



Revised DTCN  
for  
**Supply and Implementation of  
Command-and-Control Center with  
Annual Support for 5 (five) years at  
Daitari  
(through e-tendering)**

NIT No: OMC/e-Proc/CMC/67/2022 dated 08.04.2022

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**E-procurement Notice**  
**Corrigendum dated 27.04.2022**

**NIT No.: OMC/e-Proc/CMC/67/2022 dated 08.04.2022**

**The revised bid document is amended as below based on Prebid meeting held on 21.04.2022.**

#	Item	Particulars
1	Name of work	Selection of Agency for Supply and Implementation of Command-and-Control Center with Annual Support for 5 (five) years at Daitari(through e-tendering).
2	Availability of tender documents on the e-tendering portal of Government of Odisha	Date: 12.04.2022; Time: 5:00 PM
3	Pre-bid meeting	Held on Date: 21.04.2022; Time: 3.30PM;
4	Issue of responses to pre-bid queries, addendum/ corrigendum, if required	Date: 27.04.2022
5	Bid Due Date	Date: 17.05.2022; Time: 5:00 PM
6	Opening of Techno-Commercial Bid	Date: 17.05.2022; Time: 5:30 PM
7	Opening of Price Bid	To be informed to the Technically Qualified Bidders
8	Tender Document Cost (non-refundable) including GST	INR 11,800 (Rupees Eleven Thousand Eight Hundred only) including GST @18%. Payable online on the e-tender portal of Government of Odisha ( <a href="http://www.tendersodisha.gov.in">www.tendersodisha.gov.in</a> )
9	Earnest Money Deposit (EMD)	INR 6,00,000 (Rupees Six Lakh only).Payable online on the e-tender portal of Government of Odisha ( <a href="http://www.tendersodisha.gov.in">www.tendersodisha.gov.in</a> )

All other details can be seen from the Tender Document available on the e-procurement portal of the Government of Odisha ([www.tendersodisha.gov.in](http://www.tendersodisha.gov.in)) and on the website of OMC ([www.omcltd.in](http://www.omcltd.in)). OMC reserves the right to reject any or all bids without assigning any reason thereof.

Sd/-  
Head (C& P)

**Odisha Mining Corporation Ltd.**

(A Gold Category State PSU)

Registered Office: OMC House, Bhubaneswar-751001

Tel: 0674 2377509, 2377488

## 1. Schedule for the Tender

#	Parameter	Name
1.	Date of publication of NIT	Date:08.04.2022
2.	Availability of tender documents on the e-tendering portal of Government of Odisha	Date: 12.04.2022; Time: 5:00 PM
3.	Pre-bid meeting	Date:21.04.2022; Time: 3.30 PM;
4.	Issue of responses to pre-bid queries, addendum/corrigendum, if required	Date:27.04.2022
5.	Bid Due Date	Date: 17.05.2022; Time: 5:00 PM
6.	Opening of Techno-Commercial Bid	Date: 17.05.2022; Time: 5:30 PM
7.	Opening of Price Bid	To be informed to the Technically Qualified Bidders

## 2. Data Sheet

#	Parameter	Name
1.	Name of tender	Selection of Agency for Supply and Implementation of Command-and-Control Center with Annual Support for 5 (five) years at Daitari(through e-tendering)
2.	Type of tendering	Open tendering
3.	Mode of tendering	e-tender
4.	E-tender site	www.tendersodisha.gov.in
5.	Tender Document Cost (non-refundable) including GST	INR 11,800(Rupees Eleven Thousand Eight Hundred Only) including GST @18%. Payable online on the e-tender portal of Government of Odisha (www.tendersodisha.gov.in)
6.	Earnest Money Deposit (EMD)	INR 6,00,000 (Rupees Six Lakh only) Payable online on the e-tender portal of Government of Odisha (www.tendersodisha.gov.in)
7.	Amount of Performance Security	10% of the Contract value (Excluding Annual Support Charges & GST) Amount shall be submitted in the shape of DD or Bank Guarantee in the format provided in Annexure 8
8.	Nodal Officer	Name: Mr. AK Mishra Phone No.: 0 90402-48699
9.	e-Mail address for submitting Pre-Bid queries	aksmishra@odishamining.in and cmc@odishamining.in
10.	Address of the OMC Limited	OMC House, P.O. Box No.34 Bhubaneswar - 751 001 Odisha, India
11.	NIT No.	OMC/e-Proc/CMC/67/2022 dated 08.04.2022

### 3. Disclaimer

- 3.1 This Notice Inviting Tender (“NIT”) is neither an agreement nor an offer by OMC to the prospective Bidders or any third party. The purpose of this NIT is to provide interested parties with information to facilitate the formulation of their Bid pursuant to this NIT.
- 3.2 This NIT includes statements, which reflect various assumptions and assessments arrived at by OMC. Such assumptions, assessments and statements do not purport to contain all the information that a Bidder may require. This NIT may not be appropriate for all persons, and it is not possible for OMC to consider the particular needs of each party who reads or uses this NIT. The assumptions, assessments, statements and information contained in the NIT may not be complete, accurate, adequate or correct. Each Bidder must, therefore, conduct its own due diligence and analysis and should verify the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this NIT and obtain independent advice from appropriate sources.
- 3.3 Information provided in this NIT to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information provided is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. OMC accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.
- 3.4 OMC, its employees and its consultants make no representation or warranty and shall have no liability to any person including any Bidder under any law, statute, rules or regulations, the law of contract, tort, principles of restitution or unjust enrichment or otherwise for any loss, damage, cost or expense which may arise from or be incurred or suffered in connection with this NIT, or any matter deemed to form part of this NIT, or arising in any way in relation to this Bidding Process.
- 3.5 Neither OMC nor its employees or its consultants make any representation or warranty as to the accuracy, reliability or completeness of the information in this NIT. OMC also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this NIT.
- 3.6 The Bidder should confirm that the NIT downloaded by them is complete in all respects including all annexures and attachments. In the event the document or any part thereof is mutilated or missing, the Bidder shall notify OMC immediately at the following address:

Odisha Mining Corporation Limited, (A Govt. of Odisha Undertaking)  
OMC House, Bhubaneswar 751 001  
Odisha, India. Phone No.:0674 - 2377521  
e-Mail: cmc@odishamining.in

- 3.7 If no intimation is received within the last date for submission of Pre-Bid queries, it shall be considered that the Tender Documents received by the Bidder is complete in all respects and that the Bidder is fully satisfied with the Tender Documents.
- 3.8 No extension of time shall be granted to any Bidder for submission of its Bid on the ground that the Bidder did not obtain the complete set of Tender Documents.
- 3.9 This NIT and the information contained herein are strictly confidential and privileged and are for the exclusive use of the Bidder to whom it is issued. This NIT shall not be copied or distributed by the recipient to third parties (other than, to the extent required by Applicable Law or in confidence to the recipient's professional advisors, provided that such advisors are bound by confidentiality restrictions at least as strict as those contained in this NIT). In the event after the issue of the NIT, the recipient does not continue with its involvement in the Bidding Process for any reason whatsoever, this NIT and the information contained herein shall be kept confidential by such party and its professional advisors at all times.
- 3.10 OMC may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the statements, information, assessment or assumptions contained in this NIT at any time during the Bidding Process. All such changes shall be uploaded on the e-procurement portal of the Government of Odisha and on the website of OMC. It is the duty of Bidders to visit the e-procurement portal and the website of OMC regularly and keep themselves updated on the Bidding Process and any communication made in relation to the Bidding Process.
- 3.11 The Bidders or any third party shall not object to such changes/modifications/additions/alterations as provided in Clause 3.10 above, explicitly or implicitly. Any such objection by the Bidder shall make the Bidder's Bid liable for rejection by OMC. Further objection by any third party shall be construed as infringement on confidentiality and privileged rights of OMC with respect to this NIT.
- 3.12 The Bidder shall not make any public announcements with respect to the Bidding Process, this NIT and/or the Bidding Documents. Any public announcements to be made with respect to the Bidding Process or this NIT shall be made exclusively by OMC. Any breach by the Bidder of this Clause shall be deemed to be in non-compliance with the terms and conditions of this NIT and shall render the Bid liable for rejection. OMC's decision in this regard shall be final and binding on the Bidder.
- 3.13 By responding to the NIT, the Bidder shall be deemed to have confirmed that it has fully satisfied and has understood the terms and conditions of the NIT. The Bidder hereby expressly waives any and all claims in respect thereof.
- 3.14 The Bid is not transferable.

