Standard Bidding Document (SBD)
(Procurement of Goods and Services)
BANK NOTE PRESS
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Wholly owned by Government of India
DEWAS – 455001 (Madhya Pradesh)

Tel No 00 91 7272 268253/268468
Fax No 00 91 7272 255111
Email:bnpdewas@spmcil.com
Website: www.spmcil.com

NOT Transferable

Security Classification: Non Security

TENDER DOCUMENT FOR: Supply, Installation, Commissioning and Maintenance of Track and Trace System at SPM-Narmadapuram, BNP-Dewas and CNP-Nashik.

TENDER NUMBER: 03/BNP/P/CON/Track & Trace System/22/OT   **Date: 04.04.2022**

Tender Document is sold to:

The Bidder,

INDIA

Details of Contact person in SPMCIL regarding this tender:

Name   **:** Diganta Kumar Deka

Designation   **:** Additional General Manager (Materials)

Address   **:** BNPD (BANK NOTE PRESS, DEWAS) 455001   INDIA.

SECTION I: NOTICE INVITING TENDER (NIT)

Tender No. **03/BNP/P/Con/Track & Trace System/22/OT**   Date: **04.04.2022**

1. Sealed tenders are invited from eligible and qualified tenderers for supply of following Item:

S. No.	Brief Description of Goods	Quantity Required	Remarks
1.	**Supply, Installation, Commissioning and Maintenance of Track and Trace System at SPM-Narmadapuram, BNP-Dewas and CNP-Nashik**	01 Lot	As per Section VI List of Requirement and detailed Scope of Work and Technical Specification mentioned in Section VII.
Type of Tender		**THREE-BID Open Tender (National Competitive Bid)**	
Date & time of Pre-bid Conference		**28.04.2022** at **10:30:00 Hrs.**	
Date of Visit of SPM Narmadapuram by bidders*		**18.04.2022** at **10:30:00 Hrs**	
Date of Visit of BNP Dewas by bidders*		**20.04.2022** at **10:30:00 Hrs**	
Date of Visit of CNP Nashik by bidders*		**22.04.2022** at **10:30:00 Hrs**	
Place of sale of tender documents		BANK NOTE PRESS, DEWAS	
Closing date and time for receipt of tenders		**17.05.2022** up to **14:30:00**	
Place of receipt of tenders		BANK NOTE PRESS, DEWAS	
Date and Time of opening of tenders		**17.05.2022** at **15:00:00**	
Place of opening of tenders		BANK NOTE PRESS, DEWAS	
Nominated Person/ Designation to Receive Bulky Tenders (Clause 21.21.1 of GIT)		Diganta Kumar Deka Additional General Manager (Materials)	

* Bidders may visit the sites and can carry out the pre assessment of the sites. However, they need to take formal permission at least 03 days in advance. Request may be sent at following E-mail ID's

Bnppurchase@spmcil.com
Devkaran.Kaleshriya@spmcil.com
Diganta.Deka@spmcil.com
Bnpdewas@spmcil.com

2. Interested tenderers may obtain further information about this requirement from the above office selling the documents. They may also visit our website mentioned above for further details.

3. Tenderer may also download the tender documents from the web site **http://bnpdewas.spmcil.com** and submit its tender by utilizing the downloaded document.

4. **For MSE firms: "Bid Security Declaration** "Against EMD, MSE bidder firm have to submit a seal & sign "Bid Security Declaration" accepting that if the firm withdraw or modify their bid during the period of bid validity after opening of tender they will be suspended for a period of 3 years from the date of opening of tender.

In addition to above, firms participating as MSE/NSIC/DIC/Start-up India Campaign, needs to enclosed certificates containing validity (including registered category-if any).

For non MSE firms: Rs. 75, 00,000/- in either of the following form:-
a) Account Payee Demand Draft or
b) Fixed Deposit Receipt or
c) Banker's cheque
In favour of "The General Manager, Bank Note Press, Dewas" Payable at Dewas, failing which the offer will be ignored.

EMD must be submitted along with the PQB offer. The earnest money (EMD) should be valid for a period of 45 days beyond the final tender validity period.

5. Tenderers shall ensure that their tenders, duly sealed and signed, complete in all respects as per instructions contained in the Tender Documents, are dropped in the tender box located at the address given below on or before the closing date and time indicated in the Para 1 above, failing which the tenders will be treated as late and rejected.
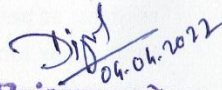Address:
The Chief General Manager
Administration Block Gate,
Bank Note Press, Dewas (M.P.) 455 001

6. In the event of any of the above mentioned dates being declared as a holiday/ closed day for the purchase Organization, the tenders will be sold/ received/ opened on the next working day at the appointed time.

7. The tender documents are not transferable.

8. The offer submitted by the firm should be valid for **180 Days** from the date of opening of tender document.

9. The bidder has to submit the quotation strictly as per our tender enquiry specification and terms and conditions only.

10. RIGHT OF ACCEPTANCE: - The Chief General Manager, Bank Note Press, Dewas reserves the right to reject any or all tenders without assigning any reasons thereof.

11. The tender / bid / quotation should be submitted in Three Bid separate double sealed envelopes strictly as per **SIT : 8 Submission of Tender of Section III: Special Instructions to Tenderers (SIT)** and its sub clause **Non-Adherence to this shall make tender liable for rejection.**

12. **SPECIAL INSTRUCTIONS:**

i. Relaxation of norms for Startups and Micro and Small Enterprises on Prior Experience, Prior Turnover Criteria may be given subject to meeting of quality and technical specifications as per circular no.1(2)(1)2016-MA dt.10.03.2016 issued by Govt. of India, Ministry of Micro, Small & Medium Enterprises, New Delhi.

ii. Order No P-45021/2/2017-B.E.-II for Public Procurement (Preference to Make in India) issued by Ministry of Commerce and Industry, Department of Industry and Internal Trade (Public Procurement Section), and Order No 6/18/2019-PPD for prior registration on procurement from bidders from a country or countries on ground of Defence of India and national Security, issued by Ministry of Finance, department of Expenditure (Public Procurement Division) will be applicable as per guidelines of Government of India.

04.04.2022

दिगंता कुमार डेका

(Diganta Kumar Deka)
Additional General Manager (Materials)
For and on behalf of Chief General Manager
Bank Note Press, Dewas
Telephone No. 07272-268468/268253
E-mail ID

Bnppurchase@spmcil.com
Devkaran.Kaleshriya@spmcil.com
Diganta.Deka@spmcil.com
Bnpdewas@spmcil.com

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SECTION II: GENERAL INSTRUCTIONS TO TENDERERS (GIT)

Part I & II: General Instructions Applicable to all Types of Tenders
Please refer to our website for:

http://www.spmcil.com/spmcil/UploadDocument/GIT.pdf

SECTION III: SPECIAL INSTRUCTIONS TO TENDERERS (SIT)

The following Special Instructions to Tenderers will apply for this purchase. These special instructions will modify/ substitute/ supplement the corresponding General Instructions to Tenderers (GIT) incorporated in Section II.

The corresponding GIT clause numbers have also been indicated in the text below. In case of any conflict between the provision in the GIT and that in the SIT, the provision contained in the SIT shall prevail.

S.No.	GIT Clause No.	Topic	SIT Provision
1.	8	Pre bid Conference	**SIT – 1 (Mentioned below)**
2.	9	Time Limit for receiving request for clarification of Tender Documents	**SIT - 2 (Mentioned below)**
3.	11.2	Tender Currency	**SIT - 3 (Mentioned below)**
4.	12.10	Applicability of Octroi and Local taxes	**SIT - 4 (Mentioned below)**
5.	14	PVC Clause & Formula	**SIT - 5 (Mentioned below)**
6.	19	Tender Validity	**SIT - 6 (Mentioned below)**
7.	20.4	Number of Copies of Tenders to be submitted	**SIT - 7 (Mentioned below)**
8.	21	Submission of Tender	**SIT - 8 (Mentioned below)**
9.	33	Evaluation Criteria	**SIT - 9 (Mentioned below)**
10.	43	Parallel Contracts	**SIT - 10 (Mentioned below)**
11.	50.1, 50.3	Tender For rate Contracts	Not Applicable
12.	51.1, 51.2	Eligibility Criteria	As Mentioned in Section IX
13.	53.4, 53.5, 53.7	EOI Tenders	Not Applicable
14.	54.3.1, 54.5.2	Tenders for Disposal of Scrap	Not Applicable
15.	55.2, 55.3, 55.7,55.8	Development/Indigenization Tenders	Not Applicable
16.	21.1,24.1	Correction in GIT Clause	**SIT -11 (Mentioned below)**
17.	18	Earnest Money Deposit	**SIT–12 (Mentioned below)**

SIT 1: Pre-bid Conference: Pre-bid conference will be held at BNP Dewas on **28-04-2022** at 10.30 AM. The queries should reach BNP by e-mail at least Five days in advance.

SIT 2: Clarification of Tender Documents: A Tenderer requiring any clarification or elucidation on any issue of the tender documents may take up the same with BNP DEWAS in writing or by fax / e-mail/ post. BNP DEWAS will respond in writing to such request provided the same is received by BNP DEWAS not later than **21 Days** prior to the prescribed date of submission of tender. In case the clarifications are not given by BNP Dewas in stipulated time frame then the bidder must strictly follow the tender terms & conditions. Copies of the queries and clarifications if any shall be sent to all prospective bidders who have purchased the bidding documents.

SIT 3: Tender currencies: The tenderer shall quote only in **Indian rupees**. Tenderer is requested to quote price within two decimal place. Quotation with price quote beyond 2 decimal place will be ignored.

SIT 4: Wherever GST is applicable, the following may be noted:
(i) The tenderer should quote the exact percentage of GST that they will be charging extra.
(ii) While quoting the rates, tenderer should pass on (by way of reduction in prices) the set off/input tax credit that would become available to them by switching over to the system of GST from the erstwhile system of sales tax, duly stating the quantum of such credit per unit of the item quoted for.
(iii) The tenderer while quoting for tenders should give the following declaration:
"We agree to pass on such additional set off/input tax credit as may become available in future in respect of all the inputs used in the manufacture of the final product on the date of supply under the GST scheme by way of reduction in price and advise the purchaser accordingly."
(iv) The supplier while claiming the payment shall furnish the following certificate to the paying authorities: "We hereby declare that additional set offs/input tax credit to the tune of Rs. _____ has accrued and accordingly the same is being passed on to the purchaser and to that effect the payable amount may be adjusted .

SIT 5: Price Variation Clause: The prices should be firm & fixed during the entire currency of the contract

SIT 6: Tender Validity
➢ The tenders shall remain valid for acceptance for a period of **180 days** after the date of tender opening prescribed in the tender document. Any tender valid for a shorter period shall be treated as unresponsive and rejected.
➢ In exceptional cases, the tenderers may be requested by BNP DEWAS to extend the validity of their tender up to a specified period. Such request(s) and responses thereto shall be conveyed by surface mail or by fax/e-mail followed by surface mail. The tenderers, who agree to extend the tender validity, are to extend the same without any change or modification of their original tender. A tenderer, however, may not agree to extend its tender validity.

> In case the day up to which the tenders are to remain valid falls on/ subsequently declared a holiday or closed day for BNP DEWAS, the tender validity shall automatically be extended up to the next working day.

> **Compliance with the Clauses of this Tender Document:** Tenderer must comply with all the clauses of this Tender Document. In case there are any deviations, these should be listed in a chart form without any ambiguity along with justification.

SIT 7: Number of Copies of Tenders to be submitted:
Tenderer shall submit their tender in **"Original"** only.

SIT 8: Submission of Tender:
Pre-qualification Bid, Techno-commercial bid and Price Bid are to be submitted in **Three Separate** Envelopes on or before the due date of the submission of the tender as stated below otherwise tender / bid /quotation shall be liable for rejection.

Part-I: Pre-qualification bid [First Envelope]
As per Section XXI (Bidding Forms)- Form no. 3 Checklist for pre-qualification proposal

Part- II: Second Envelope should contain the Techno-commercial Bid
As per Section XXI (Bidding Forms)- Form no. 5 Checklist for Technical proposal

Part- III: Third Envelope should contain the Price Bid
Price Bid. The tenderer shall quote their prices strictly as per the proforma given in **Section-XI** of the tender document.

IT MAY BE NOTED THAT the price is not to be quoted in the pre-qualification bid or technical bid. It shall only be quoted in price bid. Non-adherence to this shall make tender liable for rejection.

The envelopes containing bids shall be super scribed "Pre-qualification Bid," "Technical Bid" and "Price Bid", as the case may be, for *"Supply, Installation, Commissioning and Maintenance of Track and Trace System at SPM-Narmadapuram, BNP-Dewas and CNP-Nashik".*

The sealed envelopes shall again be put in another sealed cover and should be super scribed
TENDER DOCUMENT FOR *"Supply, Installation, Commissioning and Maintenance of Track and Trace System at SPM-Narmadapuram, BNP-Dewas and CNP-Nashik"* DUE ON **17.05.2022** UPTO **15:00 HRS (IST)"**. Late tenders shall not be accepted. Tenderers shall submit their offers only on prescribed forms. Tender by telegram/ fax/e-mail shall not be accepted. Tender by post/ hand/ courier received on or before the due date and time shall be accepted. Postal delay/ delay by courier service etc. shall not be condoned

i.   If the tender is not submitted as per above format, offer / bid / tender will be liable for rejection.

ii.   Late tender shall not be accepted. Tenderer shall submit their offer only on prescribed form. Tenders by fax/email shall not be accepted. Tender by post /

hand/ courier received on or before the due date & time shall be accepted. Postal delay / delay by courier services etc. shall not be condoned, what so ever reason may be.

SIT 9: Evaluation Criteria: As per Section IX "Bid Evaluation Methodology and Qualification Criteria

SIT 10: Parallel Contract: Not Applicable.

SIT 11: Corrections in GIT Clauses:

GIT CLAUSE	WRITTEN AS IN GIT	CORRECTED AS IN SIT
21.1	In 3rd line of procurement manual the words "Para 11 of NIT"	"Para 1 of NIT"
21.1	In 6th line of procurement manual the words "Clause 11 of NIT"	"Clause 1 of NIT"
24.1	In 2nd line of procurement manual the words "Clause 11 of NIT"	"Clause 1 of NIT"
18.4	In third line of last para of procurement manual the words "Clause 33 of NIT"	"Clause 3 of NIT"
10.1	10.1(a) second line "clause no.19.19"	"Clause 19.4 of GIT"

SIT 12: Earnest Money Deposit:

For MSE firms: "Bid Security Declaration "Against EMD, MSE bidder firm have to submit a seal & sign "Bid Security Declaration" accepting that if the firm withdraw or modify their bid during the period of bid validity after opening of tender they will be suspended for a period of 3 years from the date of opening of tender.

In addition to above, firms participating as MSE/NSIC/DIC/Start-up India Campaign, needs to enclosed certificates containing validity (including registered category-if any).

For non MSE firms: Rs. 75, 00,000/- in either of the following form:-
   a) Account Payee Demand Draft or
   b) Fixed Deposit Receipt or
   c) Banker's cheque

In favour of "The General Manager, Bank Note Press, Dewas" Payable at Dewas, failing which the offer will be ignored.

EMD must be submitted along with the PQB offer. The earnest money (EMD) should be valid for a period of 45 days beyond the final tender validity period.

SECTION IV: GENERAL CONDITIONS OF CONTRACT (GCC)

Part I: General Conditions of Contract applicable to all types of Tenders

Please refer to our website for:

http://www.spmcil.com/spmcil/UploadDocument/GCC.pdf

SECTION V: SPECIAL CONDITIONS OF CONTRACT (SCC)

The following Special Conditions of Contract (SCC) will apply for this purchase. The corresponding clauses of General Conditions of Contract (GCC) relating to the SCC stipulations have also been incorporated below. These Special Conditions will modify/ substitute/ supplement the corresponding (GCC) clauses.

Whenever there is any conflict between the provision in the GCC and that in the SCC, the provision contained in the SCC shall prevail.

S. No	GCC Clause No.	Topic	SCC Provision
3	12.2	Insurance	**SCC - 3** (Mentioned below)
4	14.1	Incidental Services	Not Applicable
5	15	Distribution of Dispatch Documents for clearance/ Receipt of Goods	**SCC - 4** (Mentioned below)
6	16.2,16.4	Warrantee Clause	**SCC - 5**(Mentioned below)
7	19.3	Option Clause	**SCC - 6** (Mentioned below)
8	20.1	Price Adjustment Clause	Not Applicable
9	21.2	Taxes and Duties	**SCC - 7** (Mentioned below)
10	22,22.1,22.2,22.4,22.3,22.6	Terms and Mode of payments	**SCC - 8** (Mentioned below)
11	24.1	Quantum of LD	**SCC - 9** (Mentioned below)
12	25.1	Bank Guarantee and Insurance for Material Loaned to Contractor	Not Applicable
13	33.1	Resolution of Disputes	**SCC - 10** (Mentioned below)
14	36.3.2,36.3.9	Disposal/ Sale of Scrap by Tender	Not Applicable
15		Arbitration Clause	**SCC -11** (Mentioned below
16		Failure & Termination Clause	**SCC -12** (Mentioned below
17		Force Majeure Clause	**SCC -13** (Mentioned below

SCC - 3: Insurance: As the supplier has to deliver the material on FOR BNP Dewas Basis therefore the cost of the insurance will also the part of the total cost of the material borne by the supplier.

SCC - 4: Distribution of Dispatch Documents for Clearance/ Receipt of Goods: The supplier shall send all the relevant dispatch documents well in time to BNP DEWAS to enable BNP DEWAS to clear or receive (as the case may be) the goods in terms of the contract.

SCC-5: Warranty Clause: As per Section VII clause no. 1.19 Warranty & Comprehensive Annual Maintenance contract

SCC-6: Option Clause: As per Section XI Table 1 Point no. 7

SCC-7: Taxes and Duties: Supplier shall be entirely responsible for all taxes, fees, levies etc. incurred until delivery of the contracted goods to BNP DEWAS.

SCC-8: Terms and Mode of Payment: As per Section VII – Clause no. 6- Payment and timelines

SCC-9: Quantum of Liquidated damages: As per Section VII Clause no. 3.3 Part A

SCC-10: Resolution of disputes:

If dispute or difference of any kind shall arise between BNP DEWAS and the supplier 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, unless otherwise provided in the SCC, either BNP DEWAS or the supplier may seek recourse to settlement of disputes through arbitration as per The Arbitration and conciliation Act 1996 as per following clause.

Arbitration Clause:- In case of any dispute or difference arises out of or in connection with or the carrying out of the contract (whether during the progress of the contract or after their completion and whether before or after the determination, abandonment or breach of the contract) except as to any of the accepted matters, provided hereunder, the parties hereto, shall first Endeavour to settle such dispute or difference amicably.

a. If both the parties fail to reach such amicable settlement, then party, the purchaser or contractor may (within 28 days of such a failure) give a written notice to the other party requiring that all matters in dispute or difference be arbitrated upon. Such written notice shall specify the matters which are in difference or of differences of which such written notice has been given and no other matter shall be referred to the arbitration in accordance with the conciliation & arbitration rules of International Chambers of Commerce (ICC)/United Nation Commission on International Trade Law (UNCITRL) by three arbitrators appointed in accordance with the procedure set out in clause below.

b. Venue of arbitration shall be Dewas/Indore or any other place in India at the choice of purchaser.

c. The arbitrator or arbitrators appointed under this article shall have the power to extend time to make the award with the consent of the parties.

d. Pending reference to arbitration, the parties shall make all endeavor to complete the Contract/work in all respect and all disputes, if any, will finally be settled in the arbitration.

e. Upon every or any such reference to the arbitration, as provided herein the cost of any incidental to the reference and award respectively shall be in discretion of the arbitrator or arbitrators or the umpire, as the case may be.

f. The award of the arbitrator or arbitrators, as the case may be, shall be final and binding on the parties. It is agreed that the contractor shall not delay the carrying out of the contract/works by reason of any such matter, question or dispute being referred, to arbitration, but shall proceed with the contract/works with all due diligence. The purchaser and the contractor hereby also agree that arbitration under

SCC-12: Failure & Termination

a. Cancellation of contract for Default: Without prejudice to any other remedy for breach of contract, like removal from the list of registered supplier, by written notice of default sent to the supplier, the contract may be terminated in whole or in part:

i. If the supplier fails to provide any or all the goods within the time period (s) specified in the contract, or any extension thereof granted

ii.   If the supplier fails to perform any other obligation under the contract within the period (s) specified in the contract or any extension thereof granted.

b.   Termination of Contract for convenience: Bank Note Press, Dewas (M.P.) may at any time terminate the Contract by giving you one month's prior notice in writing to that effect and shall have the liberty to appoint any other agency to carry out your obligations under this Contract.

SCC-13: Force Majeure:

13.1 In the event of any unforeseen event directly interfering with the supply of stores 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 Contractor shall, within a week from the commencement thereof, notify the same in writing to the Purchaser with reasonable evidence thereof. Unless otherwise directed by in writing, the supplier shall continue to perform its obligations under the contract as far as reasonably practical, 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 a period of 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 prior to such termination.

13.2 Notwithstanding the provisions contained in GCC clauses 23, 24 and 26, the supplier shall not be liable for imposition of any such sanction so long the delay and/ or failure of the supplier in fulfilling its obligations under the contract is the result of an event of Force Majeure.

13.3 In case due to a Force Majeure event is unable to fulfill its contractual commitment and responsibility, BNP Dewas will notify the supplier accordingly and subsequent actions taken on similar lines described in above sub-paragraphs.

SECTION VI: LIST OF REQUIREMENTS

S. No.	Brief Description of Goods	Quantity	Earnest Money Deposit/ Bid Security Declaration
1.	Supply, Installation, Commissioning and Maintenance of Track and Trace System at SPM-Narmadapuram, BNP-Dewas and CNP-Nashik	As per Bill of Material	As per SIT Clause no. 12

1. **Required Terms of Delivery & Destination**: FOR BNP Dewas, SPM Narmadapuram, CNP Nashik, Data Centre at Noida and Disaster Recovery Centre at Hyderabad.

2. **Required Delivery Schedule**: As per Section VII Clause no. 6- Payment and Timeline

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

4. **Security Deposit**: If the value of the purchase order will exceed **Rs. 1, 50,000/-** then the firm on whom purchase order will be placed will have to submit **3%** of the total cost of the purchase order against security deposit in form of Bank Guarantee/DD/ FDR/ Banker's cheque drawn on any scheduled commercial bank in India only in the favour of "The General Manager, BNP Dewas" payable at Dewas within **21 Days** from the date of Notification of Award of Contract. The Security Deposit should remain **valid for a period of 60 days beyond the date of completion** of all contractual obligations of the contractor, including warranty obligations, and will be refunded to the contractor without any interest, whatsoever, after it duly performs and completes the contract in all respects but not later than 60 days of completion of all such obligations under the contract. (As per letter no. F.9/4/2020-PPD Ministry of Finance, Department of Expenditure dated 12.11.2020 and subsequent amendment)

5. **LICENSES AND PERMITS:**
    Wherever applicable, the successful bidder shall ensure himself and also satisfy the Chief General Manager, Security Printing Minting Corporation of India Limited, Unit Bank Note Press, Dewas that the successful bidder possesses the legal license / permit to use a particular product / process / design / patent. The successful bidder shall be held responsible for all the civil/ criminal and tortuous consequences arising from any claim from any third party in this regard.

6. **TRAINING:** As per Section VII Clause no. **1.11** Training and Capacity Building

7. **FALL CLAUSE:** The BIDDER undertakes that it has not supplied / is not supplying similar product / systems or sub-systems at a price lower than that offered in the present bid in respect of any other Customer/Organization and if it is found at any stage that similar products / systems or sub- systems was supplied by the BIDDER to any entities at a lower price than that very price with due allowance for elapsed time will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the BUYER if the contract has already been concluded.

8. The successful bidder shall provide documents/drawings for site preparation after placement of the LOI/Contract.

9. **AFTER SALES SUPPORT**: The supplier shall provide technical support for the system/machine and make available all required spares and consumables for a period of at least 10 years from the date of expiry of warranty period. Written commitment should be submitted in this regard along with technical bid.

10. **RISK PURCHASE:**

(a) If the supplier after submission of tender and due acceptance of the same, i.e. Placement of Purchase order fails to abide by the terms and conditions of these tender documents, or fails to supply the deliverables as per delivery schedule given or at any time repudiates the contract, the purchaser shall have the right to:

(i) Forfeiture of the EMD if any and

(ii) Invoke the Security-cum-Performance Guarantee if deposited by the supplier and procure stores from other agencies at the risk and consequence of the supplier. The cost difference between the alternative arrangement and supplier tendered value will be recovered from the supplier along with other incidental charges, including custom duty, excise duty, taxes, insurance, freight etc.

(b) For all the purpose the Purchase order will be considered acceptance of tender. Supplier has to abide by all the terms and conditions of tender.

(c) In case of procurement through alternative sources and if procurement price is lower, no benefit on this account will be passed on to the supplier.

SECTION VII: SCOPE OF WORK ANDTECHNICAL SPECIFICATION

1. **SCOPE OF WORK**

The Track and Trace (T&T) is an integrated system/solution which will comprises of both Hardware (Barcode Printer & Scanner, IIOT sensors, Sever, Storage, Networking, Security, etc.) and Application Software (Barcode generation, Tracking application, IOT application, etc.). The SI will be required to implement the complete solution in all the three units (viz. SPM-Narmadapuram, BNP-Dewas and CNP-Nashik) for tracking of sheets, reams, boxes, notes, bundles, etc., along with necessary integrations with existing ERP (SAP) for bidirectional flow of information. The T&T should be a robust and scalable solution to meet the existing as well as growing needs.

The scopes of work mentioned in this section are minimum requirements. Bidders may propose a better or more optimized solution that meets the objectives specified in this RFP. Also, Bidders are advised to carry out their own assessment of requirement before submission of the response to this bid. Anything which is missing in this section but required for successful execution of the project shall be provided by the Bidder without any additional cost.

1.1. Design, Development and Customization

a. The SI shall be responsible for design, develop, supply, installation, configuration, deployment/ customization and commissioning of the complete Track and Trace solution (both hardware and software) required to meet the objectives of the project.

b. SI shall be responsible for detailed study of process being followed in BNP- Dewas, CNP- Nashik and SPM- Narmadapuram pertaining to paper manufacturing and currency printing.

c. SI shall study the existing business process functionalities, operations and methodologies, MIS reporting requirements, problem areas and expectations.

d. SI shall be responsible for detailed understanding of the existing SAP process (including functional and Technical requirements). SI shall have to coordinate with SPMCIL- IT Team in Delhi / DC Team in Noida for the same.

e. It will be the responsibility of SI to coordinate with all the internal and external stakeholders involved in this project.

f. The Requirement Traceability and Verification Matrix (RTVM) shall be prepared and maintain by SI to keep track of the requirements and trace their compliance through different stages of the Project.

g. The SI team shall have to visit Project locations (units), DC-Noida and DR-Hyderabad for requirement gathering and system understanding. All such arrangements shall be made by SI only at no additional cost to BNP, Dewas

h. The Team Leader shall be the single point of contact and shall assume overall responsibility for coordination with all the internal and external stakeholders involved in this project. Also, BNP, Dewas has appointed M/s. PricewaterhouseCoopers Private Limited (PwC) as Project Management Consultant for implementation of Track and Trace Project. The PwC team shall provide all the necessary support to the SI team for coordination with required stakeholders.

i. SI shall conduct regular meetings between department (and its representatives) and the 'key personnel' to discuss project progress and implementation at desired locations. Also, submit project progress and status report on weekly basis (preferably on every Monday).

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j. SI shall also be responsible for effective risk and issue management and escalation procedures along with matrix as part of project management. SI shall identify, analyze, and evaluate the project risks and shall develop appropriate strategies and action plan for mitigation of risks. As part of the Project, SI shall monitor, report and update risk management plans and shall be discussed during project meetings

k. SI shall also be responsible for all activities related to Quality Assurance and Control such as adhering to guidelines and standards of quality and compliance with the functional requirements of the project.

l. The system should be designed and developed with high redundancy to ensure 100% accountability and traceability.

m. The overall system should be scalable to support any addition of new machines, production lines and units in future. There should not be any constraint in application capabilities to add new users, machines, production lines and units.

n. IT Security is paramount for the entire system and SI should ensure that all the necessary security mechanisms should be built in the system to ensure end-to-end security.

o. The SI shall deploy and configure an appropriate role-based user access management system and configure authentication-based access for various users of the system. Electronic trail and event logs should be maintained and stored.

p. The application source code is to be maintained in a centralized source code repository at DC, Noida and any changes in the code should be monitored through Version Control System to maintain accountability and appropriate audit trails. Any associated cost related to the same shall be borne by SI.

q. The application should be designed and developed/customized in such a way that any number of new users and machines / lines can be added without any additional cost to BNP, Dewas.

r. It is suggested that wherever applicable the Track & Trace system should be designed and developed using Open-Source technology.

s. Track and Trace application platform should have provision for open API based architecture that facilitates easy integration with and by external applications to support interoperability. In case any of the components of the solution is a COTS product, appropriately designed wrappers shall be proposed, with the feature of publishing the APIs required for integration.

t. Track and Trace application should be able to retrieve data from active database as well as archival.

1.2. Integration with Existing SAP ERP

a. Track and Trace system shall be integrated with existing ERP (SAP) of SMPCIL for bidirectional flow of information. All the key information for decision-making shall be displayed to officials via SAP BI Dashboard. The indicative information for dashboard has been given in section 1.10. The detailed information shall be finalized once the SI is onboarded.

b. **SI shall be responsible for seamless integration with SAP at Process level, data level, field level, etc. Necessary customization required in existing modules of SAP shall be carried out by the SPMCIL DC team as per the requirements of Track and Track system*.**

c. SI shall ensure that all the interfaces shall be running without disrupting the core business of SAP

d. SI should use middleware for communication between Track and Trace and SAP to ensure secured and seamless integration. The SI should use SAP PI/PO** middleware for integration between Track and Trace and existing SAP.

e. The data exchange between two systems should be transmitted securely (encrypted) through secured HTTPS layer.

f. The Interfaces developed in SAP for ECC6.0 by SI can be reconfigured for S/4 Hana environment after SAP version upgrade. (The SAP version upgrade from ECC6.0 to S/4 Hana is currently being carried out by SPMCIL through separate tendering process.). However, if S4 Hana gets upgraded before the starting of Track and Trace project, then the SI shall be responsible to directly integrate with S4 Hana.

g. SI shall follow all the standard procedure and best practices for integration with Track and Trace.

h. SI shall ensure that there should not be any disruption in existing working of SAP whatsoever due to integration with Track and Trace.

i. SI should align and adhere with client's IT security policies.

j. The existing SAP workflows are given in annexure. The bidders are advised to perform detailed assessment pertaining to SAP integration prior to bid submission.

Note:

*Changes in existing SAP including BI dashboard shall be done by the SPMCIL DC team. However, in case due to change in policy later, the Track and Trace SI shall have to make necessary changes, customizations, configuration in existing SAP. The same shall be finalized prior to issuance of Work Order to successful bidder and cost of the same (as per the quoted cost in financial bid) shall be paid to SI.

**SPMCIL is in process of upgrading the existing SAP through separate tendering process and SAP PI/PO licenses shall be part of the same. The Track and Trace SI, in close consultation with SPMCIL and BNP-Dewas may leverage SAP PI/PO licenses procured by SPMCIL. The same shall be finalized prior to issuance of Work Order to successful bidder and cost of the same (as per the quoted line-item wise cost in financial bid of Table-4) shall be adjusted accordingly. However, SI shall have to submit the justification for the number of PI/PO licenses requirement to BNP, Dewas and SPMCIL.

1.3. Supply, Installation and Commissioning of IT infrastructure at DC and DR

a. SI shall supply, install and commission smart IT racks and IT components (compute, storage, network, security, etc.) with peripherals and accessories in the existing server farm of the DC-Noida & DR-Hyderabad. LT panel/ Power Distribution panels are available inside DC & DRC premises. SI needs to do the power cabling from the Panel to the Smart Rack.

b. OS and DB licenses shall be procured and installed as per the solution requirement by SI.

c. SI should ensure that installation and configuration of supplied items in no way impacts existing IT, non-IT & allied environment.

d. SI shall not cause any damage to the existing infrastructure of DC / DR Site and shall need to perform restoration if any damage occurs at own cost

e. In case, certain components which are required to meet the SLAs but not included in this RFP, the bidder shall include such equipment also in the unpriced bill of material and quote for the same in their Financial bid. It may be noted that specifications provided is this RFP are minimum requirement and SI can procure better equipment if required to meet the Scope of Work and SLAs

f. All the work shall be done in a conscientious manner as per the OEM guidelines and best industry practices. The system shall be subjected to inspection at various stages. Local regulation / codes shall be followed all the times. The SI shall follow all safety regulations and practices.

g. Bidder must consider cost of all passive materials like patch panel, cabling (Fiber, copper), etc. to install the necessary components under this project.

h. SI shall need to augment the storage immediately, once it reaches the utilization of 70%.

i. Disaster recovery site shall be in half capacity of proposed Data Center. However, storage would be identical in capacity.

j. Entire solution shall be IPv6 implementation ready and shall support both IPv6 & IPv4 i.e., in Dual Stack mode from day one.

k. VPN access for only staging and development zone shall be provided to the SI team and same should be considered with NGFW. However, there should not be any VPN access of the production environment to the SI and all the changes in this environment shall be carried out via using direct SPMCIL network only.

l. Augmentation (if any) of storage and compute as per the solution at DC, DR and Units shall be under SI's scope, no additional cost shall be paid for the same during the contract period. However, in case of addition of new line/machines/units which is not covered in current scope shall be treated as change request and payment to the SI shall be made as per applicable clause for infrastructure part.

m. Bidders should use necessary compression tools to ensure efficient utilization of storage.

n. Development, Staging and Production Environments to be setup in DC- Noida for running a high-availability production server efficiently. Following environments to be setup in DC- Noida for Track and Trace application

- **Development Environment**- This environment shall be used to configure, customize/ develop and test T&T application and other functionalities.

- **Staging Environment**- Staging or Pre-production environment is an environment for testing that exactly resembles a production environment except scale (1/4th). This environment should be close to an actual production environment and connect to other staging and pre-production services, data and databases. The department shall provide the sign off every release at this stage before actual deployment in production/live environment. UAT, Pilot and Trainings shall be carried out through Staging environment.

