absence of dead pockets etc., are examples illustrating this concept and it is the responsibility of the VENDOR to ensure provision of such facilities, at no extra cost to the PURCHASER.

ANNEXURE – 1

4.0 Line Sizing

- 4.1 Line sizing shall be based on considerations of pressure drop, NPSH, surges, water hammer, etc.
- 4.2 The design flows considered in line sizing shall not be less than the rated capacities of equipment to which the piping is connected such as pumps, etc., rated capacity of control valve, flow limiting orifices, etc.
- 4.3 The selection of line size shall take into account likely increase in pressure drop with the ageing of the pipe due to increase in pipe roughness, encrustation of pipe with scale, dirt, foreign matter, etc.
- 4.4 A suitable allowance shall be made towards this expected increase in pressure drop.
- 4.5 While sizing pump suction lines, NPSH requirements of pumps shall be fully met under all conditions of operation including trip-out of an operating pump and failure of the standby pump to come on line.
- 4.6 Wherever strainer pressure drops are considered, the same shall be for the 50% clogged condition of the strainers. Pressure drops across equipment shall correspond to un-cleaned condition of the equipment.

5.0 Materials

- 5.1 BIDDER may offer, if they so desire, alternate materials equal or superior to those specified. The responsibility for establishing equality or superiority of the alternate materials offered to those specified rests entirely with the VENDOR. The PURCHASER/ENGINEER reserves the right to reject such alternate materials and insist upon those specified.
- 5.2 BIDDER shall note that equality or superiority of the materials offered by them vis-à-vis those specified would be judged not only based on a comparison of the material standards but also on the ease of fabrication, shop and field welding, heat treatment, service record and any other characteristics considered important by the PURCHASER/ENGINEER.
- 5.3 BIDDER shall indicate, in their offer, reasons for their wishing to deviate from the materials specified.
- 5.4 The following general guidelines shall be followed: However, it is the sole responsibility of the VENDOR to select the suitable superior material from the point of view of 20 years life of the plant.
 - (a) All alkaline and sludge media: Stainless steel type 304
 - (b) All acidic media: Stainless steel type 316
 - (c) (wherever suitable from corrosion point of view)

ANNEXURE – 1

6.0 Design Pressures

- 6.1 The minimum design pressures of piping systems shall be decided based on the recommendations of the applicable codes.
- 6.2 In general, piping shall be designed for the maximum possible pressure attainable under the most arduous operating condition including pressure surges, if any.

7.0 Design Temperatures

- 7.1 The design temperatures shall be as per the recommendations of applicable codes.

8.0 Wall Thickness

- 8.1 The calculation of wall thickness required for piping subject to internal and / or external pressure shall be based on the formulae and recommendations given in the applicable codes. Adequate allowances shall be made towards thinning due to bending, weakening at branch connections, threading, commercial tolerances on pipe wall thickness, corrosion and erosion, etc.
- 8.2 A minimum corrosion / erosion allowance of 1.5 mm, shall be considered while selecting wall thickness of carbon steel pipes for all systems. Additional allowances would be required in case of piping handling corrosive and / or erosive media and in case of piping located in a corrosive environment.

9.0 Flexibility Analysis

- 9.1 Formal flexibility analysis calculations shall be carried out in case of piping subject to restrained thermal expansions or contractions.
- 9.2 Regardless of the operating temperatures, all piping connected to sensitive rotating equipment such as pumps etc., for which limiting values of pipe reaction have been specified by the equipment manufacturer shall be analyzed.

10.0 Layout And Detailing

- 10.1 The VENDOR shall prepare piping layout and isometric drawings floor / elevation- wise which shall cover the following details:
 - (a) Detailed routing
 - (b) Support locations
 - (c) Valve spindle orientation.
 - (d) Equipment with maintenance details
 - (e) Cable tray and ventilation ducts.
 - (f) All main and internal columns, vertical bracings and other civil details.

ANNEXURE – 1

10.2 While routing piping, the following requirements shall be taken into account:

- (a) All piping shall be routed so as to avoid interference with other pipes and their hangers and supports, electrical cable trays, ventilation ducting, structural members, equipment, etc. Adequate clearances shall be ensured with respect to the above to accommodate insulation and pipe movements.
- (b) All piping shall be grouped where practicable and shall be routed to present a neat appearance.
- (c) Piping shall be arranged to provide clearance for removal of equipment requiring maintenance and for easy access to valves and other piping accessories.
- (d) Overhead piping shall have a minimum vertical clearance of 2.3 meters above walkways and working areas and 6 meters above roadways unless otherwise approved by the PURCHASER/ENGINEER.
- (e) Drains shall be provided at all low points and vents at all high points as per actual layout.
- (f) Provision shall be made while preparing piping layout to accept control valves, flow measuring elements and any other online specialty or equipment. Sufficient upstream and downstream lengths shall be provided for flow measuring devices, control valves, pressure reducing valves and de-super heaters and other specialties as required by the VENDOR.
- (g) At all the screwed valves and screwed connections on equipment, unions or flanges shall be provided to facilitate disassembly. Likewise, unions/flanges shall also be provided at suitable points on straight length of screwed piping.
- (h) All local instruments shall be so located on piping as to render them observable from the nearest available platforms/floors.

11.0 Pipe Supports

- 11.1 All piping supports, guides, anchors, turnbuckles, and hangers, spring hangers, rollers, with incidental structural sub-framing shall be designed by the PURCHASER / ENGINEER.
- 11.2 The supports shall be spaced in accordance with standard engineering practice as outlined in applicable codes and standards. Their locations shall also be so chosen as to avoid unduly heavy loads being transferred to the structures.
- 11.3 If severe vibration of piping is encountered in systems over which the PURCHASER/ENGINEER has control, or if the piping system is to be subjected to shock loading, hangers shall be supplemented by vibration control equipment.

12.0 Pipes And Piping Components

The following paragraphs cover the general requirements & technical particulars for the manufacture and supply of pipes and piping components. The items covered are straight pipes,

ANNEXURE – 1

butt welding, socket welding, threaded and flanged fittings, all types of flanges, bolts, studs and nuts and gaskets, The materials include carbon steels, black and galvanized and austenitic stainless steels.

13.0 Codes And Standards

13.1 The manufacture and supply of piping items shall comply with all the currently applicable statutes, regulations and safety codes in the locality where these are manufactured as well as the locality of installation. Nothing in this specification shall be construed to relieve the PURCHASER/ENGINEER of this responsibility. Specifically, the latest editions of the codes and standards listed in the following paragraphs shall apply:

- (i) Applicable ASTM Standards.
- (ii) API Standards.
- (iii) Applicable Indian Standards.
- (iv) Applicable British Standards.
- (v) Indian Boiler Regulations (IBR).
- (vi) ASME Boiler and Pressure Vessel Code (BPV code), Non-Destructive Examination.
- (vii) BPV Code, Section IX - Welding and brazing qualifications.
- (viii) Applicable MSS -SP Standards.

13.2 In the event of conflict between the codes and standards and this specification, the more stringent requirements shall govern.

14.0 General

14.1 All items specified as "IBR-approved" shall be supplied with the relevant, authentic IBR certificates.

14.2 All carbon steel pipes, fittings and flanges, which are IBR-approved, shall have carbon content not exceeding 0.25%.

14.3 Certificates for pipes and piping components shall have the following applicable minimum information:

- (i) Mill or manufacturer's name
- (ii) Heat or charge number
- (iii) Material standard
- (iv) Size, rating/schedule, dimensional standard of the item to be certified
- (v) Steel making process

ANNEXURE – 1

- (vi) Chemical analysis
- (vii) Temperature of manufacture, type of heat treatment and the cooling method
- (viii) The methods, the extent and the results of mechanical testing
- (ix) The methods, the extent and the results of non-destructive testing
- (x) The results of hydrostatic tests, where applicable
- (xi) The results of visual examination and dimensional check
- (xii) Inspector's name and signature

14.4 Unless noted otherwise, galvanizing of piping components shall be by the hot-dip method, as per ASTM A 53. Electro-galvanizing is acceptable for threaded and socket welding fittings.

14.5 NABL certified labs shall provide certificate of inspection of pipes and pipe fittings, as applicable.

15.0 Pipes

15.1 Straight pipes shall be supplied in single random lengths as per the applicable specification.

15.2 Carbon Steel pipe ends shall be as follows:

- (i) Sizes 40 mm \leq : plain ends
- (ii) Sizes 50 mm \geq : beveled ends

Beveling shall be as per ASME B16.25

15.3 Heat treatment of pipes in the mills shall be as per the applicable pipe standards as a minimum. All stainless pipes shall be solution annealed, pickled and passivated.

15.4 Pipe dimensions shall be as per ASME B36.10 and ASME B36.19 as applicable.

15.5 Tolerances on wall thickness, ovality and straightness shall be as per applicable component standard.

16.0 Fittings

16.1 Butt welding fittings shall conform to ANSI B16.9 with respect to dimensions, tolerances, ovality etc. Beveling shall be as per ASME B16.25.

16.2 Fittings having two sizes (such as reducers) and different wall thicknesses on each side shall be manufactured from the thicker component and the lighter end edge prepared to match the specified lighter wall thickness.

16.3 Where seamless fittings are specified, welded type fittings are not acceptable.

ANNEXURE – 1

- 16.4 Where welded type fittings are specified, all welds made by the fitting manufacturer as well as welds, if any, on the parent pipe shall be 100% radiographed.
- 16.5 Where tees are specified, tees made by welding pipe to pipe are not acceptable.
- 16.6 The negative tolerances on the wall thickness of fittings shall not exceed the corresponding tolerances on straight pipe.
- 16.7 Integrally reinforced branch fittings such as welldoers, shall generally be as per MSS-SP 97.
- 16.8 Austenitic stainless-steel fittings shall be solution annealed, pickled and passivated.
- 16.9 Carbon steel fittings shall be heat treated as per the applicable material specification.
- 16.10 Forged socket welding and threaded fittings shall conform to ASME B16.11
- 16.11 Carbon steel and low alloy steel fittings shall be heat treated as per the applicable material specification.
- 16.12 Welding neck flanges shall be edge prepared to match the specified wall thickness. The profile shall be as per ASME B16.25.
- 16.13 Flange serrations shall be concentric type unless specified otherwise.
- 16.14 Finish on the gasket contact surface for raised and flat faces shall be based on the following:
 - Serrated/stock finish: AARH value of (63 to 125 microns)
 - Smooth finish: AARH value of (32 to 63 microns)

- 16.15 All bolting shall be as per ANSI B18.2.1, class 2A for studs and machine bolts and as per ANSI B18.2.2, class 2B for nuts. Studs' bolts shall be threaded full length. Nuts shall be double chamfered, semi-finished, heavy hexagonal type and shall be forged. The threads shall be as unified (UNC for < 1 in. diameter and 8UN for > 1 in. diameter) as per ANSI B1.1. There bolting is as per other specifications, such as IS 1367, the bolting shall conform to the relevant requirements of bolting of the specific standard.

- 16.16 Heads of jack screws and machine bolts shall be of the heavy hexagonal type.

- 16.17 Spiral-wound and metallic gaskets shall be as per ASME B16.20.

17.0 Strainers

- 17.1 T -type strainers shall be provided for sizes 200mm and larger and y type for smaller sizes.
- 17.2 Strainer screen shall be stainless steel type 304 for carbon steel piping.

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Painting Specification

Painting of pipeline, equipment and supporting structures (un-insulated carbon steel surfaces) shall be as follows:

1. Surface Preparation: Cleaning by wire brush or power tools to remove any loose dirt or mill scales from the surface.
2. Primer: One coat of zinc rich primer with red oxide and zinc phosphate pigments to achieve total DFT of 70 to 75 microns.
3. Final Coat: Two coats of synthetic enamel paint of total 100-micron DFT.
4. Total DFT shall be 175 microns (min.)
5. The grade of paint shall be chosen such that it will withstand the maximum temperatures to which the components painted will be subjected.
6. Any intermediate cleaning required between successive coats of paint shall also be carried out as per manufacturer's standard.
7. Notwithstanding the recommendations and stipulations of the codes and standards mentioned above, the requirement of this specification shall be deemed minimum and shall be complied with fully.
8. Nothing in this specification shall be construed to relieve the Vendor / Vendor of his responsibilities as above.

ANNEXURE – 3

ELECTRICAL DESIGN BASIS

1.0 INTRODUCTION

This section covers brief guidelines for design, engineering, installation, testing and commissioning for electrical system of Pulp and Paper machine from cotton comber cleaning system to finishing house. The design of the electrical system as a whole shall be based on the requirements for the safe and reliable performance of Pulp and Paper plant and the interconnected electrical system with provision for easy maintenance and overhauling.

The design principles and standards delineated herein shall be generally in compliance with latest IEC/IS Standards and the Code of Practice followed in India. Indian Electricity Act and Rules wherever applicable shall also be complied with. Other international standards such as IEEE shall be used in specific cases.

2.0 PROPOSED SYSTEM DESCRIPTION

- 2.1 PURCHASER is having the power at 66kV from KPTCL (Karnataka Power Transmission Company Limited) for the existing Paper mill.
- 2.2 For the proposed new production line, 66kV feeder will be extended from the existing BNPM switchyard (with necessary isolation arrangement) situated outside the press area and step down to 11kV at the proposed Main Distribution Substation (MDS) with the help of 66KV /11kV,20MVA power transformer.
- 2.3 MDS will have main 11kV switchgear from where power will be distributed to various load centers.
- 2.4 Exact configuration of the distribution from MDS 11kV Switchgear up to various plants will be decided by PURCHASER/ENGINEER.
- 2.5 Pulp and Paper Mill will have 11kV/415V distribution substations. Exact configuration of the distribution shall be decided by upon receipt of Load Details of Pulp and Paper Machine.
- 2.6 MCC will distribute power to various loads of Pulp and Paper Machine from cotton comber cleaning system to finishing house.
- 2.7 415V system shall be solidly grounded.
- 2.8 Power factor improvement (IGBT based Static VAR) shall be done at Motor Control Centre (MCC) bus to achieve the power factor of Unity. It shall be separate standalone panels and not an integrated part of MCC panels. It shall have auto and manual facility.
- 2.9 Variable Frequency AC drives shall be considered for all sectionalized loads and other equipment depending on process requirements.
- 2.10 240 V, single phase UPS power is required for Instrumentation system including DCS/QCS system and control panels if any as per process requirement.

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3.0 BRIEF GUIDELINES FOR ELECTRICAL DESIGN BASIS

3.1 415 V MOTOR CONTROL CENTRES (MCC)

- 3.1.1 415 V MCC shall be non-draw-out with Single/ double front type (except ACB feeders), metal enclosed, indoor type extensible at both ends, with copper busbars, having required symmetrical breaking capacity and withstand time of 1 sec. along with necessary metering and protection.
- 3.1.2 Symmetrical breaking capacity of the MCC shall be decided during the detailed engineering based on upstream fault level, cable lengths and motor fault contribution if any.
- 3.1.3 MCC shall be provided section-wise.
- 3.1.4 For Incoming and outgoing feeders of MCC up to 400A MCCB with microprocessor-based releases shall be provided and 630 A and above ACB shall be provided. ACB and MCCB shall be 4Pole.
- 3.1.5 All ACBs/ MCCBs shall be provided with microprocessor-based overload, short circuit and Earth fault releases. The releases shall be current and time adjustable type with communication facility.
- 3.1.6 Outgoing Direct on Line (DOL) Starter Motor feeder (for motors up to 15 kW): MPCB with over load and short circuit release with relay function with necessary auxiliary contacts for indication shall be provided.
- 3.1.7 Motors of capacity 18.5kW and above to be connected to through soft starter/VFD. Soft Start shall be provided with in built motor protection features and overload relay and contactor in bypass mode of soft start.
- 3.1.8 Outgoing MCCB Feeder shall be 4 Pole microprocessor based with over load, short circuit and earth fault releases with time and current adjustment with shunt trip coil and shall be communicable type
- 3.1.9 MPCB/MCCB shall be provided with door operating handle with pad lock arrangement and door interlock facility with door interlock defeat facility.
- 3.1.10 Motor feeders rating 15kW and above shall be provided with CT based Ammeter. for DOL feeders / screw feeders, conveyors etc., and other critical process application irrespective of kW rating.
- 3.1.11 Ammeter with current transducer shall be provided for motor feeder as per process requirement for hooking up (4-20 mA) signal to DCS. Apart from this if any other status is required as per process requirement, the same has to be given in DCS needs to be considered by bidder.
- 3.1.12 MCC shall be provided with 24V DC bus with control transformer (For space heater of motor rating below 30KW). Motor rating including 37KW and above shall be provided with 240V AC space Heater and Power supply provision for the same shall be taken from MCC.

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3.1.13 Marshalling Compartment shall be provided for MCCs for DCS interface.

3.1.14 MCC shall be designed in such a way that it shall be possible to have following controls & indications for various feeders.

- (a) Local/remote selection from DCS.
- (b) Starting from DCS and LCS.
- (c) Stopping from MCC/ DCS/ LCS.
- (d) ON, OFF and TRIP indications on MCC and same shall be wired to DCS.

3.1.15 20 % spare feeders shall be provided KW rating wise. of minimum one feeder in each rating.