## 4. Abbreviations

AD	Active Directory
AMC	Annual Maintenance Contract
BG	Bank Guarantee
BoQ	Bill of Quantity
DGMS	Directorate General of Mines Safety
DHCP	Dynamic Host Control Protocol
DSC	Digital Signature Certificate
EFT	Electronic Fund Transfer
EMD	Earnest Money Deposit
ESI	Employee's State Insurance
FoR	Freight on Road
FY	Financial Year
GCC	General Conditions of Contract
GST	Goods and Services Tax
GSTIN	GST Identification Number
GSTR	GST Returns
HO	Head Office
I/C	In-Charge
IFSC	Indian Financial System Code
INR	Indian Rupee / legal tender currency of India
ISI	Indian Standards Institute
ISO	International Organization for Standardization
IT	Income Tax
ITC	Input Tax Credit
JV	Joint Venture
LD	Liquidated Damages
LLP	Limited Liability Partnership
LoA	Letter of Award
MICR	Magnetic Ink Character Recognition
MO	Mines Office
MSE	Micro & Small Enterprises
MSME	Micro, Small & Medium Enterprises
NEFT	National Electronic Funds Transfer
NIT	Notice Inviting Tender
NMS	Network Monitoring System
OEM	Original Equipment Manufacturer
OMC	Odisha Mining Corporation
PAN	Permanent Account Number
POL	Petroleum, Oil and Lubricants
PSU	Public Sector Undertaking
RO	Regional Office
RTGS	Real Time Gross Settlement



SBI	State Bank of India
SCC	Special Conditions of Contract
SO	Service Order
SI	System Integrator
TIA	Tender Inviting Authority
VDA	Variable Dearness Allowance
CCC	Command Control Centre

## 5. Definitions and Interpretations

The words and expressions beginning with capital letters and defined in this document shall, unless repugnant to the context, have the meaning ascribed thereto herein.

- 5.1 “Applicable Laws” means all laws, legislations, statutes, rules, directives, ordinances, notifications, exemptions, regulations, judgments/ orders of any court, tribunal, regulatory bodies and quasi-judicial bodies or any interpretation thereof enacted, issued, or promulgated by any authority and applicable to either OMC or to the Bidders;
- 5.2 “Authorized Signatory” shall have the meaning as set forth in Clause 8.5 under “Instruction to Bidders”;
- 5.3 “Bid” means the documents submitted by a Bidder pursuant to this NIT, including the Techno-Commercial Bid along with any additional information/clarifications required/ sought by OMC and the Price Bid, submitted strictly in the formats provided by OMC. The Bid shall not be considered to be a Bid if it is not submitted as per the formats prescribed by OMC;
- 5.4 “Bidder” designates the legal entity which has made a proposal, a tender or a bid with the aim of concluding a Service Order / Agreement with OMC;
- 5.5 “Bidding Process” means the process governing the submission and evaluation of the Bids as set out in the NIT itself;
- 5.6 “Bid Due Date” shall mean the last date for submission of bids, as given in the Schedule for the Tender. No bids shall be accepted in the e-procurement portal after the Bid Due Date;
- 5.7 “Bid Validity Period” shall have the meaning given to it in Clause 8.8;
- 5.8 “EMD” means the amount submitted by a Bidder to OMC for participating in the Bidding Process, in terms of Clause 8.7;
- 5.9 “Financial Criteria” shall have the meaning given to it in Clause 7.2;
- 5.10 “Financial Year” means the 12 months period from 1<sup>st</sup> April to 31<sup>st</sup> March corresponding to the audited annual accounts;
- 5.11 “Letter of Award (LoA)” means the written official intimation by OMC notifying the Preferred Bidder/Agency that the work has been awarded in its favour as per the terms and conditions mentioned therein;
- 5.12 “Net Worth” shall have the meaning ascribed to it in Section 2(57) of the Companies Act, 2013;

- 5.13 “Notice Inviting Tender” or “NIT” or “NIT Document” or “Tender Paper” or “Tender Documents” or “Tender” or “Bid Documents” means documents issued by OMC vide Bid Document No. OMC/e-Proc/CMC/67/2022 dated 08.04.2022 for “ Selection of Agency for Supply and Implementation of Command-and-Control Center with Annual Support for 5 (five) years at Daitari” and shall include any modifications, amendments, corrigenda/ addenda or alterations thereto. The documents are as follows:
- a) This NIT document;
  - b) Any corrigendum(a)/addendum(a) and clarification(s) to the NIT Document issued by OMC subsequent to the issue of the NIT Document will also be considered an integral part of the NIT Document. Any reference to the NIT Document in the Agreement shall include such corrigendum(a)/ addendum(a);
- 5.14 “OMC” means Odisha Mining Corporation Limited having its registered office at Bhubaneswar – 751 001, Odisha including its successor and assignees or its representatives;
- 5.15 “Pre-bid Meeting” means Pre-bid meeting to be held as per the schedule indicated in the Schedule for the Tender hereof between OMC and the bidders for clearing doubts if any;
- 5.16 “Preferred Bidder” shall have the meaning given to it in Clause 8.21;
- 5.17 “Price Bid” means the Price Bid submitted by the Bidder, in accordance with Clause 8.15.2;
- 5.18 “Related Party” shall have the meaning ascribed to it in Section 2(76) of the Companies Act, 2013;
- 5.19 “Successful Bidder” shall have the meaning given to it in Clause 8.22;
- 5.20 “Technical Criteria” shall have the meaning given to it in Clause 7.1;
- 5.21 “Technically Qualified Bidder” means a Bidder whose Techno-Commercial Bid is responsive and meets the requirements to the satisfaction of OMC as per terms and condition of the NIT and is qualified for opening of its Price Bid;
- 5.22 “Techno-Commercial Bid” means proposal submitted by the Bidder in accordance with Clause 8.15.1;
- 5.23 “Tender Document Cost” shall have the meaning as set forth in Clause 8.6;
- 5.24 “Turnover” shall have the meaning ascribed to it in Section 2(91) of the Companies Act, 2013.

All other capitalized words not defined herein shall have the same meaning as ascribed to them in the NIT. Terms and expressions not defined anywhere in the Bid Documents

shall have the same meaning as are assigned to them in Indian Contract Act, 1872 and failing that in General Clauses Act, 1897.

## 6. Scope of Services

- 6.1 The selected Agency shall provide the following services to OMC as per the below mentioned timeframe:

#	Name/ type of services	Contract period	Location for providing the services
1	Supply and Implementation of Command- and - Control Centre	12 Weeks from the date of signing of agreement.	Daitari
2	Annual Support of the Command- and-Control Center	5 (five) years starting from 1 (month) months beyond the date of achievement of “Go-Live”.	Daitari

- 6.2 The detailed scope and specifications of the services to be provided, along with the contract period, payment terms, etc. are given in Special Conditions of Contract as enclosed in Annexure 2.
- 6.3 The “General Conditions of Contract-Services” as enclosed in the tender at Annexure 1 shall form an integral part of the NIT and will also form a part of the Agreement placed against this tender.