- **Production environment**- Final application/release to be deployed on this environment for actual use for business use. The Production environment shall connect to other production services, data and databases including local servers of units via secured medium.

o. All three units shall connect with DC through existing MPLS connectivity. The local servers installed at units shall receive information from the centralized server about quantity, barcode, production orders, etc. of the sheets which are belonging to that batch & update the information regarding the operation which is performed on it.

p. All the relevant unit-level data are transferred to the central server on near real-time basis. The data which has been transferred to central servers can be archived / truncated from the local unit after around 30 days. The detailed policy for archival / truncation of unit-level data from local servers shall be finalized in consultation with BNP, Dewas after SI's onboarding.

q. Below diagram depicts broad level proposed architecture. The bidder may advice better solution to meet the project objectives.
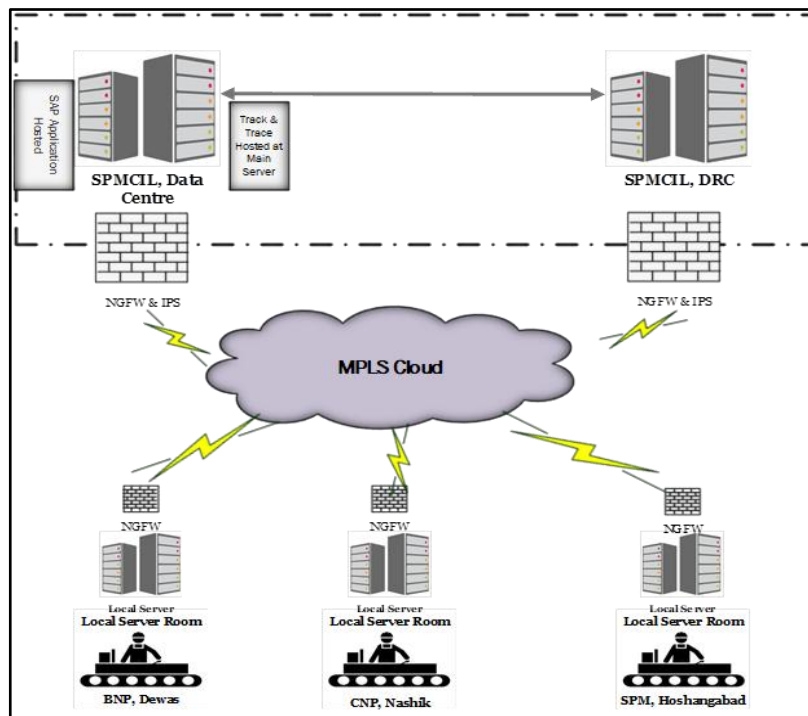
r. Indicative infrastructure requirements at DC, Noida and DR, Hyderabad is given below:

S. No	Item	Quantity/Capacity	
		Data Center, Noida	DR, Hyderabad
1.	Smart IT Rack	1	1
2.	Blade Servers and Chassis	• Development - 01 Server • Stagging – 02 Servers (Application and Database) • Production – 04 Servers (Application and Database)	Production – 02 Servers (Application and Database)
3.	SAN Storage (SSD storage) with dual controller	25 TB minimum usable	25 TB minimum usable
4.	Backup software	1	Not required
5.	Backup Solution: Tape-based backup	10 TB of raw data for which licenses (if required) has to be bought by SI. However, backup solution shall be scalable upto 25 TB.	Not required
6.	Load balancer	2	1
7.	Next Generation Firewall (NGFW) & IPS	2	1
8.	SAN Switch	2	1
9.	Router	2	1
10	Switch	2	1
11	Server Security (antivirus)	As per solution	As per solution
12	OS Licenses	As per solution	As per solution
13	DB Licenses	As per solution	As per solution

s. In the event of DC failover or switchover, DR site will take over the active role, and all the requests will be routed through that site. Application data and application states will be replicated between data centers so that when an outage occurs, failover to the surviving data center can be accomplished within the specified RTO. Necessary DR solution for replication of data, shall be arranged by the SI to ensure business continuity.

t. SI shall switchback the services from DR to DC, once DC gets restored using specified RPO & RTO.

u. Considering the critical nature of the Project and 100% availability, SI to build proper mechanism for Business Continuity. Following RPO and RTO should be met by application

RPO (Minutes)	RTO (Minutes)
30	120

Note:

- All the infrastructure at DC should be in High Availability (HA) mode. The SI shall ensure that high availability of all components is built into the architecture and meets the requirements of service levels as mentioned in the RFP.

- In case, certain components which are required to meet the scope of work and SLAs but not included in this RFP, the bidder shall include such equipment in the unpriced bill of material and quote for the same in their Financial bid. It may be noted that specifications provided is this RFP are minimum requirement and SI can procure better equipment as per project requirement.

- SPMCIL is in process of upgrading the technical infrastructure at DC, Noida,   DR, Hyderabad and all three units. The Tech Refresh RFP for the same is expected to come out soon or has been published on <<date>> and it is available on <<portal name>>. The bidders are advised to refer the same. As mentioned in this section, the Track and Trace application shall be hosted at DC, Noida and replication shall be done at DR, Hyderabad, the indicative infrastructure requirement for the same has been given in this section. The selected bidder in close consultation with SPMCIL and BNP- Dewas may leverage common Tech Refresh infrastructure to host the T&T application at DC, DR and all three units. The same shall be finalized prior to issuance of Work Order to successful bidder and cost of the same (as per the quoted line-item wise cost in financial bid of Table-3) shall be deducted/adjusted accordingly.

1.4. Supply, Installation and Commission of Track and Trace Solution (along with Infra) at units

a. The SI shall be responsible for setup of Server Rooms at all the three units which includes supply, installation and commissioning of IT infrastructure such as Smart Racks, software, hardware, database, OS, networking, security, etc.

b. The SI shall be responsible for supply, installation and commissioning of required machine infrastructure such as barcode printer, reader, sensors, etc. at all the three units. All the mechanical, electrical, civil & instrumentation works, and related items shall be part of the SI's scope of work.

c. The SI shall be responsible for establishing server rooms at all three locations which includes all the required cabling, civil, instrumentation, mechanical, electrical, Non-IT works, UPS, etc. Necessary rooms for setting-up of server rooms shall be provided by respective units in their premises. SI to adhere with best practices for designing and setup of Server room at each unit.

d. The SI shall be responsible for providing HMI with Monitor, Control/Data Unit, PLC, Interfacing components, Tower Lamp with buzzer, Printer for reports printing, etc. which shall be connected to machines (wherever applicable as per project and client requirements).

e. BNP/CNP/SPM shall provide the necessary support to SI in terms of power and utilities points for successful completion of work. BNP/CNP/SPM shall provide the power requirements upto 20 meters of machine.

f. The SI should ensure that there is no damage whatsoever in any of the existing machines due to installation of Track and Trace equipment. If such things happen the entire amount related to the damage, repair, replacement (if any), etc for the same shall be borne by the SI.

g. Necessary internal LAN/other cables to be laid by SI in all the three units to ensure end to end connectivity and there should not be any disruption in sending and receiving data and information from machines to servers and vice – versa.

h. All the work shall be done in a conscientious manner as per the OEM guidelines and best industry practices. The system shall be subjected to inspection at various stages. Local regulation / codes shall be followed all the times. The SI shall follow all safety regulations and practices.

i. Indicative Infrastructure requirements at all three units are given below:

S. No	Item	Quantity/Capacity		
		BNP, Dewas	CNP, Nashik	SPM, Narmadapuram
1.	Smart IT Racks	1	1	1
2.	Rack Server	Production – 04 Servers (Application and Database)	Production – 04 Servers (Application and Database)	Production – 04 Servers (Application and Database)
3.	SAN Storage (SSD storage) with dual controller (with 10 TB NLSAS on same storage controller for backup with necessary licenses)	10 TB minimum usable	10 TB minimum usable	10 TB minimum usable
4.	Load balancer	2	2	2
5.	Next Generation Firewall (NGFW)	2	2	2
6.	SAN Switch	2	2	2
7.	Router	2	2	2
8.	Switch	2	2	2
9.	Server Security (antivirus)	As per solution	As per solution	As per solution
10.	OS Licenses	As per solution	As per solution	As per solution
11.	DB Licenses	As per solution	As per solution	As per solution

Note:

- All the IT infrastructure at all three units should be in High Availability (HA) mode. The SI shall ensure that high availability of all components is built into the architecture and meets the requirements of service levels as mentioned in the RFP.
- In case, certain components which are required to meet the scope of work and SLAs but not included in this RFP, the bidder shall include such equipment in the unpriced bill of material and quote for the same in their Financial bid. It may be noted that specifications provided is this RFP are minimum requirement and SI can procure better equipment as per project requirement.

1.5. IIOT based solution for monitoring key parameter

a. SI shall be responsible for installation, deployment, and maintenance of all necessary *IIo*T sensors and other peripheral devices at unit level/machine level (wherever applicable). The end-to-end I*Io*T solution shall be provided by SI under Track and Trace project.

b. *IIoT* sensors shall be installed at key points by SI at Units & Machine level (wherever applicable) to monitor key parameters such as humidity and temperature of machines critical points. The environmental sensors shall help to detect the machine's operating environment.

c. All the data collected through various *IIoT* sensors shall be kept at local unit level server. Frequency of data generation shall be decided later after SI's onboarding.

d. Energy consumption of various machines to be monitored using multi-function digital energy meters. The energy consumed by the machines when compared with the rated optimum consumption (as provided by the machine manufacturer) will indicate the energy efficiency of the machine.

e. It is the responsibility of SI to generate various meaningful insights from the data generated from I*Io*T sensors to improve the overall efficiency of existing process. Analytics tools required for such reports shall be under bidder's scope.

f. All the data generated through IIoT sensors should be stored on premises at Unit level and DC-DR level. The IIoT solution should be designed considering the same as there would not be any internet connectivity inside the factories.

g. Following are some indicative reports to be provided by SI through I*Io*T -
   - Impact of parameter (temperature and humidity) in the production quality
   - Support in root cause analysis of machine breakdown
   - Energy Consumption Report machine wise / year wise (shift wise/daily /weekly /monthly / yearly)
   - Ad Hoc reports as per the user requirement to be generated by SI

1.6. MPLS connectivity

a. The existing Network Architecture of SPMCIL is utilizing the MPLS core network for carrying the data traffic across the SPMCIL units by dual, distinct service providers on two different non-sharing networks for redundancy with a Single Hop.

b. The current bandwidth is around 6 Mbps and the same can be enhanced by DC, Noida as per the requirement of Track and Trace system. However, the bidder is required to provide the sizing and corresponding justification for the bandwidth requirements.

1.7. Centralized Helpdesk Setup

SI shall be responsible for setting up a helpdesk which should be operational 24 x 7 as per client's calendar. Tickets shall be logged and updated by the helpdesk agent via all modes including Voice calling, Email support, Web help or any other new channel launched during the course of the contract. The SI need to provide necessary ticket logging system for the entire duration of Warranty and CAMC phase. This helpdesk must be compliant to the ITIL guidelines and standards. The help desk should be setup from the Pilot launch of the project.

Typical activities of helpdesk shall include:

i   Use the ticket logging system in line with the SLAs. Severity may be assigned to each call as per the SLAs.

ii   Track each incident / call to resolution. SI shall identify the solution and take necessary approvals and release the patch after fixing the defects.

iii   SI shall document issues / defects / bugs / etc. encountered as well as document the resolution of the same. SI shall also update the Consolidated List of Common Errors and their Resolution document.

iv   Escalate the calls to the appropriate levels, if necessary, as per the escalation matrix agreed upon by SI and BNP, Dewas.

v   Coordinate with respective OEMs for closure of calls.

vi   Analyse the incident / call statistics and provide monthly reports including but not limited to:

     a. Type of incidents / calls logged

     b. Incidents / calls resolved / calls open

vii   SI activities shall be monitored as per SLAs defined under the contract.

1.8. Quality Assurance and Exception Handling

The entire solution should be designed and developed considering very high-level (100%) accuracy of printing, labeling, reading and recording of barcodes and other sensors as applicable. The SI shall deploy sufficient technical manpower at all the three units for quick resolution of any issues. The following are some identified scenarios where onsite resources may be required for quick resolution of issues:

S. No	Scenario	Mitigation Plan
1.	Barcode printing / labelling not done on sheet/ream/pallet/bundle/box/etc. through by barcode printer/labeler installed at machines due to some reason	Onsite Technical team from SI to check and resolve the issues immediately. However, Penalties shall be imposed as applicable.
2.	Barcodes printed/ labelled not read through scanners installed at machines due to some reason	Onsite Technical team from SI to check and resolve the issues immediately. However, Penalties shall be imposed as applicable
3.	Reconciliation of sheet/notes not done at the end of any stage (input ≠ output)	In case of any mismatch, onsite team need to provide support in carrying-out verification/ reconciliation and find out the cause for the same

4.	Breakdown of infrastructure installed at units	SI should have to keep the necessary spares onsite at all the units for immediate replacement in case of any breakdown. However, Penalties shall be imposed as applicable
5.	Sheet related anomalies like double sheet, lost sheet, wrong sheet, wrong delivery pile, blue trial paper mixed to watermark banknote paper and similar conditions not detected through system / sensors	Onsite Technical team from SI to check and resolve the issues immediately. However, Penalties shall be imposed as applicable.

1.9. Manpower Deployment

A. **Implementation Phase:** The below table indicates the minimum manpower to be designated by SI during the implementation phase of the project for regular interaction with BNP, Dewas and other project stakeholders. However, other technical resources as per the project requirement shall be assessed and deployed by SI as per the scope of work.

S. No.	Manpower Type	Education and Exp.	Roles and Responsibilities
1.	Team Leader	1. B. Tech /BE/ MCA with MBA 2. Project Management Experience of Managing/implementation of Large-Scale projects related to Track & Trace solution 3. Relevant 10 years of experience	• End to end management of Project for all the three units and DC-DR • Coordination with all Project stakeholders • Single point of contact (SPOC) for Management and Administrative related issue • Preparation of project documents required under this project • Project Risk and Quality management • Support in documenting MoMs and disseminating information to all relevant stakeholders
2.	Solution Design Expert	1. B. Tech /BE/ MCA 2. Experience as solution design expert of large-scale IT projects 3. Relevant 8 years of experience	• Design the entire ecosystem for Track and Trace system • Design and implement solution architecture and IT solution including DC, DR and all three units • Use of technology to achieve business outcomes • Collaborate with stakeholders to understand business goals and support delivery outcomes • Prepare technical documents

S. No.		Functional/ SME/Domain Expert	1. Should have experience of working on currency/note manufacturing/printing related projects 2. Relevant 8 years of experience	• required under this project • Design security of the Track and Trace Solution considering global best practices
3.		Functional/ SME/Domain Expert	1. Should have experience of working on currency/note manufacturing/printing related projects 2. Relevant 8 years of experience	• The person should be well versed with the Currency Manufacturing and printing process. • Coordinate with different project stockholders for understating the functional process and requirement. • Coordinate with various machines OEMs for integration, if any • Providing subject expertise and guidance to technical team during the solution design and implementation. • Determining whether technical solutions meet defined functional requirements. • Verifying functional reference information, including user guides, training manuals, and system requirements.

B. **Warranty and CAMC Phase:** SI shall have to deploy following minimum manpower onsite at all the three units and DC-DR during warranty (1 year) and CAMC phase (4 years). However, other technical resources can work from backend, but SI need to ensure that there should be proper coordination between Onsite and Backend team, so no work gets affected, whatsoever.

S. No.	Location	Manpower Type	Number of Resources	Shift	Roles and Responsibilities
1.	BNP, Dewas	Track and Trace Expert	2	16 x 7	• Provide dedicated onsite support to units and ensure that Track and Trace should work fine • Immediate replacement of defective and faulty equipment. • Troubleshoot and Resolve issues related to Track and Trace System
2.	CNP, Nashik	Track and Trace Expert	2	16 x 7	
3.	SPM, Narmadapuram	Track and Trace Expert	3	24 x 7	
4.	SPMCIL DC & DR and at all	IT Support	1 – at DC &	24 x 7	• Monitoring, administration, management and

| three units | Executives | DR 3 – one (01) at each unit. | | maintenance of the entire Track and Trace Solution at Data Centre & Disaster Recovery and units infrastructure supplied under this project.
• Ensure availability and proper functioning of the DC & DR and units infrastructure including but not limited to racks, network, security, compute storage & backup and other peripheral equipment installed in DC & DR and units.
• Monitor the performance of the DC & DR and units components including usage, availability and analyse the future requirements, if any
• Install software (OS and applications) updates and upgrades for the components supported by them in the DC & DR and units. This will include the patch upgrade or any type of upgrade for management software, operating systems, network management software, security software, anti-virus software or any other software.
• Troubleshoot and Resolve IT issues related to Track and Trace System |

Note:

The above are indicative manpower requirements for Warranty and CAMC Phase. BNP, Dewas may ask bidder to deploy additional resources as per the project requirement and the payment for the additional resources shall be made during CAMC phase as per the man-month rate quoted in financial bid. No cost shall be paid during the warranty period for the manpower. As per the production requirement, the duration of shift sometime goes beyond 8 hours, the SI shall have to keep provision of the same to ensure uninterrupted services.

1.10. Dashboard, Report and Analytics

a. The Information and data from track and trace system should be displayed via both existing SAP BI dashboard and through dedicated track and trace dashboard.

b. The SI shall be responsible for creating its own Track and Trace dashboard which shall be accessible to project stakeholders on privilege/role/category basis.

c. The SPMCIL DC team shall carry out necessary changes in existing SAP BI dashboard, however all the necessary support pertaining to SAP integration shall be provided by the SI (as mentioned under section 1.2)

d. The Track and Trace application shall provide dynamic dashboards to all end-users. The layout and content of the dashboard would be based on the user role/ category/ type etc.

e. The system should provide real-time information via dashboards to SPMCIL, BNP, CNP and SPM officials and other stakeholders.

f. Below are some indicative dashboard requirements to display from T&T and SAP BI:

A.	Dashboard – SPMCIL Corporate Head Office (CHO)
1	Real-time Denomination-wise status of Sheets/Notes at different vaults (Offset, Intaglio, Numbering, finishing etc)
2	Real-Time status of Paper Manufactured in SPM and received at BNP & CNP
3	Real-Time efficiency and productivity of machines and units
4	Real-Time machines status of all three units ~ Working, Breakdown, Input & Output, etc.
5	Consolidated reports shift /batch/day/month wise pertaining to wastages (Spoiled sheet)
6	Real-Time status of Notes/Currency dispatched to RBI

B.	Dashboard – Ministry of Finance Official (external stakeholder)
1	Real-time Indent status report covering following • Total Indent Received from RBI for a year • Completed Production as on date • Dispatched to RBI as on date • Remaining Indent as on date

C.	SPM, Narmadapuram
a.	Running efficiency of a manufacturing unit with reference to productivity of machines
b.	Running efficiency of a manufacturing unit with reference to productivity of manpower
c.	Running efficiency of a Machine at a given instance of time in terms of input and output
d.	Running operating speed of Machine at a given instance of time
e.	Machine breakdown status and downtime
f.	Real-time status of paper manufacturing
g.	Real-time Machine-wise status of paper manufacturing
h.	Real-time Denomination-wise, Storage-location-wise status of paper manufacturing

i.	Quantity of input paper / sheets provided to a machine and output sheets manufactured, spoiled or marked as suspected – (Batch-wise, machine-wise, shift-wise, day-wise, etc.)
j.	Real-time capturing of environmental parameters like Humidity, Temperature, Energy efficiency of machines, etc. and generating alerts in case of variations beyond acceptable range. (Batch-wise, machine-wise, shift-wise, day-wise, etc.)
k.	Machine Speed – (Batch-wise, machine-wise, shift-wise, day-wise, etc.)
l.	Once the processing of a batch gets completed the system should generate a printable report containing detailed information about each printed batch: ID, date, quantity of good and defective sheets, reconciliations, operators, machine speed, packing and dispatch details (wherever applicable), etc.
m.	Material usage and consumption at the end of each process/batch/shift, etc. to be provided through report
n.	End to End traceability report by entering key details such as sheet number, note number, bundle number, batch number, etc.
o.	The system should provide a report of the balance (items moved in and out in a specific timeframe) of the relevant packing area.

D.	BNP, Dewas and CNP, Nashik
a.	Running efficiency of the printing press with reference to productivity of machines
b.	Running efficiency of the printing press with reference to productivity of manpower
c.	Running efficiency of a Machine at a given instance of time in terms of input and output
d.	Real-time Vault-wise, Denomination-wise status of blank/printed sheets, notes, bundles, boxes, etc.
e.	Real-time Unit-wise status of currency notes printing
f.	Real-time Machine-wise status of currency notes printing
g.	Real-time Denomination-wise status of currency notes printing
h.	Number of input sheets provided to a machine and output sheets/notes printed, spoiled or marked as suspected. (Batch-wise, machine-wise, shift-wise, day-wise, etc.)
i.	Real-time capturing of environmental parameters like Humidity, Temperature, Energy efficiency of machines, etc. and generating alerts in case of variations beyond acceptable range. (Batch-wise, machine-wise, shift-wise, day-wise, etc.)
j.	Machine Speed – (Batch-wise, machine-wise, shift-wise, day-wise, etc.)
k.	OVI / CSI ink consumption - (Batch-wise, machine-wise, shift-wise, day-wise, etc.)
l.	Intaglio plate utilization - (Batch-wise, machine-wise, etc.)
m.	Once the processing of a batch gets completed the system should generate a printable report containing detailed information about each printed batch: ID, date, quantity of good and defective sheets, reconciliations, operators, machine speed, packing and dispatch details (wherever applicable), etc.
n.	Material usage and consumption at the end of each process/batch/shift, etc. to be provided through report
o.	End to End traceability report by entering key details such as sheet number, note number, bundle number, batch number, etc.
p.	The system should provide a report of the balance (items moved in and out in a specific timeframe) of the relevant packing area.

Note-

a. The above are indicative reports, the SI may have to generate other ad-hoc reports as per the requirement of client and project without any additional cost to BNP, Dewas. Application shall provide ad-hoc query and analysis capability so that business users could create new analyses from scratch or modify existing analyses.
b. Tools and utilities shall be provided to facilitate exporting reports in various formats such as MS Word, MS Excel, Adobe Acrobat etc.
c. System shall allow user to generate MIS reports/previous trends/graphics etc. as per the business process requirements. They shall be customizable as per user requirements.
d. Analytics tool required to perform the data analytics and generate meaningful insight for T&T dashboard shall be under SI's scope.

1.11. Training and Capacity Building

Based on the roles and responsibilities of BNP-Dewas, CNP-Nashik and SPM-Narmadapuram employees, a role-based training approach shall be imparted by SI.
Capacity Building will include the following:

- Imparting training as per the Training Need Analysis (TNA).
- Trainings will be imparted to all levels of BNP-Dewas, CNP-Nashik and SPM-Narmadapuram employees.
- Prepare and organize training programs to facilitate the efficient usage of new system.
- Training shall encompass the knowledge of basic functionality of solution and other back-end processes.
- Training shall also be provided for basic troubleshooting activities in case of problems.
- User Manuals, presentations and videos to be developed to promote self-learning and assist training participants in undergoing the training.
- There would be mechanisms to capture feedback of training programs conducted to gauge the effectiveness of instruction and make improvements if required.
- Refresher trainings to be provided by onsite team on quarterly basis.

Training Need Analysis (TNA)
Based on the organizational hierarchy and the envisaged roles and responsibilities, departmental officials have been categorized into four bands - A, B, C & D.

Levels	Description
Band A – Strategic Group	Senior Management
Band B	Middle Management
Band C	System Administrator & other officers of IT Cell of SMPCIL, BNP-Dewas, CNP-Nashik and SPM-Narmadapuram
Band D	Production line users of the track and trace application

The following table indicates the sample training modules:

SI #	Module description	Number of Personnel to be	Duration

		trained	
1.	High-Level Track & Trace Application software related training with main focus on reporting and dashboard (Band A and B)	20 persons/ batch	2 days / batch
2.	System Administration and support training (Band C)	20 persons/ batch	4 days / batch
3.	Detailed training on the Track & Trace application software (Band D)	20 persons/ batch	4 days / batch

Training Material and manuals

Most of the training would be an Instructor-Led Training (ILT) conducted by trained and qualified instructors. To maintain consistency, standard templates should be used for each component of a module. The scope of developing and designing the Training Manuals, User Manuals, Operational and Maintenance Manuals shall lie with the SI. The following mode of delivery may be considered for imparting effective training to the officials:

- Course Presentation (PowerPoint)
- Instruction Demonstrations (Application training environment)
- Hands-on Exercises (Application training environment)

1.12. Documentation

The SI shall provide atleast following documents as per client and project requirement. All the below documents should be submitted prior to start of pilot rollout of project -

a. Installation manuals for all the equipment to be installed under this project.
b. User manuals and system manual covering detailed information required for the administration of entire track and Trace system.
c. SI shall also maintain Standard Operating Procedure (SOP) as per the requirement of project.
d. All reference and user manuals for system components, including those components supplied by third parties.
e. Software documentation which also includes the version number of all software, including that supplied by third parties.
f. Training Manuals, Configuration Procedures (SCPs) and Emergency Operating Procedures (EOPs).
g. Comprehensive Exit Management Plan
h. All necessary reports for SLA compliance as per format defined by BNP, Dewas/Third Part Auditor (TPA).
i. Software cum API documentation which also includes the version number of all software, including that supplied by third parties.

1.13. Certification

a. SI shall be responsible for implementation of ISO 27001:2018 or latest including drafting policy, procedures documents, implementation of those policies, procedures conducting internal & external Audits, closure of findings, and securing the certification successfully.

b. The SI shall be responsible for ISO 27001:2018 compliance of only Track and Trace related application and infrastructure at DC, DR and all three units (SPM, BNP and CNP).

c. SI shall have to obtain, manage and continue the certificates and these certifications should be completed immediately within 1 month after the FAT and Go-live. The cost of certification shall be borne by the SI.

1.14. Integration of New Pulp Plant and Paper Machine with SAP through SCADA

a. New Pulp Plant and Paper Machine at SPM, Narmadapuram are required to be integrated with SAP through SCADA. Though these machines shall not be part of Track and Trace system, however, data from the same need to be integrated with SAP directly.

b. Details regarding the raw material, utilities, semi-finished and finished products are as below:

S.No	Plant	Raw materials used	Utilities	Finished & Semi-finished	Total
1.	New Pulp Plant	8	5	2	15
2.	Paper Machine	25	15	20	60
Total					75

c. Below are approximate parameters required to be integrated with SAP:

Process Tags	112
Maintenance Tags	90
Total	**210 Tags (approx.)**

d. This requirement of integrating New Pulp Plant and Paper Machine with SAP through SCADA can be taken up by SI separately in Phase-2 of this project after completion of T&T system FAT.

e. The requirements mentioned in this section are indicative. Bidders are advised to carry out the detailed assessment (including field visit at SPM, Narmadapuram) pertaining to the integration of above-mentioned machines with SAP, prior to submission of the bid.

1.15. User Acceptance Testing (UAT)

a. SI shall maintain a traceability matrix, to confirm that all the business and functional requirements as stated in the SRS and in this RFP are met by the solution.

b. UAT to be conducted once the Functional, Unit, Integration, System, Security, etc. testing of entire system shall be successfully conducted by SI internally.

c. SI shall be responsible for:
   i. Setting up of Stagging environment for UAT in data center and installation and commissioning of all necessary infra (Hardware, Software, Scanner, Reader, Sensors, IOT devices, etc.) at one complete production line at both SPM, Narmadapuram and BNP, Dewas.
   ii. Sharing of user manual, admin manual, test cases, test plan and QA Results for User Acceptance testing with the BNP, Dewas.
   iii. Cabling and LAN setup as per the requirement inside the unit
   iv. Installation and commissioning of IIoT sensors to measure parameters like humidity, temperature and energy efficiency of machines.

    v.   Testing the T&T Systems under field conditions and as per functional specifications.

    vi.   Provide training to the customer for Acceptance Testing.

    vii.   Logging of acceptance defects in Defect tracking tool.

    viii.   Fixing of the defects reported by the customer.

    ix.   Necessary integration with SAP ERP system for bidirectional flow of information and data, which shall be required for UAT.

d. The primary goal of User Acceptance Testing (UAT) is to ensure that the applications meet the requirements, standards, and specifications as set out in this RFP and as needed to achieve the desired outcomes.

e. Upon successful UAT and prior to the Pilot run, the SI shall undertake security and performance testing & certification of the Software

f. The SI shall be responsible to ensure that the solution is completely operational as per the requirements in this RFP and all the acceptance tests are successfully concluded as per the satisfaction of BNP, Dewas and other stakeholders.

g. The BNP, Dewas will have the right to get the solution verified/certified by its nominated agency during the UAT phase. The primary goal of validation is to ensure that the Project (including all the project components as discussed in the scope of work) meets requirements, specifications and performance.

Note- BNP, Dewas in consultation with other project stakeholders to select the one complete production line for UAT purpose, the same shall be communicated to SI after onboarding.

1.16. Third Party and Security Audits

a. SI shall carry out Vulnerability assessment (VA) and Penetration Testing (PT) using certified tool and submit VAPT report prior to start of UAT.

b. The SI shall be responsible for getting the security audit done prior to the Pilot.

c. BNP, Dewas may appoint an external agency/ Third-party (CERT-IN empaneled agency) to conduct independent security assessments of developed/customized application and SI shall extend all the necessary support.

d. SI shall support all source code fixes / patching activities, if recommended during audit.

e. SI shall conduct regular security audits for T&T application using their own tools for proactively identifying and fixing any security vulnerabilities.

f. Additionally, BNP, Dewas may later choose to get the Track and Trace solution / system undergo any kind of STQC / third party audit of Application and Infrastructure both (as per applicability) and at any point of time during the SI's tenure, to which SI will assist and fix defects without any additional cost to BNP, Dewas. The testing may include:

- Functional Testing
- Accessibility Testing
- Performance Testing
- Penetration Testing
- Vulnerability Testing
- Database Server Controls
- Infrastructure Audit at respective locations
- Any other as per IT industry standards

1.17. Pilot Roll Out

Project shall be rolled out in one production line at both SPM, Narmadapuram and BNP, Dewas, which has been used for UAT purpose. ==Pilot test shall be conducted for 1 shift of 8 hours for 30 days==. SI shall be responsible to take all the necessary measures to ensure successful execution of pilot in one line.

The below conditions are indicative and shall be finalized during the project inception stage after requisite approvals from BNP, Dewas.

A. Entry Conditions of Pilot
    a. UAT sign-off by BNP, Dewas
    b. Security audit certification from Cert-In empaneled agency.
    c. Installation of all necessary IT infrastructure at DC- Noida, SPM-Narmadapuram and BNP-Dewas as per the requirement of pilot rollout
    d. Installation of all the equipment and sensors at one complete production line where Pilot to be conducted.
    e. Cabling and LAN setup as per the requirement inside the unit
    f. Installation and commissioning of IIoT sensors to measure parameters like humidity, temperature and energy efficiency of machines.
    g. Successful completion of the trainings with regards to T&T application.

B. Exit Conditions of Pilot
    a. Generation of Barcode from the software
    b. Printing of Bar code on Sheets, Reams, Pallets, Bundles, Boxes, etc. as per maximum machine speed
    c. Scan the Barcode through devices as per maximum machine speed
    d. Detection of sheet anomalies through sensors
    e. Establishing the Parent – Child relationship wherever applicable
    f. Successful acquisition and demonstration of IoT related parameters.
    g. Successful integration with SAP ERP system for bidirectional flow of information and data
    h. Successful display of reports and other key parameter to Project stakeholder on T&T and SAP dashboard, wherever applicable
    i. All the functionalities of T&T system mentioned under this RFP/tender document should be successfully executed by the system
    j. Compliance of the SLAs as mandated in this RFP.
    k. In case of non-compliance of SLAs, the SI shall be allowed extension 7 days to rectify the non-compliance and meet the set SLA standards. The SI will not be paid for the extension period of Pilot phase.
    l. The problems reported by the SPMCIL, BNP, CNP and SPM teams during the pilot run should be recorded as a defect and resolved.

Note: Based on the success of the above parameters, the go–ahead would be provided to the SI for complete project roll out.

1.18. Final Acceptance Testing (FAT)

a. FAT shall be conducted after the entire system has been installed, integrated and commissioned in all the units. FAT shall be conducted on full system completion only, to determine if the system functional and technical requirements as specified are met with peak load.

b. Construction of Server rooms including necessary cabling, civil, instrumentation, mechanical, electrical, Non-IT works, etc. at all three units shall be completed before FAT.

c. The Final Acceptance Test plan shall be submitted by SI to BNP, Dewas for approval. FAT shall be carried out jointly by SI and BNP, Dewas and other project stakeholders.

d. On successful completion of FAT, certificate for the same shall be issued by BNP to the SI. The date on which FAT certificate is issued shall be deemed to be the date of successful commissioning of the Track and Trace system and thereafter the Warranty and CAMC will start by SI. Responsibility of SI in FAT shall include below but not limited to-

- OEM certification of all the components installed.

- All equipment's must be installed at project sites as per the specification and project requirement

- Availability of all the defined services shall be verified.

- SI will arrange the test equipment required for performance verification, if required

- SI shall be responsible for the security audit by a certified third-party Cert-In empaneled agency during FAT.