3.1.16 Configuration and number of MCCs to be decided by bidder. Separate MCC required for Paper machine line all sheeters, CPP, Mould Section independently.

3.2 VARIABLE FREQUENCY DRIVES

- 3.2.1 Variable Voltage Variable Frequency Drives (VVFD) shall be provided for various sections of machine and applicable process equipment as per the energy saving requirement.
- 3.2.2 It shall be responsibility of BIDDER to fully co-ordinate with the motor /driven equipment supplier for smooth functioning of the drive system
- 3.2.3 Motors shall be suitable for inverter duty application.
- 3.2.4 Long term speed control accuracy (offset error) of each speed regulated section shall be within +/- 0.01% for the master line speed reference under condition of normal paper machine operation when the machine is operated at the rated speed and unusual transient load fluctuation does not exist.
- 3.2.5 Sectional drive of Paper machine shall have one Converter section (With redundancy for converter section only) which shall feed common DC Bus and from common DC bus, individual section shall feed by IGBT based inverter section. Dry end requirement of regenerative braking in the Sectional drive shall be designed for Paper machine based on the exact load details of dry end and wet end.
- 3.2.6 IGBT based vector drive with sensor (Tacho) feedback shall be used. The inverters shall be digital type with panel mounted key-pad and alpha-numeric four-line display for parameter setting, setting of limits, display of values, display of fault conditions etc.
- 3.2.7 Master control panel shall have necessary digital display and shall meet steady state and transient conditional requirement of particular section.

The function of the master control panel is as follows.

- (a) Torque/speed control

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- (b) Start/stop logic
- (c) Interlock and protection
- (d) Diagnostics

The VFD modules located in the above master control panel shall be multi-dropped & interfaced to the respective machine DCS over communication link as per control system configuration of instrumentation part of this tender.

3.2.8 The operator interfaces on the local control consoles for the various sections of the machine, located near the machine shall have:

INTERLOCKING CONDITION

- (a) Operating status of each section (Crawl, Ready, Run, Fault, Emergency stop).
- (b) Speed / Draw indicator of each section.
- (c) Draw chart of each section.
- (d) Operating load current of each motor.
- (e) Real time trend.

HISTORICAL TREND

- (a) Mechanical data setting (Roll diameter)
- (b) Various data setting / condition
- (c) Alarm message
- (d) Event monitoring
- (e) Fault indication

The operator interfaces shall be interfaced to the redundant system Ethernet bus as shown in the control system configuration of instrumentation part of this tender.

3.2.9 The harmonic content reflected on incoming line is to be limited to 5% THD & 3% for individual harmonics. The active harmonic filters & 12-pulse converter shall be used to achieve this. 6 pulse converters shall be considered provided the harmonic limits are met.

3.2.10 The individual drive section shall be mounted on a single panel with enclosure containing the isolator disconnect, operator controls, user terminal strip connections and bypass controls. For kW rating 5.5 kW and below two inverters' units can be mounted in single panel.

3.2.11 Drive shall be pulse width modulation (PWM) variable speed drive and Microprocessor

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based.

3.2.12 Controls and Interlocks mentioned above are minimum. It is the responsibility of BIDDER to decide the exact configuration to suit the operating philosophy of Paper machine.

3.3 LT MOTORS

- 3.3.1 Motors upto315kW shall be suitable for 415 V, 3 phase, 50 Hz supply.
- 3.3.2 Motors shall be energy efficient (IE3 or above) squirrel cage induction motors having TEFC, IP-55 enclosure (including terminal boxes and bearing housing) with Class-F insulation (and temperature rise limited to Class B) conforming to IS 325. For outdoor motors used for cooling towers IPW 55 enclosure shall be considered.
- 3.3.3 Values of motor efficiency shall be as per category ' IE3' (or better) as given in IEEMA Std. 19-2000 for all continuous duty motors such as fans, pumps etc.
- 3.3.4 Motors with VVVF (Variable Voltage Variable Frequency) Drive shall be suitable for & compatible with VVVF (inverter duty) if any. The motor insulation shall be designed for PWM power. The motors shall provide full-load torque at any speed without overheating.
- 3.3.5 Motors shall be given powerhouse treatment.
- 3.3.6 The winding overhangs shall be given epoxy gel coating.
- 3.3.7 Separate terminal boxes shall be provided for stator leads, space heater, and temperature detector. If the cable size come out to be more than the knock out entry (based on voltage drop calculation), BIDDER shall supply reducer or junction boxes.
- 3.3.8 Fans & fan covers of fan cooled motors shall be of corrosion resistant material and appropriately protected and shall be of casting.

3.4 LOCAL CONTROL STATION (LCS)

- 3.4.1 Lockable Stop Push Button (press to stop and key to release – Lock out Switches) shall be provided near each equipment as a statutory requirement. The enclosure shall be engineering plastic (scratch resistant), weather proof, corrosion resistant, dust and vermin-proof, suitable for mounting on wall or structures. The enclosure shall have degree of protection not less than IP55.
- 3.4.2 LCS shall have provision for start and stop facility with necessary NO and NC contacts and suitable for bottom cable entry.

3.5 UNINTERRUPTED POWER SUPPLY SYSTEM

- 3.5.1 UPS of adequate capacity considering 15% future load shall be provided for DCS system and critical control process equipment.
- 3.5.2 UPS shall be IGBT based 12 pulse parallel redundant type with static servo-controlled bypass.

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- 3.5.3 Parallel redundant UPS shall have 100% redundancy with separate battery and battery breaker with servo voltage controller.
- 3.5.4 UPS batteries shall be VRLA SMF type.
- 3.5.5 415V, three phase, 50Hz Input, and 240V, single phase, 50 Hz output, parallel redundant UPS shall be provided with manual maintenance bypass and static bypass switch.
- 3.5.6 Battery duration shall be 1 hour and age margin of 25% shall be considered for design of Battery sizing. AH and voltage shall be selected by the UPS Manufacturer.
- 3.5.7 UPS shall be provided with communication port for connecting to DCS for following alarms:
 - (a) Mains Fail
 - (b) Rectifier Trip
 - (c) Overload
 - (d) Battery Low
 - (e) UPS On.
 - (f) Static by Pass On

3.6 CABLING SYSTEM

- 3.6.1 LT power cables shall be suitable for 1100 V grade, copper Conductor, multi cores, XLPE insulated, colour coded, laid up sheathed with extruded PVC, hard drawn galvanized single steel strip armored, and extruded overall FRLS PVC outer sheath
- 3.6.2 LT control cables shall be suitable for 1100 V grade, copper Conductor, multi cores, PVC insulated, colour coded, laid up sheathed with extruded PVC, hard drawn galvanized single steel strip /wire armored, and extruded overall FRLS PVC Outer sheath.

3.6.3 SIZING OF CABLES

The cable sizes shall be selected based on the following considerations:

- (a) General Purpose Feeders: Rated current and associated derating factors due to ambient temperature/group laying and Voltage Drop as applicable.
- (b) LT Motors –
 - (i) Rated current and associated derating factors due to ambient temperature/group laying.
 - (ii) For let through Energy
 - (iii) Voltage Drop of 3 % between MCC to motor terminals while running (Voltage drop

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:2% between PCC and MCC is considered)

- (iv) Total 15% dip at motor terminals while starting
- (c) For installations having appreciable nonlinear harmonic loading (more than 30%) like Variable Speed Drives/UPS systems / Rectifiers etc. present, neutral conductor shall be sized same as that of phase conductor.

3.6.4 CABLE TERMINATION

- (a) For LT armored cables, brass chromium plated, double compression type glands shall be used.
- (b) For LT unarmored cables, brass chromium plated, single compression type glands shall be used.
- (c) Cable termination lugs shall be crimping type.
- (d) For cables of 120sq.mm. and above, long barrel cable lugs shall be used.
- (e) The material of lugs shall be as follows:
- (f) For connection of copper cables to copper busbar – Copper
- (g) Alternatively bimetallic washer shall be used when cable and busbar are of different material.

3.6.5 CABLE TRAYS

- (a) For power cables, ladder type cable trays and for control and instrumentation cables, perforated cable trays shall be used. Cable tray shall be hot dip galvanized with 100mm flange height and 2.0mm thick.
- (b) FRP cable trays shall be used in area where moisture is present. (e.g., Wet end area, CPP area, Vacuum pump area etc.,)
- (c) Input for providing insert plates in slab ceiling and side walls and cutouts for cable tray installation shall be given by BIDDER to civil vendor.

3.7 EARTHING SYSTEM

- 3.7.1 Earthing shall be designed as per guidelines of IS: 3043 -1987 code of practice for earthing and Indian Electricity Rules.
- 3.7.2 Earthing shall be carried out by G.I. Material / Copper Cable. It shall be tapped from the Earthing Grid network of Outside Building (Above Ground)
- 3.7.3 Type of jointing – Welded
- 3.7.4 Exposed structural steel like cable trays, LT Motors, pumps, MCC, Control Panels, lighting

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distribution board, tanks, VFD panel, Process Equipment (if required) etc. shall be earthed.

3.8 CODES AND STANDARDS

- 3.8.1 The equipment shall comply in all respects with the requirements of the latest editions of the codes and standards.
- 3.8.2 Other National Standards are acceptable if, they are established to be equal or superior to the listed standards. In all such cases, copies of English translation of such National Standards shall be attached to the bid. The Bids not complying with this requirement are liable for rejection.
- 3.8.3 Testing, installation, and commissioning shall comply with the requirement of latest editions of Indian Standards and Codes of Practices. Where these standards are in conflict with the stipulation of this specification, this specification shall govern.
- 3.8.4 All equipment and material supplied by BIDDER for installation and commissioning purpose shall meet the requirements of Indian Standard, and Tariff Advisory Committee's (TAC) regulations (fire insurance) and Electrical Inspectorate and Central Electricity Authority (CEA). The installation shall be in line with latest Indian Electricity Rules.
- 3.8.5 All electronic items especially UPS, inverters and drives shall be RFI/EMC/EMI compliant with European standards and directives.

3.9 INSPECTION

- 3.9.1 BIDDER shall submit quality assurance plan for all major equipment.
- 3.9.2 The inspection of all equipment shall be carried out by PURCHASER/ENGINEER at manufacturer's works.
- 3.9.3 All the materials shall be offered by the BIDDER for inspection before their dispatch to site. The inspection shall be carried out as per the relevant IS/ BS
- 3.9.4 / IEC standards. PURCHASER/ENGINEER shall have the right to either inspect the material at manufacturers work or waive off the inspection for dispatch and inspect at site. Even after this inspection, the BIDDER shall be responsible for the performance of the equipment at the site.
- 3.9.5 Acceptance and routine tests for all supply equipment's/component parts shall be carried out as per the relevant standards for the respective equipment. These test reports and manufacturer's type test reports shall be submitted to the PURCHASER/ ENGINEER before dispatch of the equipment.
- 3.9.6 Any other type tests/special tests to be conducted shall be as per the QAP and as indicated elsewhere in this tender document.
- 3.9.7 BIDDER shall ensure use of calibrated test equipment having valid calibrated test certificates traceable to national/international standards.

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3.9.8 Typical type tests certificate for all equipment of equivalent ratings shall be submitted for scrutiny/approval by PURCHASER/ ENGINEER.

3.10 INSTALLATION / ERECTION WORK

3.10.1 The supply and installation of structural frame required for installation of Switchgear, LPBS, Cable Trays with supports etc. is in the scope of BIDDER. For installing the panels on trenches, the corner angles / channels required for installing base frame shall be in BIDDER's scope.

3.10.2 Unloading, handling, safe storage, installation and commissioning of all the equipment is in the BIDDER's scope.

3.10.3 The BIDDER shall deploy Electrical Vendor who possesses valid electrical license of appropriate class from the concerned statutory authorities as per the requirement governing the area of work place.

3.10.4 The BIDDER shall fully comply with the relevant statutory rules and regulations. Electrical supervisor's license is essential for carrying out electrical installation work.

3.10.5 All site test reports in a specified format maintained by BIDDER duly approved by PURCHASER shall be handed over to PURCHASER after completion of job.

3.10.6 BIDDER shall install the equipment as and when their foundation gets ready after completing all preliminary checks. BIDDER shall assemble the elements of equipment.

3.10.7 Approved shop construction drawings, layout, cable route layout, and power/control & instrumentation cable schedule & wiring diagrams to be maintained at site for the purpose of cross-reference during installation.

3.11 TESTING AND COMMISSIONING

3.11.1 The BIDDER, at no extra cost, shall provide all instruments and accessories required for testing and commissioning of the items specified for the required duration of test.

3.11.2 The work shall be considered commissioned only after all equipment/items are put into service as per PURCHASER's satisfaction and design parameters.

3.11.3 All tools and tackles along with necessary measuring and testing equipment required right from supply to final commissioning shall be in scope of the BIDDER.

3.11.4 BIDDER shall submit commissioning Checklist along with commissioning tests for PURCHASER/ ENGINEER approval. It is the responsibility of BIDDER to arrange for required test equipment for carrying out these tests.

3.11.5 All pre-commissioning and commissioning tests shall be carried out in the presence of PURCHASER's / ENGINEER's representative and approval for it shall be obtained before commissioning the installations.

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- 3.11.6 PURCHASER may ask for such additional tests on site, as in their opinion are necessary to determine that the work comply with the specifications or IS code of Installation (as agreed) or manufacturer's instruction. BIDDER shall be responsible and bear the cost of such additional tests.
- 3.11.7 Verification of guaranteed parameters at shop floor and at site is included in the BIDDER's scope
- 3.11.8 The BIDDER shall bear cost of all tests & rejected material. The BIDDER without any time/ cost implications shall replace the rejected material.

3.12 MAINTENANCE REQUIREMENTS

- 3.12.1 The BIDDER shall supply maintenance tools including special tools, if required, for attending to the equipment supplied at no extra cost.
- 3.12.2 The BIDDER shall furnish hard and editable soft copy of detailed inter-panel wiring diagrams, terminal connection wiring diagram, detailed component layout drawings and installation, operation and maintenance manuals to enable Client to carry out maintenance work.
- 3.12.3 Instruction manuals shall include:
 - (a) Design and installation manual including design documents, certificates relating to type/acceptance/special tests, description of procedures and description of field-testing procedures after installation.
 - (b) Operating instruction including description of start-up procedure and description of conditions of use.
 - (c) Maintenance instructions including precautionary maintenance instructions /periodic inspection programs, setting instructions, procedures for removing and replacing all parts and accessories included in the spare parts list, and list of spare parts and consumables together with all information required for ordering them from manufacturers.
 - (d) The drawings must contain at least the information sufficient to enable the PURCHSER to maintain, dismantle, reassemble, and adjust all parts of the equipment. These drawings shall be suitably indexed and shall be preferably in a standard size. These manuals shall contain all information, description of equipment, diagram etc., necessary to operate and maintain the plant. The work shall not be considered to be completed, for the purpose of take-over, until such documents have been supplied to the PURCHSER & the acceptance format signed off.
- 3.12.4 Each electrical equipment shall have wiring/connection diagram fixed on the inner side of the door (for panels)/enclosure (for motor terminal box).
- 3.12.5 For MCC, provision shall be made on the inside of one of the common/vacant enclosure to keep drawings related to the panel.

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INSTRUMENTATION DESIGN BASIS

1. Scope

This specification covers the minimum technical requirements and essential particulars for the design of the I&C systems included in the VENDOR's scope as identified in the drawings and documents forming a part of this specification. The VENDOR shall demonstrate that the I&C system meets the specification and the applicable codes.

2. Codes And Standards

2.1. The design, manufacture, inspection of all equipment and systems covered herein shall conform to the latest editions of codes and standards mentioned below. Where a conflict between the codes might exist, the most stringent requirements shall govern.

ANSI	American National Standards Institute
ASME	American Society for Mechanical Engineers
BS	British Standards
DIN	Deutsches Institute fur Normung
ISA	Instrument Society of America
IEEE	Institute of Electrical and Electronic Engineers
NEMA	National Electrical Manufacturers' Association
IEC	International Electrotechnical Commission
IBR	Indian Boiler Regulation
NFPA	National Fire Protection Association
NEC	National Electric Code
IS	Indian Standards
CSA	Canadian Standards Association

2.2. Notwithstanding the recommendations and stipulations of the codes and standards mentioned above, the requirement of this specification shall be deemed minimum and shall be complied with fully.

2.3. All codes and standards referred shall be the latest version on the date of offer made by the BIDDER unless otherwise indicated.

2.4. Nothing in this specification shall be construed to relieve the Vendor of his responsibilities as above.

3. Basic Design Criteria

3.1. All I&C equipment shall be fully tropicalized. All instruments shall be suitable for use in hot, humid, tropical & dusty climate.

3.2. All transmitters shall be SMART type with HART protocol.

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3.3. Field mounted electrical and electronic instruments shall be weatherproof to IP-65. All instruments of submersible type shall be protected to IP-68.

3.4. Wherever the service is hazardous, the field transmitters shall be intrinsically safe. For switches, suitable ex-proof enclosure shall be provided in hazardous areas.

3.5. All panels, control desks & enclosures shall comply with the requirements of protection classes as indicated below.

In-door Air-conditioned (A.C.) areas	IP 20
In-door Non A.C. areas	IP 54
Outdoor areas	IP 66

3.6. Junction boxes, local pushbutton stations shall have weather protection conforming to IP 65. Wherever the service is hazardous, suitable ex-proof enclosures shall be provided by the Vendor.