## 7. Eligibility Criteria

The Bidders eligible to participate in this tender should fulfill the following Criteria:

#	Criteria	Required Documents
7.1	<b><u>Technical Criteria</u></b>	
7.1.1	<p>The Bidder must have experience of having successfully executed similar work during the last 7 (Seven) years, which shall be either of the following:</p> <p>i) Three Similar Completed Services of value not less than INR 1.22 Crores for each project</p> <p style="text-align: center;">OR</p> <p>ii) Two Similar Completed Services of value not less than INR 1.52 Crores for each project</p> <p style="text-align: center;">OR</p> <p>iii) Single Similar Completed Services of value not less than INR 2.43 Crores.</p> <p><b>Note:</b></p> <p>a. "Similar completed Services" shall mean the Bidder should have experience in successfully executing the work of Supply and implementation of Command Control Centre or Data Centre or IT Hardware and networking for Data Centre or Network Operations Centre or Integration of Smart City/ ITMS/ Traffic Management/ Mines project work involving outdoor surveillance system.</p> <p>b. Applicable 5 (five) years shall be preceding five financial years excluding the financial year of floating of the Tender (i.e. FY 2015-16, FY 2016-17, FY 2017-18, FY 2018-19, FY 2019-20 and FY 2020-21, FY 2021-22)</p>	<p>Self-attested copies of</p> <p>a) Relevant contracts or Work Orders or Agreement containing the scope of services, the value of the contract or Work Order or Agreement; and</p> <p>b) Completion certificate from their clients/employers, regarding successful completion of the services.</p> <p>c) In case value of the contract is not mentioned in the contract or work order or agreement, then the value must be mentioned in the completion certificate issued by the client/employers</p> <p>d) In case, the bidder fails to avail the completion certificate from their client/employer, the proof of completion duly certified by its Statutory Auditor shall be submitted</p>

#	Criteria	Required Documents
7.2	<p><b>Financial Criteria</b></p> <p>i) Average financial turnover of the Bidder during the last 3 (three) financial years should be at least INR 20 crores</p> <p>ii) Net worth of the Bidder in each of the last 3 (three) financial years should be positive as per audited balance sheet.</p> <p><u>Note:</u></p> <p>a. Applicable 3 (three) years – FY 2018-19, FY 2019-20 and FY 2020-21</p>	a) Copies of audited financial statements
7.3	<b>Other Criteria</b>	
7.3.1	The Bidder should be a Company as defined in Section 2 (20) of the Companies Act, 2013(Private or Public)	Copies of <ul style="list-style-type: none"> <li>▪ Certificate of Incorporation</li> <li>▪ Memorandum of Association</li> <li>▪ Articles of Association</li> </ul>
7.3.2	The Bidder should have valid PAN and GSTIN.	<ul style="list-style-type: none"> <li>▪ Copy of PAN</li> <li>▪ Copy of GST registration certificate – GST REG 06</li> </ul>
7.3.3	The Bidder should not have been banned/blacklisted by OMC or any government agency or any PSU as on the date of submission of Bid	Declaration to this effect, as per the format given in Annexure 5
7.3.4	Tender Document Cost, EMD amount and Power of Attorney	<p>a) Proof of payment of Tender Document Cost; Please refer to Clause 8.6 for further details</p> <p>b) Proof of payment of EMD; Please refer to Clause 8.7 for further details.</p> <p>c) Power of Attorney (as per the format given in Annexure 3) in favour of the Authorized Signatory of the Bidder who shall also be the DSC holder. Please refer to Clause 8.5 for further details</p>
7.3.5	The Bidder whose Contract/Agreement with OMC had been terminated /failed to perform will not be eligible to participate in the bidding.	Decision of OMC in this regard is final & binding on all such entities

Note

- a. The value of the contracts or Work Orders or Agreements to be considered shall be exclusive of all taxes and duties.
- b. Bidding in the form of a consortium is **NOT** allowed.



## 8. Instruction to Bidders

- 8.1 The Bidders intending to participate in this tender are required to register on the e-procurement portal of the Government of Odisha ([www.tendersodisha.gov.in](http://www.tendersodisha.gov.in).) This is a onetime activity for registering on the Government website. During registration, the Bidders will be required to attach a Digital Signature Certificate (DSC) to the Bidder's unique user ID. The DSC used should be of appropriate class (Class II or Class III) issued from a registered Certifying Authority. The registration of Bidders on the portal shall be free of cost. The registration should be in the name of the Bidder, whereas the DSC holder should be the duly Authorized Signatory of the Bidder.
- 8.2 The tender documents shall be available on the state e-procurement portal([www.tendersodisha.gov.in](http://www.tendersodisha.gov.in)) and the website of OMC ([www.omcltd.in](http://www.omcltd.in)). There shall be no sale of hard copies of the tender documents. Tenders can be accessed by the prospective Bidders at the above websites and may be downloaded by them free of cost. However, the Tender Document Cost shall have to be paid at the time of bid submission, unless exempted to be paid by the competent authority.
- 8.3 E-tendering process is mentioned in Clause 10.
- 8.4 The bids are to be submitted in two covers, consisting of: (i) Techno-Commercial Bid (under Cover I) and (ii) Price Bid (under Cover II) respectively christened as such. Both the Techno-Commercial Bid and the Price Bid have to be submitted on the e-procurement portal of the Government of Odisha.
- 8.5 The Authorized Signatory of the Bidder shall be duly authorized by a Power of Attorney authorizing him/her to perform all tasks related to tender submission, including but not limited to sign and submit the bid and to participate in the bidding process on behalf of the Bidder. The format for the Power of Attorney is given in Annexure 3 of this NIT. Each page of all scanned documents submitted as part of the Techno-Commercial Bid should be initialed with date by the Authorized Signatory of the Bidder at the lower left-hand corner of each page.
- 8.6 Tender Document Cost**
- 8.6.1 The Bidder shall pay to OMC a non-refundable amount ("Tender Document Cost"), indicated in the Data Sheet, as part of its Techno-Commercial Bid. The mode of payment of the Tender Document Cost is also indicated in the Data Sheet
- 8.6.2 The Bidders, who are exempted to deposit Tender Document Cost due to any exemption granted by the Government of Odisha, are required to attach scanned copy of relevant documents evidencing such exemption granted, along with the Techno-Commercial Bid document while submitting online. The Bidders, who does not submit Tender Document

Cost claiming exemption but does not submit relevant document, is ineligible for bidding and his bid shall be summarily rejected

## **8.7 Earnest Money Deposit (EMD)**

8.7.1 Bidders as part of their Techno-Commercial Bid shall have to submit an Earnest Money Deposit; the amount of the EMD is indicated in the Data Sheet.

### **8.7.2 Mode of Payment:**

The EMD shall be payable online on the e-tender portal of Government of Odisha ([www.tendersodisha.gov.in](http://www.tendersodisha.gov.in)).

For the avoidance of doubt, it is clarified that OMC shall not be liable to pay any interest on the EMD deposit so made and the same shall be interest free.

### **8.7.3 Return of EMD:**

The EMD of the technically disqualified Bidders shall be returned after declaration of the list of such technically qualified Bidders in the portal. The EMD of other unsuccessful Bidders shall be refunded after signing of the Agreement with the Successful Bidder. The return of the EMD shall be in the form of bank transfer to the account of the Bidder through the e-procurement portal of the Government of Odisha.

8.7.4 The Bidders, who are exempted to deposit EMD amount due to any exemption granted by the State Government of Odisha, are required to attach scanned copy of relevant documents evidencing such exemption granted, along with the Techno-Commercial Bid document while submitting online. The Bidders, who does not submit EMD amount claiming exemption but does not submit relevant document, is ineligible for bidding and his bid shall be summarily rejected.