- Successful DR drill

1.19. Warranty & Comprehensive Annual Maintenance contract

a. Complete system and all of its components will be under warranty for 12 months from date of issue of final acceptance certificate from BNP, Certificate and system Go-Live, warranty includes all Hardware, Software, Barcode Printer & Scanner Equipment, Sensors, Manpower, Consumables such as Barcode, RFID, etc. and all other components to be supplied under the project.

b. The system shall be under Comprehensive Annual Maintenance Contract (CAMC) for a period of 4 years from the date of expiry of warranty. The CAMC is comprehensive and inclusive of all Hardware, Software, Barcode Printer & Scanner Equipment, Sensors, Manpower, Consumables such as Barcode, RFID, etc. and all other components supplied under the project.

c. **The quantity mentioned below for Barcode and RFID, indicates the expected barcode printing and RFID requirements under this project on yearly basis. The requirement may increase or decrease as per the actual indent from RBI. Hence, cost of Consumables (Barcode and RFID) to be paid on pro-rata basis to SI. The SI shall be responsible to produce evidence of Barcode / RFID generated through automatic system generated reports.**

#	Description	Tentative Quantity
1	Barcode Printing on Sheets	200,000,000
2	Barcode Printing on Reams	240,000
3	Barcode Printing on Bundles	10,000,000
4	Barcode Printing on Batches	2,000,000
	Total Barcode Printing	**212,240,000**
	Total RFID on Boxes	**116,000**

d. During Warranty and CAMC Period, Bidder shall maintain the system so that it is operational and running round the clock.

e. The SI shall provide Guarantee that every work executed under this project shall be free from all defects and faults in materials, workmanship etc. and shall be of the highest grade and consistent with established and accepted standards for materials and workmanship of the type ordered and full conformity with the specifications and equipment shall satisfy its intended use.

f. Workmanship and operation of all the equipment, accessories etc. supplied by the SI shall be under warranty for a period of minimum 12 months from the date of taking over the system / issue of acceptance certificate of the system by the BNP- Dewas. SI shall also provide the total maintenance of the equipment / systems during warranty & CAMC period at all the location mentioned in this tender document.

g. It shall be obligatory on the part of SI to modify and/or replace any hardware and modify the operating, application and diagnostics software free of cost, in case of any malfunction is revealed during operation after taking over within the warranty period. Also, the SI must do corrections and up gradation of the software during warranty & CAMC Period.

h. During warranty & CAMC period, the SI has to deploy Engineers (Track and Trace Expert and IT Support executive) as per clause 1.9 in SPM, BNP, CNP and DC-DR from the date of final acceptance of system for smooth operation/maintenance/use of the system by various users and also for customizing configuration by way of proper selection existing software/hardware features of the SYSTEM. The engineer shall be required to check the health of the system on daily basis and do maintenance work of the System. The engineer has to work on shift basis.

i. SI shall periodically carry out Routine Preventive maintenance (Preventive Maintenance after every 3 months) during the entire warranty & CAMC period starting from date of final acceptance. The service engineer(s) so deputed shall be qualified and fully conversant with the Warranty and CAMC aspect of the system and sub-systems of other vendors (e.g., IT Infrastructure, Barcode Printer & Reader, Sensors, etc.) supplied against this tender/purchase order. Report of periodic maintenance is to be submitted with BNP and other stakeholders

j. The wages / salary of the Engineer shall be included in the cost of the project and no separate cost to be paid by BNP, Dewas for the same

k. Supplier shall have all the statutory and legal requirements for engaging manpower. BNP reserves right to verify the same.

l. Supplier shall maintain vital spares at all the three and DC-DR to restore the system immediately in case of breakdown during warranty & CAMC period. During warranty & CAMC period, all defective / faulty items shall have to be replaced / rectified by the supplier without any additional cost.

m. During warranty & CAMC period, defective HDD shall have to be changed with working one on non-replacement basis. The defective HDDs shall be kept with SPM/BNP/CNP.

n. The Bidder (in case of non-OEM) shall maintain back-to-back agreement with the respective OEMs for proper maintenance of the entire infrastructure supplied under this project. The agreement shall remain valid during the warranty Period and CAMC period. Copy of Such Agreement to be provided to BNP

o. As SPM, BNP and CNP have shift operation, the resident engineers may have to perform shift duty. These engineers are also liable to work on holiday/Sunday (if services are required) and no additional amount will be paid.

p. The engineers should be qualified Degree/Diploma Engineer with an experience of not less than 2 (two) years in Computer/Electronics Hardware, Software & computer network maintenance. The Firm is required to provide evidence in dealing/maintenance in respect of qualification and experience, which would be checked by this Office to verify the suitability/competency of the service engineer.

q. The resident service Engineers provided by the firm shall not be changed frequently. However, if found incompetent by the officers of BNP/CNP/SPM, the Resident Service Engineer/s shall be changed by the vendor immediately.

r. Educational Qualification for resident service engineer - Minimum ITI/Three Year Diploma (CSE, ECE, IT) or higher qualification such as B.Tech/B.E (CSE,ECE,IT)/BCA/ MCA/M.SC (IT,ECE, Computers)

s. The bidder will be responsible for following all labor laws and safety procedures in respect of manpower deployed by them for the purpose of this project.

t. Bidder will have to provide necessary tool kits to its deployed resources to perform their duties effectively.

u. The deputed staff shall be considered under SKILLED category and all central govt. rates and rules shall be applicable. The deputed staff daily wages shall not be less than minimum wages of skilled category of central govt. during the period of contract.

v. Central Govt. labor laws shall be applicable for the contract.

w. The SI shall be responsible for compliance of all statutory provisions relating to Minimum Wages, Provident Fund, ESIC, Bonus etc. in respect of the persons deployed under this project

x. The remuneration of the deployed staff must be credited to their bank account by the successful agency/bidder latest by 10th of every month. A penalty of Rs. 200/- per day and per person shall be imposed on the agency for failure to meet this deadline.

y. The personnel deputed by SI should be polite, cordial, positive and efficient while handling the assigned work. In case, the person employed by the successful agency/bidder commit any omission/commission that amounts to misconduct /indiscipline /incompetence, the successful agency will be liable to take disciplinary action against such persons including their removal from the work, if required

z. If any misshapen during the contract period / contract delivery the successful bidder shall be held responsible. They shall not claim any amount from SPM/BNP/CNP/SPMCIL

aa. SI shall undertake monitoring, administration, management and maintenance of the entire Track and Trace Solution for all the three units, Data Centre and Disaster Recovery for the infrastructure supplied, installed and commissioned under the project

bb. Ensure availability and proper functioning of the Units, DC & DR infrastructure including but not limited to racks, network, security, compute storage & backup and other peripheral equipment installed in DC & DR and Units.

cc. The SI shall monitor the performance of the Units, DC & DR components including usage, availability and analyze the future requirements, if any. In case the requirement exceeds the scalability requirements mentioned, the SI has to upgrade the current infrastructure in order to meet the increase in demand.

dd. Proactive and reactive maintenance, repair and replacement of defective components shall be SI's responsibility. The cost for repair and replacement shall be borne by the SI. The SI shall maintain a log of all such diagnosis and notify BNP, Dewas on a monthly basis in the form of a report.

ee. The SI shall install software (OS and applications) updates and upgrades for the components supported by them in the Units, DC & DR. This will include the patch upgrade or any type of upgrade for management software, operating systems, network management software, security software, anti-virus software or any other software.

ff. Incidents of failure of any service/equipment must be recorded and reported to BNP, Dewas immediately. Report with Root Cause Analysis (RCA) post resolving the must be submitted immediately.

ff.gg. **Defective Media Retention (DMR):** If any hard disk fails, SI shall have to provide replacement hard disk on Free of Charge (FOC) basis. Being a security organization hard disk shall not be returned to the bidder and SPMCIL shall retain the defective hard disk in its custody.

gg.hh. **In case of replacement of old condemned machines with new machines, the retro fitting of equipment/sensors from old machines to new machines shall be carried out by the SI as per the requirements without any additional cost**

hh.ii. **Monitoring and Management Services:**

The broad scope of monitoring and management services shall include the following:

- Server Monitoring, Administration & Management Services
- Database Administration & Management Services
- Storage Administration & Management Services
- Backup, Restore & Archival Services
- Access Management and related activities such as creating, updating, deleting users
- Network and Security Administration Services
- Help Desk Services
- For all the components SI shall document known risks if any and mitigation steps. If any security, unauthorized access identified, same shall be reported immediately. Logbook of all such acts shall be maintained and presented for audit purpose. Quarterly reports be submitted to the BNP-Dewas.
- Monitoring & management of storage activities in relation to DC~DR storage-based replication as per given Recovery Time Objective and Recovery Point Objective.

ii.jj. **Security Administration Services:**
- Provide a well-designed access management system, security of data/information, network security, backup and recovery etc.
- Maintenance and management of security devices, including, but not limited to maintaining firewall services to restrict network protocols and traffic, detecting intrusions or unauthorized access to networks, systems, services, applications or data, protecting firewalls, servers, from viruses/malwares/ransomwares etc.

jj.kk. **Backup Services (Applicable for DC)**
- Take regular online & offline back up of data as per agreed backup policy with DC, Noida and BNP, Dewas.
- Monitoring and enhancing the performance of scheduled backups, schedule regular testing of backups and ensuring adherence to policies of DC, Noida and BNP, Dewas.
- Prompt execution of on-demand backups of volumes and files whenever required or in case of upgrades and configuration changes to the system.
- Real-time monitoring, log maintenance and reporting of backup status on a regular basis.

1.20. Change Management Approach

The Change Management approach mentioned below is an indicative approach to effectively manage the changes (if any) in the project. SI shall ensure that all proposed changes are defined, reviewed, and agreed upon, so the same can be properly implemented and communicated to all stakeholders.

    a.   As per the need of the project, SI to identify the change and prepare the detailed analysis on the impact of the change to risk, cost, schedule, and scope

    b.   SI shall submit a change request document to the BNP, Dewas and Log change in the change request register

    c.   The SI shall keep a log of all submitted change requests throughout the project's lifecycle.

    d.   BNP, Dewas and other Project stakeholders shall discuss the proposed change and take necessary decision as per the requirement of the project.

    e.   If a change is approved, the SI will update and re-baseline project documentation as necessary and implement the change accordingly.

1.21. Knowledge Transfer (Exit Management)

    a.   **Exit Management Plan:** SI shall submit a comprehensive Exit Management Plan within three months prior to the expiry this Agreement or 15 days from the receipt of notice of termination. The Exit Management Plan shall deal with at least the following aspects of exit management:

        i.   A detailed plan of the transfer process that could be used in conjunction with the replacement SI including details of the means to be used to ensure continuing provision of the services throughout the transfer process or until the cessation of the services and of the management structure to be used during the transfer.

        ii.   Plans for the communication with the SI, staff, suppliers, customers and any related third party as necessary to avoid any material detrimental impact on Track and Trace project's operations as a result of undertaking the transfer.

        iii.   Plans for provision of contingent support to Track and Trace Project and replacement SI for a reasonable period (minimum one month) after transfer.

        iv.   SI shall re-draft the Exit Management Plan annually thereafter to ensure that it is kept relevant and up to date.

        v.   The Exit Management Plan presented by the SI shall be approved by BNP, Dewas or its nominated agencies.

        vi.   In the event of termination, each Party shall comply with the Exit Management Plan.

        vii.   During the exit management period, the SI shall use its best efforts to deliver the services.

    b.   **Transfer of Assets:** The SI will ensure transfer of all Assets under this project such as Software, Licenses, Source Code, Hardware, etc to BNP, Dewas as per the timelines agreed under Exit Management Plan.

    c.   **Information and Data**: The SI will promptly on the commencement of the exit management period, supply to the BNP, Dewas or its nominated agencies the following:

- Information relating to the current services rendered and performance data relating to the performance of the services; documentation relating to project, Project's Intellectual Property Rights; any other data and confidential information related to project; all current and updated components and documents
- Project data as is reasonably required for purposes of the Project or for transitioning of the services to replacement SI in a readily available format.
- At any time during the exit management period, the SI shall be obliged to provide access of information to BNP, Dewas and / or any Replacing System Integrator in order to make an inventory of the Assets (including hardware / Software / Active / Passive), layouts, diagrams, schematics, documentations, manuals, catalogs, archive data, IP addressing, Live data, policy documents or any other material related to the Project.
- All other information (including but not limited to documents, records and agreements) relating to the services reasonably necessary to enable the BNP, Dewas and its nominated agencies, or its Replacing SI to carry out due diligence in order to transition the provision of the Services to BNP, Dewas or its nominated agencies, or its Replacing System Integrator (as the case may be).

d. After successful transition and Exit Sign-off by BNP, Dewas, SI should not retain any project related documents and data. A written legal confirmation regarding the same shall be submitted by SI.

2. Escrow Agreement

a. SI shall comply with the escrow provisions below for all Bespoke Development & customized codes (including subcontractor-owned materials and other Third-Party Material incorporated in SI's Proprietary Material).

b. Within ninety (90) days after BNP, Dewas's acceptance of the Solution, the Parties shall enter into a software escrow agreement ("Escrow Agreement") with a reputable, independent, third party that provides software escrow services among its principal business offerings ("Escrow Agent"). The Escrow Agreement shall provide for the regular deposit into escrow of all source code (including without limitation all make files, configurational files, data tables upon which execution is dependent, and the like, collectively the "Source Code"), object code, and documentation with respect to all Public Material and Implementation Agency's Proprietary Material (and cumulative updates thereof), together with (a) continually updated instructions as to the compilation, installation, configuration, deployment, and use of the Source Code, and (b) a list of all non-deposited third party software used in conjunction with the Source Code to provide the full functionality of the deposited materials. In the event of the termination or expiration of the initial Escrow Agreement or any successor agreement, with minimal delay the Parties shall enter into a substantially equivalent agreement with a successor provider of software escrow services (who shall then be known as the "Escrow Agent").

c. SI will make its initial deposit of Source Code within fifteen (15) days after the effective date of the Escrow Agreement.

d. SI shall periodically update the escrow deposit as the Parties shall agree in the Escrow Agreement. In addition to other usual and customary terms, the Escrow Agreement shall provide that BNP, Dewas shall be entitled to obtain the deposited materials from escrow upon the BNP, Dewas's making a claim for release from escrow in the event that (c) proper written notice is given to the Escrow Agent that release of the copy of the deposited materials is

pursuant to bankruptcy, insolvency, reorganization, or liquidation statute; (d) SI files articles of dissolution (but not if SI is consolidated or merged into another entity); (e) the Contract expires or terminates for Material Breach of SI.

e. The release of deposited materials from escrow shall not confer upon BNP, Dewas any right of ownership in the deposited materials or the underlying intellectual property embodied therein. In the event of the release of deposited materials to BNP, Dewas from escrow, BNP, Dewas shall use the deposited materials solely for the benefit of BNP, Dewas and its constituents.

f. The release of materials from escrow, without more, shall not cause any further amounts to accrue as payable to SI by BNP, Dewas, and the term of the BNP, Dewas's possessory and usage rights with respect to the released materials shall be perpetual.

g. The Escrow Agreement shall provide for its automatic termination upon the earlier of five (5) years after the expiration or termination of this Contract, or release of all Source Code to BNP, Dewas and the BNP, Dewas's subsequent confirmation of compliance with the terms of the Escrow Agreement. SI shall pay the escrow costs, as well as all costs associated with causing its subcontractors and other third parties to abide by the Escrow Agreement.

3. Service Level Agreement (SLA)

3.1 General SLA conditions

a. Service Level Agreement (SLA) will form part of the contract between the Purchaser (BNP, Dewas) and the System Integrator. SLA defines the terms of responsibility in ensuring the timely delivery and compliance to the Performance Indicators as detailed in this RFP document. The SLAs shall be applicable from the effective date of agreement between BNP, Dewas and SI. The SI must comply with service levels requirements to ensure adherence to timelines, quality and availability of services to the Purchaser and other stakeholders as mandated in the RFP.

b. The purpose of this Service Level Agreement (hereinafter referred to as SLA) is to clearly define the levels of service that shall be expected from the SI to BNP, Dewas for the duration of this Contract.

c. The SLA monitoring shall be performed/reviewed on Quartey basis and related penalties / payments will be calculated on Quarterly basis by the BNP, Dewas.

d. The payment to the SI shall be on Quarterly basis for CAMC phase and based on implementation timelines specified in Payment and Timeline section. The penalty shall be calculated as per the SLAs stated in the RFP.

e. **The SI shall be responsible for providing all the necessary tools for monitoring of SLAs without any additional cost. Such tools shall be capable of monitoring the availability and performance as prescribed in service levels & scope and shall facilitate BNP, Dewas to evaluate its adherence to the SLAs defined in this section. The tool should have provision for auto calculation of applicable penalties as mentioned below. Access of all such tools shall be provided to BNP officials / TPA / any other stakeholder.**

f. The centralized helpdesk to log all the tickets and same shall be used for SLA monitoring and penalty calculation. The ticket logging and resolution time shall be verified by the end-user.

g. The SI shall be required to submit an SLA monitoring report to BNP, Dewas for each quarter.

h. At the time of submission of any invoice by the SI to BNP- Dewas, the invoice should be accompanied with the SLA Monitoring Report.

i. In case, SLA breach happen due to the dependency on the external factors (beyond the control of SI), the penalties would not be applicable on SI provided that, SI shall notify any such

dependencies in writing to BNP, Dewas. Any occurrence of such incidents shall be recorded electronically and reported to BNP, Dewas timely.

3.2 Definition

For the purpose of the SLA, definitions and terms as specified in the document along with the following terms shall have the meanings set forth below:

i. "Total Time" – Total number of hours in consideration for evaluation of SLA performance.

ii. "Downtime" – Time period for which the specified services/ components/ system/ equipment become unavailable (due to any reason whatsoever) for business processing to the end user in the concerned period, being considered for evaluation of SLA, which shall exclude downtime owing to Force Majeure and reasons beyond control of the SI.

Note: Any downtime for maintenance shall be with prior written intimation & confirmation of BNP, Dewas.

iii. "Scheduled Maintenance Time" – Time period for which the specified services/components/system with specified technical and service standards are not available due to scheduled maintenance activity. The SI shall take at least 03 days prior approval from the BNP, Dewas for any such activity. The scheduled maintenance shall be carried out during non-peak hours.

iv. "Uptime" – Time period for which the specified services are available in the period being considered for evaluation of SLA. Uptime (%) = [1- {(Total Downtime - Scheduled Maintenance Time) / (Total Time - Scheduled Maintenance Time)}]*100.

v. Penalties shall be applied for each criterion individually and then added together for the total penalty for any particular payment.

vi. "Incident" – Any event/abnormalities in the service/system being provided that may lead to disruption in regular/normal operations and services to the end user.

3.3 Service Levels Agreement

The below SLAs shall be applicable for the entire duration of the project-

#	Service Level Objective	Definition	Target	Penalty as indicated below (per occurrence)
Part A: Solution Design, Implementation & Roll out				
1	Timely completion of Project Activities as mentioned under section "Payment and Timelines"	Any delay which impacts the project timeline	100% adherence to timeline mentioned under section "Payment and Timelines" of the RFP	a. Up to 15 days: 0.05% of capex cost b. >15 days but <= 30 days: 0.1% of capex cost c. >30 days but <= 45 days: 0.25% of capex cost d. >45 Days: 0.5% of capex cost for every week of delay thereof. **Note:** In case any delay goes beyond 60 days, BNP, Dewas reserves the right for termination of contract and

#	Service Level Objective	Definition	Target	Penalty as indicated below (per occurrence)
				forfeiture of performance bank guarantee.
Part B: Warranty and CAMC				
Solution Availability				
2	Availability of the Track and Trace system at all the three units, DC and DR	Availability means, the aggregate number of hours in a calendar month during which the application is actually available for use to end-user	Application Uptimes should be 100%	a. <100% to >= 99.99%: 1% of Quarterly Payment (QP) b. <99.99% to >= 99.985%: 2% of QP c. <99.985% to >= 99.98%: 3% of QP d. <99.98%: 4% of the QP for every 0.05% of unavailability thereof. **Note:** In case the uptime is less than 99.50%, BNP, Dewas reserves the right for termination of contract and forfeiture of performance bank guarantee.
3	Availability of infrastructure such as barcode reader, scanner, etc. at units **Note:** Non-working of each barcode labeler, scanner, sensor should be treated as an incident and penalty shall be computed accordingly on quarterly basis.	Availability means, the number of hours in a calendar month during which the infrastructure is actually available for use; and performing as per its intended use	Availability should be 100%	In case of unavailability, the penalty should be calculated per device as below: a. 0 to <=1 hour: Rs. 10,000/- per device b. >1 hour to <=2 hours: Rs. 15,000/- per device c. >2 hour to <=3 hours: Rs. 15,000/- per device d. more than 3 hours: Rs. 25,000/- per device per hour and part thereof. **Note:** In case the unavailability of device more than 5 hours, BNP, Dewas reserves the right for termination of contract and forfeiture of performance bank guarantee.
System Accuracy				

#	Service Level Objective	Definition	Target	Penalty as indicated below (per occurrence)
4	a. Accuracy to print / paste barcode label on sheets / reams / bundles / boxes, etc. b. Accuracy to read Barcode on sheets / reams / bundles / boxes, etc.	Installed devices/ Sensor should work accurately	100% Accuracy	a. 1 to <=10 incidences: Rs. 5,000/- per incidence. b. >10 to <= 20 incidences: Rs. 10,000/- per incidence. c. More than 20 incidences: Rs. 20,000/- per incidence. **Note:** In case the number of incidences exceeds 30, BNP, Dewas reserves the right for termination of contract and forfeiture of performance bank guarantee.
Application Performance Management				
5	Average Response time for below: a. page opening, b. data search, c. reports generation on T&T Application	Average time taken by the T&T application for a. page opening, b. data search, c. reports generation on T&T Application **Note:** Separate SLAs of above shall be applicable and accordingly penalties shall be calculated for all three scenarios. SI to submit fortnightly report to BNP, Dewas for the above performance parameter.	Average 10 seconds measured on a quarterly basis	a. >= 10 Seconds to < 20 Seconds measured on a quarterly basis, 0.1% of Quarterly Payment b. >= 20 seconds to < 30 seconds measured on a quarterly basis, 0.25% of Quarterly Payment c. >= 30 seconds to < 1 Minute measured on a quarterly basis, 0.5% of Quarterly Payment
RTO / RPO for DC-DR				
6	Meeting RPO / RPO	Recovery Point Objective (RPO)	30 Minutes	Penalty of 3% of the quarterly payment on OPEX value for every 30 minutes delay in RPO

		Recovery Time Objective (RTO)/	120 Minutes	Penalty of 3% of the quarterly payment on OPEX value for every 120 minutes delay in RTO

Part C: SLA for deployment and availability of Manpower

S No.	Parameter	Remarks	Penalty
1	Manpower Deployment	Any deviation in qualification or in experience of the deployed manpower by SI as compared to the requirements as per Manpower clause in tender will be treated as non-deployment for the purpose of penalty calculation	Rs. 5,000/- per day per resource for non-deployment
2	Non-reporting	SI needs to ensure that onsite resource shall not take any leave without prior approval from BNP/ CNP/ SPM/ SPMCIL and need to ensure the alternate arrangement.	Rs. 5000/- per day per resource for each non-reporting day
3	Replacement of Resources	For every resource replaced by the firm beyond the 20% of the total number of resources deployed in a year.	Penalty of Rs 50,000

3.4 SLA Change Process
a) The SLA mentioned under this RFP may change as client's business needs evolve over the course of the contract period.
b) Any changes to the levels of service provided during the term of this Agreement will be requested, documented and negotiated in good faith by both parties. Either party can request a change. Changes will be documented as an addendum to this SLA and, subsequently, the Contract. If there is any confusion or conflict between the Contract, RFP and its addenda, the Contract will supersede.

4. Functional Requirement and Process flow of proposed system

Following are the functional requirements and proposed process flows for the Track and Trace System.

Note: *It is presumed that Bidder is a subject matter expert with necessary implementation experience in similar kind of solution; and hence, is capable of defining necessary adjustments/changes to the process (and associated integration points) to achieve the overall objective. SAP touch points mentioned in below tables are only indicative for reference purpose and it may increase or decrease during SRS preparation.*

1.1. General Requirement of T & T System

	General Requirements of T&T System
a.	The system should be able to uniquely identify and track & trace every paper sheet, note, including primary and secondary packaging wherever applicable.
b.	The barcode dedicated area must be free from any other type of printed pattern and larger enough to accommodate for printing and cutting tolerances.
c.	System should securely transfer the unique barcodes to the barcode printers installed at the different stages.
d.	The equipment and sensors installed on the machines should be robust enough to handle machine vibration (if any). Also, capable to match with the maximum speed of paper manufacturing & printing machines specified in annexure.
e.	The system shall meet all the environmental, safety and other national and international regulations/ standards.
f.	The system should remain active during handling of paper at various processing stages and should be designed in such a way that it should provide 100% accountability and accuracy at all the stages through barcode, sensors, etc.
g.	The system should provide accurate and independent sheets counting and tracking, reconciliation procedures, productivity and traceability data collection and track every sheet while transported inside a unit. **It must perform the operations totally independently, without any connection to the press control electronics.**
h.	The sensors should be able to read barcodes, not only in transmitted light, but also in transparency and reflected, wherever applicable. To allow readability in transparency, the barcode area must be free from any printing on both sheet sides.
i.	Once the processing of a batch/shift gets completed the system should automatically generate a printable report containing detailed information about the printed batch/shift (ID, quantity of good and defective sheets, operators, etc.). The report should also contain a barcode that may be used to identify the batch in the next process.
j.	The system should not affect the quality & quantity of paper in terms of its security features, printing properties, lifespan of paper, rejection of paper etc.
k.	The system should create necessary Parent-Child relationships within Barcodes to establish product backward traceability across packaging hierarchy i.e., Reams, Pallets / Boxes, etc. at SPM, Narmadapuram and Note Bundles, Boxes, Batches, etc. at BNP, Dewas and CNP, Nashik.
l.	In case a barcode cannot be read by the system, the image grabbed by the barcode reading

	camera is shown to the operator, allowing him to manually associate the barcode. The system should also print human readable format of the printed barcode.
m.	The system should be able to detect any sheet processing anomaly and generate a programmable (PLC) signal which may be connected to the sheet-feeder to stop the feeding of sheets and allow for intervention of the operator. However, there should not be any damage to existing machine electronics. Any support required from machine's OEM, will be in bidder's scope. Note: Typically detected anomalies are double sheet, lost sheet, wrong sheet, wrong delivery pile, blue trial paper mixed to watermark banknote paper and similar conditions.
n.	The system should have the capability to raise the alarm and stop the feeding of sheets after a configurable number of consecutive missing/misread barcodes.
o.	Before starting production of a batch (shift production) at every stage, the local machine connected to each machine can receive information from the server about quantity, barcode, production orders, etc. of the sheets which are belonging to that batch & update the information regarding the operation which is performed on it. All the data collected at unit-level are transferred to the central server and made available for the next process.
p.	The system should be complete with all required mechanical, electrical, electronics, etc for automatic, smooth and un-interrupted functioning.
q.	HMI with Monitor, Control/Data Unit, PLC, Interfacing components, Tower Lamp with buzzer, printer to print reports, etc. which shall be connected to machines (wherever applicable as per project and client requirements).
r.	The Track and Trace solution shall consist of multiple functionalities and all these functionalities should be seamlessly integrated with one another.
s.	The Track and Trace Solution should be capable of sending real-time alerts/SMS/email to pre-defined designated officers. Pre-defined conditions should be configurable.
t.	Indexing of key information fields is essential in order to facilitate searching.
u.	Ability to have different levels of access for different roles and designations.
v.	Ability to maintain audit trail of changes such as the time of change, the user ID, old and new value with field description.
w.	All the activities and transactions in the T&T ecosystem should be logged
x.	All sensitive data (such as passwords, etc.) shall have to be stored in encrypted format and should travel over network in encrypted format only. The system should protect the integrity and authenticity of the data.

y.	Track & trace system should perform material management of key items & collect the data for all the raw materials used for manufacturing at every stage of the printing process to improve the quality & productivity like:
	   a. The system should have the provision to record/capture the ink consumption at different stage of printing at BNP and CNP
	   b. The system should have the provision to record/capture Plate's consumption at different stage of printing at BNP and CNP

z.	The system should provide edit / update option to handle some exceptional cases like barcode not read, barcode not printed, missing barcode, reconciliation issues, etc. Edit/update in system can be performed only after due approval from appropriate authorities. These exceptional cases shall be discussed and finalized after SI's onboarding.
aa.	In order to ensure redundancy at machine level, standby barcode scanner, printer and required sensors should be installed on each machine covered under Track and Trace at SPM,

	Narmadapuram, as the plant is 24x7 operational. However, bidder may install standby barcode scanner, printer and required sensors at BNP and CNP as per their solution to ensure availability as per SLA.		
bb.	Apart from SPM, Narmadapuram, sheets are also manufactured at Bank Note Paper Mill India Private Limited (BNPMIPL), Mysore and supplied to BNP-Dewas and CNP-Nashik. The BNPMIPL is also in process of printing barcodes on the sheets manufactured by them. The proposed Track and Trace solution at BNP-Dewas and CNP-Nashik should have provision to read barcodes printed on sheets coming from BNPM, Mysore.		

Proposed Process flows for SPM-Narmadapuram, BNP-Dewas and CNP-Nashik are given below for bidder's reference. Bidders are advised to carry out detailed assessment of the processes to achieve the objectives of the project. Also, BNP, Dewas reserves the right to drop, add or modify the functional requirements to the extent that it is in line with the broad scope of the project. BNP, Dewas may also change the sequence of tasks and activities of certain modules to suit the needs of the project.

1.2. Proposed Process Flow of SPM, Narmadapuram

Security Paper Mill, Narmadapuram			
1.	**Paper Machine Section**	**Machine Name/ Manual**	**Barcode (Reader/ Scanner)**
i.	Refined pulp and other raw materials to be issued to Paper Machine Section from Comber Storage Chest (COSC). **SAP Touch points:** • Refined pulp issued to Paper Machine Section through SAP Movement Code: MIGO: 261 – Goods Issue – Refined Pulp • Update stock of Refined pulp and other raw materials accordingly in T&T and SAP		
ii.	At the paper machine section, there must be a set of suitable printer / marker to print the unique barcodes on the top/side of every sheet at the maximum speed of machine given under annexure. The barcode should contain details such as Calendar year, Denomination, Roll No., Web No., Stack No, Sheet ID, etc. **Note-** The barcode printed in this process shall be readable in all subsequent processes (Rewinder, Sheeter, Packaging, Offset, Intaglio, Numbering, etc.).	VOITH – CWBN Paper Machine	Barcode Printer
iii.	There should be a scanner installed on the machine to verify whether the barcode is printed or not.	VOITH – CWBN Paper Machine	Barcode Scanner
iv.	The system should have provision to support following manual operations to ensure 100% accountability of sheet: a. Manual movements of paper to check the proper sheet size by the operator.	Manual	Handheld Barcode Scanner to be used to make

	b. Transfer of paper samples from the machine/section to the QC lab/Paper Testing Lab) & receive tested paper returned from the lab.		entries
v.	System should carry out the reconciliation w.r.t total number of pulp input and sheets output.		
vi.	The system should store the key information like date of manufacturing, production, spoil, machine, shift, operator, etc. for every sheet		
vii.	Semi-Finished Reel / Pope Reels / Jumbo Rolls to be returned by Paper Machine Section as below: • Semi-Finished Reels are returned to Pope Reel storage location (POPE) • Spoiled-Paper-With-thread are returned to Pope Reel storage location (POPE) • Spoiled-Paper-Without-thread are returned to Broke Handling Area (BRHA) storage location **SAP Touchpoints:** • COR6N Process Order Confirmation to be done automatically by T&T system in SAP. Following information should be updated Raw Material, Date and Time, Manpower, Spoil, Good Production (yield), Shift, Machine, work center, etc. • SAP Movement Code: (MIGO: 101 Goods Receipt –Semi-Finished Reel) • SAP Movement Code: (MIGO: 531 Spoiled Receipt With thread) • SAP Movement Code: (MIGO: 531 Spoiled Receipt – Without thread)		
2.	**Rewinder Section**	**Machine Name/ Manual**	**Barcode (Reader/ Scanner)**
i.	Semi-Finished Reel / Pope Reels / Jumbo Rolls to be issued to Rewinder Section from Pope Reel storage location (POPE). **SAP Touchpoints:** • The T&T should cross check with SAP Production Order for Denomination, Quantity, etc and issue Semi-finished Reel on FIFO basis (else error message should be raised for intervention of higher authority to clear with reason recording) • Pope Reels are issued to Rewinder Section through SAP Movement Code: MIGO: 261 – Goods Issue – Semi-Finished Reel • Update stock of Child webs accordingly in T&T and SAP		
ii.	• At the feeding point of rewinder machine, there should be a set of scanners and printers for all three lanes to read	PASABAN 2600	

	and print barcodes • If a barcode has not been printed by paper-machine, the barcode printer at Rewinder shall print the barcode at each of the three lanes with sufficient length on the edge (side-lay-edge) of every blank sheet at the maximum speed of rewinder mentioned in annexure.	Medium Series	
iii.	The system should store the key information like date of manufacturing, production, spoil, machine, shift, operator, etc. for every sheet		
iv.	The system should have provision to support following manual operations to ensure 100% accountability of sheet: a. Manual movements of paper from piles to check the quality of paper by operator. b. Transfer of paper samples from the machine/section to the QC lab/Paper Testing Lab) & receive tested paper returned from the lab.	Manual	Handheld Barcode Scanner to be used to make entries
v.	System should carry out the reconciliation of the Pope Reels and Child webs w.r.t total number of barcodes read at input and output end of the machine.		
vi.	Child Web to be returned by Rewinder Section as below: • Child Web are returned to Good-Web Reel Area (GWRA) storage location • Spoiled-Paper-Without-thread are returned to Broke Handling Area (BRHA) storage location **SAP Touchpoints:** • COR6N Process Order Confirmation to be done automatically by T&T system in SAP. Following information should be updated Raw Material, Date and Time, Manpower, Spoil, Good Production (yield), Shift, Machine, work center, etc. • SAP Movement Code: (MIGO: 101 Goods Receipt – Semifinished Child Web) • SAP Movement Code: (MIGO: 531 Spoiled Receipt – Without thread)		
3.	**Sheeter Section**	Machine Name/ Manual	Barcode (Reader/ Scanner)
i.	Child webs to be issued to Sheeter Section from Good-Web Reel Area storage location (GWRA). **SAP Touchpoints:** • The T&T should cross check with SAP Production Order for Denomination, Quantity, etc and issue child webs on FIFO basis (else error message should be raised for intervention of higher authority to clear with reason recording) • Child webs are issued to Sheeter Section through SAP		

	Movement Code: MIGO: 261 Good Issue- Semifinished web • Update stock of Child webs accordingly in T&T and SAP		
ii.	The machine shall be equipped with suitable readers/ sensors to detect on which of the Delivery Points / Reject Gate / Sample Tray the machine is releasing each sheet	PASABAN Sheeter KB-900	Barcode Scanners
iii.	The system should be able to detect any sheet processing anomaly and generate an alarm/ signal to stop the feeding of sheets and allow for intervention of the operator. General detected anomalies are lost sheet, wrong delivery pile, etc.		
iv.	System should carry out the reconciliation of the sheets w.r.t total number of sheets input and out at different delivery points.		
v.	The system should store the key information like date of manufacturing, production, spoil, machine, shift, operator, etc. for every sheet		

vi.	The system should have provision to support following manual operations to ensure 100% accountability of sheet:
	  a. Manual movements of sheets from piles to check the quality of paper by operator.
	  b. Transfer of paper samples from the machine/section to the QC lab/Paper Testing Lab) & receive tested paper returned from the lab.
		Manual	Handheld Barcode Scanner to be used to make entries

vii.	Semi-finished WIP stack to be returned by Sheeter Section as below: • Semi-finished WIP stack are returned to Stack (FEST) storage location • Spoil Paper sheets are returned to Spoiled Sheet (RSSA) storage location. **SAP Touchpoints:** • COR6N Process Order Confirmation to be done automatically by T&T system in SAP. Following information should be updated Raw Material, Date and Time, Manpower, Spoil, Good Production (yield), Shift, Machine, work center, etc. • SAP Movement Code: (MIGO: 531 Good Receipt- Spoil Paper sheet) • SAP Movement Code: (MIGO: 101 Good Receipt- Semi finished WIP stack)		
4.	**Manual counting section**	**Machine Name/ Manual**	**Barcode (Reader/ Scanner)**
i.	In case of quantity and quality suspected reams found during sheeter process, Track & trace system should have the provision to support following manual entries and	Manual	Handheld/ Portable Barcode

	reconciliation later:		Scanner
	Quality Suspected Sheets:		
	- Replacement of erroneous sheets with good sheets to ensure 500 good sheets per ream.		
	Quantity Suspected Sheets:		
	- Addition/removal of extra sheets to ensure 500 sheets per ream.		
	Note: System should also support capturing examiner ID/Name, date of checking, any defects observed during manual fanning/ inspection etc from the operator.		
ii.	A possible solution to handle manual counting section process is mentioned below, however the bidder is free to propose better solution: **Quality Suspected Sheets:** The barcodes of both spoiled and replaced sheet should be scanned with handheld barcode scanner. And accordingly, T&T system should update mapping of both spoiled and replaced sheets with corresponding Ream ID. **Quantity Suspected Sheets:** The barcodes of newly added sheets should be scanned and mapped with the corresponding Ream ID.	Manual	Handheld Barcode Scanners to be used to make entries
5.	**Ream-line section**	**Machine Name/ Manual**	**Barcode (Reader/ Scanner)**
i.	Semi-finished WIP Stack to be issued to Ream-line section. **SAP Touch points:** • Sheets are issued to Sheeter Section through SAP Movement Code: MIGO: 261 Good Issue- Semifinished WIP Stack • Update stock of Child webs accordingly in T&T and SAP		
ii.	The system must create a parent-child link between the unique barcode of each sheet with the serial no of the reams produced from these sheets (1 ream = 500 sheets) for backward traceability.	PASABAN Ream Packaging Machine	Barcode Printer
iii.	There should be a barcode printer to print the barcode of ream and apply on the packed reams.	PASABAN Ream Packaging Machine	Barcode Printer
iv.	There should be a barcode scanner at the delivery point of the ream packaging machine to read the barcode of reams.	PASABAN Ream Packaging Machine	Barcode Scanner

v.	Following minimum information should be mapped with the barcode of reams: Operator ID, shift, date of packaging, etc.		
vi.	Finished good currency paper batch to be returned by Ream-line Section as below: • Finished good currency paper batch are returned • Spoil Paper sheets are returned to Spoiled Sheet (RSSA) storage location. **SAP Touchpoints:** • COR6N Process Order Confirmation to be done automatically by T&T system in SAP. Following information should be updated Raw Material, Date and Time, Manpower, Spoil, Good Production (yield), Shift, Machine, work center, etc. • SAP Movement Code: (MIGO: 531 Good Receipt- Spoil Paper sheet) • SAP Movement Code: (MIGO: 101 Good Receipt- Finished good currency paper batch)		
6.	**Dispatch Section**		
i.	Finished Good Currency Paper are transferred to Dispatch Section through SAP Movement Code VL06G: 601 Finished good currency paper batch		
ii.	The system should be capable to read the unique barcode of all the 15 reams before packing into box.	Manual	Barcode Scanner / Handheld/ Portable Barcode Scanner
iii.	The system shall generate a unique RFID for each pallet/box. The system must create a parent-child link between the unique barcode of each ream with the serial no of the box (1 box = 15 reams) for backward traceability.		RFID
iv.	Following information should be mapped with the RFID of box: Operator ID, shift, date of packing, etc.	Manual	
v.	The system must provide the user interface to enter the details of wrong packing/repacking of reams during Pre-dispatch inspection, so that exact information of replaced reams may be incorporated.	Manual	
vi.	The system must provide the user interface to enter the details of boxes being dispatched and authorize the movement of boxes.		
vii.	RFID readers should be installed at the exit points of the warehouse. The system should automatically record the exit,	Automatic	RFID Scanner

	once the RFID tagged boxes passes through the gate. Similarly, for any unauthorized movement, the system should raise the alarm.		