3.7. All wetted parts shall be of minimum SS 316. However, based on the process application, suitable superior material shall be provided to match the process.

3.8. Pneumatic signals from I/P converters to actuators shall be 0.2 - 1.0 kg / sq.cm (i.e. 3-15 psi).

4. Field Instruments

4.1. The general guidelines for provision of the instruments & the specifications for the same are as given below.

4.2. Range Selection:

4.2.1. For pressure transmitters, the maximum operating pressure shall be within 80% of the maximum scale range. For pressure gauges, the maximum operating pressure shall be between 40% to 70 % of the maximum scale range. All vacuum & draft gauges/ transmitters shall cover the negative pressure as well as the positive pressure as the case may be.

4.2.2. For temperature transmitters, the maximum operating temperature shall be within 80% of the maximum scale range.

4.2.3. For pressure switches, the set points shall fall within 30% to 70% of the scale range selected.

4.2.4. For flow measurement, the maximum operating flow shall be within 80% of the maximum scale range.

4.2.5. For electro-chemical measurements like pH, the range shall be 0 to 14.

4.2.6. Pressure Gauges/Differential Pressure Gauges

Type	Direct Reading
Casing	SS 304
Glass	Shatterproof
Dial size	150 mm

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Wetted Parts (including accessories like syphon, snubber, valve manifolds)	Minimum – SS 316. For various process fluids, suitable material based on application shall be provided subject to Purchaser's approval.
accessories	<ul style="list-style-type: none"> (a) Blow-out Discs for pressure gauges (b) Syphons for services above 75°C (c) Snubbers for pump discharge applications (d) Diaphragm seal for applications like pulp service, NaOH, Sulphuric acid, slurries, fluids having suspended particles etc. (e) 2-valve manifold for pressure gauges, 5-valve manifold for D.P. gauges (valve manifold not required for gauges with diaphragm seal)

4.2.7. Pressure Transmitters/ Differential Pressure Transmitters

Type	2-wire, SMART with local LCD indication
Enclosure	Die cast Aluminium
Operating principle	Capacitance type
Wetted Parts (including accessories like syphon, snubber, valve manifolds)	Minimum – SS 316. For various process fluids, suitable material based on application shall be provided, subject to Purchaser's approval.
Accuracy	± 0.075 % of span
Output	4-20 mA with HART protocol
Accessories	Same as for pressure gauges/ D.P. gauges.

4.2.8. Load cell

Type	Shear beam/ Compression type
Weather Protection	IP 68
Hermetically sealed	Required
Material of construction	SS 304
Excitation voltage	From local weight indicator
Range	Suitable range of the load cells shall be provided considering the tare weight of the equipment.
Weight Indicator	
Type	Digital microprocessor based required. Shall be mounted in an IP-65 enclosure for local monitoring.
Accuracy	± 0.05% of full scale
Power Supply	230 V AC
Output	4-20mA for wiring to respective DCS
Local display	7 segment, minimum 20 mm digit height

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Load Cell Integral Cable	Required, Screened Armored Cable
Mounting Assembly	
Material of construction	SS
Inbuilt Jacking	Yes, double parallel jacking to lift the equipment/machine frame at full load
Inbuilt Constrainer	Required
Full floating top plate	Required
Anti lift protection	Required
Accessories	
Junction Box	Required for connecting primary sensor wires
Weather Protection	IP 65
Accessories	All other required accessories to make the system complete shall be provided.
Notes: It shall be ensured that the installation of the load cells is done properly so that there is no shift in calibration or error in measurement during operation.	

In addition to the load cells, mechanical spring type weigh balances shall be provided for weighing the parent rolls

4.2.9. Thermometers

Type	Indicating, Bi-metallic, all-angle
Dial	150 mm
Glass	Shatterproof
Casing	SS 304
Micrometer pointer with external adjustment	Required
Accuracy	± 1 % of span
Response time	10 seconds

4.2.10. Temperature Transmitters

Type	2-wire, SMART with local LCD indication
Reference Junction Compensation	Required
Calibration accuracy	± 0.1 % of calibrated span
Circuit ungrounded	Required
Span/zero adjustment	Required
Burnout upscale	Required
Input/ Output isolation	Required

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Output signal	Linear output of 4-20 mA with HART protocol
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4.2.11. Resistance Temperature Detectors

Type	3-wire, Single
Accuracy	As per IEC-751, Class A
Response time	10 seconds
Spring loaded	Required
Insulation	Mineral Insulated (MgO)
Thermowell	Required
Element	Pt 100

4.2.12. Thermowell

Type	(a) Hex head of fabricated assembly for air (b) For rest of the services bar stock assembly.
Design	As per ANSI / DIN
Material	SS 316
Construction	Tapered

4.2.13. Level Gauges

Type	(a) Reflex type for transparent liquids and for liquids in vessels under high pressure & temperature conditions (b) Tubular type for coloured liquids
Automatic ball check valve	Required
Mica shield & Illuminator	Required wherever plant illumination Is not adequate
MOC	The minimum requirements are as given below. For various process fluids, suitable material based on application shall be provided, subject to Purchaser's approval.
Glass	Toughened borosilicate glass
Wetted parts	SS 316
Guard rods & holders	Required for tubular type
Vent & drain valves	Required
Accessories	SS Name plate

4.2.14. Level Transmitters

4.2.14.1. Hydrostatic type Level Transmitter

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Type	2-wire, SMART
Enclosure	Die cast Aluminium
Operating principle	Capacitance type
Wetted Parts (including accessories)	Minimum – SS 316. For various process fluids, suitable material based on application shall be provided, subject to Purchaser's approval.
Accuracy	± 0.075 % of span
Output	4-20 mA with HART protocol
Accessories	<ul style="list-style-type: none"> (a) Siphons for services above 75 deg C (b) Diaphragm seal for applications like pulp service, NaOH, Sulphuric acid, slurries, fluids having suspended particles etc. (c) 5-valve manifold for D.P. Transmitter & 2-valve manifold for Pressure Transmitter (Not required for transmitters with diaphragm seal) (d) Drain ring for high consistency pulp & any services with suspended particles (e) SS name plate

4.2.14.2. Radar Level Transmitter

Type	Cone type (non-guided), 2-wire, SMART type
Housing	Die cast Aluminum with epoxy coating
Wetted parts	Minimum – SS 316. For various process fluids, suitable material based on application shall be provided, subject to Purchaser's approval.
Local Indicator	LCD
Output	4-20 mA
Accuracy	$\pm 0.03\%$ of span
Accessories	SS nameplate
Temp. compensation	Required

4.2.15. Flow Element

Type	Orifice assembly
Material	Minimum SS316
Accuracy	$\pm 1\%$ URV
Process connection	Flange Taps with 2 pairs of connections. Designed as per ANSI, BS, DIN Standard, beta ratio 0.3 to 0.75.
Accessories	SS Nameplate

4.2.16. Flow Transmitters

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4.2.16.1. Magnetic Flow Meters

Type	4-wire, SMART with local LCD indication
Enclosure	Die cast Aluminum
Excitation	Dual Frequency excitation for Pulp Service and conventional excitation for other services
Power supply	24 V DC
Lining Material	PFA Lining for Pulp applications & fluids containing abrasive particles. PTFE for other applications.
Material of Electrodes	Minimum – SS 316, For various process fluids, suitable material based on application shall be provided, subject to Purchaser's approval.
Accuracy	$\pm 0.5\%$ of Flow rate
Output	4-20 mA with HART protocol
Accessories	SS name plate, Transmitter enclosure non-metallic

4.2.16.2. Coriolis Flow Meters

Type	Coriolis, Twin U tube, 4 wire SMART type with LCD indication
Enclosure	Die cast Aluminium with epoxy coating
Power supply	24 V DC
Tube	Seamless
Thickness of Tube	Bidder shall offer the maximum tube and wall thickness available for the chosen tube diameter
Wetted Parts	Minimum – SS 316, For various process fluids, suitable material based on application shall be provided, subject to Purchaser's approval.
Output	4-20 mA with HART, separate outputs shall be provided for flow & density, if density is to be monitored in the DCS.
Accuracy	$+\text{-} 0.001$ gm/cc
Accessories	SS name plate
Temperature compensation	Required

4.2.16.3. Consistency Transmitters

Type	4-wire, SMART with local LCD indication
Enclosure	Die cast Aluminium with epoxy coating
Operating principle	Optical
Wetted Parts including flange	Minimum – SS 316, For various process fluids, suitable material based on application shall be provided, subject to Purchaser approval.

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Power Supply	230 V AC / 24VDC
Output	4-20 mA with HART protocol
Accessories	All mounting accessories SS name plate

4.2.17. Control Valve/ On-Off Valves

Type	<u>Control Valve</u> – Globe/ Full bore ball valve/Ball Valves (Segmented) based on application <u>On-Off Valve</u> – Ball/ Butterfly / Knife Edge Gate (through hole type) based on application
Pneumatic Actuator	For control valves, diaphragm type actuator (for steam/hot water), Rotary/Piston actuator (for chemicals, pulp) shall be used. For on-off valves, rotary/ piston actuator shall be used. Actuators shall be sized for shut-off differential pressure. Solenoid valves shall operate on 24 V DC.
Accessories	<u>Control Valves</u> : Handwheel, Air filter regulator, Air lock device (as applicable), E/P Smart positioners, Solenoid valve (As applicable). <u>On-Off Valves</u> Handwheel, Air filter regulator, Air lock device (as applicable), Solenoid valve, Proximity Switches for open & close positions (Microswitch required) All pneumatic tubing shall be of copper with PVC sheath & compression fittings shall be of brass. SS nameplate
Size	Control valves shall be sized to have an opening of 15% at minimum flow condition and 85% at maximum flow condition. On-Off valves shall be full port valves.
Noise	Noise level shall not exceed 85 dB at a distance of about 1.5 m from the valve
Material of Construction	Body & Bonnet – As per piping specifications Trim, Stem and guide & all wetted parts – Minimum – SS 316, For various process fluids, suitable material based on application shall be provided, subject to Purchaser's approval.
Bonnet	Extended type bonnet or cooling fin type bonnet shall be provided for service above 200°C For other services, the bonnet type shall be standard.

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Leakage class	Class IV for control valves Class VI for on-off valves
Other requirements	No flashing or cavitation to occur in the valve. Multistage cage guided trims for cavitation services.

4.2.18. Web Break Detectors shall be provided in the following sections of each Paper Machine:

- (a) In each Dryer Group
- (b) Before Calender
- (c) After Scanner (Between Pope Reel & Scanner)

The detectors shall be optical non-contact type.

4.2.19. On-line Brightness Analyzer

Type	4-wire, optical, SMART with local LCD indication
Enclosure	Bidder to state
Wetted Parts including flange	Minimum – SS 316.
Power Supply	230 V AC
Output	4-20 mA corresponding to brightness with HART protocol
Software	Software required for calibration, tuning, checking trends etc. which will be loaded on Purchaser's laptop.
Accessories	<ul style="list-style-type: none"> a) Tool for on-line removal of sensor b) Shield for sensor storage after retraction c) Cable of suitable length for connecting sensor to transmitter d) Calibration kit e) All mounting accessories f) SS name plate

4.2.20. On-line Fiber Length Measuring System

On-line fiber length measuring system shall be provided for measuring the average fiber length as well as Freeness in °SR in the fiber adjusting section as well as in the stock preparation section.

Type	Sampling type
Cabinet for mounting analyzer	Required
Wetted Parts	Bidder to State, subject to Purchaser approval.
Power Supply	230 V AC

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Output	a) 4-20 mA corresponding to the Fiber length b) 4-20 mA corresponding to the ratio of Long Fibers & Short Fibers c) 4-20mA corresponding to Freeness in °SR.
Software	Software required for calibration, tuning, checking trends etc. which will be loaded on Purchaser's laptop.
Accessories	a) Cleaning module b) All mounting accessories c) SS name plate

4.2.21. Instrument Tubing & Fittings

- (a) All instrument tubing & fittings shall be of minimum SS 316. Tube fittings shall be compression type, double ferrule to fit the OD of tubing.
- (b) All pneumatic tubing shall be of copper with PVC sheath & compression fittings shall be of brass.
- (c) Threading shall be NPT for all fittings.
- (d) Instrument air manifolds shall be prefabricated type and of SS 316.

4.2.22. Hart Calibrator

One universal type hand held HART communicator (Latest version) with battery back-up shall be provided. Batteries shall be rechargeable type Ni-Cadmium. Memory shall be 12MB.

4.2.23. Junction Boxes

Type	Wall / Column mounted JBs
Material	Weatherproof JBs shall be of CRCA material
Cable entry	Side/Bottom, through cable glands
Spares	20% spare cable entries & 20% spare terminals shall be provided.
Shield Bus	Required
Terminal blocks	Separate junction boxes shall be provided for analog and digital signals/commands and for signals/commands with different voltages

4.2.24. Instrumentation & Control Cables

(a) Cables for Analog signals/ commands (4 to 20 mA)

660V/1100 V grade single pair/multipair cables, annealed, tinned, high conductivity 1.0 sq.mm multistranded (7 strands) copper conductor, extruded PVC insulated two cores twisted into pair, laid up collectively, individual pair shielded (for multipair cables) and

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overall shielded with aluminum Mylar tape (100% coverage, 25% overlap), 0.5 sq.mm ATC drain wire run continuously in contact with aluminum side of the tape, inner sheath of extruded PVC, galvanized steel wire armored, overall sheathed with extruded FRLS PVC, pair identification number marked at interval of not more than 250 mm, conforming to IS 1554, BS:5308 & IEC 189 part II.

(b) Cables for digital signals/ commands (24 V DC)/Power Supply

660V/1100 V grade twin/ multi core cables, multistranded (7 strands) high conductivity annealed 1.0 sq.mm/ 2.5 sq.mm. stranded tinned copper conductor, extruded PVC insulated, overall shielded with aluminum Mylar tape (100% coverage, 25% overlap), 0.5 sq.mm ATC drain wire run continuously in contact with aluminum side of the tape, with inner sheath of extruded PVC, galvanized steel wire armored, overall sheathed with extruded FRLS PVC conforming to IS 1554, BS 5308 & IEC 189 part II.

(c) Cables for Instrument Power supply & digital commands (230 V AC)

660V/1100 V grade twin core/multi core cables, multistranded (7 strands) high conductivity annealed 1.0 sq.mm stranded tinned copper conductor, extruded PVC insulated, with inner sheath of extruded PVC, galvanized steel wire armored, overall sheathed with extruded FRLS PVC conforming to IS 1554, BS 5308 & IEC 189 part II.

(d) Cables for RTD signals

660 V/1100 V annealed, tinned, high conductivity 1.0 sq.mm multistranded (7 strands) copper conductor, extruded PVC insulated, three cores twisted into triad, laid up collectively, individual triad shielded and overall shielded with Aluminum Mylar tape (100% coverage, 25% overlap), 0.5 sq.mm ATC drain wire run continuously in contact with aluminum side of the tape, with inner sheath of extruded PVC, galvanized steel wire armored, overall sheathed with extruded FRLS PVC, conforming to IS 1554, BS:5308.

(e) All multipair & multicore cables shall be provided with 20% (of used pairs/cores) spare pairs & cores for future use.

4.2.25. Cable Trays

Cable trays shall generally be perforated of hot dipped galvanized steel. The cable trays shall be provided with a minimum collar height of 100 mm to accommodate two (2) layers of cables.

I&C cables (24 V DC) and power cables (230 V AC) shall be routed through different cable trays to avoid electromagnetic interference. Minimum 300 mm distance shall be maintained between I&C cables/24 V DC power supply cables and 415 V AC/ 230 V AC power cables. The thickness of the cable trays shall be 2mm. All cable trays laid outside building shall be provided with tray covers and the cable trays laid inside building are not required to be provided with tray covers.

All cable trays shall be provided with 20% spare space for future use. Tapping or splicing between terminal points is not permissible. Groups of wires shall be bunched with cable

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straps at suitable distances.

Inputs for providing embedded plates in slab/walls and cutouts for cable tray installation shall be given by Vendor for providing to the Civil Vendor.

4.2.26. Cables Glands

The cable glands shall be of double compression type with high quality neoprene gaskets. Cable glands shall be of nickel-plated brass.

5. Control System Configuration

5.1. The control system configuration for the Paper Machine & Pulp Mill shall be as per standards given below.

5.2. Distributed Control System

The DCS shall be systems of data acquisition for display, process control and information and enabling the plant operations from Human Machine Interface units (HMIs) located in the respective plant control rooms. The DCS shall be used for monitoring & control of various sections and auxiliary supplied by the Bidder in the Paper Machine Plant & Pulp Mill. The DCS shall also enable monitor & control of the H.T. Switchgear & PCCs as described in this section. Necessary parameters of utility systems for the plant shall also be monitored in the DCS.

5.3. Quality Control System (QCS)

QCS shall be provided for each Paper Machine. The QCS for the Paper Machines shall be interfaced with the respective Paper Machine DCS as shown in the control system configuration drawing. The integration shall be in real time.