8.7.5 The EMD of the Preferred Bidder shall be returned upon the Preferred Bidder furnishing the Performance Security.

8.7.6 Forfeiture of EMD: The EMD shall be forfeited and appropriated by OMC as a genuine pre-estimated compensation and damages payable to OMC for, inter alia, the time, cost and effort of OMC without prejudice to any other right or remedy that may be available to OMC hereunder, or otherwise, under the following conditions:

- i) if any of the documents submitted by a Bidder as part of the bid is found to be not genuine or forged or any of the claims, confirmations, statements or declarations of the Bidder is found to be incorrect or inconsistent, or in case of any material misrepresentation of facts at any point of time during the bid evaluation process;

- ii) if the Preferred Bidder fails to acknowledge and return to OMC a signed copy of the LoA or Agreement within the timeframe allowed by OMC;
  - iii) if the Preferred Bidder fails to submit the Performance Security within the timeframe allowed by OMC;
  - iv) if a Bidder withdraws its bid before completion of the bidding process during the bid validity period, except as provided in Clause 8.8;
  - v) If the Bidder has otherwise committed any breach of the terms of this NIT;
  - vi) in case the Preferred Bidder, does not comply with the requirements of the Price Bid;
  - vii) in case the Techno-Commercial Bid of a Bidder contains any information on the Price Bid of the Bidder;
- 8.7.7 In case of cancellation of the tender before bid opening date and time, the EMD shall be refunded to respective Bidder's account.
- 8.8 **Bid validity period:** The bid shall initially remain valid and binding on the Bidder for at least 180(one hundred and eighty) days from the Bid Due Date, as given in the Schedule for the Tender. Any bid with a shorter validity period shall be rejected by OMC. Under exceptional circumstances, OMC may in writing request the Bidders to extend the bid validity period of their bids. In case the Bidder refuses the request of OMC to extend its bid, the EMD of such Bidder will be returned to the Bidder. However, such bids will not be evaluated further.
- 8.9 **Issue of clarifications:** Bidders may also send their queries by email to OMC; queries received after the last date for sending queries (as per the Schedule for the Tender) may not be considered by OMC. The responses to the queries received shall be published by OMC on its website and also on the e-procurement portal of the Government of Odisha and the same shall also be considered to be a part of the tender documents; however, the source of queries shall not be mentioned.
- 8.10 **Issue of corrigendum / amendment:** At any time prior to the Bid Due Date, OMC may at its own initiative or in response to a query or clarification requested by a prospective Bidder if found appropriate, issue a corrigendum/ amendment to the tender documents, which shall be available for download on its website and also on the e-procurement portal of the Government of Odisha and the same shall also be considered to be part of the tender documents. In order to give Bidders a reasonable amount of time to take into account such corrigendum / amendment, OMC may at its own discretion also extend the Bid Due Date.
- 8.11 **Extension of Bid Due Date:** OMC may, at its discretion, extend the Bid Due Date which shall be related as an act of amendment of this NIT.

8.12 **Acknowledgement by the Bidder:** It shall be deemed that by submitting its bid, the Bidder has:

- i) made a complete and careful examination of the tender documents, including the proforma agreement;
- ii) received all relevant information requested from OMC;
- iii) accepted the risk of inadequacy, error or mistake in the information provided in the tender documents or furnished by or on behalf of OMC relating to any of the matters related to this tender or otherwise;
- iv) satisfied itself about the scope of work and services to be delivered and the extant conditions and all matters, things and information necessary and required for submitting an informed bid and for providing the required services in accordance with the tender documents including the contract (to be signed with OMC) and performance of all of its obligations thereunder;
- v) acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the bidding documents or ignorance of any of the matters shall not be a basis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from OMC;
- vi) agreed to be bound by the undertakings provided by it under and in terms; and

OMC shall not be liable for any omission, mistake or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to the tender documents or the bidding process, including any error or mistake therein or in any information or data given by OMC.

8.13 **Right to accept or reject any/ all bids:** Notwithstanding anything contained in the NIT, OMC reserves the right in its sole discretion, without any obligation or liability whatsoever, to accept or reject any or all of the Bids at any stage of the Bidding Process without assigning any reasons thereof. Further OMC reserves the right to annul the Bidding Process and / or to reject any or all Bids at any stage prior to the signing of Agreement without thereby incurring any liability to the affected Bidders or any obligation to inform the affected Bidders of the grounds for OMC's action. Decision of OMC shall be final and binding in this regard. OMC reserves the right to reject any bid if at any time, a material misrepresentation is made or uncovered or if the bid received is conditional or qualified.

8.14 **Language of the bid:** The bid and all related correspondence and documents in relation to the bidding process shall be in the English language. Supporting documents and printed literature furnished by the Bidder with the bid may be in any other language provided

that they are accompanied by translations of all the pertinent passages in the English language, duly authenticated and certified by the Bidder. Supporting materials, which are not translated into English, may not be considered. For the purpose of interpretation and evaluation of the bid, the English language translation shall prevail. The English translation of the documents shall be carried out by professional translators and the translator shall certify that he is proficient in both languages in order to translate the document and that the translation is complete and accurate.

**8.15 Bid to be submitted by Bidders:** The bid to be submitted by Bidders shall consist of the Techno-Commercial Bid and the Price Bid.

**8.15.1 Techno-Commercial Bid:** Bidders shall have to submit their Techno-Commercial Bid on the e-procurement portal of the Government of Odisha. The Techno-Commercial Bid should consist of clear and legible scanned copies of all the required documents and should be submitted within the Bid Due Date, as indicated in the Schedule for the Tender. The Techno-Commercial Bid should contain no information on the Price Bid of the Bidder. The Techno-Commercial Bid shall consist of the following:

- i) Documents Supporting Eligibility Criteria (Refer Chapter 7)
- ii) Techno-Commercial Bid checklist as per Annexure 6
- iii) Mandate Form for Bank payment through e-mode as per Annexure 7
- iv) Documents towards fulfillment of Technical Scoring criteria as per Clause 8.19.6

**8.15.2 Price Bid:** The Price Bid shall be submitted on the e-tender portal of the Government of Odisha

**8.16 Material deviation**

**8.16.1** Material deviations in the bids received shall include, inter alia, the following:

- i) The Techno-Commercial Bid or any accompanying document or Price Bid submitted by the Bidder is not in accordance with the formats given in this tender document.
- ii) The Techno-Commercial Bid is not accompanied by all the documents required to be submitted in terms of this tender document as per Clause 8.15.1
- iii) It does not contain all the information (complete in all respects) as requested in this tender document (in accordance with the formats provided in this tender document);

- iv) The Techno-Commercial Bid is not accompanied by documentary evidence of the credentials of the Bidder(s).
- v) The Techno-Commercial Bid or Price Bid submitted by the Bidder is conditional or qualified.
- vi) The bids submitted by the Bidder is not valid for the minimum bid validity period, as per Clause 8.8.
- vii) It is otherwise substantially/ materially in deviation of the terms and conditions of the tender document.

8.16.2 OMC may waive any nonconformity in the Bid that does not constitute a material deviation, reservation or omission. OMC may request that the Bidder submit information or documentation, within a reasonable period of time (Refer Clause 8.19.3), to rectify nonmaterial nonconformities in the Technical-Commercial Bid related to documentation requirements. Requesting information or documentation on such non-conformities shall not be related to any aspect of the Price Bid. Failure of the Bidder to comply with the request of OMC may result in the rejection of its Bid. OMC, however, is not bound to waive such non-conformity under this Clause 8.16.2.

8.17 **Bid preparation cost:** The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by OMC or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and OMC shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the Bidding Process.

8.18 **Opening of Techno-Commercial Bids:** The Techno-Commercial Bids shall be opened as per the schedule indicated in Schedule for the Tender.

8.19 **Evaluation of Techno-Commercial Bids:**

8.19.1 The Techno-Commercial Bids shall first be evaluated to determine whether they are complete, whether the required documents have been submitted in the correct formats and whether the documents have been properly signed by the Authorized Signatory and whether the Techno-Commercial Bid is generally in order. It will be determined whether the Techno-Commercial Bid is of acceptable quality, is generally complete and is substantially responsive to the tender documents. For purposes of this determination, a

substantially responsive Techno-Commercial Bid is one that conforms to all the terms, conditions and specifications of the tender documents without any material deviations (as defined in Clause 8.16), objections, conditionalities or reservations.