1.3. Proposed Process Flow of BNP, Dewas

Bank Note Press (BNP), Dewas			
1.	**Security Store section**	**Machine Name/ Manual**	**Equipment Required**
i.	RFID readers should be installed at the entry points of the Security Store section. The system should automatically record the entry, once the RFID tagged boxes passes through the gate. T&T shall cross-check the scanned RFID/Barcode with the relevant information already received into T&T from Papermill. *Note: The system should be able to handle the scenarios where RFIDs are damaged, missing or not readable.* **SAP Touchpoints:** • The stock of Boxes, Reams and sheets along with denominations, quantity, etc. to be updated in SAP by T & T system.	-	RFID Scanner
2.	**Pre-conditioning/Store section:**	**Machine Name/ Manual**	**Equipment Required**
i.	RFID readers should be installed at the entry points of the pre-conditioning section. The system should automatically record the entry, once the RFID tagged boxes passes through the gate. *Note: The system should be able to handle the scenarios where RFIDs are damaged, missing or not readable.* **SAP Touchpoints:** • The stock of Boxes, Reams and sheets along with denominations, quantity, etc. to be updated in SAP by T & T system.	-	RFID Scanner
ii.	The Control Section counts sheet of SPM (100%) & BNPM (5%) through GTS machines. Ream Count are matched with Lot Quantity mentioned in the invoices and Sheet Count as 500/Ream. *(Note-* • *In case of any mismatch, flag is raised and inform to*	GTS Counting Machine	

	concerned paper mills about the same via email. • *Also, system should do the reconciliation of each pallet and reports can be generated for the same.)*		
iii.	Paper Requisition is raised by control section along with Denomination, Quantity, etc through SAP Movement Code: MB21: Paper Requisition.		
iv.	Pre-conditioning section issues the required sheets to control section. **SAP Touchpoints:** • The T & T system should cross check with SAP Reservation number for Denomination, Quantity, etc. • The T & T system should have provision to carry out Stock Transfer update in SAP. (311 Blank Paper Transfer to Simultan/Offset Vault)		
3.	**Offset section**	**Machine Name/ Manual**	**Equipment Required**
i.	At the beginning of every shift, blank sheets to be issued to Offset Section from Simultan/Offset Vault. **SAP Touchpoints:** • The T&T should cross check with SAP Production Order for Denomination, Quantity, etc and issue sheets on FIFO basis (else error message should be raised for intervention of higher authority to clear with reason recording) • Blank sheets are issued to Offset Section through SAP Movement Code: MIGO:261 – Goods Issue - Blank Paper • Update stock of Ream IDs / Sheet IDs accordingly in T&T and SAP		
ii.	There should be a scanner / sensor on each offset machine to detect whether a barcode is already printed on the sheet or not. **Note:** The above is to detect following scenarios: • In exceptional cases sheets coming from SPM, Narmadapuram might have missing barcodes. • Sheets coming from BNPM, Mysore and other locations will not be having barcodes	• Super Simultan 212 • Currency LT Komori	Barcode Printer and Scanner
iii.	If a barcode has not been printed on sheets, the suitable barcode printer will print the barcode with sufficient length on the top of the sheet, on its side lay side of every blank sheet at the at feeding point of offset printing. The barcode of each sheet must be unique and contains information about denomination, batch number and sequential	• Super Simultan 212 • Currency LT Komori	Barcode Printer and Scanner

	number within the batch, etc.		
iv.	The scanner should read the barcode at the maximum speed of offset machine as given in annexure.	• Super Simultan 212 • Currency LT Komori	Barcode Scanner
v.	The offset machine shall be equipped with a sheet input sensor to differentiate between un-watermarked (blue trial paper) and watermarked paper under transparency condition & if it is un-watermarked paper then shall not print the barcode on un-watermarked paper. Both type of sheets (watermarked and un-watermarked) should be counted separately.	• Super Simultan 212 • Currency LT Komori	Sensor to detect watermark
vi.	The offset machine shall be equipped with suitable readers/ sensors to detect on which of the output piles / reject gate the machine is releasing each sheet.	• Super Simultan 212 • Currency LT Komori	Sensors on output piles / reject gate
vii.	The T & T system should be able to detect any sheet processing anomaly and generate an alarm/ signal to stop the feeding of sheets and allow for intervention of the operator. General detected anomalies are double sheet, lost sheet, wrong sheet, wrong delivery pile, un-watermarked trial sheet mixed with watermarked sheet, spoil sheets are fed again, etc.		Sensors to detect sheet anomalies
viii.	The T & T system should link the key information (like date and time of printing, inset letter, imprint year, production, spoil, shift, production orders, operators, materials, machine details, supplier of CWBN paper, etc.) with the barcode of every sheet and store in local server at unit level.		
ix.	The T & T system should have provision to support these manual operations in order to ensure 100% accountability of each sheet: a. Manual movements of sheets from piles to manual inspection by the operator. b. Transfer of PTL / Spoil / Good printed sheets which are removed from output pile to the QC lab/Paper Testing Lab/ Manual examination and recording the barcode of the transferred paper & receive tested paper returned from the lab.	Manual	Handheld Barcode Scanner to read barcode manually
x.	• The T & T system should perform reconciliations at the end of each shift (Machine-wise, Section-wise, and Sheet-side*) and should have facility to generate final		

			Machine Name/ Manual	Equipment Required
		report for the signature/approval of a supervisor. • If the sheets are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation/reconciliation with suitable reason. Note: *Sheet-side includes Offset, Intaglio, Color and Number Printing sections.		
xi.		At the end of every shift, sheets to be returned by Offset Section to Vaults as below: • Spoiled sheets are returned to Simultan Vault • Un-used Blank sheets are returned to Simultan Vault • Simultan Printed Sheets are returned to Intaglio Vault The System should also have provision to handle Broken Reams (Reams containing less or more than 500 sheets) **SAP Touchpoints:** • CO11N Production Confirmation to be done automatically by T&T system in SAP. Following information should be updated Manpower, Spoil, Good Production Sheets (yield), Date and Time, Shift, Machine, work center, etc. • SAP Movement Code: (MIGO:531 spoiled Receipt) • SAP Movement Code: (MIGO:102 Goods Receipt - Blank sheets) • SAP Movement Code: (MIGO:101 Goods Receipt – Simultan Printed Paper)		
4.	**Intaglio Section**		**Machine Name/ Manual**	**Equipment Required**
i.		At the beginning of every shift, offset printed sheets to be issued to Intaglio Printing Section from Intaglio Vault. **SAP Touchpoints:** • The T&T should cross check with SAP Production Order for Denomination, Quantity, etc and issue sheets on FIFO basis (else error message should be raised for intervention of higher authority to clear with reason recording) • SAP Movement Code: 261 Goods Issue Simultan Printed Paper • Update stock of Sheet IDs accordingly in T&T and SAP		
ii.		The Intaglio machine shall be equipped with a sheet input sensor to differentiate between un-watermarked (blue trial paper) and watermarked paper under transparency	• Super Orlof	Sensor to detect watermark

	condition. Both type of sheets (watermarked and un-watermarked) should be counted separately.	Intaglio • Super Orlof Intaglio-II • Currency Intaglio Color	
iii.	There should be a scanner at the feeding point of intaglio machine to read the barcode. The scanner should read the barcode at the maximum speed of the machine as given in annexure.	• Super Orlof Intaglio • Super Orlof Intaglio-II • Currency Intaglio Color	Barcode Scanner
iv.	The machine shall be equipped with suitable readers/ sensors to detect on which output pile the machine is delivering each sheet, in order to differentiate good & suspected sheets. T & T System should detect machine output category wise i.e. All-good, Suspected & Spoil.	• Super Orlof Intaglio • Super Orlof Intaglio-II • Currency Intaglio Color	Sensors on output piles
v.	The system should allocate unique id (barcode) to Parcels.		
vi.	The T & T system should be able to detect any sheet processing anomaly and generate an alarm/ signal to stop the feeding of sheets and allow for intervention of the operator. General detected anomalies are double sheet, lost sheet, wrong sheet, wrong delivery pile, un-watermarked trial sheet mixed to watermarked sheet, spoil sheets are fed again, etc.		Sensors to detect sheet anomalies
vii.	The T & T system should link the key information (like date and time of printing, inset letter, imprint year, production, spoil, shift, production orders, operators, materials, machine details, supplier of CWBN paper etc.) with the barcode of every sheet and store in local storage.		
viii.	The T & T system should have provision to support these manual operations in order to ensure 100% accountability of each sheet: a. Manual movements of sheets from piles to manual	Manual	Handheld Barcode Scanner to read barcode manually

	inspection by the operator. b. Transfer of paper samples from the section to the QC Lab/Paper Testing Lab/Manual Examination recording the barcode of the transferred paper & receive tested paper returned from the lab. c. Record the information of used materials, like plates, inks, etc.		
ix.	• The T & T system should perform reconciliations at the end of each shift (Machine-wise, Section-wise, and Sheet-side*) and should have facility to generate final report for the signature/approval of a supervisor. • If the sheets are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. Note: *Sheet-side includes Offset, Intaglio, Color and Number Printing sections.		

x.	At the end of every shift, the sheets to be returned by Intaglio Printing Section to Vaults as below:
	• Spoiled sheets are returned to Intaglio Vault
	• Un-used sheets are returned to Intaglio Vault
	• Intaglio Printed Sheets are returned to Intaglio Vault
	
	SAP Touchpoints:
	• CO11N Production Confirmation to be done automatically by T&T system in SAP. Following information should be updated Manpower, Spoil, Good Production Sheets (yield), Date and Time, Shift, Machine, work center, etc.
	• The sheets are returned through following SAP Movement Codes:
	   o MIGO:531 spoiled Receipt
	   o MIGO:102 Goods Receipt – Unused Simultan Printed sheets
	   o MIGO:101 Goods Receipt – Intaglio Printed Paper
	• Once the ink gets dried off, followings movements take place:
	   o All-good Intaglio printed sheets are transferred to Number Printing Vault through Movement Code MIGO:311 All-Good Intaglio Printed Paper
	   o Suspected Intaglio printed sheets are transferred to Color Vault through Movement Code MIGO:311 Suspected Intaglio Printed Paper
	• Update stock of Sheet IDs accordingly in T&T and SAP		

5.	Color Section	Machine Name/ Manual	Equipment Required
i.	At the beginning of every shift, sheets to be issued to the examiners in Color Section from Color Vault. **SAP Touchpoints:** • SAP Movement Code: 261 Goods Issue Intaglio Printed Paper • Update stock of Sheet IDs accordingly in T&T and SAP • The T&T system should provide the functionality to issue/map sheets to examiners before each shift.		

ii.	This section is responsible to check/ inspect/examine the printing defects of Simultan or suspected intaglio paper through manual examination & the result is classified as either:
	  a. All-good paper (further used for regular numbering and then processed on cutpack),
	  b. With-cancellation paper (further used for random numbering and then proceed on BPS processing) or
	  c. Spoiled sheets
	Note-
	• A possible solution to handle Manual Color Examination process is mentioned below, however the bidder is free to propose better solution:
	  a. After examination, the examiner shall form separate batches for All-good, With-Cancellation and spoiled sheets.
	  b. The examiner shall scan only the spoiled sheet with barcode scanner, which shall be marked as spoiled in the T & T System.
	  c. All-good and With-Cancellation sheets shall be sent separately for number printing, wherein their status shall be updated accordingly.
	• There should be 100% accountability regarding sheets movements and the same should be recorded properly in system
	• The system should highlight immediately in case of any discrepancy.
		Manual	Suitable Barcode Scanner to read barcode

iii.	• The T & T system should capture information like examiner details, date of examination, production orders etc. for each sheet examined by the examiner. • The T & T system should keep record of individual examiner (total sheets inspected / rejected / defect type)		
iv.	• The T & T system should perform reconciliations at the		

	end of each shift (Section-wise, and Sheet-side*) and should have facility to generate final report for the signature/approval of a supervisor. • If the sheets are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. • Note: *Sheet-side includes Offset, Intaglio, Color and Number Printing sections.		

v.	At the end of every shift, sheets to be returned by Color Section to Vaults as below:
	• Spoiled sheets are returned to Color Vault
	• Color Examined Sheets are returned to Color Vault
	
	SAP Touchpoints:
	• The sheets are returned through following SAP Movement Codes:
	    ○ MIGO:531 spoiled Receipt
	    ○ QA:321 Goods Receipt – Color Examined Paper
	• The Color Examined Paper are then transferred to Number Printing Vault through SAP Movement Code (311 Color Examined Paper)		

6.	**Number Printing Section**	**Machine Name/ Manual**	**Equipment Required**
i.	At the beginning of every shift, sheets to be issued to Number Printing Section from Number Printing Vault. **SAP Touchpoints:** • The T&T should cross check with SAP Production Order for Denomination, Quantity, etc and issue sheets on FIFO basis (else error message should be raised for intervention of higher authority to clear with reason recording) • SAP Movement Code: 261 Goods Issue -Color Examined and Intaglio Printed Paper • Update stock of Sheet IDs accordingly in T&T and SAP		
ii.	There should be a scanner at the feeding point of Number Printing machine to read the barcode. The scanner should read the barcode at the maximum speed of the machine as given in annexure.	• Super Numerot a 212 • Super Numerot a III • Numero	Barcode Scanner

			protecta	
iii.	The T&T system must create a parent-child link between the unique barcode of each sheet with the serial no of all the bank notes printed from this sheet for backward traceability.			
iv.	The T&T System to keep record for sequential/random/star numbered sheets. System should be able to cross check the numbering pattern (sequential/random/star) with the machine. System should raise alert in case of any mismatch/discrepancy.			
v.	The T&T system shall have a printer at the delivery of numbered sheet in numerota section & have the capability to print a unique auto-generated batch (contains all information regarding serial number of notes for all 100 sheets) on the first sheet from the bunch of 100 sheets so that system shall receive all information regarding 100 sheets barcode & serial note numbers by reading a single batch. **Note:** The system should have provision to handle exceptional condition such as machine breakdown before printing 100 sheets of a batch and wherein the remaining sheets are printed on another machine / shift / day and system should continue from previous incomplete batch.	• Super Numerota 212 • Super Numerota III • Numero protecta	Barcode Printer	
vi.	The system should be provisioned about the sequence of serial numbers to be printed on the sheets of a batch in order to control/check that they are correctly printed.			
vii.	The system will be capable of reading alphanumeric note numbers printed with different type of characters along with prefix and star.	• Super Numerota 212 • Super Numerota III • Numero protecta	Barcode Scanner and Reader	
viii.	In case of detection of an out-of-sequence numbering the system should be capable to generate a stop feeder signal and for an operator intervention providing indications about the type of detected error.	• Super Numerota 212 • Super Numerota III • Numero protecta	Barcode Scanner and alarm	
ix.	The machine shall be equipped with suitable readers/ sensors to detect on which output pile the machine is delivering each sheet.	Super Numerota 212 • Super Numerot	Sensors on output piles	

		a III • Numero protecta	
x.	The software application should support the possibility to show to the operator the complete image of a sheet for random checking. The operator should have the possibility to certify the numbering sequence and quality of the S/Ns by clicking on each S/N of the shown sheet. The application should then be able to store, on the centralized data server, the image of the sheet and the name of the operator who certified it.		
xi.	There should be a provision to store the data like date of printing, inset letter, governor, prefix, imprint year, production, spoil, shift, operator, production order, number, etc. for every sheet on local server.		

xii.	The T & T system should have provision to support these manual operations in order to ensure 100% accountability of each sheet:
	   a. Manual movements of sheets from piles to manual inspection by operator.
	   b. Transfer of sheets from the Numerota section to the QC lab/Paper Testing Lab, recording the barcode of the transferred sheets & receive sheets returned from a lab.
	   c. In case any sheet of the batch is spoiled, and renumbering happens in numerota, then the T & T system should support mapping of renumbered sheet with the spoiled sheet in the corresponding batch, to avoid duplicate numbering.
		Manual	Handheld Barcode Scanner to read barcode manually

xiii.	• The T & T system should perform reconciliations at the end of each shift (Machine-wise, Section-wise, and Sheet-side*) and should have facility to generate final report for the signature/approval of a supervisor. • If the sheets are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. Note: *Sheet-side includes Offset, Intaglio, Color and Number Printing sections.		
xiv.	At the end of every shift, sheets to be returned by Number Printing Section to Number Printing vaults as below: • Spoiled sheets are returned to Number Printing Vault • Unused sheets are returned to Number Printing Vault • Number Printed Sheets are returned to Number Printing		

	Vault **SAP Touchpoints:** • CO11N Production Confirmation to be done automatically by T&T system. Following information should be updated Manpower, Spoil, Good Production Sheets (yield), Date and Time, Shift, Machine, work center, etc. • The sheets are returned through following SAP Movement Codes: o MIGO:531 spoiled Receipt o MIGO:102 Goods Receipt – Unused Intaglio Printed sheets o MIGO:101 Goods Receipt – Number Printed Sheets • All-good Number printed sheets are later transferred to Transfer Vault through Movement Code MIGO: 311 Numbered Sheets & Numbered Spoil Sheets • Following movements happen through Transfer Vault o All-Good Numbered sheets are transferred to Cut-Pack Vault through Movement Code MIGO: 311 All Good Numbered Sheets o CRN Parcels are transferred to Fin III Vault through Movement Code MIGO: 311 CRN Parcels o With-Cancellation Numbered sheets are transferred to GT Vault through Movement Code MIGO: 311 W/C Numbered Sheets		
7.	**Cut-Pack Section:** **(All Good Numbered sheets from Numerota Section comes to Cut-Pack Section)**	**Machine Name/ Manual**	**Equipment Required**
i.	At the beginning of every shift, sheets to be issued to Cut-Pack Section from Cut-Pack Vault. **SAP Touchpoints:** • The T&T should cross check with SAP Production Order for Denomination, Quantity, etc and issue sheets on FIFO basis (else error message should be raised for intervention of higher authority to clear with reason recording) • SAP Movement Code: 261 Goods Issue – All-Good Numbered Sheets • Update stock of Sheet IDs accordingly in T&T and SAP		
ii.	In the Cut-Pack section Sheets are converted into the notes by cutting through Cut-Pack machines. The system should be capable to read the unique barcodes of every sheet from the bunch of 100 sheets or capable to read the unique auto-generated batch which is printed in numerota section for 100-100 sheets at feeding point for cutting.	• KBA Cutpack • Uno	Barcode Scanner

iii.	The system must provide the user interface to enter the details of any wrong-cut sheet/note, so that exact information of replaced Hand numbered / Star mark notes against the wrong-cut or spoil notes can be entered.	Manual	Handheld Barcode Scanner to read barcode manually
iv.	The T & T system should store the key information like date of printing, inset letter, imprint year, production, spoil, shift, operator, supplier of CWBN paper etc. for every sheet.		
v.	A unique barcode for complete bundle (classification wise i.e. Denomination prefix, Governor, Inset letter, year) should be inserted / pasted on the bundle. **Note:** Original code of sheet shall be mapped to the bundle code and paste the barcode over the shrink-wrapped bundle.		
vi.	• The T & T system should perform reconciliations at the end of each shift (Machine-wise, Section-wise and Note-side*) and should have facility to generate final report for the signature/approval of a supervisor. • If Sheets/Notes are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. Note: *Note-side includes Cut-Pack, BPS, Finishing and Packing sections.		

vii.	At the end of every shift, Cut and Bundled Notes to be returned by Cut-Pack Section to Cut-Pack vaults as below:
	• Unused sheets are returned to Cut-Pack Vault
	• Cut and Bundled Notes are returned to Cut-Pack Vault
	
	SAP Touchpoints:
	• CO11N Production Confirmation to be done automatically by T&T system in SAP. Following information should be updated Manpower, Spoil, Good Production Notes (yield), Date and Time, Shift, Machine, work center, etc.
	• The sheets/bundled notes are returned through following SAP Movement Codes:
	   o MIGO:531 spoiled Receipt
	   o MIGO:102 Goods Receipt – Unused Number Printed sheets
	   o MIGO: 101 Shrink Packed Bundled Notes
	• Shrink Packed Bundled Notes are then transferred to Packing Vault through Movement Code MIGO: 301 Shrink Packed Bundled Notes		

8.	**FIN-2 Section** **(Suspected sheets identified by Number Printing machines and Suspected Notes / Bundles from Cut-Pack Machines**	**Machine Name/ Manual**	**Equipment Required**

	comes to this Section)		
i.	At the beginning of every shift, Numbered Notes to be issued to the operators in Fin-2 Section from Fin-2 Vault. **SAP Touchpoints:** • SAP Movement Code: 261 Goods Issue – Numbered Notes • Update stock of Note Numbers accordingly in T&T and SAP • The T&T system should provide the functionality to issue/map Notes to operators before each shift.		
ii.	The T & T system should have facility to record the following activities to ensure 100% accountability and traceability:		
a.	Numbering defects of numerota section found during Numbered Sheet Exam.	Manual	Handheld Barcode Scanner to read barcode manually
b.	Corner Bundle Flickering after cutting sheets into the notes (Bundle form) where manually each note inspection is carried out and spoiled notes are recorded.	Manual	Handheld Barcode Scanner to read barcode manually
c.	Hand numbering of Top and Bottom spoiled notes, which are recorded under the process of single note examination.	Manual	Handheld Barcode Scanner to read barcode manually
d.	Replacement of Hand numbered notes against the spoiled notes found in single note exam.	Manual	Handheld Barcode Scanner to read barcode manually
e.	Replacement of star numbered notes against spoiled notes found in single note examination.	Manual	Handheld Barcode Scanner to read barcode manually
iii.	• There should be 100% accountability regarding Notes movements and the same should be recorded properly in system • System to keep record of hand numbered note / star replaced sheet / spoil sheet or note which is replaced along with name and details of the operators (comparer and replacer) date of operation, production orders, etc. • Renumbered note to be recorded in the system only after the original note is marked as spoiled note and updated in the system. • The system should highlight immediately in case of any discrepancy.	Manual	
iv.	In case of re-bundling due to above manual examination/		

	activities, a unique barcode for bundle with updated information (classification wise i.e. Denomination prefix, Governor, Inset letter, year) should be inserted / pasted on the bundle. **Note:** Original code of sheet will be mapped to this updated bundle batch code and paste the barcode over the shrink wrap bundle.		
v.	After rework done on shrink-wrap bundle, system should capture detail of rework and generate modified batch no (R-Previous batch no.)		
vi.	• The T & T system should perform reconcilations at the end of each shift (Section-wise and Note-side*) and should have facility to generate final report for the signature/approval of a supervisor. • If notes are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. Note: *Note-side includes Cut-Pack, BPS, Finishing and Packing sections.		
vii.	At the end of every shift, Replaced and Counted Numbered Notes to be returned by Fin-2 Section to Vaults as below: • Spoiled Notes are returned to Fin-2 Vault • Replaced and Counted Numbered Notes are returned to Fin-3 Vault **SAP Touchpoints:** • The Notes are returned through following SAP Movement Codes: o MIGO:531 spoiled Receipt o MIGO:101 Replaced and Counted Numbered Notes		
9.	**BPS & Cutlink** **(With-Cancellation CRN-Numbered sheets from Numerota Section comes to BPS & Cutlink)**	**Machine Name/ Manual**	**Equipment Required**
i.	At the beginning of every shift, sheets to be issued to BPS Printing Section from Fin-III Vault. **SAP Touchpoints:** • The T&T should cross check with SAP Production Order for Denomination, Quantity, etc and issue sheets on FIFO basis (else error message should be raised for intervention of higher authority to clear with reason recording) • SAP Movement Code: 261 Goods Issue – CRN Numbered		

	Sheets • Update stock of Sheet IDs accordingly in T&T and SAP		
ii.	The system should be capable to read the unique barcode of every sheets from the bunch of 100 sheets or capable to read the unique auto-generated batch which is printed in numerota section for 100-100 sheets, at the feeding point of cutlink followed by BPS.	• BPS-2000	Barcode Scanner
iii.	There should be a provision to store the data like date of printing, inset letter, governor, prefix, imprint year, production, production order, spoil, shift, operator etc. for every sheet.		
iv.	A unique barcode for complete bundle (classification wise i.e. Denomination prefix, Governor, Inset letter, year) should be inserted / pasted on the bundle. **Note:** Original code of sheet will be mapped to the bundle batch code and paste the barcode over the shrink wrap bundle.		
viii.	• The T & T system should perform reconciliations at the end of each shift (Machine-wise, Section-wise and Note-side*) and should have facility to generate final report for the signature/approval of a supervisor. • If Sheets/Notes are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. Note: *Note-side includes Cut-Pack, BPS, Finishing and Packing sections.		

v.	At the end of every shift, BPS Bundled Notes to be returned by BPS Section to Fin-III Vault as below:
	• Unused sheets are returned to Fin-III Vault
	• BPS Bundled Notes are returned to Fin-III Vault
	
	SAP Touchpoints:
	• CO11N Production Confirmation to be done automatically by T&T system in SAP. Following information should be updated Manpower, Spoil, Good Production Notes (yield), Date and Time, Shift, Machine, work center, etc.
	• The sheets are returned through following SAP Movement Codes:
	   o MIGO:531 spoiled Receipt
	   o MIGO:102 Goods Receipt – Unused Number Printed sheets
	   o MIGO: 101 Shrink Packed BPS Bundled Notes
	• Shrink Packed Bundled Notes are then transferred to		

		Machine Name/ Manual	Equipment Required
	Packing Vault through Movement Code MIGO: 301 Shrink Packed Bundled Notes		
10.	**Packing Section**	**Machine Name/ Manual**	**Equipment Required**
i.	At the beginning of every shift, Shrink Packed Bundled Notes to be issued to Packing Section from Packing Vault. **SAP Touchpoints:** • SAP Movement Code: 261 Goods Issue – Shrink Packed Bundled Notes		
ii.	• Shrink-wrapped bundled-notes are packed Prefix-wise in wooden boxes. • The T & T system shall generate a unique RFID for each box. The system must create a parent-child link between the unique barcode of each bundle with the serial no of the box for backward traceability. The operator should scan barcode of each bundle before placing into a box. • The T & T system should have provision to enter a batch no. containing information of all the packed bank notes/bundles/boxes to map with the prefix and serial number of bank notes, RBI center to track the details of dispatched bank notes to RBI.	Manual	RFID and Handheld Barcode Scanner to read barcode of bundles manually
iii.	BNP is going to install Automatic Packaging System (APS) wherein in wooden boxes will be automatically filled by Bundles on the basis of prefix and boxes will also get labelled automatically and stored at pre-defined place by the APS. The proposed T&T system shall interface and takes requisite data from the APS to maintain packaging information.		

iv.	At the end of every shift, Finished Good Notes Boxes to be returned by Packing Section to Packing Vault.
	