5.4. PLC Based Control Systems

Bidder shall provide PLC based control systems with necessary user interface (HMI) for various systems in Paper Machine Plant & Pulp Mill as required. The control panels/consoles shall be located near the respective equipment. The PLCs shall be interfaced to the respective plant DCS suitable standard communication link (Profibus/Modbus RTU/Profinet/Ethernet-IP/any latest fieldbus protocol) with redundant or non-redundant configuration as applicable.

5.5. Local Control Consoles for Paper Machine

Local control consoles shall be provided near the machine for operation/ monitoring of various machine sections. The local control consoles shall have Graphical Interface Units for performing necessary operation/ monitoring of the drives for the various machine sections & associated systems. Additionally, any start/ stop/ emergency stop pushbuttons and any digital indicators for the various process parameters as required shall be provided on the consoles. Consoles should be provided with proper cut-outs, necessary enclosures, Ingress protection.

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5.6. Management Information System

Management Information System (MIS) interface PC shall be provided in the Paper Machine Plant for interfacing the DCS of the Paper Machine/ Pulp Mill to the MIS LAN.

Protocol for transmission on the MIS LAN is TCP/IP. The communication system shall be based on 100MBPS Ethernet interface. An Ethernet LAN network over TCP/IP shall be provided in the overall plant. The overall plant MIS server shall be connected to this network. With this network all necessary data from the plants to be viewed over the MIS shall be made available on the MIS server. This shall include P&IDs in graphic form, trends, historical data & trends, real-time analog values, logs, reports, etc. The MIS server, Ethernet LAN with Ethernet switch, cables, all hardware & software for the MIS shall be provided by purchaser. The following shall be provided by bidder to establish the above interface.

- (a) MIS interface PC which shall be provided by bidder which shall be connected over OPC communication link to the MIS network through Ethernet switch (provided by purchaser).
- (b) All other hardware & software required for making the data available in OPC format for viewing on the MIS LAN. The MIS interface PC shall be connected to the Ethernet switch.

5.7. Features Of Distributed Control System (DCS)

- 5.7.1. The design material, construction features, manufacture, inspection and testing of Distributed Control Systems (DCSs) shall comply with all currently applicable statutes, regulations and safety codes. The DCS shall comply with the latest applicable standards and codes. If any such standards are not applicable then the same shall comply with the available recommendations of professional institutes like NEMA, IEC, ANSI, ISA, IEEE, DIN and VDE.
- 5.7.2. The DCS is envisaged to implement measurements, sequential open loop and closed loop control systems, data acquisition, protections and alarms for the various systems in the Paper Machine Plant & Pulp Mill.
- 5.7.3. The DCS shall have Client Server architecture with redundant servers. The redundant server shall serve as a hot standby to the main server & vice versa. The changeover between these servers shall be burpless.
- 5.7.4. All cards shall be tropicalized.
- 5.7.5. The DCS shall be capable of performing, as a minimum mandatory requirement for a Process Automation System and associated software, hardware and support services and the following functions:
 - (a) Regulatory control functions.
 - (b) Display of control loop status
 - (c) Calculation of process related variables and parameters.
 - (d) Auto / Manual Control

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- (e) Display of process variables.
- (f) Historical Trends
- (g) Interlock, protection and sequence control functions.
- (h) Logging of alarms and events
- (i) Colour graphic displays of sections of the plant including relevant control loops and live process data.
- (j) System diagnostics.
- (k) Report Generation.
- (l) Any other customer logs & reports requirements to be defined later.
- (m) Multi-protocol interfacing capabilities to communicate with other systems and provide seamless horizontal and vertical integration.
- (n) Capable of fulfilling high-speed processing requirements
- (o) Integrated fail-safe system.
- (p) High availability requirements like hot redundancy (seamless takeover without interruption and downtime) and configuration in run.
- (q) Support fieldbus devices with standard interfaces from any manufacturer.
- (r) Contain a high-performance Human Machine Interface (HMI) product which is owned, developed, manufactured, tested and continuously improved by the vendor.
- (s) An integrated alarm system whose functions comply with IEC standards.
- (t) Include a highly available DCS controller which requires lowest maintenance effort.

5.7.6. The system shall be highly reliable with high-integrity and high MTBF system. The total system availability shall be better than 99.99% as calculated from MTBF and MTTR of all the equipment/devices which are interconnected to form the system.

Reliability shall be available for:

- (i) Hardware, firmware and software components (controllers, HMI servers, etc.)
- (ii) Communications components
- (iii) I/O
- (iv) Peripherals (operator systems, field panels)

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(v) Auxiliary components (system clocks, etc.)

5.7.7. The system shall have hot standby redundancy at the following levels.

(a) Controller Redundancy

(b) Server Redundancy

(c) Power supply redundancy

(d) Redundancy in communication. Redundancy in communication at all levels shall be provided except communication with the local PLCs, multifunction meters and VFDs for standalone drives. Redundancy shall be in communication modules & cables.

5.7.8. The design shall be such that in case of failure of the main controller module, main server, a power supply module or communication link, the changeover to the standby hardware shall be bumpless, without any disturbance to the running plant.

5.7.9. The instrumentation system at the field level shall consist of SMART transmitters based on HART protocol. The offered system shall support HART pass through facility. To achieve this functionality the offered Analog Input modules shall support HART Protocol. It shall be possible to carry out all diagnosis & calibration of the transmitters from the MMIs.

5.7.10. Bidder to include supply of HART Management software. The software shall provide instrument database and help the operators to re-range the HART based field instruments from the control room.

5.7.11. Offered system shall have pulp & paper specific block, program libraries with help function in the system to ease the engineering and operations.

5.7.12. Virtualization of DCS Architecture

(a) The Bidder has to offer for a virtualization environment to support the deployment of the process automation system on a robust, scalable, and fault-tolerant virtual infrastructure, ensuring high availability and minimal downtime.

(b) All components of the virtualization environment must be tested in accordance with the system requirements of the process automation system. The fulfilment of the system requirements for the virtualization environment must be confirmed by the manufacturer of the process automation system.

(c) It shall be possible to run several virtualized machines of different types in one suitable sized computer hardware. Calculation guidelines shall enable the sizing of host hardware.

(d) Virtualized machines shall be operable from zero installations clients (thin clients) running on separate hardware. The clients shall be lightweight and operate efficiently without consuming significant system resources and the process automation system shall be accessible via standard web browser without requiring any local installation or

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configuration.

- (e) Virtualized machines shall be as independent from host hardware as much as possible allowing easy migration to new hardware and protection against obsolescence.
- (f) The complete pre-installation and configuration of all software components on the servers shall be provided for the entire virtualization environment. Corresponding system documentation including the hardware and software components used as well as backups of the virtual machines on a separate disk are also included in the scope of delivery.
- (g) It shall be possible to centrally administer virtualized machines as well as including general maintenance, performing installation, upgrades and backups.
- (h) Backup of virtual machines shall be possible during runtime, without influence on the process automation system.
- (i) Central monitoring of host system performance shall be possible (operating state, memory load, CPU load, hard disk usage and network loads) and offered as option.
- (j) The operation of virtualized machines from the operator perspective shall generally be no different to that of real operator clients and servers and any restrictions or limitations shall be clearly identified.
- (k) The virtualization environment shall be included in a holistic security concept that integrates physical, network, and software security measures including, but not limited to, system hardening, demilitarized zones (DMZ), patch management, access control and encryption.
- (l) Comprehensive technical support shall be provided for all utilized components including the host system (hardware and firmware), operating systems, virtualization infrastructure (e.g., hypervisor), backup infrastructure, as well as the process automation system running on the virtualization environment with a central contact for all support inquiries, ensuring seamless communication and coordination across all system components. This includes the coordination of all support activities involving third-party components or vendors to ensure smooth issue resolution and compatibility

5.7.13. Controller Subsystem

- (a) The processors shall have multiple cycle time configuration for different types of loops. All I/Os shall be scanned at 200 milliseconds to 1 sec (selectable). Closed loops shall be executed using function blocks and sequences shall be executed using ladder logic/function blocks. Scan time is defined as the cycle time taken by the system to read input, process input executing logic, and update control output for all the logics configured within the system. Other activities like diagnostic routines, output/dump of data to peripherals, or any other activity which consume processor time shall be carried out as separate loops at a lower priority.
- (b) The diagnostic messages from the controllers shall be stamped with date and time.

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- (c) On-line replacement of any module (communication modules, memory modules, power supply modules and I/O modules) shall be possible in such a way that the removal and addition of the module shall be possible without de-energizing the system.
- (d) The redundant CPU and main CPU shall monitor the health of each other continuously. Any failure of the main input/output modules (in case of the redundant I/Os for closed loop) shall not switch the CPU from main to redundant.
- (e) During change over period from main controller to the hot standby controller, the outputs of the system shall retain their state. The status of the outputs on controller failure shall be software configurable.
- (f) Both main & redundant controllers shall run synchronously at CPU instruction level i.e. both CPUs shall execute identical instructions at any instant of time. There shall be no data exchange between the main and redundant controllers except that of monitoring the health of each other.
- (g) The redundant controller shall execute all instructions except for writing the output when the main controller is alive. In case of failure of main controller, the redundant controller continues its execution till the outputs are written.
- (h) On revival of main controller back to operation, the changeover from redundant controller to main controller shall be through a takeover button on the controller chassis and shall not be automatic. The takeover by the main controller shall be at the beginning of next cycle.
- (i) When main controller is in operation and the redundant controller fails, there shall be an alert to the operator on the HMI that the system is without redundancy. On revival, the redundant controller shall get synchronized at the beginning of next cycle automatically and shall be ready to operate.
- (j) Facility for forcible changeover to redundant controller for any reason shall be provided.
- (k) Change over from Main Processor to Hot Standby Processor (in case of Main Processor Failure) shall be bumpless. During change over period outputs of the system shall retain their state.

5.7.14. Input /Output Subsystem

- (a) The specifications of I/O modules shall be as given in DCS data sheet.
- (b) Inputs and Outputs shall not be combined in a single module.
- (c) For operation / status indication of motors, remote I/O modules shall be located in separate cabinet near the MCCs of Paper Machine Plant and Pulp Mill, in the electrical room. MCC feedback to the DCS shall be considered for on & trip. Off status shall be considered as negation of on status in the DCS.
- (d) For on-off valves, limit switches for open & close status shall be separately wired to the

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DCS.

- (e) For the breakers in the incoming & outgoing feeders in PCCs & H.T. Switchgear in Pulp Mill and Paper Machine Plant, remote I/O modules shall be provided. Separate commands shall be provided for switching on & switching off the breakers. Also, status of the breakers (on, off & trip) shall be wired to the remote I/Os for monitoring on the respective plant DCS.
- (f) The system must provide the electrical isolation between the channels in a module-specific manner. Analog input and output modules shall provide pass through capability to exchange non-control data, PROFIBUS, PROFINET and HART, with asset management applications, utilizing the infrastructure of the system.
- (g) It shall be possible to change modules in remote I/O racks while the rack is powered up without affecting communication to the other modules in the rack.
- (h) Remote I/O Capability shall support Intrinsically safe modules, Integrated terminal blocks and special-purpose modules such as Motor Starters and Weigh scales
- (i) The PROFINET station family must have S2 system redundancy, Media redundancy MRP, Changeability during operation
- (j) It shall be possible to combine I/O-modules for Intrinsically Safe environments suitable for installation directly in Hazardous Locations together with failsafe I/O-modules within the same Remote I/O station.
- (k) To achieve flexibility in the placement of equipment, the vendor's system shall support remote I/O installation whereby conventional I/O modules can be located large distances away from their associated controller up to 1.2 km with copper cable or longer distance when fibre optics are used.

5.7.15. Communication Subsystem

- (a) Coaxial or fiber optic data bus redundant in hot back-up mode shall be provided. Both the buses shall be active and in the event to failure of one bus, the same shall be annunciated and the other bus shall be capable of meeting the functional requirement.
- (b) The system control network shall operate on 100 MBPS, IEEE 802.3u, TCP / IP protocol.
- (c) The VFD controller for each Paper Machine shall be connected to respective DCS over redundant communication link (Profibus).
- (d) Stand-alone Variable frequency drives shall be multidropped over non redundant Profibus (or Profinet) communication link and connected to the DCS.
- (e) All Multifunction meters (MFM) shall be multidropped & shall be connected to the respective DCS on non-redundant communication link.
- (f) To support the use of standard commercial networking components

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- (g) To support the use of Fiber Optic and Copper (Twisted Pair) media.
- (h) To support communication at 10 Mbps and 100 Mbps on the system bus and up to max possible Mbps on the terminal bus network.
- (i) To enable access intelligent field devices (PROFIBUS DP, PA, HART, PROFINET) via an integrated configuration tool.
- (j) To control and diagnose intelligent drives via the fieldbus
- (k) To support WLAN wireless networks.
- (l) To support the following maximum network sizes: Electrical – up to 1.5 km, Fiber Optic – up to 150 km, WAN – worldwide (incl. Web-client).
- (m) Providing networking options and support hybrid applications.
- (n) The automation system must support PROFINET standards. The following system functionalities must be supported by the system:
 - (o) System redundancy S2 and redundant PROFINET configuration R1
 - (p) Changeability during operation.

5.7.16. Alarms and Annunciation

The following faults shall be indicated by LED in individual module: Power supply failure, Individual card failure, Controller fault, Battery fault.

5.7.17. System Security

System shall have adequate software locks to prevent unauthorized access to the DCS & its software. Password protection for the software shall be provided at various levels. System shall be designed to have software locks in a tabular format. It shall be possible to protect or lock any system or sub-system of a plant.

The process automation system should have comprehensive industrial security technical capabilities to prevent unauthorized access or unwanted penetration, intentional or unintentional interference with the proper and intended operation, or inappropriate access to information including computers, networks, operating systems, applications and other programmable configurable components of the system.

The system should allow the combination of several possible countermeasures to address industrial security threats, including the following:

- Authentication of users, groups and/or computers
- Access controls
- Logging mechanisms

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- * Security patching of software
 - Use of whitelisting mechanisms
 - System activity monitoring
 - Secure remote access
 - Physical security

The vendor shall ensure maximum security for remote access to controller.

A Virtual Private Network (VPN) Tunnel is required for increased transmission security and transparency.

Encrypted data traffic is required between security modules.

The system network must offer high data throughput and optionally standby redundancy.

In general, remote access should be allowed only for selected users with restricted rights.

Access via server must be restricted by Two-factor authentication (2FA).

5.7.18. Spares philosophy

The system shall have the following minimum spare capability:

- (a) Each automation system shall be designed with 20% wired spares for each type of I/O's subject to min. of one module in each type.
- (b) Minimum 20% spare wired slots—shall be made available in each chassis for future expansion. This shall be provided in the main DCS panel as well as in the remote I/O panels. These slots shall be part of the offer.
- (c) Controller loading shall not exceed 60% considering all the wired modules (including spare wired slots mounted with modules). Also bus loading & memory loading shall not exceed 60%. The same shall be demonstrated during Site Acceptance Tests.
- (d) Whenever relays are used to interface process input/outputs with DCS, 20% additional relays corresponding to the spare wired I/Os shall be provided. In addition, 20% spare space shall be provided in cabinets to install 20% additional relays in future.
- (e) The communication networks shall be designed to allow for an automation system expansion of at least 20%, based on the number of currently unused node addresses within the address space. System expansion shall be achievable without shutting down the controllers not directly involved with the expansion.
- (f) Engineering Software as well as the number of automated measuring points shall be capable of being expanded by the purchase of additional licensing units.

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5.7.19. Human Machine Interface (HMI)

- (a) The HMIs shall function as operator stations for the Paper machine plant/ Pulp Mill operation and maintenance. It shall be possible to carry out all the control and monitoring activities (including quality control with QCS in case of Paper Machine) & drives from each HMI. Also desired parameters from the Paper Machine Plant shall be monitored on the Pulp Mill HMIs and vice-versa. It is not required to monitor/ control the Paper Machine Plant from Pulp Mill & vice-versa.
- (b) It shall be possible to use any one of the HMIs of the DCS system for a plant as Engineering Station (ES).
- (c) For Paper Machine Plant, only one of the HMIs at a time can function as operator station for the QCS.
- (d) The various functions available shall be determined by different levels of password.
- (e) The specifications for the HMI & software to be loaded in the HMI should be as indicated in the data sheet for DCS. The software shall have programming feature to enable SMART analog inputs and sensor communication like remote instrument calibration and acquisition of all diagnostic data from field instruments.
- (f) All standard features of graphical display, alarm management, input monitoring & display and logging functions shall be provided.
- (g) The system shall have the capacity of having and developing graphic symbol library as per ISA 5.1 and 5.3.
- (h) The update time of HMI monitor shall be maximum 1 second.

5.7.20. DCS Data Sheet

The DCS system (Model) offered shall have minimum 1 installation for the application desired, which is functioning satisfactorily for a minimum period of 2 years. The vendor shall have experienced execution & technical support group in India. During warranty period, the maintenance call must be attended within 24 hours.