- 8.19.2 A Techno-Commercial Bid which is not substantially responsive, may be rejected by OMC, and may not subsequently be made responsive by the Bidder by correction of the material deviations, as defined in Clause 8.16 of the Material deviation.
- 8.19.3 If required, OMC may ask Bidders to provide clarifications on their bid or provide short fall documents. Such clarifications shall be submitted by the Bidder in the Upload Shortfall document section of the e-procurement portal or shall be submitted through email. The Bidders shall be allowed a maximum time period of 3 (three) working days for uploading on the e-procurement portal / submitting the requisite short fall documents through email. However, no changes in the Price Bid shall be sought, offered or permitted, nor shall the documents sought be related to the EMD. No modification of the bid or any form of communication with OMC or submission of any additional documents, not specifically asked for by OMC will be allowed and even if submitted, they may not be considered by OMC
- 8.19.4 The responsive Techno-Commercial Bids shall then be evaluated in detail to determine whether they fulfill the eligibility criteria (as given in Chapter 7) and other requirements of the tender, such as submission of all the requisite documents as listed in Clause 8.15.1 of Techno-Commercial Bid.
- 8.19.5 The Techno-Commercial Bids which fulfill the above criteria shall be evaluated further in accordance with the scoring criteria given in Clause 8.19.6 and a Technical Score, Ts shall be assigned to each such Techno-Commercial Bid. Techno-Commercial Bids which do not fulfill the above criteria shall not be evaluated further and shall not be considered to be a technically qualified bid. Techno-Commercial Bids which fulfill the above criteria, and which receive a score of 70 (seventy) or higher out of 100 shall be considered to be technically qualified bids.

8.19.6 The Technical Scoring criteria is specified below:

#	Criteria	Maximum score	Marking scheme	Documents to be submitted as part of the Techno-Commercial Bid
<b>1</b>	<b>Organizational capacity</b>	<b>20</b>		
1A	Average turnover of the bidder in the last 3 (three) Financial Years (FY2018-19, FY2019-20 and FY2020-21)	20	<ul style="list-style-type: none"> <li>• <math>\geq 20</math> Cr <math>\leq 50</math> Cr : 10 Marks</li> <li>• <math>&gt;50</math> Crores : 2.5 marks for increment of 25 crores each upto maximum 10 Marks</li> </ul>	Audited Balance Sheet and profit & loss statement for the relevant Financial Years
<b>2</b>	<b>Technical Capability</b>	<b>50</b>		
2A	<p>Undertaken Similar Completed Services with contract value of not less than INR 1.22 Crores during the last Seven financial years i.e. FY 2015-16, FY 2016-17, FY 2017-18, FY 2018-19, FY 2019-20, FY 2020-21 and FY 2021-22)</p> <p>c. "Similar completed Services" shall mean the Bidder should have experience in successfully executing the work of Supply and implementation of Command Control Centre or Data Centre or IT Hardware and networking for Data Centre or Network Operations</p>	25	<ul style="list-style-type: none"> <li>• 5 marks for each project more than INR 1.22 Crores</li> <li>• maximum of 5 projects</li> </ul>	<ul style="list-style-type: none"> <li>• Work order along with completion certificate or Continuation certificate mentioning the value of work completed.</li> <li>• In case, the bidder fails to avail the completion certificate from their client/employer, the proof of completion and value of work completed duly certified by its Statutory Auditor shall be submitted.</li> </ul>



#	Criteria	Maximum score	Marking scheme	Documents to be submitted as part of the Techno-Commercial Bid
	Centre or Integration of Smart City/ ITMS/ Traffic Management/ Mines project work involving outdoor surveillance system.			
2B	Number of years of Experience in providing IT management and support services	10	Greater than 5 Years & Less than 10 Years: 5 marks.  >=10 Years - 10 Marks.	Work order along with completion certificate or Continuation certificate
2C	<ul style="list-style-type: none"> <li>• CMMi level 3 or Higher</li> <li>• ISO 9001</li> <li>• ISO 20000</li> <li>• ISO 27001</li> </ul>	10	2.5 Marks each for CMMi, ISO 9001, ISO 20000 and ISO 27001	Certificates issued by accreditation body.
2D	The bidder's presence in Odisha	5	5 Marks	GST Registration Certificate.
<b>3</b>	<b>Presentation</b>			
3A	<p>During presentation, the bidder shall be evaluated on the following:</p> <ol style="list-style-type: none"> <li>1. Understanding of the assignment</li> <li>2. Approach and Methodology</li> <li>3. Standard operation procedures adopted</li> <li>4. Experience in handling DHCP/ DNS/ AD/ NAS/ NMS/Firewall</li> <li>5. Ticket handling System</li> </ol>	<b>30</b>	<ul style="list-style-type: none"> <li>• Bidders will be called to make a presentation to OMC.</li> <li>• The eligible bidders shall be requested to make a presentation on their proposal, to an Evaluation Committee constituted for the purpose</li> </ul>	

#	Criteria	Maximum score	Marking scheme	Documents to be submitted as part of the Techno-Commercial Bid
	6. Risk management & mitigation plan 7. Support & maintenance plan 8. Training to personnel 9. Exit Management			
<b>Technical Score, T<sub>s</sub></b>		<b>100</b>		

## 8.20 Opening and Evaluation of Price Bids

8.20.1 The date and time of opening of the Price Bids shall be communicated to the technically qualified Bidders in writing by e-mail or registered post/Speed Post; the Price Bids of only technically qualified Bidders shall be opened. A comparative statement shall be prepared detailing each price component in the bid and including all components of the Price Bid, as per Clause 8.15.2.

## 8.21 Preferred Bidder:

For determination of the Preferred Bidder, all the components (PART-I and PART-II )as described in Annexure 4) shall be considered. The overall quoted price of each technically qualified Bidder shall be computed for arriving at the lowest Bid.

The Bidder with the lowest Quoted Price shall be the Preferred Bidder. The Preferred Bidder shall be issued the LoA. OMC reserves the right to negotiate the price with the Preferred Bidder before issue of the LoA. The Preferred Bidder shall have to acknowledge and accept the LoA by returning a signed copy of the LoA within a period of 7 (seven) days of issue thereof, along with submission of the Performance Security, failing which the issued LoA may be cancelled and EMD of the Preferred Bidder may be forfeited by OMC. In such a case, OMC reserves the right to approach the technically qualified Bidder(s) with the next lowest Quoted Price and ask such Bidder(s) to match the L1 price and on acceptance of the same, issue a fresh LoA to such Bidder and proceed with such Bidder in terms of this Clause 8.21.

### 8.21.1 Tie-Bidders:

In the event that 2 (two) or more technically qualified Bidders (the “Tie Bidders”) have submitted the lowest identical Quoted Prices, the Bidder having higher technical score shall be considered as the Preferred Bidder.

8.22 **Signing of Agreement:** Within 7 (seven)days of receipt of the signed copy of the LoA, along with the Performance Security, the Agreement shall be signed by the Preferred Bidder, failing which the Performance Security shall be appropriated by OMC. In such a case, OMC reserves the right to approach the technically qualified Bidder(s) with the next lowest Quoted Price and ask such Bidder(s) to match the L1 price and on acceptance of the same, issue a fresh LoA to such Bidder and proceed with such Bidder in terms of Clause 8.21. Upon signing of the Agreement, the Preferred Bidder shall be considered to be the “Successful Bidder”. The pro-forma of the Agreement is provided in Annexure 2A hereof. Post signing of the Agreement, OMC shall issue Service Order(s) to the Successful Bidder.

8.23 **Performance Security:** The formula for calculating the amount of the Performance Security is indicated in the Data Sheet. The Preferred Bidder shall submit the Performance Security at Head Office, OMC upon issue of LoA within a period of 7 (seven)working days.

Performance Security shall be in the form of a Bank Guarantee from any Nationalized/ Scheduled Bank invocable at their branch in Bhubaneswar as per the format given in Annexure 8 or in the form of demand draft from a scheduled commercial bank and payable in Bhubaneswar, Odisha. Performance Security in the form of BG should be operable for invocation at any nationalized/scheduled bank at Bhubaneswar.

The Performance Security shall remain valid for total contract period, i.e. up to completion of 5 year Annual Support Service. Initially the BG shall be valid for a period of 15 (fifteen) months, which shall be extended by the Agency for another period of 15 months each, before expiry of the BG till completion of the contract period. If the BG is not extended before its expiry, OMC shall have the right to en-cash the BG and appropriate the amount towards Performance Security. The amount appropriated towards performance security shall be refunded after submission of BG of equal amount with required validity period. If the annual support service is extended beyond 5 (five) years the Agency shall extend the BG and kept it valid till completion of the contract period. The agency shall have the option to provide single BG for entire contract period.