	SAP Touchpoints:
	• The Finished Good Notes Boxes are returned through following SAP Movement Codes:
	   o MIGO:531 spoiled Receipt
	   o MIGO: 101 Finished Good Notes		

11.	**Dispatch/Consignment:**	**Machine Name/ Manual**	**Equipment Required**
i.	Finished Good Notes are transferred to Dispatch Section through SAP Movement Code VL06G: 601 Finished Good Notes		
ii.	The system must provide the user interface to enter the details of boxes being dispatched and authorize the		

	movement of boxes.		
iii.	• RFID readers should be installed at the exit points of the warehouse. The system should automatically record the exit, once the RFID tagged boxes passes through the gate. • Similarly, for any unauthorized movement, the system should raise the alarm.	Automatic	RFID Scanner

1.4. Proposed Process Flow of CNP, Nashik

Currency Note Press (CNP), Nashik			
1.	**Security Store section**	**Machine Name/ Manual**	**Equipment Required**
i.	RFID readers should be installed at the entry points of the Security Store section. The system should automatically record the entry, once the RFID tagged boxes passes through the gate. T&T shall cross-check the scanned RFID/Barcode with the relevant information already received into T&T from Papermill. *Note: The system should be able to handle the scenarios where RFIDs are damaged, missing or not readable.* **SAP Touchpoints:** • The stock of Boxes, Reams and sheets along with denominations, quantity, etc. to be updated in SAP by T & T system.	-	RFID Scanner
2.	**Pre-conditioning/Store section:**	**Machine Name/ Manual**	**Equipment Required**
i.	RFID readers should be installed at the entry points of the pre-conditioning section. The system should automatically record the entry, once the RFID tagged boxes passes through the gate. *Note: The system should be able to handle the scenarios where RFIDs are damaged, missing or not readable and raise alert accordingly.* **SAP Touchpoints:** • The stock of Boxes, Reams and sheets along with denominations, quantity, etc. to be updated in SAP by T & T system.	-	RFID Scanner
ii.	Security Store (Mini Store) counts the sheets using GTS counting machines. Ream Count are matched with Lot Quantity mentioned in invoices and Sheet Count as	GTS Counting Machine	

		Machine Name/ Manual	Equipment Required
	500/Ream. *(Note-* • *In case of any mismatch, flag is raised and inform to concerned paper mills about the same via SAP.* • *Once SPM/BNPM certifies the mismatch, the store section tries to ensure 500 sheets/Ream by adding extra sheets (if available).* Also, system should do the reconciliation of each pallet and reports can be generated for the same.		
iii.	Paper Requisition is raised by control section along with Denomination, Quantity, etc through SAP Movement Code: MB21: Paper Requisition.		
iv.	Pre-conditioning section issues the required sheets to control section. **SAP Touchpoints:** • The T & T system should cross check with SAP Reservation number for Denomination, Quantity, etc. • The T & T system should have provision to carry out Stock Transfer update in SAP. (311 Blank Paper Transfer to Simultan/Offset Vault)		
3.	**Offset section**	**Machine Name/ Manual**	**Equipment Required**
i.	At the beginning of every shift, blank sheets to be issued to Offset Section from Simultan/Offset Vault. **SAP Touchpoints:** • The T&T should cross check with SAP Production Order for Denomination, Quantity, etc and issue sheets on FIFO basis (else error message should be raised for intervention of higher authority to clear with reason recording) • Blank sheets are issued to Offset Section through SAP Movement Code: MIGO:261 – Goods Issue - Blank Paper • Update stock of Ream IDs / Sheet IDs accordingly in T&T and SAP		
ii.	There should be a scanner / sensor on each offset machine to detect whether a barcode is already printed on the sheet or not. **Note:** The above is to detect following scenarios: • In exceptional cases sheets coming from SPM, Narmadapuram might have missing barcodes. • Sheets coming from BNPM, Mysore will not be having barcodes	• Super Simultan 212 • Currency LT Komori	Barcode Printer and Scanner

iii.	If a barcode has not been printed on sheets, the suitable barcode printer will print the barcode with sufficient length on the top of the sheet, on its side lay side of every blank sheet at the at feeding point of offset printing. The barcode of each sheet must be unique and contains information about denomination, batch number and sequential number within the batch, etc.	• Super Simultan 212 • Currency LT Komori	Barcode Printer and Scanner
iv.	• The scanner should read the barcode at the maximum speed of offset machine as given in annexure. • The system shall be equipped with the suitable mechanism to mark spoil sheet at the delivery end.	• Super Simultan 212 • Currency LT Komori	Barcode Scanner
v.	The offset machine shall be equipped with a sheet input sensor to differentiate between un-watermarked (blue trial paper) and watermarked paper under transparency condition & if it is un-watermarked paper then shall not print the barcode on un-watermarked paper. Both type of sheets (watermarked and un-watermarked) should be counted separately.	• Super Simultan 212 • Currency LT Komori	Sensor to detect watermark
vi.	The offset machine shall be equipped with suitable readers/ sensors to detect on which of the output piles / reject gate the machine is releasing each sheet.	• Super Simultan 212 • Currency LT Komori	Sensors on output piles / reject gate
vii.	The T & T system should be able to detect any sheet processing anomaly and generate an alarm/ signal to stop the feeding of sheets and allow for intervention of the operator. General detected anomalies are double sheet, lost sheet, wrong sheet, wrong delivery pile, un-watermarked trial sheet mixed with watermarked sheet, spoil sheets are fed again, etc. *Note: However, the T&T system should be able to mark spoiled sheets as good sheets after necessary intervention, if the machine has incorrectly marked the sheet as spoiled.*		Sensors to detect sheet anomalies
viii.	The T & T system should link the key information (like date and time of printing, inset letter, imprint year, production, spoil, shift, production orders, operators, materials, machine details, supplier of CWBN paper, etc.) with the barcode of every sheet and store in local server at unit level.		
ix.	The T & T system should have provision to support these manual operations in order to ensure 100% accountability of each sheet:	Manual	Handheld Barcode Scanner to

		Machine Name/ Manual	Equipment Required
	c. Manual movements of sheets from piles to manual inspection by the operator. d. Transfer of Spoil / Good printed sheets which are removed from output pile to the PTL /QC lab / Paper Testing Lab / Manual examination and recording the barcode of the transferred paper & receive tested paper returned from the lab.		read barcode manually
x.	• The T & T system should perform reconciliations at the end of each shift (Machine-wise, Section-wise, and Sheet-side*) and should have facility to generate final report for the signature/approval of a supervisor. • If the sheets are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation/reconciliation with suitable reason. Note: *Sheet-side includes Offset, Intaglio, Color and Number Printing sections.		
xi.	At the end of every shift, sheets to be returned by Offset Section to Vaults as below: • Spoiled sheets are returned to Simultan Vault • Un-used Blank sheets are returned to Simultan Vault • Simultan Printed Sheets are returned to Simultan Vault The System should also have provision to handle Broken Reams (Reams containing less or more than 500 sheets) **SAP Touchpoints:** • CO11N Production Confirmation to be done automatically by T&T system in SAP. Following information should be updated Manpower, Spoil, Good Production Sheets (yield), Date and Time, Shift, Machine, work center, etc. • SAP Movement Code: (MIGO: 101 Goods Received – Good, rework and spoiled Receipt) • Simultan Printed Paper are then transferred to Intaglio Vault through SAP Movement Code: (MIGO: 301 Simultan Printed Paper)		
4.	**Intaglio Section**	**Machine Name/ Manual**	**Equipment Required**
i.	At the beginning of every shift, offset printed sheets to be issued to Intaglio Printing Section from Intaglio Vault. **SAP Touchpoints:** • The T&T should cross check with SAP Production Order for		

	Denomination, Quantity, etc and issue sheets on FIFO basis (else error message should be raised for intervention of higher authority to clear with reason recording) • SAP Movement Code: 261 Goods Issue Simultan Printed Paper • Update stock of Sheet IDs accordingly in T&T and SAP		
ii.	• The Intaglio machine shall be equipped with a sheet input sensor to differentiate between un-watermarked (blue trial paper) and watermarked paper under transparency condition. Both type of sheets (watermarked and un-watermarked) should be counted separately. The system shall be equipped with the suitable mechanism to mark spoil sheet at the delivery end.	• Super Orlof Intaglio • Super Orlof Intaglio-II • Currency Intaglio Color	Sensor to detect watermark
iii.	There should be a scanner at the feeding point of intaglio machine to read the barcode. The scanner should read the barcode at the maximum speed of the machine as given in annexure.	• Super Orlof Intaglio • Super Orlof Intaglio-II • Currency Intaglio Color	Barcode Scanner
iv.	The machine shall be equipped with suitable readers/ sensors to detect on which output pile the machine is delivering each sheet, in order to differentiate good & suspected sheets. T & T System should detect machine output category wise i.e. All-good, Suspected & Spoil.	• Super Orlof Intaglio • Super Orlof Intaglio-II • Currency Intaglio Color	Sensors on output piles
v.	<mark>The system should allocate unique id (barcode) to Parcels.</mark>		
vi.	The T & T system should be able to detect any sheet processing anomaly and generate an alarm/ signal to stop the feeding of sheets and allow for intervention of the operator. General detected anomalies are double sheet, lost sheet, wrong sheet, wrong delivery pile, un-watermarked trial sheet mixed to watermarked sheet, spoil sheets are fed again, etc. *Note: However, the T&T system should be able to mark spoiled*		Sensors to detect sheet anomalies

	sheets as good sheets after necessary intervention, if the machine has incorrectly marked the sheet as spoiled.		
vii.	The T & T system should link the key information (like date and time of printing, inset letter, imprint year, production, spoil, shift, production orders, operators, materials, machine details, supplier of CWBN paper etc.) with the barcode of every sheet and store in local storage.		
viii.	The T & T system should have provision to support these manual operations in order to ensure 100% accountability of each sheet: d. Manual movements of sheets from piles to manual inspection by the operator. e. Transfer of paper samples from the section to the QC Lab/Paper Testing Lab/Manual Examination recording the barcode of the transferred paper & receive tested paper returned from the lab. f. Record the information of used materials, like plates, inks, etc.	Manual	Handheld Barcode Scanner to read barcode manually
ix.	• The T & T system should perform reconciliations at the end of each shift (Machine-wise, Section-wise, and Sheet-side*) and should have facility to generate final report for the signature/approval of a supervisor. • If the sheets are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. Note: *Sheet-side includes Offset, Intaglio, Color and Number Printing sections.		
x.	At the end of every shift, the sheets to be returned by Intaglio Printing Section to Vaults as below: • Spoiled sheets are returned to Intaglio Vault • Un-used sheets are returned to Intaglio Vault • Intaglio Printed Sheets are returned to Intaglio Vault **SAP Touchpoints:** • CO11N Production Confirmation to be done automatically by T&T system in SAP. Following information should be updated Manpower, Spoil, Good Production Sheets (yield), Date and Time, Shift, Machine, work center, etc. • The sheets are returned through following SAP Movement Code: o MIGO: 101 Goods Received – Good, rework and spoiled Receipt • Once the ink gets dried off, followings movements take		

	place:		
	○ All-good Intaglio printed sheets are transferred to Number Printing Vault through Movement Code MIGO:301 All-Good Intaglio Printed Paper ○ Suspected Intaglio printed sheets are transferred to Color Vault through Movement Code MIGO:301 Suspected Intaglio Printed Paper - Update stock of Sheet IDs accordingly in T&T and SAP		
5.	**Color Section**	**Machine Name/ Manual**	**Equipment Required**
i.	At the beginning of every shift, sheets to be issued to the examiners in Color Section from Color Vault. **SAP Touchpoints:** - SAP Movement Code: 261 Goods Issue Intaglio Printed Paper - Update stock of Sheet IDs accordingly in T&T and SAP - The T&T system should provide the functionality to issue/map sheets to examiners before each shift.		
ii.	This section is responsible to check/ inspect/examine the printing defects of Simultan or suspected intaglio paper through manual examination & the result is classified as either: <ul type="a"> a. All-good paper (further used for numbering and then processed on cutpack), b. With-cancellation paper (further used in numbering and then proceed on BPS processing) or c. Spoiled sheets **Note-** - A possible solution to handle Manual Color Examination process is mentioned below, however the bidder is free to propose better solution:<ul type="a"> a. After examination, the examiner shall form separate batches for All-good, With-Cancellation and spoiled sheets. b. The examiner shall scan only the spoiled sheet with barcode scanner, which shall be marked as spoiled in the T & T System. c. All-good and With-Cancellation sheets shall be sent separately for number printing, wherein their status shall be updated accordingly. - There should be 100% accountability regarding sheets movements and the same should be recorded properly in system - The system should highlight immediately in case of any	Manual	Suitable Barcode Scanner to read barcode

	discrepancy.		
iii.	• The T & T system should capture information like examiner details, date of examination, production orders etc. for each sheet examined by the examiner. • The T & T system should keep record of individual examiner (total sheets inspected / rejected / defect type)		
iv.	• The T & T system should perform reconciliations at the end of each shift (Examiner-wise, Section-wise, and Sheet-side*) and should have facility to generate final report for the signature/approval of a supervisor. • If the sheets are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. • Note: *Sheet-side includes Offset, Intaglio, Color and Number Printing sections.		
v.	At the end of every shift, sheets to be returned by Color Section to Vaults as below: • Spoiled sheets are returned to Color Vault • Color Examined Sheets are returned to Color Vault **SAP Touchpoints:** • The sheets are returned through following SAP Movement Codes: o MIGO: 101 Goods Received – Good, rework and spoiled Receipt • The Color Examined Paper are then transferred to Number Printing Vault through SAP Movement Code (301 Color Examined Paper)		
6.	**Number Printing Section**	**Machine Name/ Manual**	**Equipment Required**
i.	At the beginning of every shift, sheets to be issued to Number Printing Section from Number Printing Vault. **SAP Touchpoints:** • The T&T should cross check with SAP Production Order for Denomination, Quantity, etc and issue sheets on FIFO basis (else error message should be raised for intervention of higher authority to clear with reason recording) • SAP Movement Code: 261 Goods Issue -Color Examined and Intaglio Printed Paper • Update stock of Sheet IDs accordingly in T&T and SAP		

ii.	There should be a scanner at the feeding point of Number Printing machine to read the barcode. The scanner should read the barcode at the maximum speed of the machine as given in annexure.	• Super Numerota 212 • Super Numerota III • Numero-protecta • New Numero Pack-II	Barcode Scanner
iii.	The T&T system must create a parent-child link between the unique barcode of each sheet with the serial no of all the bank notes printed from this sheet for backward traceability.		
iv.	The T&T System to keep record for sequential/ random/ star numbered sheets. System should be able to cross check the numbering pattern (sequential/random/star) with the machine. System should raise alert in case of any mismatch/discrepancy.		
v.	The T&T system shall have a printer at the delivery of numbered sheet in numerota section & have the capability to print a unique auto-generated batch (contains all information regarding serial number of notes for all 100 sheets) on the first sheet from the bunch of 100 sheets so that system shall receive all information regarding 100 sheets barcode & serial note numbers by reading a single batch. **Note:** The system should have provision to handle exceptional condition such as machine breakdown before printing 100 sheets of a batch and wherein the remaining sheets are printed on another machine / shift / day and system should continue from previous incomplete batch.	• Super Numerota 212 • Super Numerota III • Numero protecta • New Numero Pack-II	Barcode Printer
vi.	The system should be provisioned about the sequence of serial numbers to be printed on the sheets of a batch in order to control/check that they are correctly printed.		
vii.	The system will be capable of reading alphanumeric note numbers printed with different type of characters along with prefix and star.	• Super Numerota 212 • Super Numerota III • Numero protecta • New Numero	Barcode Printer, Scanner and Reader

			Pack-II	
viii.	In case of detection of an out-of-sequence numbering the system should be capable to generate a stop feeder signal and for an operator intervention providing indications about the type of detected error.		• Super Numerota 212 • Super Numerota III • Numero protecta • New Numero Pack-II	Barcode Scanner and alarm
ix.	The machine shall be equipped with suitable readers/ sensors to detect on which output pile the machine is delivering each sheet.		• Super Numerota 212 • Super Numerota III • Numero protecta • New Numero Pack-II	Sensors on output piles
x.	The software application should support the possibility to show to the operator the complete image of a sheet. The operator should have the possibility to certify the numbering sequence and quality of the S/Ns by clicking on each S/N of the shown sheet. The application should then be able to store, on the centralized data server, the image of the sheet and the name of the operator who certified it.			
xi.	There should be a provision to store the data like date of printing, inset letter, governor, prefix, imprint year, production, spoil, shift, operator, production order, number, etc. for every sheet on local server.			

xii.	The T & T system should have provision to support these manual operations in order to ensure 100% accountability of each sheet:
	   d. Manual movements of sheets from piles to manual inspection by operator.
	   e. Transfer of sheets from the Numerota section to the QC lab/Paper Testing Lab, recording the barcode of the transferred sheets & receive sheets returned from a lab.
	   f. In case any sheet of the batch is spoiled, and
			Manual	Handheld Barcode Scanner to read barcode manually

	renumbering happens in numerota, then the T & T system should support mapping of renumbered sheet with the spoiled sheet in the corresponding batch, to avoid duplicate numbering.		
xiii.	• In case of **Numeropack Machines**, the system should continue to the next step (i.e., **Step No: xiv**) • In case of **other number printing machines**, the system should move to the **Step No: xix.**		
xiv.	In the Cut-Pack area the Sheets are converted into the notes. The system should be capable to read the unique barcodes of every sheet from the bunch of 100 sheets or capable to read the unique auto-generated batch which is printed in numerota section for 100-100 sheets at feeding point for cutting.	• Numero-pack	Barcode Scanner
xv.	The system must provide the user interface to enter the details of any wrong-cut sheet/note, so that exact information of replaced Hand numbered / Star mark notes against the wrong-cut or spoil notes can be entered.	Manual	Handheld Barcode Scanner to read barcode manually
xvi.	The T & T system should store the key information like date of printing, inset letter, imprint year, production, spoil, shift, operator, supplier of CWBN paper etc. for every sheet.		
xvii.	A unique barcode for complete bundle (classification wise i.e. Denomination prefix, Governor, Inset letter, year) should be inserted / pasted on the bundle. **Note:** Original code of sheet shall be mapped to the bundle code and paste the barcode over the shrink-wrapped bundle.		
xviii.	• The T & T system should perform reconciliations at the end of each shift (Machine-wise, Section-wise, Sheet-side* and Note-side**) and should have facility to generate final report for the signature/approval of a supervisor. • If the Sheets/Notes are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. Note: • *Sheet-side includes Offset, Intaglio, Color and Number Printing sections. • **Note-side includes Cut-Pack, BPS, Finishing and Packing sections.		
xix.	At the end of every shift, sheets to be returned by Number Printing Section to Number Printing vaults as below: • Spoiled sheets are returned to Number Printing Vault • Unused sheets are returned to Number Printing Vault		

- Number Printed Sheets are returned to Number Printing Vault

SAP Touchpoints:
- CO11N Production Confirmation to be done automatically by T&T system. Following information should be updated Manpower, Spoil, Good Production Sheets (yield), Date and Time, Shift, Machine, work center, etc.
- The sheets are returned through following SAP Movement Code:
  - MIGO: 101 Goods Received – Good, Suspected and spoiled Receipt, Star Numbered Sheets Receipt
- All-good Number printed sheets are later transferred to Number Sheet Examination Vault through Movement Code MIGO: 301 Numbered Sheets & Numbered Spoil
- Numbered Suspected Parcels are transferred to BPS Vault through Movement Code MIGO: 301 Numbered Suspected Parcels

7.	**Number Sheet Examination**	**Machine Name/ Manual**	**Equipment Required**
i.	At the beginning of every shift, sheets to be issued to the examiners in Number Sheet Examination Section from Number Sheet Examination Vault. **SAP Touchpoints:** - SAP Movement Code: 261 Goods Issue Numbered Sheets - Update stock of Sheet IDs accordingly in T&T and SAP - The T&T system should provide the functionality to issue/map sheets to examiners before each shift.		

ii.	This section is responsible to check/ inspect/examine the printing defects of Numerota printing paper through manual examination & the result is classified as either:
	  a. All-good paper (further used for processing on cutpack),
	  b. With-cancellation paper (Sheets are replaced with * numbered sheets) or
	  c. Spoiled sheets
	Note-
	- A possible solution to handle Number Sheet Examination process is mentioned below, however the bidder is free to propose better solution:
	  a. After examination, the examiner shall form separate batches for All-good and spoiled sheets.
	  b. The examiner shall scan the spoiled sheets and the star (*) sheets which are replaced in place of spoiled sheets, with barcode scanner. The status of both
		Manual	Suitable Barcode Scanner to read barcode

	spoiled and star (*) sheets shall be marked accordingly in the T & T System. c. All-good sheets shall be sent to cut-pack machines, wherein their status shall be updated accordingly. • There should be 100% accountability regarding sheets movements and the same should be recorded properly in system • The system should highlight immediately in case of any discrepancy.		
iii.	• The T & T system should capture information like examiner details, date of examination, production orders etc. for each sheet examined by the examiner. • The T & T system should keep record of individual examiner (total sheets inspected / rejected / defect type)		
iv.	• The T & T system should perform reconciliations at the end of each shift (Section-wise, and Sheet-side*) and should have facility to generate final report for the signature/approval of a supervisor. • If the sheets are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. • Note: *Sheet-side includes Offset, Intaglio, Color and Number Printing sections.		

v.	At the end of every shift, sheets to be returned by Number Sheet Examination Section to Vaults as below:
	• Spoiled sheets are returned to Number Sheet Examination Vault
	• Color Examined Sheets are returned to Number Sheet Examination Vault
	
	SAP Touchpoints:
	• The sheets are returned through following SAP Movement Codes:
	   o MIGO: 309 Material to Material Transfer – Replacement with Star Numbered Sheets
	   o MIGO: 101 Goods Received – Good and spoiled Receipt
	• The All-Good Numbered Sheets are then transferred to Cut-Pack Vault through SAP Movement Code (301 All Good Numbered Sheets)		

8.	**Cut-Pack Section:** **(All Good Numbered sheets from Numerota Section comes to Cut-Pack Section)**	**Machine Name/ Manual**	**Equipment Required**

i.	At the beginning of every shift, sheets to be issued to Cut-Pack Section from Cut-Pack Vault. **SAP Touchpoints:** • The T&T should cross check with SAP Production Order for Denomination, Quantity, etc and issue sheets on FIFO basis (else error message should be raised for intervention of higher authority to clear with reason recording) • SAP Movement Code: 261 Goods Issue – All-Good Numbered Sheets • Update stock of Sheet IDs accordingly in T&T and SAP		
ii.	In the Cut-Pack section Sheets are converted into the notes by cutting through Cut-Pack machines. The system should be capable to read the unique barcodes of every sheet from the bunch of 100 sheets or capable to read the unique auto-generated batch which is printed in numerota section for 100-100 sheets at feeding point for cutting.	• KBA Cutpack • Uno	Barcode Scanner
iii.	The system must provide the user interface to enter the details of any wrong-cut sheet/note, so that exact information of replaced Hand numbered / Star mark notes against the wrong-cut or spoil notes can be entered.	Manual	Handheld Barcode Scanner to read barcode manually
iv.	The T & T system should store the key information like date of printing, inset letter, imprint year, production, spoil, shift, operator, supplier of CWBN paper etc. for every sheet.		
v.	A unique barcode for complete bundle (classification wise i.e. Denomination prefix, Governor, Inset letter, year) should be inserted / pasted on the bundle. **Note:** Original code of sheet shall be mapped to the bundle code and paste the barcode over the shrink-wrapped bundle.		
vi.	• The T & T system should perform reconciliations at the end of each shift (Machine-wise, Section-wise and Note-side*) and should have facility to generate final report for the signature/approval of a supervisor. • If Sheets/Notes are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. Note: *Note-side includes Cut-Pack, BPS, Finishing and Packing sections.		
vii.	At the end of every shift, Cut and Bundled Notes to be returned by Cut-Pack Section to Cut-Pack vaults as below: • Unused sheets are returned to Cut-Pack Vault • Cut and Bundled Notes are returned to Cut-Pack Vault		

	SAP Touchpoints:
	• CO11N Production Confirmation to be done automatically by T&T system in SAP. Following information should be updated Manpower, Spoil, Good Production Notes (yield), Date and Time, Shift, Machine, work center, etc.
	• The sheets/bundled notes are returned through following SAP Movement Codes:
	   ○ MIGO: 309 Material to Material Transfer – Replacement with Star Numbered Notes
	   ○ MIGO: 101 Cut and Bundled Notes
	• Shrink Packed Bundled Notes are then transferred to Packing Vault through Movement Code MIGO: 301 Shrink Packed Bundled Notes		

9.	**FIN-2 Section** **(Suspected sheets identified by Number Printing machines and Suspected Notes / Bundles from Cut-Pack Machines comes to this Section)**	**Machine Name/ Manual**	**Equipment Required**
i.	At the beginning of every shift, Numbered Notes to be issued to the operators in Fin-2 Section from Fin-2 Vault. **SAP Touchpoints:** • SAP Movement Code: 261 Goods Issue – Numbered Notes • Update stock of Note Numbers accordingly in T&T and SAP • The T&T system should provide the functionality to issue/map Notes to operators before each shift.		
ii.	The T & T system should have facility to record the following activities to ensure 100% accountability and traceability:		
a.	Numbering defects of numerota section found during Numbered Sheet Exam.	Manual	Handheld Barcode Scanner to read barcode manually
b.	Corner Bundle Flickering after cutting sheets into the notes (Bundle form) where manually each note inspection is carried out and spoiled notes are recorded.	Manual	Handheld Barcode Scanner to read barcode manually
c.	Hand numbering of Top and Bottom spoiled notes, which are recorded under the process of single note examination.	Manual	Handheld Barcode Scanner to read barcode manually
d.	Replacement of Hand numbered notes against the spoiled notes found in single note exam.	Manual	Handheld Barcode Scanner to

			read barcode manually
e.	Replacement of star numbered notes against spoiled notes found in single note examination.	Manual	Handheld Barcode Scanner to read barcode manually
f.	• There should be 100% accountability regarding Notes movements and the same should be recorded properly in system • System to keep record of hand numbered note / star replaced sheet / spoil sheet or note which is replaced along with name and details of the operators (comparer and replacer) date of operation, production orders, etc. • Renumbered note to be recorded in the system only after the original note is marked as spoiled note and updated in the system. • The system should highlight immediately in case of any discrepancy.	Manual	
g.	In case of re-bundling due to above manual examination/ activities, a unique barcode for bundle with updated information (classification wise i.e. Denomination prefix, Governor, Inset letter, year) should be inserted / pasted on the bundle. **Note:** Original code of sheet will be mapped to this updated bundle batch code and paste the barcode over the shrink wrap bundle.		
h.	After rework done on shrink-wrap bundle, system should capture detail of rework and generate modified batch no (R-Previous batch no.)		
i.	• The T & T system should perform reconciliations at the end of each shift (Section-wise and Note-side*) and should have facility to generate final report for the signature/approval of a supervisor. • If notes are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. Note: *Note-side includes Cut-Pack, BPS, Finishing and Packing sections.		
j.	At the end of every shift, Replaced and Counted Numbered Notes to be returned by Fin-2 Section to Vaults as below: • Spoiled Notes are returned to Fin-2 Vault • Replaced and Counted Numbered Notes are returned to		

		Machine Name/ Manual	Equipment Required
	Fin-3 Vault

SAP Touchpoints:
- The Notes are returned through following SAP Movement Codes:
  - o MIGO: 309 Material to Material Transfer – Replacement with Star Numbered Notes
  - o MIGO: 101 Goods Received – All-Good Notes Receipt | | |
| *10.* | **BPS & Cutlink**
(With-Cancellation CRN-Numbered sheets from Numerota Section comes to BPS & Cutlink) | **Machine Name/ Manual** | **Equipment Required** |
| i. | At the beginning of every shift, sheets to be issued to BPS Printing Section from Fin-III Vault.

SAP Touchpoints:
- The T&T should cross check with SAP Production Order for Denomination, Quantity, etc and issue sheets on FIFO basis (else error message should be raised for intervention of higher authority to clear with reason recording)
- SAP Movement Code: 261 Goods Issue – CRN Numbered Sheets
- Update stock of Sheet IDs accordingly in T&T and SAP | | |
| ii. | The system should be capable to read the unique barcode of every sheets from the bunch of 100 sheets or capable to read the unique auto-generated batch which is printed in numerota section for 100-100 sheets, at the feeding point of cutlink followed by BPS. | • BPS-2000 | Barcode Scanner |
| iii. | There should be a provision to store the data like date of printing, inset letter, governor, prefix, imprint year, production, production order, spoil, shift, operator etc. for every sheet. | | |
| iv. | A unique barcode for complete bundle (classification wise i.e. Denomination prefix, Governor, Inset letter, year) should be inserted / pasted on the bundle.
Note: Original code of sheet will be mapped to the bundle batch code and paste the barcode over the shrink wrap bundle. | | |
| v. | • The T & T system should perform reconciliations at the end of each shift (Machine-wise, Section-wise and Note-side*) and should have facility to generate final report for the signature/approval of a supervisor.
• If Sheets/Notes are not reconciled, then the T&T system should raise an alert and there should be a provision to enter the reason for reference. In later stage, if it gets reconciled then user should be able to close the operation with suitable reason. | | |

	Note: *Note-side includes Cut-Pack, BPS, Finishing and Packing sections.		
vi.	At the end of every shift, BPS Bundled Notes to be returned by BPS Section to Fin-III Vault as below: • Unused sheets are returned to Fin-III Vault • BPS Bundled Notes are returned to Fin-III Vault **SAP Touchpoints:** • CO11N Production Confirmation to be done automatically by T&T system in SAP. Following information should be updated Manpower, Spoil, Good Production Notes (yield), Date and Time, Shift, Machine, work center, etc. • The sheets are returned through following SAP Movement Codes: ○ MIGO: 101 BPS Bundled Notes • Shrink Packed Bundled Notes are then transferred to Packing Vault through Movement Code MIGO: 301 Shrink Packed Bundled Notes		
11.	**Packing Section**	**Machine Name/ Manual**	**Equipment Required**
i.	At the beginning of every shift, Shrink Packed Bundled Notes to be issued to Packing Section from Packing Vault. **SAP Touchpoints:** • SAP Movement Code: 261 Goods Issue – Shrink Packed Bundled Notes		
ii.	• Shrink-wrapped bundled-notes are packed Prefix-wise in wooden boxes. • The T & T system shall generate a unique RFID for each box. The system must create a parent-child link between the unique barcode of each bundle with the serial no of the box for backward traceability. The operator should scan barcode of each bundle before placing into a box. • The T & T system should have provision to enter a batch no. containing information of all the packed bank notes/bundles/boxes to map with the prefix and serial number of bank notes, RBI center to track the details of dispatched bank notes to RBI.	Manual	RFID and Handheld Barcode Scanner to read barcode of bundles manually
iii.	In case CNP plans to install Automatic Packaging System (APS) wherein in wooden boxes will be automatically filled by Bundles on the basis of prefix and boxes will also get labelled automatically and stored at pre-defined place by the APS. The proposed T&T system shall interface and takes requisite data from the APS to maintain packaging information.		

		Machine Name/ Manual	Equipment Required
iv.	At the end of every shift, Finished Good Notes Boxes to be returned by Packing Section to Packing Vault. **SAP Touchpoints:** • The Finished Good Notes Boxes are returned through following SAP Movement Codes: o MIGO: 101 Finished Good Notes		
12.	**Dispatch/Consignment:**	**Machine Name/ Manual**	**Equipment Required**
i.	Finished Good Notes are transferred to Dispatch Section through SAP Movement Code VL06G: 601 Finished Good Notes		
ii.	The system must provide the user interface to enter the details of boxes being dispatched and authorize the movement of boxes.		
iii.	• RFID readers should be installed at the exit points of the warehouse. The system should automatically record the exit, once the RFID tagged boxes passes through the gate. • Similarly, for any unauthorized movement, the system should raise the alarm.	Automatic	RFID Scanner

Note:

Sheets issued for sample verification at BNP-Dewas and CNP-Nashik
Some of the lots received at BNP-Dewas and CNP-Nashik from Paper Mill can be marked for restrictive use, until the lot gets quality clearance from Paper Testing Lab. The existing process for checking the quality of sheets is mentioned below:
Existing Quality-Check Process: a. **Some of the reams from the lot are sent for quality check** for sample verification. b. **The quality of the** sample **sheets is** then **checked by printing** through **offset machine.** c. The offset-printed-sheets are sent to Paper Testing Lab for quality clearance. d. If the Paper Testing Lab certifies the quality of sheets, then **whole lot** is **marked for unrestricted use** (including the sheets already printed on offset) **and can be issued for further process.**
The above-mentioned scenario is proposed to be handled in following way:
Proposed Quality-Check Process: a. **Security Store section:** • Some of the lots received at BNP-Dewas and CNP-Nashik from Paper Mill shall be marked for restrictive use in T&T, until the lot gets quality clearance from Paper Testing Lab. • Some sample reams from that corresponding lot are sent for quality check. These **Reams shall be marked as restricted for Quality Inspection at Security Store** in T&T system. • Subsequently, the reams shall be stock-transferred to Pre-conditioning section in T&T. **SAP Touchpoints:** • The status of sample lot and sheets to be updated accordingly in SAP by T&T system.

- The stock of Reams and sheets along with denominations, quantity, etc. to be updated in SAP by T & T system.

b. **Pre-conditioning/Store section:**
- **After** completing the required number of days in **Pre-conditioning**, **the reams shall then be stock-transferred to Control section in T&T.**

SAP Touchpoints:

- **The stock of Reams and sheets along with denominations, quantity, etc. to be updated in SAP by T & T system.**

c. **Offset section**
- **The reams shall be issued by Control section to Offset Section in T&T.**

SAP Touchpoints:

- The stock of Reams and sheets along with denominations, quantity, etc. to be updated in SAP by T & T system.

d. **Offset section:**
- **The offset section shall print the sheets.**
- **The Paper Testing Lab shall test the quality of sheets.**
  - If PTL clears the quality of sheets, then whole lot (including offset printed sheets) shall be marked for unrestricted use for further processing in T&T.
  - If PTL rejects the quality of sheets, then whole lot (including offset printed sheets) shall be marked as rejected in T&T.

SAP Touch points:

- The status of sample lot and sheets to be updated accordingly in SAP by T&T system

5. Design Principles for Track and Trace System

The SI should follow below suggested guidelines while designing the system-

	Design Principal for Track and Trace System
a.	**Scalable:** The solution should have the flexibility to scale as per requirements. It should be capable of increasing its total output under an increased load when resources are added. Scalability can in the form of horizontal and vertical. a. The solution should be highly scalable to support the current and projected end user and account base volume across all three units. b. The solution should have an architecture that supports scalability beyond the mentioned volumes in the document. c. The solution should support variations in load patterns based on various factors d. The solution should support horizontal and vertical scalability for all three units. e. The system should be modular enough to cater to future requirements. f. The system should be scalable to support any addition of new machines, production lines and units in future. There should not be any constraint in application capabilities to add new machines, production lines and units.
b.	**Robust:** The ability of the system to resist changes without changing its initial configuration. Whenever there is a minor or major enhancement, the ability of the application to adapt to the changes without much change in the behavior leads to robustness of the application. Being robust will not suffice the requirement, but the application has to be also fault-tolerant and resilient.

c.	**Flexible:** It refers to the ability of the application to adapt to possible or future changes in its requirements. The concept of flexibility is for loose coupling of the components, so that changes can be made as per requirements. Application should be configurable so that during implementation any minor changes can be configured as per requirements.	
d.	**Efficient:** The application should be efficient. Once deployed it should free from error. The response time of the application should not go down along with the usage. The user experience should be appreciated so that it reflects usability across different roles.	
e.	**Availability** - Components of the architecture should be resilient across any software, hardware or network and must provide redundancy and ensure that are no single point of failures in the key project components. The solution should support software upgrades / configuration without impact on availability. Considering the high sensitivity of the system, the design should be in such a way as to be resilient to technological sabotage	
f.	**Interoperability** - Keeping in view the evolving needs of interoperability, especially the possibility that the solution shall become the focal point of delivery of services and may also involve cross-functionality with other projects in the future.	
g.	**Standards and Protocols Requirements** The solution should adhere to industry standards and best practices. The solution should be designed considering below - a. The system shall be compliant to OPC Protocols. b. Information Security: ISO 27001 c. Information security standards framework and guidelines standards under e-Governance standards (http://egovstandards.gov.in), d. Government of India, Information Technology Act 2000 & IT (Amendment) Act 2008 e. The data shall not be removed from the approved hosting facilities unless with the specific authorization of BNP, Dewas or as part of agreed backup procedures	

6. Payment and Timeline

Phase	Milestone	Deliverables/Key Activities	Timeline (from the date of signing of Contract -	Payable
I	Project Initiation	• Inception Report and System Blueprint • Requirement Traceability and Verification Matrix (RTVM) • SAP Integration approach document	T + 3 weeks	Nil

		Design Phase	• Software Requirement Specification (SRS) document • High Level Design (HLD) document and Low-Level Design (LLD)	**T + 8 weeks**	Nil
II	**Implementation & Roll-out**	Delivery of Track and Trace system for User Acceptance Test (UAT)	As per section 1.15 - User Acceptance Testing (UAT)	**T + 22 weeks**	Nil
		Completion of User Acceptance Testing (UAT)	Successful completion of User Acceptance Testing by BNP and other stakeholders and issuance of certificate for the same	**T + 26 weeks**	05% of capex cost
		Delivery of Track and Trace system for Pilot testing / run (at same production lines as UAT)	As per section 1.17 – Pilot Roll Out	**T + 28 weeks**	Nil
		Successful completion of Pilot run	• Successful completion of Pilot Testing by BNP and other stakeholders and issuance of certificate for the same	**T + 34 weeks**	15 % of capex cost
		Complete Application Roll out at all the units	• Supply of all IT Infrastructure and Setting up of all the environments in DC at Noida and DR at Hyderabad • Supply, installation, and commissioning of all infrastructure (Hardware, Software (including licenses), Scanner, Reader, Sensors, IOT devices, etc.) at SPM, Narmadapuram, BNP, Dewas and CNP, Nashik.	**T + 46 weeks**	
		Final Acceptance Testing (FAT), and Solution Go-Live	• As per section 1.18 – Final Acceptance Test (FAT) • Certificates of successful FAT & Go-Live from BNP, Dewas	**T + 48 weeks**	70% of capex cost

III	ISO-27001	ISO 27001:2018 - Compliance and Certification	• ISO 27001:2018 standard - Compliance and Certification from authorized agency as per Section 1.13 - Certification	**T + 52 weeks**	10% of capex cost
IV	Warranty	Entire System Warranty	As per Section 1.19 - Warranty & Comprehensive Annual Maintenance Contract	12 months from date of issue of final acceptance certificate from BNP, Dewas and system Go-Live	Nil
V	Comprehensive Annual Maintenance Contract (CAMC)	CAMC	As per Section 1.19 - Warranty & Comprehensive Annual Maintenance Contract	48 months from the end date of warranty	6% of the price quoted for OPEX in the Financial bid per quarter for 48 months of CAMC and rest amount at the end of successful Exit Management

Note-
i   **Cumulative CAPEX cost should not exceed 65% of the Total Bid Cost.**
ii   Acceptance sign-off of all above activities, completion of procurement, installation acceptance shall be provided by BNP, Dewas.
iii In case Go-Live is delayed, the warranty and CAMC phase will start after the Go-Live
iv   Payment is linked to the compliance with the SLA metrics as specified under Service Level Agreements and the payment shall be made to SI after any deductions of penalties (if any).
v   BNP, Dewas reserves the right to withhold any payments until full satisfaction of the completeness & quality of work performed for each phase on basis of physical inspection, Acceptance Test records, etc.