S No	Description		Bidder to state/confirm
1.0	<u>GENERAL</u>		
1.1	Manufacturer	*	
1.2	Model no.	*	
1.3	System configuration	Control System Configuration Schematic – Paper Machine & Pulp Mill	
1.4	System power supply	240 VAC from UPS	

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1.5	Card replacement with power on for systems	Required	
1.6	Configuration diagram	Bidder to enclose the configuration diagram for the system offered.	
1.7	Configuration diagram	Bidder to enclose the configuration diagram for the system offered.	
1.8	Spare nodes in the communication network	20% subject to minimum of one	
1.9	Spare capacity for system memory and user memory	40% (After configuring the system and application software, considering the installed spares). The same shall be demonstrated at site during Site Acceptance Tests.	
1.10	Training	Training of Purchaser's personnel on both hardware & software development required. Bidder to indicate the duration of training & no. of Purchaser's personnel accommodated in the training.	
2.0	CONTROLLER SUB-SYSTEM		
2.1	Microprocessor based	Yes	
2.2	Configurable multiloop controller	Required, DCS shall be capable of running multiple loops of different scan times with assigned priority.	
2.3	Scan time	The scan times shall be selectable. It shall be possible to allocate different scan times to different I/O points.	
2.4	Controller redundancy	Required	
2.5	Main and redundant controller	Active at all times	
2.6	Logic changes in main processor download to redundant processor automatically	Required without manual intervention. The status should be displayed on the HMIs.	
2.7	Power supply redundancy (controller)	Required for each System's controller	
2.8	Power supply redundancy (I/O racks)	Required for each I/O rack (including remote I/Os)	
2.9	Status monitoring of power supply modules of CPU & I/O modules	Required for monitoring at the HMI	

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2.10	<u>Processor</u>	
2.10.1	Model no.	*
2.10.2	Processor & word length	32 bits / or higher
2.10.3	I/O redundancy	As applicable for critical loops
2.10.4	Processor redundancy	Required
2.10.5	Changeover time from main to standby processor (in case of main processor failure)	Change over shall be bump less. The processor shall be uninterrupted during the changeover. Bidder to indicate the change over time.
2.10.6	Logic changes possible through MMI	Yes, with necessary security. Both online & offline modification shall be possible.
2.10.7	Debugging/ simulation software	Should be preloaded in programming unit as a system feature
2.10.8	Self-diagnostics software	Required, In the processor
2.10.9	Online configuration	Required
2.10.10	Output status on loss of power	Outputs shall go to fail safe position which shall be user defined
2.10.11	Sequence control functions	Required
2.10.12	Control modes	Manual, Auto
2.10.13	User memory	*
2.10.14	Memory type for configuration	*
2.10.15	Battery type	Ni-Cd with min. 2 years lifetime
2.10.16	Battery drain alarm/ indication	Required, on HMI MMI
2.10.17	Providing 'Flash RAM' instead of battery back-up for data protection.	*
2.10.18	Estimated CPU load with furnished configuration	CPU loading shall not exceed 60% (including wired and future spare I/Os). In case loading exceeds 60%, additional CPUs shall be provided. The same shall be demonstrated at site during Site Acceptance Tests.
2.10.19	Synchronization of real time clock	Required for DCS, QCS, Servers, MMIs, Drives, MIS interface PC.
2.10.20	Interfaces and communication ports for each controller	
A	Interface to servers	Required of 100 Mbps, Redundant

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		Communication Processors	
B	Communication Ports		
	In the DCS for Paper Machines, communication ports shall be provided for interfacing to the following:		
(a)	i. Local PLC panels for systems such as Broke Pulper, Winder, Pope Reel, Packaging & Finishing System etc. (Refer Note-6)		
	ii. Stand-alone drive modules		
	iii. VFD controller (Refer Note – 3)		
	iv. Remote I/Os		
	v. Multi-function Meters for MCCs		
	vi. Multi-function Meters for PCCs (Refer Note-8)		
	vii. Multi-function Meters for H.T Switchgear (Refer Note-8)		
	viii. UPS		
	In the DCS for Pulp Mill, ports shall be provided for interfacing to the following:		
(b)	i. Local PLC panels for systems such as Cotton Combers Handling & Dry-Cleaning Section, Cotton Linter Pulper etc. (Refer Note-6)		
	ii. VFD modules		
	iii. Remote I/Os		
	iv. Multi-function Meters for MCCs		
	v. Multi-function Meters for PCCs (Refer Note-8)		
	vi. Multi-function Meters for H.T Switchgear (Refer Note-8)		
	vii. UPS		
C	Interface with Utility systems (a) Boiler System (2 Nos. panels) (b) Compressed Air System (2 Nos. panels) (c) WTP (1 No. panel)	The Local PLC panels provided (by Others) for the following utilities shall be interfaced to the Paper Machine DCS on OPC connectivity (Refer Note-7):	
2.10.21	Date & Time	System date & time shall be adjustable online, auto synchronization of DCS, QCS, VFD controllers, HMIs, Servers & MIS interface PC shall be provided.	
3.0	ALGORITHMS REQUIRED AS A MINIMUM		
3.1	Alarm check functions	Required	
3.2	Control algorithms	Proportional control	

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		PI, PID, PD and adaptive gain	
		External feedback facility	
		Sample & hold PID, PID with batch switch	
		Ratio control	
		PID with dead band	
		Cascade control	
		On-off control	
		Feed forward control	
3.3	Selector	Low, High, Mean value, Median, Override	
3.4	Self-diagnostic tests		
A.	Input diagnostics	Required	
B.	Configuration diagnostics	Required	
C.	Memory diagnostics	Required	
D.	System hardware check	Required	
E.	Output diagnostic	Required	
F.	External hardware check	Required	
G.	Power system Diagnostics	Required	
H.	Alarm indication in HMI when any self-diagnostic test fails	Required	
4.0	COMMUNICATION SUB-SYSTEM FOR CONTROLLER		
4.1	Type of protocol for communication between server & controller, server & MMI	Fully deterministic, TCP/IP, IEEE 802.3u. The Ethernet Switches shall be fault tolerant and redundant.	
4.2	Speed for above communications	100 Mbps	
4.3	Communication between controllers	Required, Redundant	

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4.4	Redundant communication modules required:	For communication between: (a) Controllers & Servers (b) Controllers & I/O modules (c) Controllers & Remote I/O (Redundant communication modules at both ends) (d) DCS controllers & VFD controller (In case of Paper Machine)	
4.5	Type & speed of communication between I/Os and controller	*	
4.6	Type of communication bus/comm. Topology	Industrial twisted pair / Co- axial / Bus structured	
4.7	Connecting or disconnecting the required sub-system from the network	Required on line	
4.8	Maximum no. of nodes on the network bus	*	
4.9	Bus loading allowed	Shall not exceed 60%. The same shall be demonstrated at site during Site Acceptance Tests.	
5.0	<u>HUMAN MACHINE INTERFACE SUB-SYSTEM (HMI) / MIS INTERFACE PC</u>		
5.1	Quantity	: (a) 4 Nos. HMIs for each Paper Machine (i.e. 2 Nos. in wet end & 2 Nos. in dry end control room (b) 2 Nos. HMIs for each Pulp Mill Line. (c) 1 Nos HMIs for each CPP line (d) 1 No. MIS Interface PC	
5.2	Make/model	: HP/ IBM (Lenovo)/Dell	
5.3	Operating system	: Windows 11 or latest available at the time of supply	
5.4	Minimum levels of operation security	: *	
5.5	Interchangeability between the HMIs	: Required	

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5.6	Online configuration changes possibility	:	Required	
5.7	Ethernet card	:	2 Nos., For 10/100/1000 Mbps, TCP/IP	
5.8	DDR RAM	:	2 GB - Latest	
5.9	Cache memory	:	512 kB - Latest	
5.10	Processor	:	Intel core ultra processor	
5.11	Hard disk capacity	:	1TB minimum	
5.12	Ports (Other than those required for connecting monitor, keyboard, mouse)	:	Ethernet ports as required by the system configuration, 4 USB ports, one RS-232 serial port, and one parallel port.	
5.13	Ports (Other than those required for connecting monitor, keyboard, mouse)	:	Ethernet ports as required by the system configuration, 4 USB ports, one RS-232 serial port, and one parallel port.	
5.14	Power Supply	:	240 V AC, inbuilt SMPS required	
5.15	SCREEN			
A.	Size	:	24" LED screen	
B.	Pixel resolution	:	1280 x 1024 pixels	
C.	Colour Monitor	:	Required	
E.	Display update time	:	Must be \leq 1 sec.	
F.	Keyboard	:	Standard Qwerty full-stroke type	
G.	Optical mouse- scroll type	:	Required	
5.16	Software to be loaded on each HMI	:	OS Client	
5.17	Software to be loaded on MIS PC			
	All software required for establishing the communication & making the data available in OPC format for viewing in the MIS LAN. Operating system suitable for above software shall be provided. MS Office latest version, Latest version of Adobe Acrobat read/write software, Latest version of Anti-virus kit shall be provided. Anti-virus software shall have license for 3 years up gradation.			
6.0	FEATURES OF DATA ACQUISITION & CONTROL SYSTEM SOFTWARE (This is applicable for DCS & VFD Controller)			
6.1	Trending function	:		
A	Real time	:	Required	

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	Trend assign parameters as min. : PV, MV, SEV etc.	
	No. of parameters : *	
	Sampling time : *	
	Time base : *	
B	Historical trending : Required	
	No. of parameters : *	
	Sampling time : *	
	Time base : *	
C	No. of points per trend page : *	
D	Trend points for sampling time of 1 sec to 10 sec : Required	
E	No. Of trend pages available on the system : *	
6.2	Logging functions	
A.	Log formats : User definable	
B.	Event logging : Required	
C.	Hourly logs : Required	
D.	Shift logs : Required	
E.	Daily logs : Required	
F.	Weekly logs : Required	
G.	Maintenance logs : Required	
H.	Logging frequency : * (User selectable)	
6.3	Alarm display function	
A.	Last alarm always to Appear on top of screen : Regardless which page is being seen	
B.	No. Of alarms / page : *	
C.	No of Alarms Stored : *	
D.	Differentiation between Process & system alarms : Required	
E.	Group display function : Required	
F.	Total no. of groups : *	
G.	No. of loops per group : *	
6.4	Information display group : 8 faceplates per window with following details	
A	Input : Required	

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B	Output	:	Required	
C	Set point	:	Required	
D	Tag nos.	:	Required	
E	Set point status	:	Required	
F	Mode status	:	Required	
G	Service description	:	Required	
6.5	Print message history	Required	:	Yes
6.6	Alarm handling while continuous alarm condition		:	Required
6.7	Alarm priorities and levels	:	Min. 5 levels	
6.8	Faceplate details should be user selectable	:	Required	
6.9	Faceplate indication colors selection	:	Easy, Menu driven required	
6.10	Tag security for individual tags	:	Required	
6.11	MMI database should be selectable	:	Possible by assigning MMI name/PC no.	
6.12	Control drawing & logics for engineering & use	:	SAMA /Ladder/Function blocks	
6.13	Change in Engg. Unit of any tag made to be reflected in the graphics also	:	Required	
6.14	Change of operation mode : auto, manual, cascade	:	System should ask reasons & should be historized for future reference	
6.15	Operation mark on the tag: Faceplates & Graph	:	Required - e.g. - service, repair, calibration, maintenance, no operation etc.	
6.16	Safe operation range indicators on tag's faceplate	:	Required for safe operating range: low & high	
6.17	Alarm & trip mark indicators on tag's faceplate	:	Required for: low-low, low, high & high-high level	
6.18	Clamp input facility	:	Required to be clamped if goes beyond certain range/value	
6.19	Repeat alarm after preset time for critical poll	:	Required, even if it is acknowledged by operator but still in alarm stage	

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6.20	Pass, fail, stuckup status for every sequence	:	Required, to know where the process sequence has stuckup	
6.21	Scan time setting for individual sequence table	:	Required	
6.22	Timers counting capacity	:	Upto 9999 seconds and/or 9999 minutes	
6.23	Generate flags from timer status	:	Required from: on, stop, deviation, pause	
6.24	Pause facility in the timer	:	Required	
6.25	Counter counting capacity	:	Upto 9999 (0 to 9999 or 9999 to 0)	
6.26	Functional blocks	:	Readymade library for ease of engineering	
6.27	Faceplate to appear on trend display on call	:	Required	
6.28	Scrolling facility in the stored trend	:	Required	
6.29	Trend pause, compress/ expand 'x' & y axis	:	Required	
6.30	History storage	:	Required for all process parameters, electrical systems, all process/ system alarms, operator action, upsets, changes etc. at minimum sampling rate (User selectable) for a period of 1 month on First in-First out basis. After 1 month the data shall be automatically transferred to historical storage device (Refer Note-1).	
6.31	Search feature on alarm, history, operator action etc.	:	Required	
7.0	INKJET PRINTER			
7.1	Make/model no.	:	HP/Canon/Brother, INKJET Colour printer (Ink tank type)	

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7.2	Quantity	<ul style="list-style-type: none"> (a) 2 No. network printer for each Paper Machine (1 no. in Wet end control room and 1 no. in Dry end control room) (b) 1 No. network printer for each Pulp Mill Line, (c) 1 printer for each CPP line (d) 1 printer for engineering room for each line. <p>(Total quantity is 10 Nos)</p>	
8.0	INKJET PRINTER		
8.1	Make/model no.	HP/Canon/Brother, Inkjet printer (black & white) – Ink tank type / latest model	
8.2	Quantity	<ul style="list-style-type: none"> (a) 2 Nos. network printers for each Paper Machine (1 no. in Wet end control room and 1 no. in Dry end control room), (b) 1 No. network printer for each Pulp Mill Line (c) 1 printer for each CPP line (d) 1 printer for engineering room for each line <p>(Total quantity is 10 Nos)</p>	
8.3	Voltage	: 230 V AC	
8.4	Frequency	: 50 Hz ± 2 Hz	
8.5	Ambient temperature	: 15°C to 40°C	
8.6	On demand printing	: Required	
8.7	Paper	: A4 paper printing	
8.8	Table for printer	: Required	
9.0	INPUT/OUTPUT SYSTEM		
9.1	Signal isolation for all I/Os	: Optical or galvanic	
9.2	Individual fuse for digital inputs & outputs	: Required, Fused Terminals shall be provided.	
9.3	Module failure indication in module and DCS	: Required	
9.4	Indication and alarm in DCS for module failure	: Required	

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9.5	In case of failure of controllers or of communication between controller and remote I/O the Input/Output shall attain fail safe position.	Required. Fail safe position shall be user defined & software configurable.	
9.6	Max. I/O density per Remote I/O Panel	Bidder to state, Bidder to limit the panel size to 600mm (H)x600mm(W) x 300mm(D)	
9.7	<u>Analog input module</u>		
9.8	Model No. :	*	
9.9	No. of points/module :	*	
9.10	Type of inputs	4-20 mA, either 2 wire or 4 wire system with loop power for 2 wire transmitters.	
9.11	Accuracy	:	*
9.12	Resolution	:	12 bit including sign
9.13	Hart protocol support	:	Required
9.14	Type of isolation	:	Galvanic
9.15	<u>Analog output module</u>		
9.15.1	Model No.	:	*
9.15.2	No. of points per module	:	*
9.15.3	Type of outputs	:	4-20 mA
9.15.4	Resolution	:	12 bit including sign
9.15.5	Accuracy	:	*
9.15.6	Type of isolation	:	Galvanic
9.16	<u>Digital input module</u>		
9.16.1	Model No.	:	*
9.16.2	No. of inputs / module	:	*
9.16.3	Type of input	:	Potential free contacts
9.16.4	Type of isolation	:	Optical
9.16.5	LED status indication for each input	:	Required
9.16.6	Interrogation voltage (generation by system)	:	24V DC
9.16.7	Filtering at input stage	:	Required
9.17	<u>Digital output module</u>		

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9.17.1	Model No. : *	
9.17.2	No. of outputs per module : *	
9.17.3	Type of outputs : Interposing relays for each output	
9.17.4	Output contact rating of interposing relays : *	
9.17.5	Discrete relays/relay boards : Relays mounted on relay boards to be provided.	
9.17.6	Type of isolation : Optical	
9.17.7	LED status indication for each output : Required	
9.17.8	Output Status : Outputs shall change to fail-safe position in case of main processor failure	
9.18	<u>I/O Summary</u>	
9.18.1	Analog inputs (4-20 mA) :	(a) Vendor to furnish the I/O list & summary during detailed engineering. (b) The approximate no. of I/Os to be considered for PCCs & H.T.Switchgear are as below (Without spares) (Refer Note-8): i. Paper Machine: DIs - 90 Nos., DOs - 60 Nos. ii. Pulp Mill: DIs - 45 Nos., DOs - 30 Nos. (c) The no. of I/Os to be considered wired from the Fire Protection System shall be as below. The I/Os shall be wired to the nearest Remote I/O panel in Pulp Mill. DIs- 20 Nos.
9.18.2	Analog outputs (4-20 mA) :	
9.18.3	Digital inputs (24V DC) :	
9.18.4	Digital outputs (potential free) :	
10.0	APPLICATION PROGRAMME :	To be provided in external storage media-(2 Nos.) for DCS, QCS, drives & PLCs.
11.0	<u>PROGRAMMING UNIT (LAPTOP)</u>	
11.1	Make :	HP/Dell
11.2	Quantity :	1 No.
11.3	CPU :	Latest available