The Performance Security for the final contractual year shall be released only after successful handover of the project to the successor and necessary clearances from Head IT, OMC.

- 8.24 The Successful Bidder should have an office in Odisha. In case the Successful Bidder does not have a prior office in Odisha, it has to open an office in Odisha within one month of signing of agreement with OMC. Relevant GST registration document should be submitted in this regard.
- 8.25 The Successful Bidder shall submit the Indemnity Bond in the Format as at Annexure-10 at the time of execution of agreement.
- 8.26 The Successful Bidder shall have to deploy all the Maintenance and Support Services personnel within 30 (thirty) days of issue of LoA in accordance to the provisions of this NIT.

## 9. Additional Instructions to Bidders

### 9.1 Site-visit:

- 9.1.1 Bidders may visit the sites and apprise themselves of the site conditions and its surroundings and obtain for itself, on its own responsibility, all information that may be necessary for preparing their Bids.
- 9.1.2 Bidders shall bear their own costs and make their own arrangements required for visiting the sites. OMC will only facilitate their visit.
- 9.1.3 The date of the site visit is provided in the Schedule for the Tender. Bidders who are interested to visit the site shall inform the Respective Official of OMC mentioned in the

Data Sheet at least 1 (one) day before scheduled date of the site visit, along with the names and contact numbers of their representatives who would be participating in the site visit.

- 9.1.4 A maximum of 4 (four) representatives from each Bidder shall be allowed to participate in the site visit.

## 10. E-tendering process

- 10.1 The e-tendering process shall be held on the e-procurement portal of the Government of Odisha ([www.tendersodisha.gov.in](http://www.tendersodisha.gov.in)). All the steps involved starting from hosting of tenders till determination of the Preferred Bidder shall be conducted online on the e-procurement portal.
- 10.2 The Bidder will have to accept unconditionally the online user portal agreement which contains the acceptance of all the terms and conditions including commercial and general terms and conditions and other conditions, if any, along with on-line undertaking in support of the authenticity of the declarations regarding the facts, figures, information and documents furnished by the Bidder on-line in order to become an eligible Bidder. No conditional bid shall be allowed / accepted.
- 10.3 The Bidder will have to give an undertaking online that if the information/declaration/scanned documents furnished in support of the same in respect of eligibility criteria is found to be wrong or misleading at any stage, they will be liable to punitive action and this includes forfeiture of EMD and cancellation/termination of contract/Agreement.
- 10.4 The Bidder will submit their Techno-Commercial Bid and Price Bid on-line. The Bidders will have to upload a scanned copy of the Techno-Commercial Bid in Cover-I; the Price Bid is to be submitted in Cover-II.
- 10.5 **Procedure for bid submission and payment of Tender Document Cost and EMD**
- 10.5.1 **Log on to e-procurement portal:** The Bidders have to log onto the e-procurement portal of the Government of Odisha ([www.tendersodisha.gov.in](http://www.tendersodisha.gov.in)) using their digital signature certificate and then search and then select the required active tender from the "Search Active Tender" option. Then the submit button can be clicked against the selected tender so that it comes to the "My Tenders" section.
- 10.5.2 **Uploading of the Techno-Commercial Bid and the Price Bid:** The Bidders have to upload the required Techno-Commercial Bid and the Price Bid, as mentioned in the tender document and in line with the Works Department office memorandum no.7885, dated 23 July 2013.
- 10.5.3 **Payment of Tender Document Cost and EMD:** Tender Document Cost and EMD shall be paid using a single banking transaction. The Bidders have to select and submit the bank name as available in the payment options. A Bidder shall make electronic payment using his/her internet banking enabled account with designated banks or their aggregator banks. The payment gateways of the designated banks (State Bank of India/ ICICI Bank, HDFC Bank) is integrated with the e-procurement portal. A Bidder having account in other banks can make payment using NEFT/RTGS facility of designated banks. Online

NEFT/RTGS payment can be done using internet banking of the bank in which the Bidder holds his account, by adding the account number as mentioned in the challan as an interbank beneficiary.

Only those Bidders who successfully remit their EMD on submission of bids would be eligible to participate on the tender/bid process. The Bidders with pending or failure payment status shall not be able to submit their bid. Tender Inviting Authority, State Procurement Cell, NIC and the designated Banks shall not be held responsible for such pendency or failure.

- 10.5.4 **Bid submission:** Only after receipt of intimation at the e-procurement portal regarding successful transaction by Bidder, the system will activate the 'Freeze Bid Submission' button to conclude the bid submission process.
- 10.5.5 System generated acknowledgement receipt for successful bid submission: System will generate an acknowledgement receipt for successful bid submission. The Bidder should make a note of 'Bid ID' generated in the acknowledgement receipt for tracking their bid status.
- 10.5.6 **Settlement of EMD on submission of bids:** The Bank will remit the Earnest Money Deposit on cancellation of bids to respective Bidder's account as per direction received from Tender Inviting Authority through e-procurement system.
- 10.5.7 **Forfeiture of EMDs:** The forfeiture of EMD on submission of bid of defaulting Bidder may be occasioned for various reasons. In case the EMD Deposit on submission of bid is forfeited, the e-Procurement portal will direct the Bank to transfer the EMD value from the Pool Account of SPC to the registered account of the Tender Inviting Authority, i.e. OMC.
- 10.6 **Deleted Clause**
- 10.7 **Price Bid:** The price bid containing the bill of quantity will be in Excel format (or any other format) and will be uploaded by OMC during tender creation. This will be downloaded by the Bidder and will be used to quote the Price Bid, inclusive of all taxes & duties etc. Thereafter, the Bidder will upload the same Excel file during bid submission in Cover-II. The L1 price will be decided for each item/module as stipulated in the tender. The Price Bid of the Bidders will have no conditions. The Price Bid which is incomplete and not submitted as per the instructions given shall be summarily rejected by OMC without any further reference to the Bidder.
- 10.8 **Modification of bids:** Modification of the submitted bid shall be allowed online only before the Bid Due Date. A Bidder may modify and resubmit the bid online as many times as he may wish. Bidder may withdraw only once its Bid online within the end date of Bid submission.

- 10.9 **Opening of Techno-Commercial Bids:** The Techno-Commercial Bids shall be opened as per the schedule given in the Schedule of Tender. The Techno Commercial bids (Cover-I) will be decrypted on-line and will be opened by the designated bid openers of OMC with their Digital Signature Certificates. The Techno-Commercial Bids shall be opened as per the schedule, irrespective of the number of bids received. Even in case of receipt of single bid, the Techno-Commercial Bid shall be opened for evaluation. In case no bids are received, the tender shall be automatically cancelled with approval of the competent authority of OMC.
- 10.10 **Evaluation of Techno-Commercial Bids:** The Techno-Commercial Bids shall be evaluated in terms of Clause 8.20. If required, OMC may ask Bidders to provide clarifications on their bid or provide shortfall documents within a period of 3 (three) days. The Bidders will get this information on their personalized dashboard under “Upload shortfall document/information” link. However, no changes in the Price Bid shall be sought, offered or permitted, nor shall the documents sought be related to the EMD or the Tender Document Cost. No modification of the bid or any form of communication with OMC or submission of any additional documents which are not specifically asked for by OMC, will be allowed and even if submitted, they will not be considered by OMC. Additionally, information shall also be sent by system generated e-mail and SMS, but it will be the Bidder’s responsibility to check the updated status/information on their personalized dashboard at least once daily after opening of bid. No separate communication will be required in this regard. Non-receipt of email and SMS will not be accepted as a reason for non-submission of documents within prescribed time. The Bidder shall submit the requisite clarifications and the requested documents and in the Upload Shortfall document section of the e-procurement portal within the specified period and no additional time will be allowed for submission of the clarifications/ documents. In case of any failure of the Bidder to submit the requisite documents within the allowed timeframe, OMC shall proceed to evaluate its Techno-Commercial Bid without any further reference to the Bidder.
- 10.11 Based on the evaluation of the Techno-Commercials Bids, the list of technically qualified Bidders shall be prepared and the same shall be uploaded, along with the date and time of opening of Price bid in the portal and such Bidders shall also be informed through system generated e-mail and SMS alert. The Price Bid of such shortlisted Bidders shall be decrypted and opened on the scheduled date and time by the designated bid openers of OMC with their Digital Signature Certificates. The Bidders may view the price bid opening online remotely on their personalized dashboard under the link “Bid Opening (Live)” and can see the Price Bid /BOQ submitted by all shortlisted Bidders.
- 10.12 A comparative statement of the Price Bids shall be generated by the e-procurement system. The same shall be downloaded and will be signed by the officers of OMC opening the Price Bids and submitted to the competent authority of OMC for approval and further necessary action. The comparative statement shall also be visible to the participating



Bidders whose Price Bids were opened. In case of tie bids, the same shall be dealt with in terms of Clause 8.21.1.