7. Technical Specifications

The specifications mentioned in this section are indicative requirements; bidders may propose a better or more optimized solution that meets the objectives specified in this RFP. Also, Bidders are advised to carry out their own assessment of requirement before submission of the response to this bid. Anything which is missing in this section but required for successful execution of the project (as per the Scope of Work and defined SLAs) anytime in future shall be provided by the Bidder without any additional cost to BNP, Dewas

7.1 Bar Code Specification

S.No.	Particulars	Values	Compliance	Deviations
a.	Suggested Type of Coding	Interleaved 2 of 5 (ITF) barcodes		
b.	Compliance	ISO/IEC 15416 standard (At least Grade B)		
c.	Minimum character length for Barcode	16 chars		
d.	Size of barcode (including barcode + UIN (human readable) + silent zone + any others) to be applied on sheets, reams, boxes, note bundles, etc.	Range from 3 x 120 mm to 5 x 120 mm		
e.	The barcode should be suitable for various sheet sizes of different denominations	Min. 400 x 475 mm & Max. 800 x 840 mm		
f.	Minimum life of Barcode (once printed), under normal business operations	Three (3) years		
g.	Compatibility of Bar code with CWBN paper	70 to 140 GSM of 100% Cotton Rag content Cylinder Mould Watermark Bank Note (CWBN) Paper with windowed security thread.		
h.	Other	The barcode data also be available in clear text to allow readability by the operators		

7.2 Bar Code marker / Printer

S. No.	Particulars	Compliance	Deviations
a.	The Code marker/printer should be of proven latest technology.		

		Compliance	Deviations
b.	The Code marker/printer should print "on the fly" i.e., non-contact on the moving paper with quick dry and easily scannable at variable speed.		
c.	The barcode should be dissolvable during re-pulping/re-cycling and should not have any adverse effect of broke pulp or paper quality.		
d.	The system shall be suitable to print the barcodes at maximum speed of machines for SPM-Narmadapuram, BNP-Dewas and CNP-Nashik mentioned under annexure		
e.	The Code marker/printer should have Open and Standard Digital Data Communication for sharing of printed data to the System Server.		
f.	The Code marker/printer should accept standard encoder input for machine speed and 24 VDC pulses for trigger.		
g.	The printer head shall be mounted on rugged and vibration dampening mounting hardware with automatic as well as manual position control option as per the width of the paper. It should include all necessary accessories required to mount such as connection box, brackets, Industrial Power Supply Input 230 VAC, etc.		
h.	The printer should be capable to have all inbuilt self-adjusting mechanism to take care of variations in the operating parameters, power supply, climatic conditions, etc.		

7.3   Bar Code Reader / Scanner

S. No.	Particulars	Compliance	Deviations
a.	The Code scanner should be of proven and latest technology.		
b.	The Code scanner should be able to read barcodes, not only in transmitted light, but also in transparency and reflected, wherever applicable		
c.	The Code scanner should be Compact, non-contact type and should be able to scan all the marked Code from the moving paper at variable speed.		
d.	The Code scanner should be able to read the barcodes at maximum machine speed for SPM-Narmadapuram, BNP-Dewas and CNP-Nashik mentioned under annexure.		
e.	The scanner should be capable of wide area scanning with minimum width of 120mm or more to cater as per width of the paper.		
f.	The Code scanner should have Open and Standard Digital Data Communication for sharing of scanned data to the System Server.		
g.	Any light array is required for the scanner to detect the		

S. No.	Particulars	Compliance	Deviations
	marked codes should be in accordance with standards.		
h.	The lighting system should not affect the functioning of other sensors and optical instruments in the respective areas.		
i.	The scanners shall be mounted on rugged mounting hardware without affecting the machine hardware and maintenance functions. It should include all necessary accessories required to mount and install Camera such as connection box, brackets, Industrial Power Supply Input 230 VAC, etc.		
j.	The scanner should be capable to have all inbuilt self-adjusting mechanism to take care of variations in the operating parameters, power supply, climatic conditions, etc.		
k.	The scanner should support features like Autofocus, Auto tuning, etc.		

7.4 Handheld Bar Code Reader / Scanner

S. No.	Particulars	Compliance	Deviations
a.	The Handheld Bar Code Reader / Scanner should support USB (2.0 or above) (without any delay or loss in data transfer)		
b.	An Ingress Protection (IP) rating of IP65 and above for protection against fluid spills and dust etc.		
c.	The barcode scanner should be compatible with Android 6.0 or above		
d.	It should have atleast following features: • Alpha-numeric keypad • 4'' WVGA (480*800), 16M colors • WLAN, 802.11 a/b/g/n, Bluetooth 4.0, BLE • 1.3 GHz quad-core, • 2GB+16GB Memory • 8 MP camera Auto focus camera with Flash • Li-Ion Battery 4200mAh, Battery run time atleast 12 hours on full charge, should support quick charge		

7.5 Live Data Display and Processing Unit (Connected to each machine)

S. No.	Particulars	Compliance	Deviations
a.	The Monitor should be minimum of 22-inch, Aspect Ratio of 16:9 or better, LED type, Full/HD resolution having DVI, VGA and HDMI outputs.		
b.	The necessary OS, database and other application software should be part of each processing unit.		
c.	GUI (Graphical User Interface) based software for display system is to be provided with following functionality.		

	• Operator monitoring • Manual data entry • Report generation • Live status of Marker and Scanners and other Sensors • Live status of other components, if any • Diagnostic details, etc.		
d.	Tower type, 24VDC power supply, 3-layer (with GREEN, AMBER & RED colored) audio-visual alarm system is required for any type of system errors and hardware malfunctioning. i **Green** - denotes system healthy, normal running ii **Amber**- denotes warning signal iii **Red** – denotes critical error/faults. In this case, machine interlock should be given to stop the machine. (Requirement for Green, Amber, Red color to be decided later)		
e.	Printer (for printing reports): It should have following minimum features: • **Printer type:** Laser jet • **Paper type:** A4 • **Connectivity:** Standard (built-in Ethernet) • **Print speed black:** Minimum 20ppm • **Duplex printing:** Yes • **Duty cycle:** 5000 monthly		

7.6 IT Infra Specification

Rack Server

S. No	Minimum Technical Specifications
a)	Offered rack server solution shall be of enterprise level class build.
b)	Redundant Power Supplies, all power supplies shall support Active/ Standby mode.
c)	Minimum latest generation Dual Intel socket each with 2.6GHz, 16 cores or higher for Physical Servers.
d)	6 x PCI-Express 3.0 slots
e)	Minimum 2x 600GB 10k SAS HDD.
f)	Minimum 256 GB RAM DDR4 2666MHz or higher with memory sparing/mirroring (for physical server).
g)	The server should provide 2x 16Gbps FC dual ports for Fiber channel connectivity.
h)	The server should provide 2x 10G Copper & 4x 10Gbps SFP+SR Ethernet ports for LAN connectivity.
i)	Hardware RAID Controller with 2GB or more cache supporting RAID 0,1, 5,6.
j)	OEM Systems Management Software to be included, shall support service alerting,

	reporting and remote management with dedicated Gigabit management port, Server shall support configuring and booting securely with industry standard Unified Extensible Firmware. The management software should be from the same OEM.
k)	All required cables and connectors to be included for all populated ports and interfaces
l)	The server should be offered with latest PCI/PCIe card to cater LAN and SAN bandwidth traffic.

Blade Server and Chassis

S. No.	Minimum Technical Specifications
a)	Offered Blade server solution shall be of enterprise level class build.
b)	Redundant Power Supplies, all power supplies shall support Active/ Standby mode in chassis.
c)	Minimum latest generation Dual Intel socket each with 2.6GHz, 16 cores or higher for Physical Servers.
d)	6 x PCI-Express 3.0 slots
e)	Minimum 2x 600GB 10k SAS HDD.
f)	Minimum 256 GB RAM DDR4 2666MHz or higher with memory sparing/mirroring (for physical server).
g)	Hardware RAID Controller with 2GB or more cache supporting RAID 0,1, 5,6.
h)	OEM Systems Management Software to be included, shall support service alerting, reporting and remote management with dedicated Gigabit management port, Server shall support configuring and booting securely with industry standard Unified Extensible Firmware. The management software should be from the same OEM.
i)	All required cables and connectors to be included for all populated ports and interfaces
j)	The server should be offered with latest PCI/PCIe card to cater LAN and SAN bandwidth traffic.
	Blade Chassis
k)	Offered Blade chassis solution shall be enterprise level class build.
l)	Blade chassis should support min six high-speed switch bays, interconnect bays capable of supporting I/O architectures in Ethernet/ Fiber Channel / FCoE. Should have redundant network switches.
m)	Blade chassis shall support housing of FCoE, Ethernet, FC / SAS interconnect fabrics offering Hot Pluggable & Redundancy as a feature.
n)	Centralized Redundant Management solution should be provided so that management of all blade servers across multiple chassis within racks can be done from single console
o)	Should provide remote management capabilities, system management capabilities, and power management capabilities.
p)	Proposed solution shall support provisioning of virtual and physical infrastructure both

SAN Storage (SSD)

S. No	Minimum Technical Specifications
a)	The proposed array shall be enterprise class high end storage with multi-controller architecture to ensure requisite performance. Storage System shall be supplied with minimum quad controllers and will be provided behind integrated backplane / cross bar /switched architecture within the storage array from factory without use of any loosely coupled devices.
b)	Offered Storage array shall support all well-known protocols like FC, iSCSI, etc. for the offered storage solution, meeting benchmark performance parameters specified in SLA Licenses for the actual protocols used in the storage solution must be provided from day 1.
c)	Storage shall be enabled with 12Gbps ports back- end engines and supplied with 8 x 16 Gbps FC ports, 4 x 10 Gbps iSCSI ports Storage shall have minimum 4 backend ports and minimum 4 frontend ports. All Frontend ports shall be scalable with required SFPs and licenses from Day 1. The solution should be capable to achieve Bandwidth aggregation.
d)	Offered Storage should be provided with SAN functionality
e)	Storage shall be provided with Performance Management Software.
f)	Storage subsystem shall be supplied with Thin Provisioning, Snapshot, Clone.
g)	Offered array shall have support for in-line De-Duplication and in-line Compression and should support Encryption for DC and DR while data at transit/rest
h)	Offered storage subsystem shall support Raid 6 or equivalent
	The proposed array must support non-disruptive replacement of failed hardware component, firmware upgrades and hardware upgrades.
i)	The proposed storage shall support all the popular enterprise operating systems.
	SI shall provide Storage Array configuration and Management software.
j)	Storage management software shall be intuitive, browser-based user interface that configures and manages array.
k)	Storage management software shall be able to manage access controls, user accounts and permission roles
l)	Providing historical capacity and performance trend analysis.
m)	Storage management software shall be able to monitor alerts.
n)	Storage management software shall provide real time monitoring and historical analysis of storage performance
o)	Storage solution should be capable of scaling
p)	Offered Storage Array shall be given with at-least 1TB DRAM protected cache in a single array and shall be scalable to 2TB DRAM Cache.
q)	Storage Array shall be offered with flash / SSD drives.
r)	Storage Array shall be configurable in a No Single Point of configuration including Array Controller cards, Cache memory, FAN, Power supply etc.
s)	Offered storage shall support online non-disruptive firmware upgrade for both Controller and disk drives.

Server Load Balancer

Sr No	Minimum Technical Specification
a)	SI shall provide dedicated Server Load Balancer appliance in order to equally load balance between various servers (Physical / Virtual) hosting the same kind of applications.
b)	SLB must support the legacy as well as next generation features like virtualization, application performance monitoring, web performance optimization, security, and automation & orchestration
c)	virtualization feature shall support the virtualization feature, which provides a complete and separate environment for a) Resources b) Configurations c) Management d) Operating System (licensed and open source like CentOS, Ubuntu, etc.) e) For SLB instance OEM are free to provide any OS inside the box
d)	The proposed device should support minimum 06 Virtual Instances. Should provide machine authentication on the basis of CPU ID, HDDID and OSID with in the same appliance. Load balancing of authentication servers ensures that the authentication load is split across multiple authentication servers, thus avoiding any one particular authentication server from being overloaded
e)	SI shall propose the SLB considering the scalability factor for future requirements as well as the current design considerations of minimum 10G connectivity, High Availability (standard VRRP open standards).
f)	Proposed device should support L7, HTTP & HTTPS RPS. Proposed device should have minimum ports as per bidder design and.
g)	It should provide minimum 5 Gbps of throughput and scalable up to 10 Gbps with RAM of 64GB and 500 GB HDD.
h)	SLB should support minimum 25K SSL TPS (RSA 2k) and 15k ECC
i)	The solution should provide compressive support for IPv6 functions to help with ipv4-to-ipv6 transition without business disruption and must provide support for dual stack, DNS64, NAT 64, DNS 46, NAT 46, IPv6 NAT. It should support advance functions Authoritative name sever, full DNS server with DNSEC, DNS DDOS, and application load balancing from day one. It should be capable of handling complete Full DNS bind records including A, AAAA etc.

Next Generation Firewall (NGFW) & Intrusion Prevention

S. No.	Minimum Technical Specifications
a)	NGFW must identify and control applications and application functions on all ports, all the time.
b)	NGFW should have integrated redundant hot-swappable power supply, NGFW should have VPN capability also, to provide VPN connection to business users in limited zone only.
c)	NGFW must deliver consistent controls to all users, regardless of location or device type.
d)	NGFW should ASIC based in nature or should be open architecture based on multi-core CPUs to protect & scale against dynamic latest security threats

e)	NGFW should have capability to block the traffic on the basis of geo-location.
f)	Shall support NAT64, NAT46/ IPv4 over IPv6, DNS64 & DHCPv6.
g)	The device shall support stateful session maintenance in the event of a fail-over to a standby unit. High Availability Configurations shall support Active/Active or Active/ Passive
h)	NGFW must support minimum 3 Gbps NGFW throughput with all feature enabled for real world traffic.
i)	NGFW shall be provisioned with sufficient no. of production and management ports as per the project requirement and bidder's solution and should support active-active and active-passive mode both.
j)	NGFW should have required no's of SFPs as per bidder's design solution.
k)	NGFW must support Concurrent session of at least 500000 & 50000 new session per second
l)	NGFW should have integrated redundant hot-swappable power supply and fan.
m)	NGFW should support minimum dual-ISP independent connections concurrently.
n)	NGFW should support minimum users as per bidder's solution
Network Intrusion Detection & Prevention System Requirements:	
a)	OEM Signature shall be provided against known application vulnerabilities, and common malware, such as worms, trojans, spyware, and DoS. Packet Anomalies, Out of State protection, Connection limiting, blacklisting/whitelisting etc.
b)	IPS must provide bandwidth rate limit to control the unwanted traffic such as P2P, streaming, etc.
c)	The device must operate in transparent (Bridge), inline and promiscuous mode and IPS should have dual hot-swappable power supply from day 1
d)	The device must have functionality of hardware-based fail-open & Software Fail Open. NIPS must also have fail-open feature which must allow traffic
e)	The single device must have minimum Inspected throughput of 3 Gbps for all kinds of real-world traffic and should scalable upto 40 Gbps considering for future in case of Active-Active in HA or Active-Passive mode with < 50 ms latency with minimum 100 million concurrent sessions
f)	The device must support vulnerability based and exploit based signatures. It must detect and block all known high risk exploits and the underlying vulnerability (not just one exploit of that vulnerability)
g)	The device must support Block attacks based on IP reputation, DNS Inspection, Geo-location, URL Inspection
h)	Support for File reputation/type on the basis of application protocol including Http, Https, FTP, SMB (no file must be sent to cloud)
i)	The device must have the ability to block connection to or from outside based on the reputation of the IP address that is trying to communicate with the network using OEM own threat intelligence
j)	IPS filter must support network action set such as block (drop packet), block (TCP reset), permit, trust, notify, trace (packet capture), rate limit and quarantine and Should support VA scanners (Qualys, Rapid 7, Nessus) to fine tune the IPS policy.
k)	IPS shall be provisioned with minimum 8 x 100/1000/10G Base-T Copper Ports, dedicated management port and provision required no's of SFPs as per design solution

l)	The proposed management system shall support dashboard that show correlated data such as how many breached hosts, 3rd party VA scan integration data and how many pre-disclosed vulnerabilities discovered

SAN Switch

SNo	Minimum Technical Specifications
a)	Each SAN switch shall be supplied with minimum of FC ports and scalable for future expansion as per bidder design
b)	Proposed enterprise switch shall have ability to provide FC ports and all the required licenses should be supplied from day 1
c)	Offered SAN switch shall support minimum of aggregated chassis bandwidth as per the bidder's solution
d)	The switch shall have No Single Point of Failure (SPOF) and all the components shall be hot swappable without even scheduled down time
e)	The switch shall have hot swappable N+1 redundant Power Supply with separate AC inputs
f)	The switch shall have hot swappable N+1 redundant Cooling Fans
g)	The switch shall have feature for Non-disruptive firmware update
h)	The switch shall have Real time performance monitoring reporting tool
i)	The switch shall support multiple Operating Systems.
j)	The switch shall have support of all leading SAN / NAS disk arrays and tape libraries.
k)	The switch shall have following security features: • Must have hardware & Software zoning • Policy based security and centralized management • Encryption • Authentication
l)	The switch shall have high availability feature with no performance degradation of switching operation.

Switch

SNo	Minimum Technical Specifications
a)	The Switch should support non-blocking Layer 2 switching and Layer 3 routing
b)	There switch should not have any single point of failure like power supplies and fans etc. should have 1:1/N+1 level of redundancy
c)	Interface requirement as per bidder's solution and filled SFP from day 1
d)	Switch must have necessary licenses for Dynamic Routing Protocols: OSPF, BGP / ISIS, LLDP, PIM/MPLS / VXLAN Bridging Routing, EVPN for VXLAN.
e)	Switch should have a minimum 4GB of RAM.
f)	The Switch should support Virtual Router Redundancy Protocol (VRRP)

Server Security and Antivirus for servers

Sr No	Minimum Technical Specification
a.	The solution should have threat detection, identification, and prevention capabilities.

	The Solution should have state full Inspection Firewall, Anti-Malware, Deep Packet Inspection with HIPS, Integrity Monitoring and Recommended scan in single module or an in single agent.
b.	The solution should analyze all packets to and from the server for intrusion attempts and propagation and Solution should support atleast Windows and Linux family.
c.	The solution should use vulnerability based and not exploit based signatures. It should detect and block all known, high risk exploits along with their underlying vulnerability (not just one exploit of that vulnerability)
d.	The solution should automatically share suspicious object samples with on premise and Solution should cover of all IP-based protocols (TCP, UDP, ICMP, GGP, IGMP, etc.) and all frame types (IP, ARP, etc.) with fine-grained filtering (IP and MAC addresses, ports) and basic prevention of denial of service (DoS) attack
e.	The solution should provide protection for Web Server, Application and Database Server
f.	The solution should protect against SQL injection attacks and the management server should have option to install on Windows based server & RHEL server and centralized management for physical, virtual & container.
g.	The solution should protect against cross-site scripting (XSS) attacks
h.	The solution should protect Web applications by inspecting SSL-encrypted HTTP traffic streams before they reach the application
i.	The solution should support a wide variety of reports should be able to generate report data into a variety of different file formats like HTML, PDF etc.

Back Up Software

S. No.	Minimum Technical Specifications
a)	Shall offer following capabilities:
i.	Fast restore
ii.	Intelligent backup (De-duplication & compression)
iii.	Archival and retention
iv.	Backup software
v.	Automated mechanism
b)	Shall support following backup policy for both file system and database:
i.	Daily incremental backup for application and database (online) with retention period of at least 30 days.
ii.	Weekly full backup for application and database (online) with retention period of at least 30 days.
iii.	Monthly Full backup for filesystem with retention of at least two copies.
c)	Backup of database shall be taken online. Adequate licenses shall be provided from Day 1.
d)	Able to take regular online & offline back up of data.
e)	Capability to monitor and enhance the performance of scheduled backups, schedule regular testing of backups.
f)	Execution of backups of volumes and files (or related any dependencies) whenever required or in case of upgrades and configuration changes to the system
g)	24x7 support for file and volume restoration.
h)	Proposed backup software with allied components should be supported on various OS

	platforms like Windows family, Linux family etc. The backup server should be compatible enough to take back up from both Windows and Linux OS platforms.
i)	Proposed appliance should support retention lock to prevent malicious, ransomware, trojans etc. attacks which ensures that no data is deleted accidently till the retention of the backup get expired. In case data is replicated to DR/Secondary site, no additional licenses must be required at DR site to maintain retention lock on replicated data.

Backup Solution: Tape Library based backup

SNo	Minimum Technical Specifications
a)	It shall be Modular design to allow configuration, add capacity increase performance
b)	Backup Solution shall be provided for long term data storage De duplication and Compression ratio should be as per bidder's solution
c)	Offered Backup Solution should provide encryption functionality.
d)	Must have the ability to perform different backup or restore jobs simultaneously.
e)	Proposed backup appliance must support LAN and SAN based backup
f)	Offered backup Solution utilize physical tape library backup infrastructure in the following aspects:
	i. Compatibility with the physical tape library backup server / media servers.
	ii. Compatibility with physical tape library tape library and tape drives
	iii. Compatibility with physical tape library backup software.
g)	The offered tape library must be offered with Minimum of 10 LTO8 tape drive (along with necessary licenses) The Bidder must supply minimum 31 nos Re-Writable LTO8 DATA CARTRIDGES with BARCODE LABELS from Day 1 along with 2 Nos. Universal Cleaning cartridges.

Router

S. No	Minimum Technical Specifications
1.	Router should have minimum 4 x 1G Copper based, 4 x 10GE or as per bidder design
2.	Router should have minimum required interface slots as per bidder design.
3.	Router should support both IPv4 and IPv6.
4.	Router should support RIB capacity of 1 Million IPv4, IPv6, 4K L3VPN and VRF
5.	Router should support services like L2VPN, L3VPN and VPLS.
6.	Router should support Static Route, Default Route, RIPv2, OSPFv2, BGP, PBR and IS-IS.
7.	Router should support VXLAN/NVGRE or equivalent for Data Center Interconnect.
8.	Router should support following MPLS features – LDP, Layer 2 VPN technologies with LDP signaling, Traffic Engineering, Fast Reroute Link Node & Path protection.
9.	Router should have capability of mapping of address and port using encapsulation as well as translation mechanism for IPv4 to IPv6 migration functionalities.
10.	Router should be manageable through Local Console & Aux Port, Telnet and SSHv2.
11.	Router should support SNMP v1, v2 and v3 features.

Smart Rack

S. No.	Minimum Technical Specifications
a)	Solution should be Supplied, installed and commissioned in the Smart Rack. It should have capability of 6 x 29 U of 600x1200 mm to accommodate IT components.
b)	Integrated precision cooling for all IT assets inside the smart rack
c)	The Smart Rack should have minimum UPS Capacity of 10 kVA / 10 kW and minimum UPS Backup time of 10 minutes @ 3 kW.
d)	Should be capable to remote monitoring of the basic environmental conditions such as Temperature, Humidity, Water leakage, etc. inside the rack.
e)	Emergency Ventilations in case of cooling failure
f)	Solution should have sufficient interior lightning
g)	Solution should support maintenance bypass mechanism
h)	Should have Touch panel LCD Display and remote IP-based monitoring
i)	Solution should get integrated with the existing or new BMS system.
j)	Built-in Fire Detection and alarm system
k)	Electronic door lock with biometric verification
l)	Smart Rack should be fully protected from dust, moisture, rodent and noise etc.
m)	Build in Intelligent rack Power Distribution Units (PDUs) with efficient power management system.
n)	All the components used to design the system should be redundant and in the Events of failure the components can be maintained easily
o)	Solution should be SNMP based, IP Based, SMS and Email notification enabled
p)	Should monitor Temperature and Humidity Fan speed in rpm and fan failure alarm Door Open or close status.
q)	Solution should maintain Temperature: 22 (+/-) 4 degrees and Humidity 40% RH to 60% RH
r)	Solution should be able to monitor power consumption at each PDU level. Power consumption and cooling details should get displayed on the LCD screen of Smart rack.
s)	Bidder shall be responsible to connect the installed Smart Rack with the existing Non-IT setup.
t)	Bidder shall be responsible for provisioning of earthing pit and required installation and maintenance.

Section VIII: Quality Control Requirements

(As per section VII- Scope of work and Technical Specification)

SECTION IX: Bid Evaluation Methodology and Qualification Criteria

1.1 Bid Evaluation Methodology

a. To evaluate the bids, the purchaser shall formulate a Tender Evaluation Committee (also referred to as "Evaluation Committee").
b. The selection of Bidder will be a three-phase process i.e., Pre-Qualification, Technical and Financial bids evaluation of the technically qualified Bidders.
c. To assist in the examination, evaluation, and comparison of the bids, and qualification of Bidder(s), the Evaluation Committee may, at its discretion, ask any Bidder for a clarification of its bid.
d. The Evaluation Committee shall evaluate Pre-Qualification, Technical and Financial bids as per the following process:

1.1.1 Pre-Qualification Evaluation

a. The first process is to examine the eligibility of the Bidders as per the Pre-Qualification Criteria.
b. Only those Bidders who qualify the Pre-Qualification Criteria shall be evaluated for technical criteria.

1.1.2 Technical Evaluation

a. The Evaluation Committee shall evaluate the Technical Bids and carry out marking of each Bidder on the basis of "Technical Evaluation Criteria".
b. Bidder securing minimum 70 marks in Technical Evaluation shall be considered as technically qualified bidder.
c. The financial evaluation shall be carried out only for the technically qualified bidders as specified in below section.

1.1.3 Combined Quality and Financial Evaluation

a. BNP, Dewas will follow the Quality and Cost Based Selection Process (QCBS). The overall evaluation shall carry **30%** weightage to Technical Score and 70% weightage to Financial Bid (Section XI - Table 1-Grand Total Cost). Thereby, the Bidder with the highest scores (H1) on Quality and Cost based (QCBS) evaluation will qualify as the Successful Bidder.

b. For all the qualified bidders whose price bid have been opened, a combined score (S) shall be determined as per the below formula:

$$\text{Combined score 'S' of a bidder 'A'}$$
$$= 30\% * (Technical\ Score\ of\ A) +\ 70\% * \left[\frac{(Lowest\ Total\ Financial\ Bid)}{(Total\ Financial\ Bid\ of\ A)}\right] * 100$$

c. On basis of the above combined score, the bidder shall be ranked in terms of the combined score obtained. The bidder with the highest combined score (H1) shall be declared successful.

1.2 Eligibility Criteria

1.2.1 Pre-Qualification / Minimum Eligibility Criteria

The following criteria are prescribed as Pre-Qualification criteria for Bidders interested in undertaking this project:

#	Eligibility Criteria	Applicability	Supporting documents required
A.	**General**		
1.	Bidder*/Consortium Members* shall be either proprietary firm/ Limited Liability Partnership (LLP)/Company/Partnership/ (Legal Entity) registered under relevant regulations in India. *Any bidder/ Consortium Members from a country which shares a land border with India will be eligible to bid in the tender only if the bidder is registered with the Competent Authority (The Registered Committee constituted by the Department for Promotion of Industry and Internal Trade)	Single Bidder – Bidder Consortium / JV– All members	Company's registration / Certificate of incorporation/ Partnership Deed/ Any other registration certificate (as applicable) Any bidder/Consortium members from a country which shares a land border with India will need to submit the proof of registration
2.	Bidder should have valid GST registration certificate	Single Bidder – Bidder Consortium / JV – All members	Copy of GST certificate
3.	Bidder should have valid PAN card	Single Bidder – Bidder Consortium / JV – All members	Copy of PAN card
4.	Bidder should not have been blacklisted / debarred by SPMCIL or its units/ BRBNMPL/ BNPMIPL/ Government of India as on date of bid submission.	Single Bidder – Bidder Consortium / JV – All members	Declaration on company's letter head duly Signed & sealed
B.	**Experience & Past Performance**		
5.	Bidder/Lead Bidder should have experience of executing at least one similar kind of project successfully	Single Bidder – Bidder	**a. Documents required in case of Completed project:**

		Consortium / JV – Any Member	Copy of Purchase Order / Work order / Agreement / Contract + Completion certificate from Client on client's letterhead + Assignment Details as per the format provided in Bidding Forms b. **Documents required in case of Ongoing project (Project in O&M phase after Go-Live):** Copy of work order/Agreement + Go-live certificate from client on client's letterhead + Assignment Details as per the format provided in Bidding Forms **Note:** The credentials regarding experience and past performance to the extent required as per eligibility criteria submitted by the bidder may be verified by BNP, Dewas from the parties for whom work has been done.
	including minimum 8.5 Crore Barcode/QR/RFID/Any other similar mechanism in a year during last 05 years ending 31/03/2021 for Track & Trace Solution including software and hardware in any of the below areas: Manufacturing or Security Paper Printing. .		
6.	Bidder/Consortium Member should have experience of executing at least one successful project of Software Development/Customization/ Configuration of SAP ERP during the last 05 years ending 31/03/2021.	Single Bidder – Bidder Consortium / JV – Any Member	a. **Documents required in case of Completed project:** Copy of Purchase Order / Work order / Agreement / Contract + Completion certificate from Client on client's letterhead + Assignment Details as per the format provided in Bidding Forms b. **Documents required in case of Ongoing project (Project in O&M phase after Go-Live):** Copy of work order/Agreement + Go-live certificate from client on client's

| | | | letterhead + Assignment Details as per the format provided in Bidding Forms

Note: The credentials regarding experience and past performance to the extent required as per eligibility criteria submitted by the bidder may be verified by BNP, Dewas from the parties for whom work has been done. |
|---|---|---|---|
| **7.** | The bidder should have the service support facility in India. | Single Bidder – Bidder

Consortium / JV – Any Member | Declaration shall be provided in company letterhead with details of service centre such as address, contact person, contact details. |
| **C.** | **Capability- Certifications and Manpower** | | |
| **8.** | Bidder should have valid ISO 27001:2013 or higher certification or The Bidder must have CMMi level 5 | Single Bidder – Bidder

Consortium / JV – Any Member | Copy of Valid Certificate |
| **D.** | **Financial Standings** | | |
| **9.** | Average annual turnover of the bidder's firm during last three years period ending **31.03.2021** should be more than INR *60 Crores.* | Single Bidder – Bidder

Consortium / JV – Lead Bidder | CA Audited Balance sheet and Profit & Loss statement for FY 2020-21, 2019-20 and 2018-19 |
| **10.** | Bidder Firm should not have suffered any financial loss for more than one year during the last three years, (FY 2020-21, 2019-20 and 2018-19) | Single Bidder – Bidder

Consortium / JV – Lead Bidder | Relevant Certificate from Chartered Accountants |
| **11.** | Net worth of the Bidders firm should a. not be in negative as on 31.03.2021 b. not have eroded by more than 30% in the last three years, ending on 31.03.2021. | Single Bidder – Bidder

Consortium / JV – Lead Bidder | Relevant Certificate from Chartered Accountants |

Note:

1. The Startups and Micro & Small Enterprises registered bidders are relaxed for submission of Prior Experience as per circular no.1(2)(1)2016-MA dt.10.03.2016 issued by Govt. of India, Ministry of Micro, Small & Medium Enterprises, New Delhi subject to meeting of quality and technical specifications.
2. There is no relaxation for MSE/start up registered firms for Capacity/Capability, equipment and manufacturing facilities.
3. The Startups and Micro & Small Enterprises registered bidders are relaxed for only Prior Turnover Criteria as per circular no.1(2)(1)2016-MA dt.10.03.2016 issued by Govt. of India, Ministry of Micro, Small & Medium Enterprises, New Delhi subject to meeting of quality and technical specifications.
4. All experience, past performance and capacity/ capability related data should be certified by the authorized signatory of the bidder firm. The credential regarding experience and past performance to the extent required as per eligibility criteria submitted by bidder shall be verified from the parties for whom work has been done.
5. All financial standing data should be certified by certified accountants e.g. Chartered Accountants (CA) in India and Certified Public Accountant/ Chartered Accountant in other countries.

CONDITIONS FOR MICRO AND SMALL ENTERPRISES (MSEs)

2. As per Public Procurement policy (PPP) for Micro & Small Enterprises (MSEs) Order, 2012 issued vide Gazette Notification dated 23.03.2012 by Ministry of Micro, Small and Medium Enterprises of Gov. of India, MSEs must be registered with any of the following in order to avail the benefits/preference available vide Public Procurement Policy MSEs Order, 2012.

    a) District Industries Centers (DIC)
    b) Khadi and Village Industries Commission (KVIC)
    c) Khadi and Village Industries Board
    d) Coir Board
    e) National Small Industries Corporation (NSIC)
    f) Directorate of Handicraft and Handloom
    g) Any other body specified by Ministry of MSME (MoMSME)
    h) Udyog Aadhaar Acknowledgment/Udyog Aadhaar Memorandum issued by MoMSME.

2. MSEs participating in the tender must submit valid & authorized copy of certificate of registration with any one of the above agencies. In case of bidders submitting DIC registration certificate shall attach original notarised copy of the DIC certificate. The MSE's Bidder to note and ensure that nature of services and goods/items manufactured mentioned in MSEs certificate matches with the nature of the services and goods/items to be supplied as per Tender.
3. Traders/resellers/distributors/authorized agents will not be considered for availing benefits under PP Policy 2012 for MSEs as per MSE guidelines issued by MoMSME.
4. The registration certificate issued from any one of the above agencies must be valid as on Bid closing date of the tender. Bidder shall ensure validity of registration certificate in case bid closing date is extended.

5. The MSEs who have applied for registration or renewal of registration with any of the above agencies/bodies, but have not obtained the valid certificate as on close date of the tender, are not eligible for exemption/preference.

6. Relaxation of Norms for Micro & Small Enterprises (MSEs): Pre-qualification criteria with respect to Prior Turnover and Prior experience may be relaxed for Micro & Small Enterprises as per GOI guidelines subject to meeting of quality and technical specifications.