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11.4	CPU speed	:	Latest available	
11.5	DDR RAM	:	Latest available	
11.6	Hard disk	:	1TB minimum	
11.7	Combo drive	:	DVD & CD read & write drive	
11.8	VDU	:	17-inch colour, TFT display with 1024 x 768 or better resolution.	
11.9	Integrated	:	10/100 Mbps Ethernet LAN interface card IEEE 802.3 u	
11.10	Communication ports	:	One serial, one parallel, min. four USB ports, blue tooth & WIFI enabled, minimum one Ethernet port, internal modem required.	
11.11	Mouse	:	Optical mouse & Touch pad	
11.12	Power supply	:	Universal AC adapter: 100 to 240 V AC (50 Hz) input; Battery required	
11.13	Speakers	:	Required. The laptop shall be provided with necessary sound cards & drivers.	
11.14	Any other features	:	All standard features available on a laptop.	
11.15	Cables & accessories required for connecting to PLCs	:	Required.	
11.16	Software to be loaded	:		
11.17	(a) 1 No. licensed copy of engineering software for each of the Local PLC panels in Pulp Mill & Paper Machine Plant. (b) MS office Latest version of Adobe Acrobat read/write software. Latest version of anti-virus kit shall be provided with license for 3 years up gradation.	:		
12.0	<u>SERVERS (Refer Note-5)</u>	:		
12.1	Quantity	:	(a) 1 no. main server & 1 no. redundant server for Paper Machine & Pulp Mill DCS	
12.2	Make/model	:	HP /Dell	

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12.3	Processor	:	
12.4	Operating system	:	Windows 11 or latest windows version available at the time of supply
12.5	Function as OPC server	:	Required
12.6	Minimum levels of operation security	:	*
12.7	Online configuration changes possibility	:	Required
12.8	Ethernet card	:	Required for 10/100/1000 Mbps, TCP/IP, all interface cards shall be PCI based and Quantity shall be as per system requirements
12.9	Power Supply	:	230 V AC, inbuilt SMPS required
12.10	Hard Disk	:	Latest available RAID level 5
12.11	RAM	:	Latest available
12.12	Cache Memory	:	Latest available
12.13	Additional communication Ports	:	One RS- 232 serial ports, one parallel port, two USB ports, Ethernet ports as required by the system configuration.
12.14	SCREEN (Refer Note-5)	:	
		:	24" Flat LED Screen
12.15	<u>Software</u>	:	
(a)	Licensed copy (No. of licenses equal to no. of HMI s) of Data Acquisition & Control System (DACS) Software for DCS (including for drives) and Operating system software for redundant servers, MS Office Latest, Latest version of Adobe Acrobat read/write software, Latest version of Anti-virus kit (Antivirus kit support shall be provided with license for 3 years up gradation).	:	
(b)	1 No. license of Engineering software for the DCS. At a time, it shall be possible to use any one of the HMIs as Engineering Station.	:	
(c)	OS-Server (virtualized)	:	
(d)	HART management software	:	
12.16	Recovery/Backup CD/DVDs	:	Required for all the specified software & drivers for servers, HMI, MIS PC & Laptop

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Notes:

1. The HDD/SSD of HMIs shall be used as the historical storage device.
2. * - Bidder to state.
3. The VFD controller for each Paper Machine shall be interfaced with the DCS.
4. The Ethernet switches provided for the Ethernet system bus interfacing the servers, HMI HMIs, MIS PC, DCS, QCS etc. shall be fault tolerant & redundant.
5. Servers shall be rack mounted type. Servers shall be redundant. However, single monitor with keyboard and mouse shall be provided.
6. The communication between the local PLCs & DCS shall be through OPC connectivity.
7. The 2 Nos. of PLCs for the boiler system shall be multidropped & interfaced with Paper Machine DCS on OPC connectivity. The cables shall be supplied & laid by Purchaser. This is also applicable for the compressor, Boiler and WTP system PLCs.,
8. The DCS for the Paper Machine & Pulp Mill shall be provided with all screens for power management system.

5.8. Control Philosophy

The control systems shall enable the operator to carry out normal operation as well as safe start up and shutdown. Closed loops, open loops & sequential controls for the Paper Machine Plant and Pulp Mill shall be provided. Protection and interlocks shall be provided for all the equipment and systems to safeguard the equipment against abnormal conditions which may result in the failure of the equipment and to protect the operating personnel.

5.9. Motor Control Philosophy

- 5.9.1. All pumps / drives of Paper Machine Plant/ Pulp Mill and associated systems & auxiliaries shall be operated from DCS. All interlocks, protection, sequencing and feedback signals (trip, running, speed (for drives only)) associated with the motors & drives shall be processed in the DCS. DCS shall issue control command (start/stop) to the MCCs via interposing relays (potential free contacts) for starting/stopping the motors. Remote I/O cabinets shall be provided in the electrical room for wiring signals/commands from/to the MCCs. The commands & feedback related to the drives shall be communicated on the communication link between the DCS & VFD modules. It shall also be possible to operate the drives from the respective drive panels in local mode.
- 5.9.2. Status of breakers in incoming feeders to the VFD panels shall be wired to the respective system DCS.
- 5.9.3. It shall also be possible to operate/monitor drives from the Graphical Interface Units (GIUs) in the local control consoles. Emergency stop pushbuttons shall be provided on the consoles which shall be hardwired to the respective drive panel section.

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5.9.4. Local push stations shall be provided for start/stop operations as required. Stop facility shall also be provided in the respective MCCs.

5.9.5. Local / remote selection for above operations including drives shall be from DCS.

6. Drives For Paper Machine

6.1. Separate controllers, communication modules, I/O modules etc. shall be provided for the drives (VFDs) of the Paper Machines. Redundant controllers shall be provided. The features of redundancy for the controllers including the redundancy for communication between the controllers shall be same as specified for DCS. All other specifications for the controllers as well as hardware & software features shall be the same as given for the DCS in the DCS data sheet. The requirement of proven track record as specified for the DCS shall be applicable for the drive control system also. The drive controllers shall be interfaced to the respective Paper Machine DCS controller on Profibus/Profinet. Alternately, if the controller is of the same make as the DCS, the controller can also be interfaced to the Ethernet system bus directly.

6.2. The monitoring & operation of drives should be done from the HMI

6.3. All software features for the same shall be provided for the same. Also, Graphical Interface Units for the drives shall be mounted on local control consoles for operation/ monitoring of the drives.

6.4. The graphical interface unit shall have the following features as a minimum:

- (a) Display the drives in a graphical format with details of drives (i.e. running, stopped, speed, fault etc.)
- (b) Manual operation of various drives (start/ stop/ emergency).
- (c) Display set points for parameters like speed. It shall be possible for the operator to adjust the settings from the GIU like roll diameter, speed set point etc.
- (d) View real time trends & historical trends
- (e) View alarms & event monitoring
- (f) Self-diagnostic messages

6.5. Control Functions

6.5.1. Drive control system for paper machine shall include main functions for drive control such as crawl, run and stop.

6.5.2. It shall be possible to provide reference setting for speed or draw for each drive section. It shall be possible for the operators to set in references for different drive or section specific control parameters such as web tension, roll diameter, motor load share and select a proper control mode (speed/torque/tension) for predefined drive control points. This shall be possible from the GIU as well as the HMIs.

6.5.3. Diagnostic data shall be presented on the Graphical Interface Unit and HMI displays in clear

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text or in numeric values. Measured and calculated data shall be presented in numeric values and in different types of graphs.

Safety functions such as start-up warning function for machine and drive sections, prevention of unexpected start up in drive sections, emergency stop functions, interlocking etc. for immediate stopping of machine and drive sections shall be provided.

- 6.5.4. All drive interlocks shall be provided. It shall be possible to display status of interlocks on the HMI/GIU.
- 6.5.5. Drive section motor control shall consist of torque control, speed control and an overriding web tension control.
- 6.5.6. It shall be possible for the operator to individually start and stop the drive sections using control devices (GIU, HMIs, push buttons). It shall also be possible to control the individual drives to running, slow run, crawling or jogging modes or sometimes also to reverse crawling mode.
- 6.5.7. In paper machine, it shall be possible to control the drive section, in section control mode or in separate control mode. In section control mode, drive sections shall be common controlled as a group in section control mode thus following the main speed reference of the machine or the machine section. In separate control mode, the drives shall be controlled separately independent of other drive sections. The drive section shall not follow section control commands for the machine sections. It shall be possible to perform the drive section control with HMI, GIU or pushbuttons provided on the local control consoles or pushbuttons on the machine structure itself.

7. Interface with Utilities

- 7.1. The local control systems of following utilities shall be interfaced to the Paper Machine DCS on OPC connectivity for monitoring:

7.1.1. Boiler System

There shall be 2 Nos. of Boilers. The following minimum parameters shall be monitored.

- (a) Steam pressure at outlet of Boiler
- (b) Steam temperature at outlet of Boiler
- (c) Burner Status
- (d) Feed water pump status
- (e) Furnace oil pump status
- (f) Level in furnace oil day tank.

7.1.2. Compressed Air System

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There shall be 2 Nos. of compressors & dryer units. The following minimum parameters shall be monitored:

- (a) Status (Run, Stop & Trip) of each compressor
- (b) Status of each dryer unit
- (c) Pressure in Air Receiver (2 Nos.)

7.1.3. Water Treatment Plant

The following minimum parameters shall be monitored:

- (a) Raw Water Reservoir Level (2 Nos.)
- (b) Level in Clarified Water Tank (2 Nos.)
- (c) Level in Filtered Water Tank (1 No.)
- (d) Level in Soft Water Tank (1 No.)

7.1.4. Fire Fighting System

The following signals shall be hardwired to the remote I/Os in Pulp Mill:

- (a) Deluge Valves operated
- (b) Status of Fire Water Pumps (Main fire water pumps & jockey pumps)
- (c) Pressure in Hydrant header.

The list of above signals is tentative and shall be finalized during detailed engineering.

8. Quality Control System (QCS)

The QCS system (Scanner, with sensors, actuators, controller as specified) offered shall have minimum 1 installation for the application desired which is functioning for a minimum period of 2 years. The vendor shall have experienced execution & technical support group in India. During warranty period, maintenance calls must be attended within 24 hours.

Each Paper machine shall have two Scanners:

1. Reel Scanner: This scanner is placed before the pope reel at Dry end or at customer specified location, consisting of sensors for the measurement of Basis Weight, Moisture, Caliper, Ash and Colour.
2. Scanner before size press: This scanner is placed before the sizing station and drying hood and shall consisting of sensors for the measurement of Basis Weight, Moisture and Ash.

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S No	Description		Bidder to state/confirm
1.0	<u>GENERAL</u>		
1.1	Manufacturer	*	
1.2	Model no.	*	
1.3	Total nos. of QCS systems	1 Set for each Paper Machine. (1 Reel Scanner and 1 scanner before size press)	
1.4	System power supply	240 VAC from UPS	
1.5	Training	Training of Purchaser's Personnel on both hardware & software development required. Bidder to indicate the duration of training & no. of Purchaser's personnel accommodated in the training.	
2.0	<u>SYSTEM REQUIREMENTS</u>		
2.1	Scanner		
2.1.1	Construction requirements	The frame, scanner & sensors shall be rugged, totally enclosed, airtight, dust, vermin & moisture proof which shall be suitable for tropical high relative humidity & high ambient temperature. The frame shall be fully enclosed to protect all the mechanical & electronic components.	
2.1.2	Scanner Platform	Heavy duty, rigid Scanning Platform with fast scanning & high-resolution signal processing capabilities. The support pillars for the scanner beams shall be included.	
2.1.3	Scanner Platform Length	Length shall be suitable for installing before Pope reel of each machine. Length shall be suitable to accommodate the deckle width at the Pope reel.	
2.1.4	Scanning speed	*	
2.1.5	Sampling rate	*	
2.1.6	End column access for carriage for maintenance	Required	

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S No	Description	Bidder to state/confirm
2.1.7	Local Operator Panel Interface	Required on both sides of the scanner platform
2.1.8	Utility Services	All necessary equipment & associated auxiliaries for cooling water, compressed air & power distribution for the offered frame, scanner & sensors shall be provided
2.1.9	Air purge	Required. Positive air pressure shall be maintained inside the scanner sealed structure to prevent dirt from accumulating in the platform internals.
2.1.10	Positioning accuracy	± 1 mm
2.1.11	Paper guides and web support rollers on front & back of scanner head	Required
2.1.12	Measurement Processor	Latest Processor available at the time of supply.
2.1.13	Communication port on scanner for connecting Laptop as service workstation	Required
2.1.14	Material of Construction	Shall be non-corrosive stiff Beam robust construction. Carriage rails shall be of hardened SS.
2.1.15	Auto retraction to garage	Required for both scanners
2.1.16	Spares	All necessary /mandatory spares and consumables need to be supplied which are enough for smooth operation at least for one year post warranty period. This shall be part of initial supply.
2.1.17	Spares and Consumables support	Required: Vendor to commit to Supply the necessary spares and consumables, need to supply on request for next 10 years post commissioning.
2.1.18	Trouble shooting tools	A suitable state-of-the-art Laptop and all trouble shooting and necessary supporting

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S No	Description		Bidder to state/confirm
		software, License, diagnostic tools, manuals, technical and construction drawings etc. may be installed and supplied.	
2.1.19	Tool and tackles	A set of all tools and tackles required for the general maintenance of QCS to be supplied.	
2.1.20	Operator Station/Client	Required: to be placed at control room specified by purchaser. This shall access the QCS remotely.	
2.1.21	Nucleonic Sensor disposal	If Radioactive seniors are used, Commitment for the disposal of used nucleonic sensor shall be made by the vendor. And shall comply all the statutory requirements.	
2.1.22	Thread compensation in measured values.	Required in all measured values and in trends.	
2.1.23	Safety Lock and Barricade	Required with safety Auto controls.	
2.1.24	Sensors Errors	Required: Sensor error status and rectification exhaustive diagnostic analysis tool required for all errors.	
2.2	Sensors		
2.2.1	Sensors (Refer Note-1)		
	Sensors for the following measurements:		
(a)	Basis weight (MD & CD)		
(b)	Moisture (MD & CD)		
(c)	Caliper		
(d)	Ash		
(e)	Colour		
2.2.2	Air wipes	Required for all sensors	
2.2.3	All Auto-calibration tools & diagnostic features for setup & maintenance	Required	
2.2.4	Sensor health monitoring & reporting	Required	

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S No	Description		Bidder to state/confirm
2.2.5	Alignment of top & bottom heads	Pneumatic clutch to be provided for engaging/ disengaging the heads. The arrangement shall be such that it does not cause paper breaks.	
2.2.6	<u>Basis Weight Sensor</u>		
(a)	Type of sensor	Non-contact, Nucleonic source with ionization chamber type detector	
(b)	Accuracy	$\pm 0.08\%$ or 0.12 g/m^2	
(c)	Repeatability	$\pm 0.08\%$ or 0.09 g/m^2	
(d)	Basis weight range	Suitable range to be offered based on the values of basis weight required for the Paper Machines.	
2.2.7	<u>Moisture Sensor</u>		
(a)	Type of sensor	Non- contact type based on absorption of infrared light	
(b)	Range	Suitable range to be offered based on the values of moisture required for the Paper Machines.	
(c)	Accuracy	$\pm 0.1\%$ of moisture	
(d)	Repeatability	$\pm 0.05\%$ of moisture	
2.2.8	<u>Caliper Sensor</u>		
(a)	Type of sensor	Contact/ non-contact type	
(b)	Range	Suitable range to be offered based on the values of caliper required for the Paper Machines	
(c)	Accuracy	1micro meter	
(d)	Repeatability	0.5 micro meter	
2.2.9	<u>Ash Sensor</u>		
(a)	Type of measurement	Using X-ray radiation, shall be capable of measuring upto 3-components of ash and total ash	

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S No	Description		Bidder to state/confirm
(b)	Range	Suitable range to be offered based on the values of ash components given in the specifications.	
(c)	Accuracy	$\pm 0.3\%$ of ash	
(d)	Repeatability	$\pm 0.2\%$ of ash	
2.2.10	<u>Colour Sensor</u>		
(a)	Type	Using spectro-photometric techniques	
(b)	Range	Suitable range to be offered for the required L, a, b values for the Paper Machines.	
(c)	Accuracy	± 0.2 (CIELAB) ± 0.4 (Br) ± 0.5 (opacity)	
(d)	Repeatability	± 0.05 (CIELAB) ± 0.1 (Br) ± 0.1 (opacity)	
2.2.11	<u>Controls</u>		
(a)	Basis Weight	Required	
(b)	Dry stock flow control	Required	
(c)	Co-ordinated speed change/ Modular auto speed change	Required	
(d)	Grade change	Required	
(e)	Co-ordinated dryer control	Required	
(f)	Automatic dryer shutdown	Required	
3.0	<u>CONTROLLER</u>		
3.1	Microprocessor based	Yes	
3.2	Power supply dual redundancy (controller)	Required for system controller.	
3.3	Power supply dual redundancy	Required for each I/O rack	
3.4	Redundant Controllers	Required Features of redundancy for the controllers including the redundancy for communication between controllers shall be same as that specified for DCS.	
3.5	<u>Interfaces and communication ports for each controller</u>		

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S No	Description		Bidder to state/confirm
3.5.1	Interface to PC based MMIs (MMIs part of DCS data sheet) & Server	Required of 100 Mbps.	
3.5.2	Interface to DCS	Required.	
3.6	All other details of Controller Sub-System, Communication Sub-System, I/O Sub-System and Features of Data Acquisition & Control System Software shall be same as that specified for DCS.		
3.7	Algorithms required as a Minimum		
3.7.1	Control Algorithms	As required for controls defined in the specification.	
3.7.2	Self-Diagnostic checks	Required	
4.0	APPLICATION PROGRAMME	To be provided in R/W DVDs (2 Nos.) for QCS.	
5.0	SERVERS		
5.1	Quantity	1 No. for each QCS Refer Drg. No. TCE.5783A-580-IN-1700 Control System Configuration Schematic) (Refer Note-3)	
5.2	Hardware Features	Same as per specifications for servers in DCS data sheet.	
5.3	Software		
(a)	1 No. Licensed copy of QCS Software with required control licenses and Operating system software for server, MS Office, Latest version of Adobe Acrobat read/write software, Latest version of Anti-virus kit (Antivirus kit support shall be for at least 3 years). At a time, any one of the MMIs shall be used as operator station for the QCS.		
(b)	1 No. license of Engineering software for QCS. At a time, it shall be possible to use any one of the MMIs as Engineering Station.		
(c)	OS-Server		
(d)	1 No. licensed copy of QCS service workstation software. This shall be loaded in the laptop.		
(e)	The following reports/details are required. Necessary software shall be provided for the same. The data also need to be transferred to MIS system.		
(i)	Production Summary		

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S No	Description	Bidder to state/confirm
(ii)	Parent Roll Reports indicating 2-sigma values of basis weight (MD & CD), Moisture (MD & CD), Caliper (CD).	
(iii)	Roll Set Analysis	
(iv)	Grade production & quality report	
(v)	Shift production & quality report	
(vi)	Report of no. of paper breaks & time & duration of each break in all shifts & in the day	
(vii)	Sensor & scanner (for QCS) setup diagnostic display	
(viii)	Profile display (2D & 3D)	
(ix)	Sample Reports required whenever initiated at the user pre-set location in the web.	
(x)	Historical data of reports and trends for a minimum period of one year is required.	
6.0	CDs/ DVDs for all the above software & drivers for server	Required

Notes:

1. The environmental conditions for all measurements shall be as per TAPPI/ ISO standard for tropical countries.
2. The HDD/SSD of HMIs shall be used as the historical storage device. All HDD/SSD or any other storage device shall be with DMR (Digital Media Retention) policy.
3. *- Bidder to state.