- 10.13 Upon approval and completion of the due process of OMC, the Preferred Bidder shall be issued the LoA in terms of Clause 8.21. The LoA shall be sent through registered/ speed post to the office address of the Preferred Bidder; a scanned copy of the Agreement/Service Order shall also be uploaded on the e-procurement portal.

## 11. Annexure 1: General Conditions of Contract-Services

### 1. Definitions

In the interpretation of the Contract and the general and special conditions governing it, unless the context otherwise requires:

- 1.1. "Contract Price" or "Contract Value" shall mean the price payable to the Supplier of Service and/or goods under the Service Order / Agreement for the full and proper performance of his contractual obligations;
- 1.2. "Service Order" or "Contract" or "Agreement" shall mean the Service Order/ Agreement and all attached exhibits and documents referred to therein and all terms and conditions thereof together with any subsequent modifications thereto;
- 1.3. "Site" shall mean the place or places named in the Service Order/ Agreement or such other place or places at which any work has to be carried out as may be approved by the OMC;
- 1.4. "Agency" or "Contractor" shall mean the person, firm or company with whom the Service Order/ Agreement is placed and shall be deemed to include the supplier in successors (approved by OMC) representatives, heirs, executors, administrators and permitted assignee as the case may be;
- 1.5. "Services" means the services specified in the Service Order which the Agency has agreed to supply under Service Order/ Agreement;

### 2. Scope of Services

- 2.1. Scope of Services shall be as defined in the Special Conditions of Contract and Annexure thereto.

### 3. Instructions, Direction & Correspondence

- A) All instructions and orders to Agency shall, excepting what is herein provided, be given by OMC.
- B) All the work shall be carried out under the direction of and to the satisfaction of OMC.

- C) All communications including technical/commercial clarifications and/or comments shall be addressed to OMC shall always bear reference to the Service Order / Agreement.
- D) Invoices for payment against Service Order / Agreement shall be addressed to OMC.
- E) The Service Order / Agreement number shall be shown on all challans / invoices, communications, packing lists, containers and bills of lading, (as applicable) etc.

#### **4. Service Order / Agreement Obligations**

- 4.1. If after award of the LoA, the Agency does not acknowledge the receipt of award or fails to furnish the Performance Security within the prescribed time limit (as the case maybe), the OMC reserves the right to cancel the LoA and forfeit the EMD.
- 4.2. Once a Service Order / Agreement is confirmed and signed, the terms and conditions contained therein shall take precedence over the Agency's bid and all previous correspondence.
- 4.3. The Service Order/ Agreement shall, in all respects, deemed to be and shall construe and operate as an Indian Contract in conformity with the Indian Laws.

#### **5. Modification in Service Order / Agreement**

- 5.1. All modifications leading to changes in the Service Order / Agreement with respect to technical and/or commercial aspects including terms of delivery, shall be considered valid only when accepted in writing by OMC by issuing amendment to the Service Order / Agreement. Issuance of acceptance or otherwise in such cases shall not be any ground for extension of agreed delivery date and also shall not affect the performance of Service Order / Agreement in any manner except to the extent mutually agreed through a modification of Service Order / Agreement.
- 5.2. OMC shall not be bound by any printed conditions or provisions in the Agency's Bid Forms or acknowledgment of Service Order / Agreement, invoices and other documents which purport to impose any conditions at variance with or supplemental to Service Order / Agreement.

#### **6. Use of Service Order / Agreement Documents & Information**

- 6.1. The Agency shall not, without OMC's prior written consent, disclose any approved plan, drawing, pattern, sample or information furnished by or on behalf of the OMC in connection therewith, to any person other than a person employed by the Agency in the performance of the Service Order / Agreement. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purpose of such performance.
- 6.2. The Agency shall not, without OMC's prior written consent, make use of any document or information enumerated in Clause 6.1 except for purpose of performing the Service Order / Agreement.

## **7. Performance Security**

- 7.1. The Agency shall furnish Performance Security as per the terms and conditions provided in the Notice Inviting Tender.
- 7.2. The Performance Security shall be for due and faithful performance during the project execution period and is liable for forfeiture in the following cases:
- If the successful Bidder denies undertaking the work after issuance of LoA, or
  - If the Agency abandons the work before its completion, or during its extended period
  - If the work performed by the Agency is not as per the Agreement, or
  - On breach of Service Order / Agreement by the Agency
- 7.3. The proceeds of Performance Security shall be forfeited and appropriated by the OMC as compensation for any loss resulting from the Agency's failure to complete his obligations under the Service Order / Agreement without prejudice to any of the rights or remedies the OMC may be entitled to as per terms and conditions of Service Order / Agreement.
- 7.4. Performance Security shall be extended by the Agency in the event of delay in completion of work, as defined in the Service Order / Agreement for any reason whatsoever. OMC's claim period shall remain valid for twelve months after the expiry of the guarantee/warranty/Defect Liability Period or till the satisfactory performance of the objectives of the Service Order / Agreement, whichever is later.

## **8. Delivery & Documents**

- 8.1. Delivery of the Services shall be made by the Agency in accordance with terms specified in the Special Conditions of Contract.
- 8.2. The delivery terms are binding and essential and consequently, no delay is allowed without the written approval of OMC. Any request concerning delay will be null and void unless accepted by OMC.

## **9. Terms of Payment**

- 9.1. Details about the method of payment, payment terms, billings, place of payment, etc. under this Service Order / Agreement shall be specified in the Special Conditions of Contract.
- 9.2. All payments shall be made in INR only and shall be made directly to the bank account of the Agency.
- 9.3. No advance shall be paid and no letter of credit shall be issued.
- 9.4. Payment shall be released within 30 (thirty) days after receipt of relevant documents complete in all respects.
- 9.5. No interest charges for delay in payments, if any, shall be payable by OMC.
- 9.6. Defective bills shall be returned to the Agency within 7 (seven) working days. No payment shall be made on defective/incomplete bills.

## **10. Subcontracting /out-sourcing/ sub-letting/ Assignment**

- 10.1. The Agency is not allowed to subcontract, outsource, sub-let or assign the contract and scope of services, either partly or wholly, without the written approval of the designated official from OMC side for the services for which such subletting is sought. However, the OMC management reserves the full right to refuse any such approval to the Agency without being bound to provide any reason or rationale for such decision. Provided, nevertheless, that any such consent shall not relieve the Agency from any obligation, duty or responsibility under the Service Order / Agreement.

## **11. Cancellation of Service Order /Agreement**

11.1. If the Agency fails to fulfil the terms and conditions of the Service Order / Agreement which are spelt out in the Tender Document, OMC shall have the right to terminate the Service Order / Agreement and award the total or balance work (if any) to any other Agency at the risk and cost of the said Agency after giving 30 days' notice to the Agency as to why the said work shall not be awarded to another entity at his risk and cost. Further it could be terminated by OMC if:

- i) There is a force-majeure situation
- ii) Agency has given false declaration or document including affidavit,
- iii) Due to conflict of interest between OMC & Agency during the Service Order / Agreement execution,
- iv) The Agency defaults in proceeding with the work as per the milestones and/or in complying with any of the terms and conditions, stipulated in the Service Order / Agreement,
- v) The Agency or firm or any of the partner represented by the Agency, in the subject Service Order / Agreement is adjudged as Insolvent by the concerned authority and further if the contractor entity has been wound up and dissolved,
- vi) The Agency assigns/transfers/sub-lets the entire work or a portion thereof without the approval of the Competent Authority,
- vii) The Agency offers to give or agrees to give gift or any other consideration tangible or intangible, as inducement or reward for seeking or offering benefits in the Service Order / Agreement as the case may be,
- viii) A court order or an order of a competent statutory forum is received in respect of the Service under consideration of the Service Order / Agreement.