CONDITIONS FOR START-UP COMPANIES

1. Subject to meeting of Quality and Technical specifications, BNP may consider allowing the participation of "Start-up" companies with capability to execute the supply/services, as per technical specifications/ perform the job as per scope of work specified in the tender and subject to meeting extant & relevant guidelines of Government of India. This should be confirmed and substantiated in the technical bid.

2. The bidder who intends to participate as "Start-up" company should enclose the Certificate of Recognition issued by Department of Industrial Policy and Promotion, Ministry of Commerce & Industry, Govt. of India during submission of Technical bid.

3. Prequalification Criteria with respect to Prior Turnover and Prior Experience may be relaxed for Start-ups as per the GOI guidelines.

4. However, there may be circumstances like procurement of items/services related to public safety, health, critical security operations and equipment, etc. wherein BNP reserves the right to not consider relaxation of Prior Turnover and Prior Experience for Start-up Companies as per GOI guidelines.

5. Start-up Companies, who are also registered as MSEs and wish to avail the benefits as applicable to MSE, shall submit relevant documents covered under Conditions for Micro and Small Enterprises elsewhere in this tender.

1.2.2 Technical Evaluation Criteria

The following criteria are prescribed as Technical Evaluation criteria for Bidders who qualify in Pre-Qualification stage:

#	Eligibility Criteria	Applicability	Max Marks	Supporting documents required
A.	**Experience & Past Performance**			
1.	Bidder/Lead Bidder should have experience of executing at least one similar kind of project successfully including minimum 8.5 Crore Barcode/QR/RFID/ Any other similar mechanism in a year during last 05 years ending 31/03/2021 for Track & Trace Solution including software and hardware in any of the below areas : Manufacturing or Security Paper Printing. Scoring Criteria: • One (1) Project = 10 marks • Two (2) Projects = 20 marks • More than 2 Projects = 30 marks	Single Bidder – Bidder Consortium – Any member	30	a. **Documents required in case of Completed project:** Copy of Purchase Order / Work order / Agreement / Contract + Completion certificate from Client on client's letterhead + Assignment Details as per the format provided in Bidding Forms b. **Documents required in case of Ongoing project (Project in O&M phase after Go-Live):** Copy of work order/Agreement + Go-live certificate from client on client's letterhead + Assignment Details as per the format provided in Bidding Forms **Note:** The credentials regarding experience and past performance to the extent required as per eligibility criteria submitted by the bidder may be verified by BNP, Dewas from the parties for whom work has been done.
2.	Bidder/Consortium Member should have experience of executing at least one successful project of Software Development / Customization / Configuration of SAP ERP during the last 05 years ending 31/03/2021.	Single Bidder – Bidder Consortium – Any member	30	a. **Documents required in case of Completed project:** Copy of Purchase Order / Work order / Agreement / Contract + Completion certificate from Client on

	- One (1) Project = 10 Marks - Two (2) Projects = 20 Marks - More than 2 Projects = 30 Marks			client's letterhead + Assignment Details as per the format provided in Bidding Forms **b. Documents required in case of Ongoing project (Project in O&M phase after Go-Live):** Copy of work order/Agreement + Go-live certificate from client on client's letterhead + Assignment Details as per the format provided in Bidding Forms **Note:** The credentials regarding experience and past performance to the extent required as per eligibility criteria submitted by the bidder may be verified by BNP, Dewas from the parties for whom work has been done.
B.	**Financial Standings**			
3.	Average annual turnover of the bidder's firm during last three years period ending 31.03.2021 should be more than INR *60 Crores.* - More than 60 Crores upto 120 Crores = 10 marks - more than 120 Crores upto 150 Crores = 15 marks - more than 150 Crores = 20 marks	Single Bidder – Bidder Consortium – Lead Bidder	20	CA Audited Balance sheet and Profit & Loss statement for FY 2020-21, 2019-20 and 2018-19
C.	**Proposed Track and Trace Team**			
4.	Minimum Experience of the proposed team is given below: - Team Leader = 10 years - Solution Design Expert = 8 years - Functional/ SME/Domain	Single Bidder – Bidder Consortium – Any member	12	Signed CVs along with necessary supporting documents.

	Expert = 8 years The candidate shall have to satisfy specified minimum experience along with required qualification and certification. For every additional years of relevant experience of a profile, 1 mark shall be awarded subject to a maximum of 4 marks for each profile. **Note:** *Partial years shall not be considered i.e., 12.9 years shall be considered as 12 years.*			
D.	**Capability-Certification**			
5.	Bidder should have valid ISO 27001:2013 or higher certification Or The bidder must have CMMi level 5 04 Marks for each certification. Maximum marks shall be 8	Single Bidder – Bidder Consortium – Any member	8	Copy of valid certificate
	Total Marks		**100**	

1.2.3 Presentation on Proposed Approach & Methodology:

Bidders shall be required to make a presentation detailed Approach & Methodology. Details to be included in Approach & Methodology presentation by Bidders are:

i   Project Execution Plan: Bidder's Project Execution Plan should comprise of:
- a. Understanding of overall project scope
- b. High level Project execution plan with risk factor along with timelines, activity/sub-activity and risk mitigation strategies.

ii   Proposed Solution: Bidder's proposed solution should cover following:
- a. Solution Approach & Methodology for Track and Trace Solution
- b. High Level Solution Architecture Design covering Units, DC and DR.
- c. High level approach for integration with existing SAP
- d. How the serialization and aggregation would be achieved through barcode.
- e. What all sensors would be installed on machines to detect the sheet related anomalies
- f. Bandwidth requirements for connectivity from all three units to DC and DC to DR.
- g. Storage requirements at Units, DC and DR level.

iii   Design/Architecture proposed:
- b. Bidder to present/demonstrate technical capability of the proposed solution.
- c. Why to consider the given solution.
- d. Value proposition of solution proposed.

iv BNP, Dewas reserves the right to reject bid of any Bidder, if the proposed solution not found satisfactory or has not covered the necessary aspects of the solution.

1.2.4 Consortium / Joint Venture Criteria

a. Bids from Consortium / Joint Venture are acceptable subject to fulfilling the eligibility criteria. The lead member will be authorized by all other members of the Consortium / Joint Venture. The members of the Consortium / Joint Venture shall enter into an agreement for submitting a bid which should be duly notarized. The agreement shall convey the intent to form a Consortium / Joint Venture which meets the requirements of this RFP, clearly mentioning the roles and responsibilities of each member.

b. In case of Consortium/ Joint Venture, the Lead member, who is responsible for performing a key function in contract management or is executing a major component of the proposed contract, shall be nominated as being in charge during the bidding periods and, in the event of a successful bid, during contract execution. The Lead member shall be authorized to incur liabilities and receive instructions for and on behalf of any and all members of the consortium; by submitting a power of attorney signed by legally authorized signatories of all the members.

c. In case of Consortium/ Joint Venture, the sole responsibility of the work shall lie with the Lead Bidder for the execution of the contract in accordance with the contract terms. The Lead Bidder shall be held responsible for any delay/error/non-compliance etc.

d. The response by the bidder or Consortium / Joint Venture to the RFP is liable for rejection, if information provided is found to be false at any stage during evaluation of bids and subsequently during the execution of the contract.

e. The bidder and member of Consortium / Joint Venture are not allowed to participate in more than one (1) bid.

SECTION X: TENDER FORM
ACCEPTANCE OF TERMS & CONDITIONS

To   Date……….

The Chief General Manager,
Bank Note Press,
(A unit of Security Printing and Minting Corporation of India Limited)
<u>Dewas (M.P.) – INDIA</u>

Ref: Your Tender document No. …………………………dated …………

We, the undersigned have examined the above mentioned tender enquiry document, including amendment No. --------, dated --------- (*if any*), the receipt of which is hereby confirmed. We now offer to supply and deliver………. *(Description of goods and services)* in conformity with your above referred document for the sum of **---xxxxx-- (To be mentioned in the Price Bid only & not to be mentioned in PQB & Techno Commercial Bid)** (total tender amount in figures and words), as shown in the price schedule(s), attached herewith and made part of this tender.

If our tender is accepted, we undertake to supply the goods and perform the services as mentioned above, in accordance with the delivery schedule specified in the Section VII Clause no. 6.
We further confirm that, if our tender is accepted, we shall provide you with a performance security of required amount in an acceptable form in terms of GCC clause 6, read with modification, if any, in Section V – "Special Conditions of Contract", for due performance of the contract.

We agree to keep our tender valid for acceptance for a period upto 180 days, as required in the GIT clause 19, read with modification, if any in Section-III – "Special Instructions to Tenderers" or for subsequently extended period, if any, agreed to by us. We also accordingly confirm to abide by this tender upto the aforesaid period and this tender may be accepted any time before the expiry of the aforesaid period. We further confirm that, until a formal contract is executed, this tender read with your written acceptance thereof within the aforesaid period shall constitute a binding contract between us.
We further understand that you are not bound to accept the lowest or any tender you may receive against your above-referred tender enquiry.

1. **MSMEs Status:**
   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) Company /Partnership Firm /Proprietary Concern / Society/Trust / NGO/Others (Please Specify):………………………………….........
       (b) Micro/ Small / Medium Enterprise/ SSI/ Govt. Deptt. / PSU/ Others:….
       (c) Name of MSME Registering Body (NSIC/ DIC/ KVIC/KVIB etc.):……..
       (d) MSME Registration no. (with copy of registration):………………..........
       (e) Udyog Aadhaar Memorandum no…………………………………………
       (f) Whether Proprietor/ Partner belongs to SC/ ST or Women category.

(Please specify names and percentage of shares held by SC/ST Partners):…………………………….

2. **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) Self-Certification for category of supplier:
   o Class-I Local Supplier/
   o Class-II Local Supplier/
   o Non-Local Supplier.

   (b) We also declare that
   o There is no country whose bidders have been notified as ineligible on reciprocal basis under this order for offered product, or
   o We do not belong to any Country whose bidders are notified as ineligible on reciprocal basis under this order

3. **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**
   Having read and understood the Order (Public Procurement No. 1) issued vide F.No.6/18/2019-PPD dated 23rd July 2020 (and its amendments if any) by Department of Expenditure, Ministry of Finance under the above provision and solemnly declare the following:
   o We do not belong to any Country whose bidders are notified as ineligible under this order

4. **Debarment Status:** Please state whether business dealings with you currently stand suspended/ banned by any Ministry/ Deptts. of Government of India or by any State Govt:
   o Yes (with period of Ban)
   o No, We, solemnly declare that neither we nor any of our affiliates or subsidiaries – including subcontractors or suppliers for any part of the contract – do not stand declared ineligible/ blacklisted/ banned/ debarred by any Government Agency anywhere in the world, for participating in its tenders, under that country's laws or official regulations.

5. **Penalties for false or misleading declarations:** I/we hereby confirm that the particulars given above are correct and complete and also undertake to advise any future changes to the above details. We understood that any wrong or misleading self-declaration by us would be violation of code of Ethics and would attract penalties as mentioned in this tender document, including debarment.
   ……………………..
   (Signature with date)
   ………………………..

   (Name and designation)

   Duly authorized to sign tender for and on behalf of

SECTION XI: PRICE SCHEDULE

(As per Table 1 to 10)

Section XII: Vendor Details

The tenderer should furnish specific details mentioned below. In case a question/issue does not apply to a tenderer, the same should be answered with the remark "not applicable".

Wherever necessary and applicable, the tenderer shall enclose certified copy as documentary proof/ evidence to substantiate the corresponding statement.

In case a tenderer furnishes a wrong or misleading answer against any of the under mentioned question/ issues, its tender will be liable to be ignored.

1. Vendor/ Contractor particulars:
(a) Name of the Company:………………….
(b) Corporate Identity No. (CIN): ………………………………..
(c) Registration if any with SPMCIL: …………………………………..
(d) Complete Postal Address: …………………………………………..
(e) Pin code/ ZIP code: ……………………………………………….
(f) Telephone nos. (with country/area codes): ………………………
(g) Fax No.: (with country/area codes): ……………………………
(h) Cell phone Nos.: (with country/area codes): ……………………..
(i) Contact persons /Designation: …………………………………
(j) Email IDs: ………………………………………………………….

2. Taxation Details:
(a) PAN number: …………………………………………….
(b) Type of GST Registration (Registered, Unregistered, Composition, SEZ, RCM etc.): …..
(c) GSTIN number: ………………………………………..
(d) Registered Address as per GST registration and Place of Delivery for GST Purpose: …..
(e) Contact Names, Nos. & email IDs for GST matters (Please mention primary and secondary contacts): ………………………………

- o   We solemnly declare that our GST rating on the GST portal / Govt. official website is NOT negative / blacklisted during the last three financial years.

....
(Signature with date)
....
....
(Full name, designation & address of the person duly authorized sign on behalf of
the tenderer)
For and on behalf of
....
....
(Name, address, and stamp of the tendering firm)

Section XIII: Bank Guarantee Form for EMD

(Not Applicable)

Section XIV: Manufacturer's Authorization Form

As per Section XXI form no. 8

Section XV: Bank Guarantee Form for Performance Security

PROFORMA OF BANK GUARANTEE FOR CONTRACT PERFORMANCE GUARANTEE BOND
(ON BANK'S LETTERHEAD WITH ADHESIVE STAMP)

Ref ………………………………   Date ……………………..

Bank Guarantee No ……………………

To,

(Insert Name & Address of the Purchaser)

Dear Sir,

1. Against contract vide Notification for Award of the Tender No …………………………dated ……………………………… covering supply of………………………………… (hereinafter called the 'contract') entered into between the ……………………… **(insert name of Purchaser)** (herein after called as the Purchaser) and M/s…………,…………………………………. (here in after called the 'Contractor'), this is to certify that, at the request of the Contractor, we ………………………………… **(name of the bank)**, are holding in trust in favour of the Purchaser, the amount of ……………………………**(write the sum here in words),** to indemnify and keep indemnified the Purchaser, against any loss or damage that may be caused to, or suffered by the Purchaser, by reason of any breach by the Contractor of any of the terms and conditions of the said contract and/or in the performance thereof. We agree that the decision of the Purchaser, whether any breach of any of the terms and conditions of the said contract and/or in the performance thereof has been committed by the Contractor; and the amount of loss or damage that has been caused or suffered by the Purchaser, shall be final| and binding on us, and the amount of the said loss or damage shall be paid by us, forthwith on demand and without demur to the Purchaser.

2. We ………………………. **(name of the bank)**, further agree that, the guarantee herein contained, shall remain in full force and effect, for sixty days after the complete conclusion of the contractual obligations to the complete satisfaction of both the BIDDER and the BUYER, including warranty period whichever is later, i.e. till …………………………………., (hereinafter called the 'said date') and that if any claim accrues or arises against us ………………………………. **(name of the bank)**, by virtue of this guarantee before the said date, the same shall be enforceable against us ……………………… ……………………… **(name of the bank)**, notwithstanding the fact that the same is enforced within six months after the said date, provided that notice of any such claim has been given to us ..,………………………. **(name of the bank)**, by the Purchaser, before the said date. Payment under this bond of guarantee shall be made promptly, upon our receipt of notice to that effect, from the Purchaser.

3. It is fully understood that this guarantee is effective from the date of the said contract and that we ………. ………………………………….. **(name of the bank)**, undertake not to revoke this guarantee during its currency, without the consent in writing of the Purchaser.

4. We undertake to pay to the Purchaser, any money so demanded, notwithstanding any dispute or disputes raised by the Contractor, in any suit or proceeding pending before any Court or Tribunal, relating thereto, our liability under this present, being absolute and unequivocal. The payments so made by us under this bond, shall be a valid discharge of our liability for payment thereunder, and the Contractor shall have no claim against us, for making such payments.

5. We........................... *(name of the bank)*, further agree that the Purchaser shall have the fullest liberty, without affecting in any manner our obligations hereunder, to vary any of the terms and conditions of the said contract, or to extend time of performance by the Contractor, from time to time, or to postpone for any time or form, time to time, any of the powers exercisable by the Purchaser, against the said Contractor and to for bear or enforce any of the terms and conditions relating to the said contracts and we... *(name of the bank)*, shall not be released from our liability under this guarantee, by reason of any such variation or extension being granted to the said Contractor, or for any forbearance and/or omission on the part of the Purchaser, or any indulgence by the Purchaser towards the said Contractor, or by any other matter or thing whatsoever, which under the law relating to sureties, would, but for this provision, have the effect of so releasing us from our liability under this guarantee.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.

Date

Place

Signature
(Printed Name)
(Designation)

Witnesses

(Bank's Common Seal)

Section XVI: Contract Form
(Address of SPMCIL's office issuing the contract)

Contract No…………. dated…………….
This is in continuation to this office' Notification of Award No………. dated …………

1. Name & address of the Supplier: ……………………………………

2. SPMCIL's Tender document No……… dated…………. and subsequent Amendment No……………, dated……… (If any), issued by SPMCIL

3. Supplier's Tender No……… dated…….. and subsequent communication(s) No………… dated …….. (If any), exchanged between the supplier and SPMCIL in connection with this tender.

4. In addition to this Contract Form, the following documents etc, which are included in the documents mentioned under paragraphs 2 and 3 above, shall also be deemed to form and be read and construed as part of this contract:
(i) General Conditions of Contract;
(ii) Special Conditions of Contract;
(iii) List of Requirements;
(iv) Technical Specifications;
(v) Quality Control Requirements;
(vi) Tender Form furnished by the supplier;
(vii) Price Schedule(s) furnished by the supplier in its tender;
(viii) Manufacturers' Authorisation Form (if applicable for this tender);
(ix) SPMCIL's Notification of Award

Note: The words and expressions used in this contract shall have the same meanings as are respectively assigned to them in the conditions of contract referred to above. Further, the definitions and abbreviations incorporated under Section – V - 'General Conditions of Contract' of SPMCIL's Tender document shall also apply to this contract.

5. Some terms, conditions, stipulations etc. out of the above-referred documents are reproduced below for ready reference:
(i) Brief particulars of the goods and services which shall be supplied/ provided by the supplier are as under:

Schedule No.	Brief description of goods/ services	Accounting unit	Quantity to be supplied	Unit Price (in Rs.)	Total price

Any other additional services (if applicable) and cost there of: ………………………..
Total value (in figure) _____ (In words) _____
(ii) Delivery schedule
(iii) Details of Performance Security
(iv) Quality Control

(a) Mode(s), stage(s), and place(s) of conducting inspections and tests.
(b) Designation and address of SPMCIL's inspecting officer
(v) Destination and despatch instructions

(vi) Consignee, including port consignee, if any

(vii) Warranty clause

(viii) Payment terms

(ix) Paying authority

....
(Signature, name, and address of SPMCIL's authorized official)

For and on behalf of..

Received and accepted this contract ....

(Signature, name, and address of the supplier's executive duly authorized to sign on behalf of the supplier)

For and on behalf of ....

(Name and address of the supplier)
....
(Seal of the supplier)

Date:
Place:

Section XVII: Letter of Authority for attending a
Pre-bid Conference/ Bid Opening
(Refer to clause 24.2 of GIT)

The General Manager

Unit Address

Subject: Authorization for attending bid opening on _____(date) in the
Tender of _____.
Following persons are hereby authorized to attend the 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 named representative will be allowed to attend. Alternate representative will be permitted when regular representatives are not able to attend.

2. In case of pre-bid conference, self-attested copy of proof of purchase of Bid documents, in the name of the bidder must be enclosed with this authorization, without which entry would be refused. Bid documents would be available for sale at the site also.

3. Permission for entry to the hall where even is held may be refused in case authorization as prescribed above is not produced.

Section XVIII: Proforma of Bills for Payments
(Refer Clause 22.6 of GCC)

Name and Address of the Firm..
Bill No... Dated..
Purchase order...................................No...........................Dated...........................
Name and address of the consignee...

S. No.	Authority for purchase	Description of Stores	Number or quantity	Rate Rs. P.	Price per Rs. P.	Amount
Total						

1. GST/ CGST/ SGST/ UTGST/ IGST Amount
2. Freight (if applicable)
3. Excise Duty (if applicable)
4. Packing and Forwarding charges (if applicable)
5. Others (Please specify)
6. PVC Amount (with calculation sheet enclosed)
7. (-) deduction/Discount
8. Net amount payable (in words Rs.)

Dispatch detail RR No. other proof of despatch..
Dated...(enclosed)
Inspection Certificate No..Dated.................(enclosed)
Place and Date
Received Rs...
Rupees)...

We solemnly certify that:
a. Goods and Services Tax (GST) charged on this Bill is not more than what is payable under the provision of the relevant Act or the Rules made there under.
b. Goods on which GST has been charged have not been exempted under the GST Act or the rules made there under and the charges on account of GST on these goods are correct under the provisions of that Act or the Rules made there under.
c. We are registered with above indicated GSTIN as dealer in the State where in their Billing address is located for the purpose of GST.
d. This bill form / invoice is not a replacement for the GST invoice. The proper GST invoice as per requirements of GST rules has been sent to the Purchaser as and when deliveries are made to the consignee.
e. that the payment being claimed is strictly in terms of the contract and all the obligations on the part of the supplier for claiming that payment has been fulfilled as required under the contract.

Revenue stamp   Signature and of Stamp Supplier

Section XIX: NEFT Mandate

(Refer clause 22.2 of GCC)

From: M/s. .... Date: ....

To:

(Insert Name and Address of Purchaser's Paying Authority as per NIT Clause 1)
Sub: NEFT payments

We refer to RBI's NEFT scheme. Our mandate SPMCIL for making payments to us through the above scheme to our under noted account.

NATIONAL ELECTRONIC FUNDS TRANSFER MANDATE FORM

1.	Name of City	
2.	Bank Code No.	
3.	Branch Code No.	
4.	Bank's Name	
5.	Branch Address	
6.	Branch Telephone / Fax No.	
7.	Supplier's Account No.	
8.	Type of Account	
9.	IFSC code for NEFT	
10.	IFSC code for RTGS	
11.	Supplier's name as per Account	
12.	MICR Code No.	
In Lieu of Bank Certificate to be obtained as under, please attach a bank cancelled cheque or photocopy of a cheque or front page of your bank passbook issued by your bank for verification of the above particulars.		

I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold the user institution responsible. I have read the option intimation letter and agree to discharge responsibility expected of me as a participant under the scheme.

Date   Signature of the Customer

Certified that the above particulars are correct as per our record.

Stamp and
Signature of authorized
Official of the bank

Section XX: Integrity Pact
(Ref Para 44.3 of GIT)
(To be signed on Plain Paper)

This Agreement (hereinafter called the Integrity Pact) is made on _____ day of the month of _____202__ at _____, India

BETWEEN
SPMCIL, a Miniratna Category I, Public Sector Enterprise of the Ministry of Finance, Government of India, (hereinafter called the "The Principal", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part

AND
M/s. _____ (hereinafter called the "The Bidder/Contractor" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

PREAMBLE
'The Principal' intends to award, under laid down organizational procedures, contract/s for _____, 'The Principal' 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 Bidder(s) and / or Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitors (IEMs) who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 - Commitments of the 'The Principal'
6. 'The Principal' commits itself to take all measures necessary to prevent corruption and to observe the following principles: -
   a. No employee of the Principal, 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.
   b. The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal 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.
   c. The Principal will exclude from the process all known prejudiced persons.

1   If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions.

Section 2 - Commitments of the 'Bidder / Contractor'

6. The 'Bidder/ Contractor' commit themselves to take all measures necessary to prevent corruption. The 'Bidder/ Contractor' commit themselves to observe the following principles during participation in the tender process and during the contract execution.

a. The 'Bidder/ Contractor' will not, directly or through any other person or firm, offer, promise, or give to any of the Principal'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 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 'Bidder/ Contractor' will not enter with other Bidders info 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 cartelisation in the bidding process.

c. The 'Bidder/ Contractor' will not commit any offence under the relevant IPC/PC Act; further the 'Bidder/ Contractor' will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals, and business details, including information contained or transmitted electronically.

d. The 'Bidder/ Contractor' of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly, the Bidder/Contractors of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder/Contractor. Further, as mentioned in the Guidelines all the payments made to the Indian agent/representative have to be in Indian Rupees only. Copy of the "Guidelines on Indian Agents of Foreign Suppliers" is placed at Annex to this agreement.

e. The 'Bidder/ Contractor' will, when presenting their bid, disclose any and all payments made, is committed to, or intends to make to agents, brokers, or any other intermediaries in connection with the award of the contract.

f. Bidder /Contractor who have signed the Integrity Pact shall not approach the Courts while representing the matter to IEMs and shall wait for their decision in the matter.

7. The 'Bidder/ Contractor' will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the 'Bidder/Contractor', before award or during execution has committed a transgression through a violation of Section 2, above or in any other form such as to put their reliability or credibility in question, the Principal is entitled to disqualify the 'Bidder/Contractor' from the tender process or take action as per the procedure mentioned in the "Guidelines on Banning of business dealings".

Section 4 - Compensation for Damages

1) If the Principal has disqualified the 'Bidder/ Contractor' from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover from 'Bidder/ Contractor' the damages equivalent to Earnest Money Deposit/ Bid Security.

2) If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages of the Contract value or the amount equivalent to Performance Bank Guarantee.

Section 5 - Previous transgression

1) The Bidder declares that no previous transgressions occurred in the last three years with any other Company in any country conforming to the anti-corruption approach or with any Public Sector Enterprise in India that could justify his exclusion from the tender process.

2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action can be taken as per the procedure mentioned in "Guidelines on Banning of business dealings".

Section 6 - Equal treatment of all Bidders / Contractors / Subcontractors

1) In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-contractor.

2) The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.

3) The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Section 7 - Criminal charges against violating Bidder(s) / Contractor(s) /Subcontractor(s)

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

Section 8 - Independent External Monitor

1) The Principal appoints competent and credible Independent External Monitor for this Pact after approval by Central Vigilance Commission. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

2) The Monitor is not subject to instructions by the representatives of the parties and performs his/her functions neutrally and independently. The Monitor would have access to all Contract documents, whenever required. It will be obligatory for him / her to treat the information and documents of the Bidders/Contractors as confidential. He/ she reports to the Chairman and Managing Director of SPMCIL.

3) The Bidder(s)/Contractor(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his/her request and demonstration of a valid interest, unrestricted and unconditional access to their project documentation. The same is applicable to Sub-contractors.

4) The Monitor is under contractual obligation to treat the information and documents of the Bidder/ Contractor(s) / Sub-contractor(s) with confidentiality. The Monitor has also signed declarations on 'Non- Disclosure of Confidential Information' and of 'Absence of Conflict of

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Interest'. In case of any conflict of interest arising at a later date, the IEM shall inform Chairman and Managing Director of SPMCIL and recuse himself / herself from that case.

5) The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

6) As soon as the Monitor notices, or believes to notice, a violation of this agreement, he/she will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit nonbinding 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.

7) The Monitor will submit a written report to the Chairman and Managing Director of SPMCIL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

8) If the Monitor has reported to the Chairman and Managing Director of SPMCIL, a substantiated suspicion of an offence under relevant IPC/ PC Act, and the Chairman and Managing Director of SPMCIL 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 Central Vigilance Commissioner.

9) The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration
This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.

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 Chairman and Managing Director of SPMCIL.

Section 10 - Other provisions
1) This agreement is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e., New Delhi.
2) Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
3) If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
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.
5) Issues like Warranty / Guarantee etc. shall be outside the purview of IEMs.
6) In the event of any contradiction between the Integrity Pact and its Annexure, the Clause in the Integrity Pact will prevail.

For and On behalf of the Principal	For and On behalf of Bidder/Contractor
(Name of the Officer and Designation) *(Office Seal)*	*(Name of the Officer and Designation)* *(Office Seal)*

Place: ………………………………..

Date: ………………………………..

Witness 1:

(Name & Address)

Witness 2:

(Name & Address)

Annex to Integrity Pact

Guidelines for Indian Agents of Foreign Suppliers

1.0 There shall be compulsory registration of agents for all Global (Open) Tender and Limited Tender. An agent who is not registered with SPMCIL shall apply for registration in the registration form with appropriate unit.

1.1 Registered agents will file an authenticated Photostat copy duly attested by a Notary Public/Original certificate of the Principal confirming the agency agreement. It should cover - the precise relationship, services to be rendered, mutual interests in business - generally and/ or specifically for the tender. Any commission/remuneration/ salary/ retainer ship, which the agent or associate receives in India or abroad from the OEM, whether should be brought on record in the Agreement and be made explicit.

1.2 Wherever the Indian representatives have communicated on behalf of their principals and the foreign parties have stated that they are not paying any commission to the Indian agents, and the Indian representative is working on the basis of salary or as retainer, a written declaration to this effect should be submitted by the party (i.e., Principal) before finalizing the order.

2 Disclosure of particulars of agents/ representatives in India, if any.

2.1 Tenderers of Foreign nationality shall furnish the following details in their offers:

2.1.1 The 'Bidder/ Contractor' of foreign origin shall disclose the name and address of the agents/ representatives in India if any and the extent of authorization and authority given to commit the Principals. In case the agent/ representative be a foreign Company, it shall be confirmed whether it is existing Company and details of the same shall be furnished.

2.1.2 The amount of commission/ remuneration included in the quoted price(s) for such agents/ representatives in India.

2.1.3 Confirmation of the Tenderer that the commission/remuneration, if any, payable to his agents/ representatives in India, may be paid by SPMCIL in Indian Rupees only.

2.2 Tenderers of Indian Nationality shall furnish the following details in their offers:-

2.2.1 The 'Bidder/ Contractor' of Indian Nationality shall furnish 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 specifically authorizing the agent to make an offer in India in response to tender either directly or through the agents/ representatives.

2.2.2 The amount of commission/ remuneration included in the price (s) quoted by the Tenderer for himself.

2.2.3 Confirmation of the foreign principals of the Tenderer that the commission/ remuneration, if any, reserved for the Tenderer in the quoted price(s), may be paid by SPMCIL in India in equivalent Indian Rupees on satisfactory completion of the Project or supplies of Stores and Spares in case of operation items.

2.3 In either case, in the event of contract materializing, the terms of payment will provide for payment of the commission/remuneration, if any payable to the agents/ representatives in India in Indian Rupees on expiry of 90 days after the discharge of the obligations under the contract.

2.4 Failure to furnish correct and detailed information as called for in paragraphs above will render the concerned tender liable to rejection or in the event of a contract materializing, the same liable to termination by SPMCIL. Besides this there would be a penalty of banning business dealings with SPMCIL or damage or payment of a named sum.

Section XXI: *Bidding Forms*

1. *Format for Pre-Bid Queries Submission*

[ON BIDDERS LETTERHEAD]

To
The Chief General Manager,
Bank Note Press, Dewas,
Madhya Pradesh – 455001 Date: DD/MM/YYYY

Sub: Submission of Queries by <<Company name>>

Ref: Supply, Installation, Commissioning and Maintenance of Track and Trace System at SPM- Narmadapuram, BNP-Dewas and CNP-Nashik (RFP no. 03/BNP/P/Con/Track & Trace System/22/OT dated 04-04-2022.

Dear Sir,

We have gone through the bid document and have the following queries. We seek your clarification on the queries mentioned below. We also understand that in the event if the Queries are not submitted in the desired format as detailed below in .xls and .pdf file types and not within the stipulated timeline, the same are liable to be not considered or answered.

Bidder's Name:					
Contact Person:					
Contact Details:					
#	Section of RFP	Clause No in RFP	Page Number of RFP	Existing Clause of RFP	Query/Clarification required

Date: Name & Signature of Authorized Representative:

                         Company Seal:

                         Name of Bidder:

                         Full Address:

                         Telephone No.:

2. *Format for PQB Cover letter*

[ON BIDDERS LETTERHEAD]

To

The Chief General Manager,
Bank Note Press, Dewas,
Madhya Pradesh – 455001
Date: DD/MM/YYYY

Sub: Submission of PQB Bid

Ref: Supply, Installation, Commissioning and Maintenance of Track and Trace System at SPM- Narmadapuram, BNP-Dewas and CNP-Nashik (RFP No:___Dated:___/___/_____)

Dear Sir,

Having examined the RFP, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to product and services as required and outlined in the RFP. We attach hereto our responses to Eligibility Criteria.

We confirm that the information contained in these responses or any part thereof, including the exhibits, and other documents and instruments delivered or to be delivered to BNP, Dewas is true, accurate, verifiable and complete. This response includes all information necessary to ensure that the statements therein do not in whole or in part mislead the purchaser in its short-listing process.

We fully understand and agree to comply that on verification, if any of the information provided here is found to be misleading the selection process, we are liable to be dismissed from the selection process or termination of the Contract during the project, if selected to do so.

We agree that you reserve the right in absolute sense to reject all or any of the products/ services specified in the RFP response with or without assigning any reason whatsoever.

It is hereby confirmed that I am entitled to act on behalf of our company and empowered to sign this document as well as such other documents, which may be required in this connection.

Date: Name & Signature of Authorized
                                         Representative: Company Seal:

                                         Name of Bidder:
                                         Full Address:
                                         Telephone No.:

3. Checklist for Pre-Qualification Proposal

Checklist should be provided by the bidder at the beginning of PQB proposal.

All pages of the proposal should be numbered, and proper Index with Page number referencing should be provided. Documents/Content of the proposal should contain proper headings.

SNo.	Items	Submitted/ Compliance (Yes/No)	Document Name	Reference Page No. in the PQB Proposal (From)
1)	PQB Cover letter			
2)	EMD/Bid Security Declaration			
3)	Particulars of the Bidder/ All consortium member as per format provided in this bid document			
4)	Company's registration / Certificate of incorporation/ Partnership Deed/ Any other registration certificate (as applicable)			
5)	Copy of PAN & GST Registration Copy			
6)	Declaration on company's letter head duly Signed & sealed - Bidder should not have been blacklisted / debarred by SPMCIL or its units/ BRBNMPL/ BNPMIPL/ Government of India as on date of bid submission.			
7)	**Experience & Past Performance as mentioned under PQB section-** **a. Documents required in case of Completed project:** Copy of Purchase Order / Work order / Agreement / Contract + Completion certificate from Client on client's letterhead + Assignment Details as per the format provided in Bidding Forms **b. Documents required in case of Ongoing project (Project in O&M phase after Go-Live):** Copy of work order/Agreement + Go-live certificate from client on client's letterhead + Assignment Details as per the format provided in Bidding Forms			
8)	The bidder should have the service support facility in India - Declaration shall be provided in company			

	letterhead with details of service centre such as address, contact person, contact details.			
9)	Bidder should have valid ISO 27001:2013 or higher certification or The Bidder must have CMMi level 5- Copy of Valid Certificate			
10)	Average annual turnover of the bidder's firm during last three years period ending 31.03.2021 should be more than INR *60 Crores*- CA Audited Balance sheet and Profit & Loss statement for FY 2020-21, 2019-20 and 2018-19			
11)	Bidder Firm should not have suffered any financial loss for more than one year during the last three years, (FY 2020-21, 2019-20 and 2018-19)- Relevant Certificate from Chartered Accountants			
12)	Net worth of the Bidders firm should not be in negative as on 31.03.2021 not have eroded by more than 30% in the last three years, ending on 31.03.2021. Relevant Certificate from Chartered Accountants			
13)	Consortium agreement (If applicable)			
14)	Signed Integrity Pact			

Date: Name & Signature of Authorized Representative:
                                          Company Seal:
                                          Name of Bidder:
                                          Full Address:
                                          Telephone No.:

4. Format for Technical Proposal Cover letter

[ON BIDDERS LETTERHEAD]

To

The Chief General Manager,
Bank Note Press, Dewas,
Madhya Pradesh – 455001
Date: DD/MM/YYYY

Sub: Submission of Technical Proposal

Ref: Supply, Installation, Commissioning and Maintenance of Track and Trace System at
SPM- Narmadapuram, BNP-Dewas and CNP-Nashik (RFP No:___Dated:___/___/_____)

Dear Sir,

Having examined the RFP, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to product and services as required and outlined in the RFP. We attach hereto our responses to Eligibility Criteria.