9. Programmable Logic Controllers (PLC)

- 9.1. The specifications below give the general requirements of the PLCs to be provided in the Local Control Panels for the systems like Cotton Combers Handling & Dry Cleaning section, Mould Cover Preparation, Cotton Linter Pulper, Broke Pulper, Pope Reel, Winder, Packing & Finishing System etc.
- 9.2. The design material, construction features, manufacture, inspection and testing of Programmable Logic Controllers (PLC) shall comply with all currently applicable statutes, regulations and safety codes.
- 9.3. PLC shall be provided as a standalone controller to perform combinational and sequential logic functions, status monitoring and reporting functions with counter and timer facilities. It shall carry out computation and interfacing for data acquisition, data storage and retrieval.
- 9.4. All cards shall be tropicalized.
- 9.5. All PLCs shall use industrial and open standard protocols and structures for communication.

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- 9.6. The process controller shall be minimum 16-bit, with floating point capability, suitable for real time process application and shall perform data acquisition and regulatory control functions. Self-checking, error-recovery and trouble-shooting features shall be source of the features of controllers.
- 9.7. The controller shall have a real time clock capability.
- 9.8. The diagnostic messages from the controllers shall be stamped with date and time.
- 9.9. The controller shall have the facility to allow the operator to perform manual control of the controller output from a local Operator Interface Unit.
- 9.10. User program shall be protected from unauthorized access by software (password) protection.
- 9.11. LEDs shall be provided on the module to indicate the controller healthiness and operating modes such as RUN, STOP, MASTER mode.
- 9.12. The controller programming shall be from laptop. Dedicated serial communication port shall be provided for initial set-up configuration/diagnostic through the COM port of laptop.
- 9.13. Each digital I/O shall be opto isolated.
- 9.14. Each analog I/O shall be galvanically isolated.
- 9.15. Filters shall be provided for noise rejection
- 9.16. The minimum isolation level between I/O and logic circuit shall be 500 VDC.
- 9.17. Each I/O shall be protected against reversal of polarity of the input voltage to I/O and over voltage protection up to twice the rated voltage.
- 9.18. Each module shall have LED for each I/O channel to indicate the status of each input/output.
- 9.19. Fused isolating switches with visual indication of fuse down shall be provided at each digital input & output terminal. For all other inputs/outputs, knife type isolating switches shall be provided to isolate field input and output for maintenance purpose.
- 9.20. All inputs shall be double ended i.e. two wires per input and not common return for all inputs.
- 9.21. Potential free relay outputs shall be provided for digital outputs. Wet contacts/powered contacts/TTL contacts etc. shall not be acceptable.
- 9.22. Relay boards with plug-in type relays shall be provided for interposing.
- 9.23. Memory unit
- 9.24. Memory modules as required to store the programs & standard software for performing logic functions & diagnostic functions shall be provided. Flash EEPROM for program memory shall be provided.
- 9.25. Spare Philosophy

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The system shall have the following minimum spare capability.

- (a) 10% wired spares for each type of I/O's subject to min. of one module in each type
- (b) Minimum 10% spare wired slots shall be made available in each chassis for future expansion.

9.26. System Availability

The total system availability shall be better than 99.99% as calculated from MTBF and MTTR of all the equipment/devices which are interconnected to form the system.

9.27. Alarms and Annunciation

The following faults shall be indicated by LED in individual module:

- (a) Power supply failure.
- (b) Individual card failure.
- (c) Controller fault.
- (d) Battery fault.

It shall be possible to communicate 'PLC fault' alarm to the DCS on the communication link.

9.28. Programming unit

The laptop specified under the DCS data sheet shall serve as the programming unit for the PLCs. On-line programming changes shall be possible. The PLC programming and documentation software loaded in the laptop shall have all the required standard features.

9.29. Operator Interface Unit

Operator Interface Unit shall be provided for the operation & monitoring of the system. All set points, control parameters (including P&ID terms), alarm limits and timers shall be adjustable through the Operator Interface Unit with suitable password protection. The operator interface shall include facilities like overview screens, mimic screens, display various analog/digital values, display & adjust set points and display & acknowledgement of alarms.

10. Power Supply

The I&C system including field instruments, DCS, QCS & PLC systems shall be provided with 240 V AC, 50 Hz UPS power supply. Necessary power supply distribution boards required for the I&C system supplied shall be provided by the Bidder. All field instruments/ valves shall operate on 24 V DC power supply. The distribution of power in field, if required for the instruments/valves, shall be through a designated field mounted junction box (with fused terminals). The 24 V DC power supply for relays & any other 24 V DC power supply required for the DCS/PLC & QCS shall be redundant with diode O-ring module. These power supply units shall be provided by the Bidder.

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11. Panels/Control Desks

11.1. Cabinets / Panels

Type	Indoor located, free standing vertical type
Antivibration pads	Required of 15 mm thickness
Doors	Double doors
Sheet metal	Cold rolled metal sheets <ul style="list-style-type: none">• Sheets – 1.6 mm thk• Door – 2 mm thk• Mounting plate & Gland plate – 3mm thk
Cable entry	Bottom / top through cable glands
Paint colour	Exterior: Siemens gray RAL 7032 Interior: Glossy white

11.2. Unit Control Desk

Unit Control Desks shall be provided for mounting of H M I s, MIS PC and associated keyboards, mouse etc.

11.3. Wiring

All inter cubical and internal wiring for all panels / control desks shall be carried out with 1100V grade, stranded tinned copper conductors with PVC insulation. The minimum size of the stranded copper conductor used for the panel wiring shall be 1.0 mm² for analog signals and for 24 V DC control commands. For power supply, the conductor size shall be provided as per the load rating (min. 2.5 sq. mm for 230 V AC and 1.5 sq.mm. for 24 V DC). Control & Power wiring shall be segregated and routed in PVC troughs. Different colour wires shall be used for different voltages. Cross ferruling shall be done.

11.4. Switches and Miniature Circuit Breakers (MCBs)

The incoming and sub-circuits within panels shall be separately provided with Miniature Circuit Breakers (MCBs).

11.5. Relays

All relays used for interposing shall have at least 2 nos. changeover contacts. The relays shall have status indication and shall be provided with freewheeling diodes.

11.6. Fused isolating switches with visual indication of fuse down shall be provided shall be provided at each digital input & output terminal. For all other inputs/outputs, knife type isolating switches shall be provided to isolate field input and output for maintenance purpose.

11.7. All spare contacts and terminals of the panel mounted equipment and devices shall be wired to terminal blocks.

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11.8. Labels:

All front mounted equipment, as well as equipment mounted inside the panels/control desks shall be provided with individual labels with equipment designation engraved. Labels of internally mounted equipment shall be clearly visible.

11.9. Earthing/ Grounding for Panels

All panels shall be provided with a safety ground bus & system ground bus made of copper securely fixed along the inside base of the panels. These buses shall be typically of 25 mm wide and 6 mm thick of copper.

12. System Grounding

Complete design and detailed engineering required for grounding of I&C system shall be in the scope of bidder. The earthing system shall have two separate ground i.e safety ground & system ground. The safety earth shall be taken separately through insulated un-armored Cu earthing conductor and connected to earthing inserts on each floor and inside the control room. The signal/system earth busbar from the junction boxes/panels shall be connected to the nearest earthing insert mounted on PVC insulator in a junction box. This signal/safety earth bus bar and the safety earthing inserts will further be connected to instrument earth pit & electrical earth pit respectively. The earthing cable shall be 1100 V FRLS PVC insulated green colour stranded CU cable with anti-rodent properties for insulation.

Instrument earth pits for the instrumentation system for the Paper Machine Plant and Pulp Mill shall be provided by Purchaser. Supply & laying of the earthing cables from Panels, junction boxes and field instruments to earthing inserts and nearest earth bus bar strip & from the earth strips to earth pit shall be in the scope of Bidder.

13. Testing, Installation, Commissioning and Acceptance

13.1. General

On the basis of guidelines specified in this specification, Vendor shall submit their own testing, installation, commissioning and acceptance procedure. The procedure shall include purpose of test, test definition, results expected and acceptance criteria.

13.2. Factory Acceptance Tests (FAT)

13.2.1. Vendor shall demonstrate functional integrity of the various I&C items, as required, covered under Vendor's scope. No material or equipment shall be transported until all required tests are completed & Purchaser gives the dispatch clearance.

13.2.2. Purchaser reserves the right to involve and confirm the results at each and every stage of testing. Purchaser shall be free to request specific tests on equipment considered necessary. The cost of performing all tests shall be borne by the Vendor.

13.2.3. Vendor to note that acceptance of any equipment or the exemption of inspection testing shall in no way absolve the Vendor of the responsibility for delivering the equipment meeting all

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the specified requirements.

- 13.2.4. It shall be the Vendor's responsibility to modify and/or replace any item (hardware or software) if the specified functions are not completely achieved satisfactorily during FAT.
- 13.2.5. The FAT for the items shall be performed in accordance with the approved Quality Assurance Plans (QAPs).
- 13.2.6. Initially the Vendor shall perform tests at works to ensure that all components function in accordance with the specifications. A test report shall be submitted for the Purchaser's review within one week of completion of this test.
- 13.2.7. After the Vendor has performed the tests satisfactorily, the Vendor shall perform tests on all the items to be witnessed by Purchaser as per approved QAPs. Vendor shall notify the Purchaser at least three (3) weeks prior to factory acceptance test. This shall be the second phase of testing which shall be carried out systematically and fully in the presence of Purchaser's representative.
- 13.2.8. All test instruments shall have calibration certificates from approved test house, valid for minimum 6 months.

13.3. Site Acceptance Tests (SAT)

- 13.3.1. Full integrated site acceptance test shall be performed before hand over of total system to Purchaser. The tests shall demonstrate functionality of all the systems supplied by the Vendor. The Vendor shall provide all personnel for the same. Vendor's engineer shall be made available for assistance in operation, maintenance, tuning & training of Purchaser's personnel at Site during commissioning of the system.
- 13.3.2. A test procedure is required for approval prior to the scheduled start. However, the Vendor shall co-ordinate & provide assistance to the other sub-vendors of the Plant for complete erection, trial runs, commissioning, final operational testing, guarantee tests & final acceptance.

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Statutory Agencies & Approval Requirements

Approvals/ clearances shall be required from the following statutory bodies in India in connection with the proposed process plant installation wherever applicable. BIDDER shall provide all relevant engineering documents and drawings as required by the Authorities to obtain approvals/ clearances by the Purchaser/ others.

- a. Central Electricity Authority (CEA).
- b. Electrical Inspectorate.
- c. Karnataka Power Transmission Corporation Limited (KPTCL).
- d. Indian Boiler Regulations for steam piping (IBR).
- e. Factory Inspector (FI).
- f. Tariff Advisory Committee (TAC) for Fire protection facilities in plant and storage godowns.
- g. Atomic Energy regulating board (AERB).
- h. Department of Weights and measures.
- i. Tools and Lifting tackles certificates from statutory body.
- j. Pressure vessels certificate from statutory body.
- k. Any other competent authority as applicable.

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APPROVED VENDOR LIST

The following vendor list for is only indicative. Bidder shall offer equipment / components of reputed make. Bidder shall furnish vendor list in their bid for approval by PURCHASER.

S No	Equipment / System	Vendor
1.	Stock Pumps	<ul style="list-style-type: none">• KSB Pumps• Sulzer pumps• Kirloskar
2.	Water Pumps	<ul style="list-style-type: none">• KSB Pumps• Sulzer pumps• Kirloskar
3.	Vacuum Pumps	<ul style="list-style-type: none">• Kakati• PPI Pumps• Garuda• Comp – Vacuum Technology
4.	Hood & PV system	<ul style="list-style-type: none">• DNB Dryvent
5.	Knife Gate Valves	<ul style="list-style-type: none">• Dezurik
6.	DAF System	<ul style="list-style-type: none">• Krofta
7.	Centrifugal Fans	<ul style="list-style-type: none">• Nadi• Krugger• Alstom
8.	Cooling Tower	<ul style="list-style-type: none">• Paharpur• Shriram• GEA Cooling Towers Technologies
9.	Gear Box	<ul style="list-style-type: none">• Flender• SEW• Elecon• Greaves• Shanti
10.	Flexible Couplings	<ul style="list-style-type: none">• Hi Cliff• Fennner• HIC International• RATHI• Willman
11.	CS Tubes Seamless	<ul style="list-style-type: none">• BHEL – Trichy• ISMTL• TISCO• Maharashtra Seamless• Jindal.
12.	MS Pipes (Black & Galvanized)	<ul style="list-style-type: none">• SAIL• Jindal• TATA• Maharashtra Seamless
13.	SS Pipes	<ul style="list-style-type: none">• REMI• Swastik Loyd

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S No	Equipment / System	Vendor
14.	Bearing	<ul style="list-style-type: none"> • SKF • FAG • Timken
15.	Butterfly Valve	<ul style="list-style-type: none"> • Intervalve • Virgo • Avishkar Engineers • Chemtech Industrial Valves
16.	Gate/Globe/Check Valve	<ul style="list-style-type: none"> • BDK • Audco • Shalimar • Niton • Neeco
17.	Distributed Control System (Including all hardware & software)	<ul style="list-style-type: none"> • ABB • Honeywell • Siemens
18.	Programmable Logic Controllers (PLCs)	<ul style="list-style-type: none"> • ABB • Siemens • Honeywell • Rockwell Automation • Yokogawa
19.	Panel Enclosures	<ul style="list-style-type: none"> • Rittal • President
20.	Human Interface Stations/ Server	<ul style="list-style-type: none"> • COMPAQ • HP • IBM (Lenovo) • Del
21.	Control Valves/ On-Off Valves with Actuators - Ball Valves	<ul style="list-style-type: none"> • Festo • Stafford Controls (Formerly Virgo) • NAF • Neles (Metso Automation) • Koso • Dezurik
22.	Control Valves (Globe valves/ Butterfly valves)	<ul style="list-style-type: none"> • Fisher Xomox India Ltd. • Masoneilan Dresser Valves • Samson Valves • Neles (Metso Automation)
23.	Knife Edge Gate Valves	<ul style="list-style-type: none"> • DEZURIK • VAAS Industries
24.	Solenoid Valves	<ul style="list-style-type: none"> • ASCO • Norgren • Rotex
25.	Electro-pneumatic Converters	<ul style="list-style-type: none"> • Emerson • Moore • ABB