We confirm that the information contained in these responses or any part thereof, including the exhibits, and other documents and instruments delivered or to be delivered to BNP, Dewas is true, accurate, verifiable and complete. This response includes all information necessary to ensure that the statements therein do not in whole or in part mislead the purchaser in its short-listing process.

We fully understand and agree to comply that on verification, if any of the information provided here is found to be misleading the selection process, we are liable to be dismissed from the selection process or termination of the Contract during the project, if selected to do so.

We agree for unconditional acceptance of all the terms and conditions set out in the RFP document and also agree to abide by this RFP response for a period of 180 days from the date fixed for bid opening.

We agree that you reserve the right in absolute sense to reject all or any of the products/ services specified in the RFP response with or without assigning any reason whatsoever.

It is hereby confirmed that I am entitled to act on behalf of our company and empowered to sign this document as well as such other documents, which may be required in this connection.

Date: Name & Signature of Authorized
                                             Representative: Company Seal:

                                             Name of Bidder:
                                             Full Address:
                                             Telephone No.:

5. *Checklist for Technical Proposal*

Checklist should be provided by the bidder at the beginning of Technical proposal.

All pages of the proposal should be numbered, and proper Index with Page number referencing should be provided. Documents/Content of the proposal should contain proper headings.

SNo.	Items	Submitted/ Compliance (Yes/No)	Document Name	Reference Page No. in the PQB Proposal (From)
1)	Technical Proposal Cover letter			
2)	**Experience & Past Performance as mentioned under Technical Evaluation-** a. **Documents required in case of Completed project:** Copy of Purchase Order / Work order / Agreement / Contract + Completion certificate from Client on client's letterhead + Assignment Details as per the format provided in Bidding Forms b. **Documents required in case of Ongoing project (Project in O&M phase after Go-Live):** Copy of work order/Agreement + Go-live certificate from client on client's letterhead + Assignment Details as per the format provided in Bidding Forms			
3)	Average annual turnover of the bidder's firm during last three years period ending 31.03.2021 CA Audited Balance sheet and Profit & Loss statement for FY 2020-21, 2019-20 and 2018-19			
4)	Minimum Experience of the proposed team is given below: • Team Leader = 10 years • Solution Design Expert = 8 years			

	• Functional/ SME/Domain Expert = 8 years The candidate shall have to satisfy specified minimum experience along with required qualification and certification. For every additional years of relevant experience of a profile, 1 mark shall be awarded subject to a maximum of 4 marks for each profile. *Note: Partial years shall not be considered i.e., 12.9 years shall be considered as 12 years.* **CV of Proposed resources should be submitted as per format given in the RFP**			
5)	Detailed Approach and Methodology Document as per Technical Evaluation criteria			
6)	Unpriced itemized Bill of Quantity as per format			
7)	Authorization from OEM (MAF) on OEM letterhead as per format			
8)	Power of Attorney for Authorized Signatory			
9)	Signed and sealed copy of Tender document			

Date: Name & Signature of Authorized Representative:
Company Seal:
Name of Bidder:
Full Address:
Telephone No.:

6. *Format for Particulars of the Bidder*

	Details of the Bidder (Company)	
1)	Name of the Bidder	
2)	Address of the Bidder	
3)	Year of Incorporation	
4)	Registration Number & Registration Authority	
5)	Legal Status (Public/Private)	
6)	Name & Designation of the Authorized person to whom all references shall be made regarding this RFP	
7)	Telephone No. (with STD Code)	
8)	Mobile No.	
9)	E-Mail of the contact person:	
10	Fax No. (with STD Code)	
11)	Website	
12	Financial Detail (of last three financial years)	FY 20-21:
		FY 19-20:
		FY 18-19:
13	GSTIN Number	
14	PAN	
15	EMD Details	

Date: Name & Signature of Authorized
                                                              Representative: Company Seal:

                                                              Name of Bidder:
                                                              Full Address:
                                                              Telephone No.:

7. *Format for Relevant Project Experience*

Sl. No.	Name of Project	Year of Project	Page Number

Detailed Project Experience (please provide separate table for each project)

Project Information	
Name of the project	
Client Name	
Name and contact details of the client	
Description of the project	
Scope of services	
Start date	
Completion date	
Duration of the project	
Project Cost (pertaining to implementation of Barcode/QR based Track & Trace Solution including software and hardware in any of the below areas: • Paper Manufacturing or • Paper Printing or • Security Products)	
Other Relevant Information (if any)	
Supporting documents enclosed (mention name also): Work Order received from Client Agreement signed between Bidder and Client Client Completion Certificate Project Go-live Certificate (if applicable)	

Date:

Name & Signature of Authorized Representative: Company Seal:

Name of Bidder:
Full Address:
Telephone No.:

8. *Format for Authorization by OEM to provide services based on their products*

(Please provide separate letter for each OEM)

[ON OEM's LETTERHEAD]

To
The Chief General Manager,
Bank Note Press, Dewas,
Madhya Pradesh – 455001

Date: DD/MM/YYYY
Sub: Authorization of <<Name of the Bidder >> to provide services based on our product(s)

Ref: Supply, Installation, Commissioning and Maintenance of Track and Trace System at
SPM- Narmadapuram, BNP-Dewas and CNP-Nashik (RFP No:___Dated:__/__/____)

Dear Sir,

I, hereby, declare that <<Name of the OEM>> am the Original Equipment Manufacturer in respect to the product (s) proposed in the RFP. I confirm that <Name of the Bidder> has due authorization from us to provide product(s) listed below and related services of warranty, licensing and maintenance, to BNP, Dewas, as per your RFP (Ref. No. …………………………………………… dated..).

Having read, examined, and understood the RFP, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to product and services as required and outlined in the RFP. I agree to provide required support for all the terms and conditions set out in the RFP document.

I certify that, I <<Name of Representative from OEM>> am the authorized representative of the <<Name of the OEM>> to sign this authorization letter on behalf of the OEM.

I endorse the contracting and licensing terms provided by <Name of the Bidder> to BNP, Dewas. I declare that the proposed products shall not become "end of life" for next 7 years beginning from the date of Go-live. Also, the support including updates, upgrades, spares, patches etc. for the quoted products shall be available for next 7 years beginning from the date of Go-live.

We <<Name of the OEM>> hereby confirm that neither our firm nor our solution or any of our offered products under this bid has/have been under declaration of ineligibility for any cyber or information security threat by any Sovereign Government.

I endorse to provide direct technical support to the BNP, Dewas for the Contract period even in absence of the <Name of the Bidder> providing services to the BNP, Dewas. The warranty shall be onsite replaceable warranty of the products that are listed below. I also certify that the below mentioned product being supplied by the <Name of the Bidder> meets the minimum specifications given in RFP.

#	Name of Product (s)	Make & Model	Remarks (if any)
1			
2			

Yours faithfully,

Name:

In the capacity of:

Signature & Seal:

(Duly authorized to sign the Authorization for and on behalf of the OEM) M/s-

Date:

Place:

Date:

Counter Signature & Name of Authorized Representative of Bidder: Company Seal:

Name of Bidder:

Full Address:

Telephone No.:

9. *Un priced Itemized Bill of Material*

#	Item	Make and Model	Quantity	HSN/SAC Code	Datasheet submitted (Yes/No)	Compliance to RFP requirement (Yes/NO)	Remarks (if any)

7.7   Please note that Bidder should include the following in the above table-

i.   DC and DR IT (hardware and software)
ii. All three units IT (hardware and software) and other equipment such as barcode reader, printer, IoT devises, Non-IT components, etc.

Date: Name & Signature of Authorized
                                          Representative: Company Seal:

                                          Name of Bidder:
                                          Full Address:
                                          Telephone No.:

10. *Format for Declaring Key Personnel Compliance*

Criteria: Key Resource Experience						Certifications		Years of relevant Experience
S. No.	Type of Resource	Name	No. of Resource	Proposed Key Responsibilities under this Project	Academic Qualifications			
						Certification number	Issuing authority	
1)	Project Manager							
2)	Solution Design Expert							
3)	Function al/SME/ Do main							

a) Bidder should add the rows in the above table to provide details of each proposed resource
b) All the key experts should be full time employee of the Bidder at the time of bid submission.
c) Bidders are advised to read the scope of work carefully and accordingly fill the key responsibilities in bullet points of each proposed resource in the above table.

Date: Name & Signature of Authorized
                                             Representative: Company Seal:

                                             Name of Bidder:
                                             Full Address:
                                             Telephone No.:

11. *Format of CV*

1) Name of Firm:

2) Name of Staff:

3) Contact Details:

4) Email-id:

5) Designation:

6) Date of Birth:

7) Years with the Firm:

8) Total Years of Experience:

9) Nationality:

10) Areas of Expertise/Key skills:

11) Educational Qualifications:
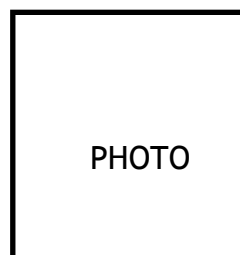
S. No.	Degree Obtained	Institution	Dates

12) Membership of Professional Associations:

13) Certification:

14) Achievements:

15) Languages:

[For each language indicate proficiency: excellent, good, fair, or poor in speaking, reading, and writing.]

S. No.	Languages	Speak	Read	Write

16) Trainings:

17) Employment Record:

From/To	
Employer	
Position held	
Key Duties Assigned:	
From/To	
Employer	

Position held	
Key Duties Assigned:	

18) Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned (Please provide the details of the projects undertaken till date)

Name of assignment:	
Year:	
Location:	
Client:	
Main project features:	
Positions held:	
Activities performed:	

Certification:

I, the undersigned, certify to the best of my knowledge and belief that this CV correctly describes my qualifications and my experience.

Date:

<Initials>

<Signature of Resource>

<Authorized Signatory>

12. *Format for Power of Attorney for Authorized Signatory*

[To be executed on non-judicial stamp paper of the appropriate value in accordance with relevant Stamp Act. The stamp paper to be in the name of the company who is issuing the power of attorney.]

We, M/s.___(name of the company with address of the registered office) hereby constitute, appoint and authorize Mr. or Ms._____(Name and residential address) who is presently employed with us and holding the position of___, as our Attorney to do in our name and our behalf all or any of the acts, deeds or things necessary or incidental to our Bidding Document for Tender No._____(Tender Reference Number) and the Project_____(name of the Project), including signing and submission of the Bidding Document response, participating in the meetings, responding to queries, submission of information or documents and generally to represent us in all the dealings with Client or any other Government Agency or any person, in connection with the works until culmination of the process of bidding till the Project Agreement is entered into with_____(Client) and thereafter till the expiry of the Project Agreement.

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

Dated this the _____day of _____2021

(Signature and Name of authorized signatory)
(Signature and Name in block letters of Bidder's Company/Authorized Signatory for the Company)

Seal of Company

Witness 1:   Witness 2:

Notes:

a) To be executed by all the members individually.
b) The Mode of execution of the power of attorney should be in accordance with the procedure, if any laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.
c) Wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders resolution/ power of attorney in favor of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.

13. *Format for Self-declaration by Bidder for not being blacklisted*

[ON BIDDERS LETTERHEAD]

To

The Chief General Manager,

Bank Note Press,
Dewas, Madhya
Pradesh – 455001
Date: DD/MM/YYYY

Sub: Declaration of not be under ineligibility for corrupt or fraudulent practices or blacklisted with SPMCIL or its units/ BRBNMPL/ BNPMIPL/ Government of India

Ref: Supply, Installation, Commissioning and Maintenance of Track and Trace System at SPM-Narmadapuram, BNP-Dewas and CNP-Nashik (RFP No:_____Dated: / / __)

Dear Sir,

In response to the above mentioned RFP I,_____, as_____<Designation> _____of M/s_____, hereby declare that our Company _____has not been blacklisted or debarred by SPMCIL or its units/ BRBNMPL/ BNPMIPL/ Government of India for being involved in corrupt or fraudulent practices as on the last date of bid submission.

Date: Name & Signature of Authorized
                                                   Representative: Company Seal:

                                                   Name of Bidder:
                                                   Full Address:
                                                   Telephone No.:

14. *Self-Certificate for not being Under Declaration of Ineligibility for any Cyber or Information Security Threat by any Sovereign Government*

[ON BIDDER'S LETTERHEAD]

To,

The Chief General Manager,
Bank Note Press, Dewas,
Madhya Pradesh – 455001

Dates: DD/MM/YYYY

Sub: Self-Certificate for not being Under Declaration of Ineligibility for any Cyber or Information Security Threat by any Sovereign Government

Ref: Supply, Installation, Commissioning and Maintenance of Track and Trace System at SPM-Narmadapuram, BNP-Dewas and CNP-Nashik (RFP No:_____Dated:__/__/_____)

Dear Sir,

We hereby confirm that neither our firm nor our solution or any of our offered products under this bid has/have been under declaration of ineligibility for any cyber or information security threat by any Sovereign Government.

Yours faithfully,

Date: Signature and Name of Authorized
                                       Representative: Company Seal:

                                       Name of
                                       Bidder:

                                       Full Address:

                                       Telephone
                                       No.:

15. *Format for Financial Proposal Cover letter*

[ON BIDDER'S LETTERHEAD]

To,
The Chief General Manager,
Bank Note Press, Dewas,
Madhya Pradesh – 455001

Date: DD/MM/YYYY

Sub: Cover letter for Financial Proposal

Ref: Supply, Installation, Commissioning and Maintenance of Track and Trace System at SPM- Narmadapuram, BNP-Dewas and CNP-Nashik (RFP No:___Dated:__/__/____)

Dear Sir,

Having examined the RFP, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to be the System Integrator and carry out the work as and outlined in the RFP. We have carefully read and understood the terms and conditions of the Contract applicable to the RFP and we do hereby undertake Services as per these terms and conditions. We declare that our prices are as per the technical specification and RFP document. We do hereby undertake that, in the event of acceptance of our bid, the Services shall be completed as stipulated in the RFP Document.

We, hereby, confirm that the solution proposed is complete in all respects and shall be sufficient to fulfill all the requirements and services levels as mentioned in the RFP. In case, the solution is found to be incomplete / insufficient, we shall take necessary measures at no additional cost to the BNP, Dewas.

We hereby confirm that all the prices mentioned in the financial proposal are in Indian National Rupee (INR) only.

We hereby confirm that our financial bid complies with the condition of Cumulative CAPEX should not exceed 60% of the Total Bid Cost. We provide unconditional acceptance of all the terms and conditions set out in the RFP document and also agree to abide by this RFP response for a period of 180 days from the date of bid opening. We hereby declare that in case the Contract is awarded to us, we shall submit the Contract Performance Security in the form prescribed in the RFP. We agree that you are not bound to accept any proposal you may receive. We also agree that you reserve the right in absolute sense to reject the solution completely with or without assigning any reason whatsoever.

It is hereby confirmed that I am entitled to act on behalf of our company and empowered to sign this document as well as such other documents, which may be required in this connection.

Date: Name & Signature of Authorized
                                               Representative Company Seal:

                                               Name of Bidder:
                                               Full Address:
                                               Telephone No.:

Section XXII-Annexures

1.1. Annexure - A (Machine Information)

Machine Information (SPM, Narmadapuram)									
Sr. No.	Name	Machine No.	Purpose/ Functionality	Make	Model	Year of Mfg./ Year of Installation	Country of Origin	Capacity	Operating speed
1	Paper Machine #05	Paper Machine #05	Production of CWBN paper in reel form	VOITH	CWBN Paper Machine	2013	Germany	Finished CWBN paper of 6000MT/ year	Operating speed= 50-75 MPM, Design speed= 110 MPM
2	Rewinder	Order No. 2367	Production of daughter webs	PASABAN	2600 Medium Series	2013	Spain		max. operating speed=600 MPM
3	Sheeter	Order No. 2368	Production of reams of 500 sheets each	PASABAN	Sheeter KB900	2013	Spain		max. operating speed=300 MPM
4	Ream packaging Line	Order No. 2369	Packaging of reams of 500 sheets each	PASABAN		2013	Spain		

Machine Information (BNP, Dewas)

S. No	Name (Simultan, Intaglio, Numbering, Cutpack, BPS, etc)	Machine No.	Purpose / Functionality	Make	Model	Year of Mfg.	Country of Mfg.	Max Capacity (sheets /hr.)	Operating Speed (sheets / hr.)
1	Super Simultan 212	No.7	Dry Offset Printing	M/s KBA NotaSys SA,	1997	1997	Germany	10000	8500
2	Super Simultan 212	No.8	Dry Offset Printing	M/s KBA NotaSys SA,	1998	1998	Germany	10000	7000
3	Super Simultan 212	No.9	Dry Offset Printing	M/s KBA NotaSys SA,	2011	2011	Germany	10000	9500
4	Currency LT Komori	No. 10	Dry Offset Printing	M/s Komori Corporation	2020	2020	Japan	10000	9500
5	Super Orlof Intaglio	No. 8	Intaglio Printing	M/s KBA NotaSys SA,	1998	1998	Germany	10000	7000
6	Super Orlof Intaglio	No. 9	Intaglio Printing	M/s KBA NotaSys SA,	1996	1997	Germany	10000	8500
7	Super Orlof Intaglio-II	No. 10	Intaglio Printing	M/s KBA NotaSys SA,	2011	2011	Germany	10000	8500
8	Currency Intaglio Color	No. 11	Intaglio Printing	M/s Komori Corporation	2020	2020	Japan	10000	9500
9	Currency Intaglio Color	No. 12	Intaglio Printing	M/s Komori Corporation	2020	2020	Japan	10000	9500
10	Super Numerota 212	No. 6	Numbering	M/s KBA NotaSys SA,	1995	1997	Germany	10000	7500
11	Super Numerota 212	No. 7	Numbering	M/s KBA NotaSys SA,	1995	1998	Germany	10000	8000
12	Super Numerota III	No. 8	Numbering	M/s KBA NotaSys SA,	2011	2011	Germany	10000	9500
13	Numeroprotecta	No. 9	Numbering	M/s KBA NotaSys SA,	2020	2020	Germany	10000	9500

Machine Information (BNP, Dewas)

S. No	Name (Simultan, Intaglio, Numbering, Cutpack, BPS, etc)	Machine No.	Purpose / Functionality	Make	Model	Year of Mfg.	Country of Mfg.	Max Capacity (sheets /hr.)	Operating Speed (sheets / hr.)
14	Numero Protecta	No. 10	Numbering	M/s KBA NotaSys SA,	2020	2020	Germany	10000	9500
5	Cutpack	No. 2	Cut & Pack	M/s KBA NotaSys SA,	1987	1987	Germany	250 bundles / hr.	200 bundles /hr.
16	Cutpack	No. 3	Cut & Pack	M/s KBA NotaSys SA,	1998	1998	Germany	400 bundles / hr.	300 bundles /hr.
17	Cutpack	No.4	Cut & Pack	M/s KBA NotaSys SA,	2011	2011	Germany	500 bundles / hr.	400 bundles /hr.
18	Cutpack	No.5	Cut & Pack	M/s UNO Seisakusho Co. Ltd., Japan	2020	2020	Japan	500 bundles / hr.	500 bundles /hr.
19	BPS-2000	No.1	BPS-2000	M/s G & D Germany	2011	2011	Germany	40 Bank Notes/ Sec.	32 Bank Notes/ Sec.
18	Cutlink	No.1	Cut & Link to BPS-2000	M/s UNO Seisakusho Co. Ltd., Japan	2013	2013	Japan	30 Packet/ Min.	25 Packet/ Min.

Machine Information (CNP, Nashik)

| S. No	Name (Simultan, Intaglio, Numbering, Cutpack, BPS, etc)	Machine No.	Purpose / Functionality	Make	Model	Year of Mfg.	Country of Mfg.	Max Capacity (sheets/hr.)	Operating Speed (sheets/hr.)
1	Super Simultan-3	64400202	Printing of Banknotes	KBA	Super Simultan-II Series	Oct.1985	Germany	10000 SPH	6000-8000 SPH
2	Super Simultan-4	64400301	Printing of Banknotes	KBA	Super Simultan-II Series	May-86	Germany	10000 SPH	6000-8000 SPH
3	Super Simultan-5	64400404	Printing of Banknotes	KBA	Super Simultan-II Series	Jul-88	Germany	10000 SPH	6000-8000 SPH
4	Super Simultan-6	64400405	Printing of Banknotes	KBA	Super Simultan-II Series	Oct-88	Germany	10000 SPH	6000-8000 SPH
5	Super Simultan-7	80.0639/ 641011	Printing of Banknotes	KBA	Super Simultan-212 Series	May-99	Germany	10000 SPH	7000-9000 SPH
6	Super Simultan-8	80.0639/ 65011	Printing of Banknotes	KBA	Super Simultan-212 Series	Feb-99	Germany	10000 SPH	7000-9000 SPH
7	Super Simultan-9	80.0639/ 661011	Printing of Banknotes	KBA	Super Simultan-212 Series	Apr-99	Germany	10000 SPH	7000-9000 SPH
8	Super Orlof Intaglio -18	634 018 18	Printing of Banknotes	KBA	Super Orlof Intaglio	Apr-99	Germany	10000 SPH	6000-8000 SPH
9	Super Orlof Intaglio -19	634 018 19	Printing of Banknotes	KBA	Super Orlof Intaglio	Apr-99	Germany	10000 SPH	6000-8000 SPH

Machine Information (CNP, Nashik)

S. No	Name (Simultan, Intaglio, Numbering, Cutpack, BPS, etc)	Machine No.	Purpose / Functionality	Make	Model	Year of Mfg.	Country of Mfg.	Max Capacity (sheets/hr.)	Operating Speed (sheets/hr.)
10	Super Orlof Intaglio -20	634 018 20	Printing of Banknotes	KBA	Super Orlof Intaglio	Nov-99	Germany	10000 SPH	6000-8000 SPH
11	Super Orlof Intaglio -21	634 018 21	Printing of Banknotes	KBA	Super Orlof Intaglio	Nov-99	Germany	10000 SPH	6000-8000 SPH
12	Old Super Numerota -1	64900805	Numbering of Banknotes	KBA	Super Numerota	Nov-85	Germany	10000 SPH	6000-8000 SPH
13	Old Super Numerota -2	64900804	Numbering of Banknotes	KBA	Super Numerota	Oct-85	Germany	10000 SPH	6000-8000 SPH
14	Super Numerota -3	64902203	Numbering of Banknotes	KBA	Super Numerota 212 Series	Feb-96	Germany	10000 SPH	7000-9000 SPH
15	Super Numerota -4	64902202	Numbering of Banknotes	KBA	Super Numerota 212 Series	Feb-96	Germany	10000 SPH	7000-9000 SPH
16	Super Numerota -5	649024 01	Numbering of Banknotes	KBA	Super Numerota 212 Series	Jun-99	Germany	10000 SPH	7000-9000 SPH
17	Super Numerota -6	649024 02	Numbering of Banknotes	KBA	Super Numerota 212 Series	Sep-99	Germany	10000 SPH	7000-9000 SPH
18	Cut Pak-2	62100703	Cutting & Packing of Banknotes	KBA	New Cut Pak-II Series	Aug-99	Germany	480000 Notes/Hr.	400,000 Notes/Hr.
19	Cut Pak-3	62100704	Cutting & Packing of Banknotes	KBA	New Cut Pak-II Series	Sep-99	Germany	480000 Notes/Hr.	400,000 Notes/Hr.

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Machine Information (CNP, Nashik)

| S. No	Name (Simultan, Intaglio, Numbering, Cutpack, BPS, etc)	Machine No.	Purpose / Functionality	Make	Model	Year of Mfg.	Country of Mfg.	Max Capacity (sheets/hr.)	Operating Speed (sheets/hr.)
20	Numero Pak-2	64600 701	Numbering, Cutting & Packing of Banknotes	KBA	New Numero Pak-II Series	Jun-99	Germany	480000 Notes/Hr.	350,000 Notes/Hr.
21	Numero Pak-3	64600 801	Numbering, Cutting & Packing of Banknotes	KBA	New Numero Pak-II Series	Jul-99	Germany	480000 Notes/Hr.	350,000 Notes/Hr.
22	BPS		Single note Examination M/c	G&D	BPS-2000				
23	Dry offset Printing	301	Printing of Banknotes	Komori	LT-832II A 301	2021	Japan	10000 SPH	
24	Intaglio Printing	133	Printing of Banknotes	Komori		2021	Japan	10000 SPH	
25	Numerota	64903604	Numbering of Banknotes	KBA	Numerota protecta	2021	Germany	10000 SPH	
26	Uno -01	UNOCS-8F-UH-CNP13	Cutting & Packing of Banknotes	UNO	UNOCS-8F-UH	2021	Japan	450 Bundles /hrs.	
27	Intaglio Printing	135	Printing of Banknotes	Komori	IC 532 III	2021	Japan		

Annexure – B (SAP Existing Work/Process Flow)

a. SAP Process Flow for BNP, Dewas,
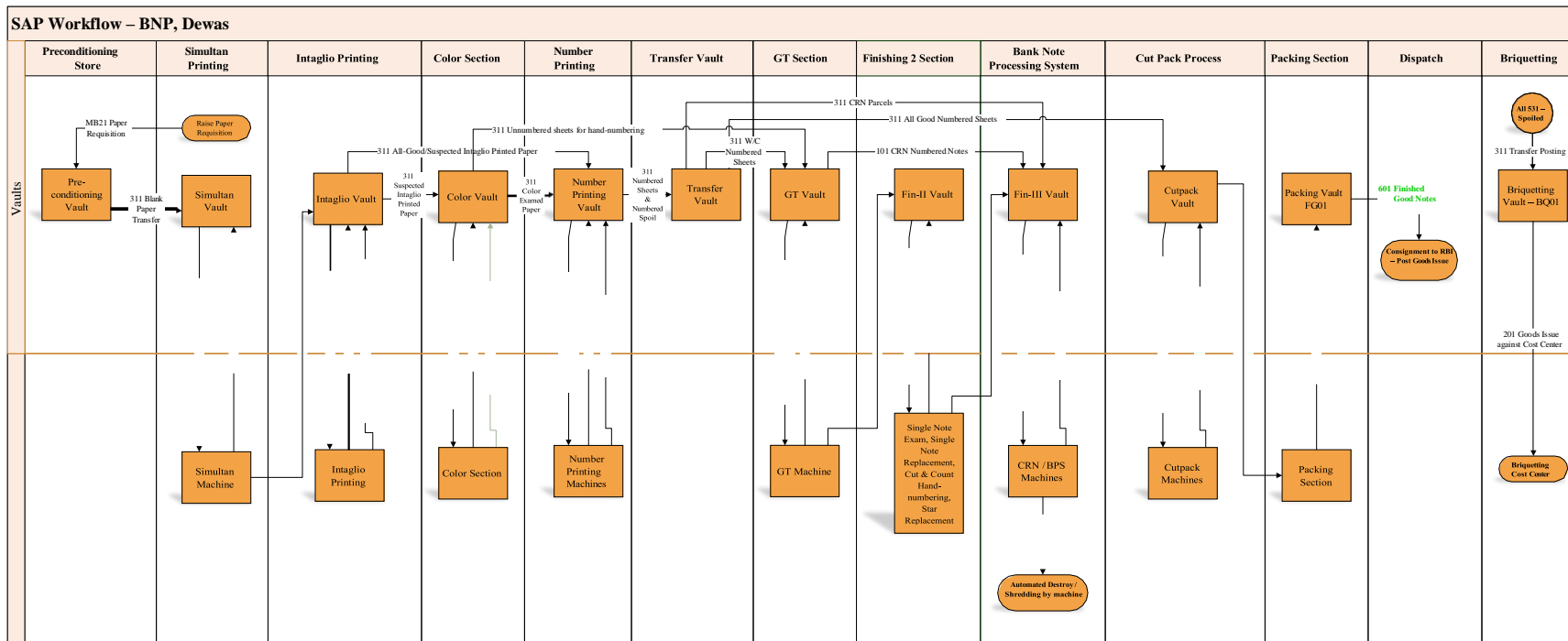
Transfer Code	Movement Code	Movement Type	SAP Module
MIGO	101	Goods Receipt	Material Management (MM)
MIGO	201	Goods Issue Against Cost Center	Material Management (MM)
MIGO	261	Goods Issue	Material Management (MM)
QA32	321	Quality Inspection	Quality Assurance (QA)
MIGO	309	Material to Material Transfer	Material Management (MM)
MIGO	311	Transfer Posting	Material Management (MM)
VL06G	601	Post Goods Issue / Consignment	Sales & Distribution (SD)

b. SAP Process Flow for CNP, Nashik
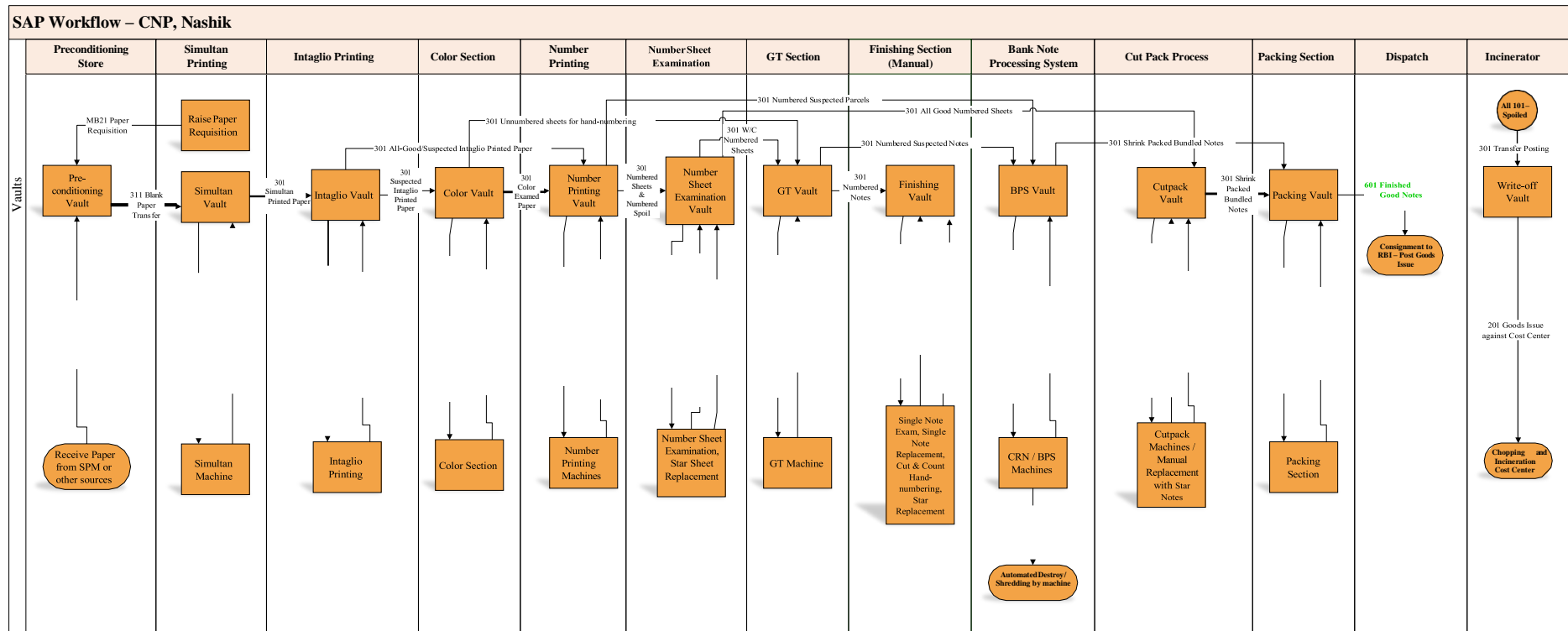
SAP Workflow – CNP, Nashik

Transfer Code	Movement Code	Movement Type	SAP Module
MIGO	101	Goods Receipt	Material Management (MM)
MIGO	201	Goods Issue Against Cost Center	Material Management (MM)
MIGO	261	Goods Issue	Material Management (MM)
MIGO	301	Transfer Posting	Material Management (MM)
MIGO	309	Material to Material Transfer	Material Management (MM)
MIGO	311	Transfer Posting	Material Management (MM)
VL06G	601	Post Goods Issue / Consignment	Sales & Distribution (SD)

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Annexure - C (SAP Existing Landscape)

a. Existing IT landscape

Currently, SAP ERP is implemented in all the 9 units (including BNP-Dewas, CNP- Nashik & SPM-Narmadapuram) and the Head office, Delhi. The existing version of SAP is ECC 6.0 EHP 7. Further, SPMCIL is in process of upgradation of SAP ERP system to SAP S/4 HANA. Following SAP modules are currently being used by the units:

Finance (FI)	Plant Maintenance (PM)	Document Management System (DMS)
Controlling (CO)	Quality Management (QM)	Solution Manager
Material Management (MM)	Human Capital Management (HCM)	Project Systems
Sales & Distribution (SD)	Business Intelligence (BI)	SAP ABAP
Production Planning (PP)	Enterprise Portal (EP)	SAP Basis

b. Deployment Architecture of the SAP

SAP is implemented with a three-tier landscape i.e. Development, Quality and Production Systems. SPMCIL has a centralized network architecture based out of its Data Center (at IGM, Noida) and Disaster Recovery Center (at IGM, Hyderabad). The Network Architecture is utilizing the MPLS core network for carrying the data traffic across the SPMCIL units.

The units of SPMCIL across the locations are connected to the centralized network through WAN connectivity, so that the users from various units of SPMCIL can access the SAP ERP systems without any performance degradation issues. The WAN connectivity is enabled with MPLS (wired) links. The Data Center is connected to the MPLS WAN with the provision of Customer Edge and Provider Edge Routers.