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S No	Equipment / System	Vendor
		<ul style="list-style-type: none"> Watson Smith
26.	Air Filter Regulators	<ul style="list-style-type: none"> Norgren Placka
27.	Pressure Transmitter/ Differential Pressure Transmitter/ Vacuum Pressure Transmitter	<ul style="list-style-type: none"> Emerson Endress & Hauser Yokogawa ABB
28.	Pressure Gauges	<ul style="list-style-type: none"> General Instruments Consortium FIEBIG Waree Precision Industries Ltd.
29.	Pressure Switches/ Differential Pressure Switches	<ul style="list-style-type: none"> Switzer Danfoss
30.	Differential Pressure Gauges	<ul style="list-style-type: none"> General Instruments Consortium Wika Pyroelectric
31.	Resistance Temperature Detectors & Thermocouples	<ul style="list-style-type: none"> General Instruments Consortium Pyroelectric Detriv
32.	Temperature Gauges (Dial Type)	<ul style="list-style-type: none"> General Instruments Consortium Pyroelectric Waree
33.	Temperature Transmitters	<ul style="list-style-type: none"> Emerson Endress & Hauser Yokogawa ABB
34.	Magnetic Flowmeters	<ul style="list-style-type: none"> Emerson ABB Yokogawa Endress & Hauser
35.	Coriolis Mass Flow meter	<ul style="list-style-type: none"> Yokogawa Endress & Hauser Micromotion Henrich
36.	Orifice Plates	<ul style="list-style-type: none"> General Instruments Consortium Starmech Hydropneumatics
37.	Flow Glass (Rotary Type)	<ul style="list-style-type: none"> General Instruments Fainger Teleflo
38.	Flow Switch	<ul style="list-style-type: none"> Switzer Sigma
39.	Level Gauges	<ul style="list-style-type: none"> Pune Techtrol Waree

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S No	Equipment / System	Vendor
		<ul style="list-style-type: none"> Levcon
40.	Level switches (Float/Displacer)	<ul style="list-style-type: none"> Pune Techtrol Magnetrol Levcon
41.	Radar Level Transmitters	<ul style="list-style-type: none"> Emerson Endress & Hauser Siemens Vega Krohne Marshall
42.	Pressure Regulating Valve	<ul style="list-style-type: none"> Nirmal Industries Fisher Sanmar Samson
43.	Safety Relief Valve	<ul style="list-style-type: none"> Fainger Tyco Nirmal Industries
44.	pH Analysers	<ul style="list-style-type: none"> Emerson Polymetron Endress & Hauser Yokogawa ABB
45.	Consistency Transmitter	<ul style="list-style-type: none"> ABB BTG Pulp & Paper Valmet Kajaani Dezurik
46.	On-line Fibre Length Analyser	<ul style="list-style-type: none"> BTG Pulp & Paper Kajaani
47.	On-Line Freeness Analyser	<ul style="list-style-type: none"> BTG Pulp & Paper Kajaani
48.	On-Line Brightness Transmitter	<ul style="list-style-type: none"> BTG Pulp & Paper Kajaani
49.	Quality Control Systems	<ul style="list-style-type: none"> ABB Honeywell Metso
50.	Basis Weight Valves	<ul style="list-style-type: none"> Dezurik Neles BTG Paper & Pulp
51.	Inkjet/ Laser Printers	<ul style="list-style-type: none"> HP
52.	24 V DC Power Supply Units	<ul style="list-style-type: none"> Aplab Pheonix Cosel
53.	Instrument erection Hardware	<ul style="list-style-type: none"> Parker Swagelok Excel Hydropneumatics

ANNEXURE – 6

S No	Equipment / System	Vendor
		<ul style="list-style-type: none"> • Wintec
54.	Junction Boxes	<ul style="list-style-type: none"> • Sudhir switchGear • FlameProof Controls & Gears • Baliga
55.	Cables	<ul style="list-style-type: none"> • TCL cables • Delton cables • LAPP Cables • Finolex • Udey Pyrocables
56.	Fibre Optic Cables	<ul style="list-style-type: none"> • Finolex • Uniflex
57.	Cable Glands	<ul style="list-style-type: none"> • Braco • Comet • Baliga • R. Stahl
58.	GI Cable Trays	<ul style="list-style-type: none"> • Indiana • Profab • Patny • Sterlite
59.	Relays	<ul style="list-style-type: none"> • Siemens • OEN • Omron
60.	Limit Switches	<ul style="list-style-type: none"> • Siemens • BCH • Jai Balaji • L&T
61.	Terminals	<ul style="list-style-type: none"> • Elmex • Connectwell • Wago • Phoenix
62.	Instrument Erection Hardware	<ul style="list-style-type: none"> • Parker • Swagelok • Excel Hydropneumatics • Wintec
63.	415V Motor Control Centre (MCC)	<ul style="list-style-type: none"> • Siemens • L & T • Schneider
64.	Distribution Boards / Enclosures	<ul style="list-style-type: none"> • Siemens • Schneider • Rittal • Havell's
65.	VVVF Drives	<ul style="list-style-type: none"> • Siemens • ABB • Rockwell

ANNEXURE – 6

S No	Equipment / System	Vendor
66.	VVVF Drives for Fans / Pumps / Cranes	<ul style="list-style-type: none"> • Siemens • ABB • Rockwell • L & T (Yaskawa)
67.	Harmonic filters	<ul style="list-style-type: none"> • ABB • BHEL • Sahsprague • Emerson
68.	Energy Efficient (EFF-1) LT, Squirrel cage, AC Induction Motors	<ul style="list-style-type: none"> • Siemens • ABB • Bharat Bijlee Ltd • Crompton Greaves • Baldor (USA)
69.	UPS	<ul style="list-style-type: none"> • Emerson • DB electronics
70.	SMF Battery (VRLA)	<ul style="list-style-type: none"> • Exide • HBL Nife • Amara Raja
71.	Switchgear components	<ul style="list-style-type: none"> • Any reputed make.
72.	Air Circuit Breaker (ACB)	<ul style="list-style-type: none"> • Siemens • L & T • Schneider Electric (Merlin Gerin)
73.	Potential Transformer	<ul style="list-style-type: none"> • Automatic Electric • Indcoil (Mumbai) • Kappa • ABB
74.	Current Transformer	<ul style="list-style-type: none"> • Automatic Electric • ABB • Kappa • Pragati • Precise • Silkaans
75.	Electromechanical – Ammeter & Voltmeter	<ul style="list-style-type: none"> • Automatic Electric • MECO • Rishabh • Enercon (Conzerv)
76.	Multi-Function Energy Meter	<ul style="list-style-type: none"> • Enercon (Conzerv) • ABB • L & T • PML (Schneider)
77.	Protective Relays	<ul style="list-style-type: none"> • Areva • Siemens • VA Tech
78.	Auxiliary Relays	<ul style="list-style-type: none"> • Areva

ANNEXURE – 6

S No	Equipment / System	Vendor
		<ul style="list-style-type: none"> • Siemens • ABB
79.	APFC Relay	<ul style="list-style-type: none"> • ABB • L&T • EPCOS
80.	Switch Disconnector Fuse Unit (SDF) and Switch Disconnect / Isolator/MPCB	<ul style="list-style-type: none"> • Siemens • L & T • C & S • Schneider
81.	HRC Fuse	<ul style="list-style-type: none"> • Alstom • Siemens • L & T
82.	Contactors	<ul style="list-style-type: none"> • Siemens • L & T • Schneider Electric (Telemecanique)
83.	MCCB (Moulded Case Circuit Breaker)	<ul style="list-style-type: none"> • Siemens • Schneider Electric (Merlin Gerin) • L & T • ABB
84.	Changeover Switch fuse Unit	<ul style="list-style-type: none"> • C & S • Havells (Euro load)
85.	Bimetal Overload Relay with inbuilt single phasing preventer	<ul style="list-style-type: none"> • Siemens • L & T • Schneider Electric (Telemecanique)
86.	Microprocessor based Overload Relay	<ul style="list-style-type: none"> • Siemens • Minilec • ABB • Telemecanique
87.	Thermistor relay	<ul style="list-style-type: none"> • Alstom • Minilec • Siemens
88.	Single Phasing Preventer	<ul style="list-style-type: none"> • Siemens • Minilec
89.	Indicating Lamps (LED)	<ul style="list-style-type: none"> • Binay • Teknic • Vaishno • Siemens • BCH • Schneider (Telemecanique)
90.	Push Button	<ul style="list-style-type: none"> • Siemens • Mathura Switchgear • Teknic • Concord • BCH

ANNEXURE – 6

S No	Equipment / System	Vendor
91.	TNC switch / Control switches	<ul style="list-style-type: none"> • Alstom • Kaycee • Salzer
92.	Time Switch / Timer	<ul style="list-style-type: none"> • MDS • L & T (GIC) • Schneider Electric • Siemens
93.	Facia Annunciator	<ul style="list-style-type: none"> • Minilec • IIC • ICA
94.	Control Transformer	<ul style="list-style-type: none"> • NEC • Gauss Electricals • Indcoil
95.	Terminals for controls	<ul style="list-style-type: none"> • Elmex • Connectwell
96.	Control Fuse	<ul style="list-style-type: none"> • L & T • Siemens
97.	Bakelite fuse holder (for control fuses)	<ul style="list-style-type: none"> • GEPIC (Alstom (EE))
98.	Discharge Braking Resistor for crane	<ul style="list-style-type: none"> • IRESCO • BCH
99.	Choke (for Cranes/VVVF)	<ul style="list-style-type: none"> • Gilbert & Maxwell • Sagaon (Pune) • EPI (Mumbai)
100.	Power Supply (For crane)	<ul style="list-style-type: none"> • Siemens • Aplab
101.	Transducers	<ul style="list-style-type: none"> • Enercon (Conzerv) • Meco • ABB • AE
102.	LT PVC/XLPE power cables and Control Cables.	<ul style="list-style-type: none"> • NICCO • Universal Cables • Asian Cables • CCI • Polycab
103.	LT PVC control cables	<ul style="list-style-type: none"> • NICCO • Universal Cables • Asian Cables • CCI • Polycab
104.	HFFR wires (including panel wiring)	<ul style="list-style-type: none"> • Lapp • RR Kabel • Finolex
105.	PVC wires	<ul style="list-style-type: none"> • Polycab • Finolex

ANNEXURE – 6

S No	Equipment / System	Vendor
106.	Weather proof Industrial Cable Glands (Double / single compression)	<ul style="list-style-type: none"> • Braco • Comet • Baliga
107.	Polyamide Cable Glands	<ul style="list-style-type: none"> • Lapp • Hensel
108.	Cable Lugs	<ul style="list-style-type: none"> • Dowells • Comet
109.	FRP cable Trays	<ul style="list-style-type: none"> • Indiana • Syntex • Erccon
110.	GI Cable Trays	<ul style="list-style-type: none"> • Indiana • Patny • Sterlite • Reliance
111.	Fire Barriers	<ul style="list-style-type: none"> • Raychem
112.	Indoor and Outdoor Luminaire (including IP65 luminaires)	<ul style="list-style-type: none"> • Philips • Crompton Greaves • Bajaj • Wipro
113.	Lamps (FTL)	<ul style="list-style-type: none"> • GE • Philips • Crompton Greaves • Bajaj
114.	Lamps (CFL)	<ul style="list-style-type: none"> • Philips • Crompton Greaves • Bajaj
115.	Lamps (GLS)	<ul style="list-style-type: none"> • Philips
116.	Installite	<ul style="list-style-type: none"> • Prolite
117.	Emergency Light	<ul style="list-style-type: none"> • Prolite • MDS
118.	Ballast	<ul style="list-style-type: none"> • Philips • GE • Wipro • Crompton Greaves
119.	MCB (Miniature Circuit Breaker) & MCB Isolators, RCCB, RCBO	<ul style="list-style-type: none"> • MDS (Legrand) • Siemens • Schneider Electric (Merlin Gerin)
120.	Decorative switches, sockets and metal boxes (single plate arrangement)	<ul style="list-style-type: none"> • M K Electric • Anchor • Leader
121.	Modular switch & socket (wraparound) (twin plate arrangement)	<ul style="list-style-type: none"> • MK Electric
122.	GI Conduit	<ul style="list-style-type: none"> • TATA Steel • Jindal

ANNEXURE – 6

S No	Equipment / System	Vendor
123.	UPVC Conduit/JB/flexible conduit / tees/ Bevels, elbow & accessories	<ul style="list-style-type: none"> • Plaza • Avon Plast • Precison
124.	MS Conduit	<ul style="list-style-type: none"> • Jindal • AKG • Wimco
125.	Non-metallic receptacle and plugs, LPBS	<ul style="list-style-type: none"> • Hensel • Legrand • Schneider Electric • Rittal
126.	Decontactor	<ul style="list-style-type: none"> • BCH
127.	Non-metallic enclosures	<ul style="list-style-type: none"> • Rittal • Hensel • Schneider
128.	Casing Capping	<ul style="list-style-type: none"> • Precision • Circle ARK
129.	Non-insulated Copper Earthing conductors	<ul style="list-style-type: none"> • Gupta Industrial Corporation (Mumbai) • Bharat Wires & Ropes
130.	GI strip / Conductor	<ul style="list-style-type: none"> • Gupta Industrial Corporation (Mumbai) • TATA Steel • VIZAG Steel • Jindal

NOTES:

1. The Bidder shall offer any of the makes mentioned above. Other makes are subjected to PURCHASER's approval on submission of test certificate, etc. before procurement.
2. For electrical items manufactured in India, ISI/BIS mark items shall be provided.

ANNEXURE – 7

Drawing & Document Distribution Schedule

DOCUMENT DESCRIPTION	PURCHASER	VENDOR
General Correspondence from vendor <ul style="list-style-type: none">• Commercial• Technical	1 1	S S
General Correspondence to vendor <ul style="list-style-type: none">• From PURCHASER	S	1
Supply vendor Drawings & Documents <ul style="list-style-type: none">• First submission & Subsequent revisions• Final approved	3 3	S S
Inspection / Expediting Reports from PURCHASER	S	1
Progress Report planning charts	2	S
Marked up for As- Built drawings by Supply vendor	1	S
As-Built drawings by Supply vendor	4 + USB stick/EHD	S

LEGEND: S -- Source, USB stick (Universal serial Bus)/ EHD (External Hard Drive)

NOTE:

PURCHASER will review the vendor drawings and stamp with their comments / approval (as required) and then send the commented copies to supply vendor.

ANNEXURE – 8

Project Milestones

The Bidder shall adhere to the following schedule for submission of data / drawings / documents from the date of issue of LOA. Bidder shall also refer to engineering scope for list of deliverables to be submitted for equipment.

S No	Details	Weeks after award of LOA
1.	PERT/Bar chart for the design, engineering, manufacturing, commissioning, trial operation and performance testing of the system offered.	4
2.	Process package complete with P&ID with material balancing, equipment list & loop list etc.	6
3.	General arrangement drawings, showing locations of various equipment, overall dimensions of various equipment & details of trenches etc.	6
4.	Load details & Civil loading data of various equipment required for designing the building and making foundations, complete with specific information wherever applicable.	6
5.	Foundation bolts and pocket details for various equipment, insert locations for pipes and any other civil data.	12
6.	Basic Engineering Details for the Electrical items	8
7.	Basic Engineering Details for the Mechanical items including piping.	8
8.	Basic Engineering Details for the Control & Instrumentation	8
9.	Procurement specifications for all auxiliary systems/plants – Chemical additive preparation, etc.	12
10.	Final Detailed Engineering for Mechanical items (Erection details)	20
11.	Final Detailed Engineering for Electrical items (Erection details)	18
12.	Final Detailed Engineering for Control & Instrumentation items (Erection Details)	20
13.	Letter from sub-vendors / sub-vendor's showing order acceptance and adherence to project schedule.	20

The bidder shall adhere to the following schedule for completion of the project:

ANNEXURE – 8

S No	Details	Weeks after award of LOA
1.	Start of delivery of material like Sole plates, etc.	36
2.	Start of delivery of Equipment, Machinery, etc.	44
3.	Commencement of paper machinery erection	52
4.	Finalization of list of 2 years spare parts with its price	52
5.	Completion of delivery of material / equipment	68
6.	Erection of Line1	74
7.	Erection of Line2	80
8.	Commissioning of line1	80
9.	Commissioning of line2	86
10.	Performance Test – Line1	84
11.	Performance Test – Line2	90
12.	Completion of delivery & handing over of all the spare parts	100
13.	Project completion/Final Acceptance of the Project	104

ANNEXURE – 9

Product Quality of Cylinder Mould made Watermarked Bank Note Paper

1. FURNISH

The paper shall be made with 100% cotton and furnished with security additives.

2. SIZING

The paper shall be surface sized with PVA/PU.

3. WET STRENGTH RESIN

The paper shall be made using neutral cure resins for retaining the wet strength.

4. FINISH

Online calendering should be on the both sides of CWBN paper. The paper should be smooth, free from specks, fluffs and other foreign particles.

5. TEST CONDITIONS FOR PHYSICAL PROPERTIES

The physical properties are to be tested at $23^{\circ}\text{C} \pm 1^{\circ}\text{C}$ and $50\% \text{RH} \pm 2\%$.

6. MOISTURE

For all denominations 6% (± 1)

7. PRINTABILITY

The paper shall be able to run on modern printing machines with speeds up to 12,000 sheets per hour. The paper shall be printable by dry offset, intaglio and letterpress processes.

8. ADDITIONAL PARAMETERS

All the other product quality details like watermark, security threads, paper tint, additives, strength parameters, porosity, roughness, opacity, ash content, paper pH, wax pick, trimming, notching etc., shall be shared, if necessary, with successful BIDDER after the award of LOA.