Termination of the agreement shall not relieve the Agency of any obligations which expressly or by necessary implication survives termination. Except as otherwise provided in any provisions of the agreement expressly limiting the liability of the Agency, shall not relieve the Agency of any obligations or liability for loss or damage to OMC arising out of or caused by acts or omissions of the Agency prior to the effective date of termination or arising out of such termination. Even if Service Order / Agreement is terminated/abandoned prematurely, OMC reserves the right to deduct/impose penalties and shall remain indemnified, till such time all or any such claims are suitably addressed. OMC reserves the right to appropriate the Performance Security, as a genuine pre-estimated damage suffered by OMC for the non-performance by the Agency. OMC may also impose further penalties on the Agency such as holidaying/banning/blacklisting for a specific period of time. In all such cases, the decision of OMC shall be final. This notice shall be in accordance with Clause 11.1.

## 12. Right to risk for procurement

If the Agency fails to fulfill the terms and conditions of the Service Order / Agreement, OMC shall have the right to procure the goods and/or services from any other party for the execution/ completion of the scope of services under the purchase Order/ Service Order / Agreement and recover from the Agency all charges/expenses/losses/damages suffered by OMC, at the risk and cost of the Agency, after giving 15 (fifteen) days of notice to the Agency. This will be without prejudice to the rights of OMC for any other action including termination of the Service Order / Agreement.

### **13. Force Majeure**

13.1. "Force Majeure Event" means any event or circumstances or combination of events or circumstances which:

- A) Are beyond the reasonable control of the Party affected by such event (the Affected Party); and cannot by exercise of reasonable diligence, reasonable precautions and reasonable alternative measures (where sufficient time to adopt such precautions or alternative measures before the occurrence of such event or circumstances is available), be prevented or caused to be prevented;
- B) Materially and adversely affects such Party's performance of its duties or obligations or enjoyment of its rights under this Service Order / Agreement.

13.2. As soon as practicable and in any case within 7 (seven) days from the date of occurrence of a Force Majeure Event or the date of knowledge thereof, the Affected Party shall notify the other Party of the same, setting out the details of the Force Majeure Event.

13.3. If the Affected Party is rendered wholly or partially incapable of performing any of its obligations under this Service Order / Agreement because of a Force Majeure Event, it shall be excused from performance of such obligations to the extent it is unable to perform the same on account of such Force Majeure Event.

13.4. If a Force Majeure Event described above, in the reasonable judgment of the Parties, is likely to continue beyond a period of 6 (six) months or any other period as stipulated in the NIT, the parties may mutually decide to terminate the Service Order / Agreement or continue the Service Order / Agreement on mutually agreed revised terms.

### **14. Dispute Resolution**

- 14.1. Any dispute, difference or controversy of whatever nature howsoever arising under, or out of, or in relation, to this tender or the Service Order/ Agreement (including its interpretation) between OMC and the Agency, and so notified in writing by either party to the other party shall, in the first instance, be attempted to be resolved amicably and the parties agree to use their best efforts for resolving all disputes arising under or in respect of this tender promptly, equitably and in good faith. In the event of any dispute between the parties, it is agreed that a discussion shall be held between the Agency and OMC within 7 (seven) days from the date of reference to discuss and attempt to amicably resolve the dispute. If such meeting does not take place within the 7 (seven) day period or the dispute is not amicably settled within 15 (fifteen) days of the meeting, the dispute shall be decided by the Civil Court of competent jurisdiction at Bhubaneswar within the period as specified under the Law of Limitation. There shall be no arbitration between the Parties. The provisions of Arbitration & Conciliation Act, 1996 as amended from time to time, shall have no application to the present work.
- 14.2. Governing law and jurisdiction: This Service Order / Agreement shall be construed and interpreted in accordance with and governed by the laws of State and Central Government in force in India. The Courts at Bhubaneswar shall have exclusive jurisdiction over all matters arising out of or relating to this Service Order / Agreement.

## **15. Governing Language**

The Service Order / Agreement shall be written in English language as specified by the OMC in the Instruction to Bidders. All literature, correspondence and other documents pertaining to the Service Order / Agreement which are exchanged by the parties shall be written in English language. Printed literature in other language shall only be considered, if it is accompanied by an English translation. For the purposes of interpretation, English translation shall govern and be binding on all parties.

## **16. Notices**

Any notice given by one party to the other pursuant to the Service Order / Agreement shall be sent in writing or by email. A notice shall be effective when delivered or on the notice's effective date, whichever is later.

## **17. Permits & Certificates**

- 17.1. Agency shall procure, at his expense, all necessary permits, certificates and licences required by virtue of all applicable laws, regulations, ordinances and other rules in effect



at the place where any of the work is to be performed, and Agency further agrees to hold OMC harmless from liability or penalty which might be imposed by reason of any asserted or established violation of such laws, regulations, ordinances or other rules.

## **18. General**

18.1. The Agency shall be deemed to have carefully examined all Service Order / Agreement documents to its entire satisfaction. Any lack of information shall not in any way relieve the Agency of his responsibility to fulfill his obligation under the Service Order / Agreement documents.

18.2. The General Conditions of Contract (GCC)-Services shall apply to the extent that they are not superseded by provisions of other parts of the Special Conditions of Contract.

18.3. Losses due to non-compliance of Instructions

Losses or damages occurring to the OMC owing to the Agency's failure to adhere to any of the instructions given by the OMC in connection with the contract execution shall be recoverable from him.

18.4. Recovery of sums due

All costs, damages or expenses which the OMC may have paid, for which under the Service Order / Agreement, the Agency is liable, may be recovered by the OMC (he is hereby irrevocably authorized to do so) from any money due to or becoming due to the Agency under this Service Order / Agreement or other Service Orders / Agreements and/or may be recovered by action at law or otherwise. If the same due to the Agency be not sufficient to recover the recoverable amount, the Agency shall pay to the OMC, on demand, the balance amount.

## **19. Liability and Indemnity**

19.1. Agency shall indemnify, defend and hold OMC harmless against:

a) any and all third party claims, actions, suits or proceedings against OMC, for any loss of or damage to property of such third party, or death or injury to such third party, arising out of breach by the Agency of any of its obligations under the Service Order / Agreement, except to the extent that any such claim, action, suit or proceeding has arisen due to a negligent act or omission, breach of the Service Order/ Agreement,

or breach of statutory duty on the part of OMC, its suppliers and contractors, employees, servants or agents; and

- b) any and all losses, damages, costs, and expenses including legal costs, fines, penalties and interest actually suffered or incurred by OMC from third party claims arising by reason of breach by the Agency of any of its obligations under this Service Order/ Agreement, except to the extent that any such losses, damages, cost & expenses including legal costs, fines, penalties and interest (together to constitute “Indemnifiable Losses”) have arisen due to negligent act or omission breach of the Service Order/ Agreement, or breach of statutory duty on the part of OMC, its suppliers or contractors, employees, servants or agents or any of the representations; and
- c) to the extent of the value of free issue materials to be issued till such time the entire Service Order/ Agreement is executed and proper account for the free issue materials is rendered and the left over / surplus and scrap items are returned to OMC. The Agency shall not utilize OMC’s free issue materials for any job other than the one contracted out in this case and also not indulge in any act, commission or negligence which will cause / result in any loss/damage to the OMC and in which case, the Agency shall be liable to OMC to pay compensation to the full extent of damage / loss and undertake to pay the same.

19.2. OMC remains indemnified (even if the Service Order/ Agreement ends pre-maturely) towards all or any obligations due to OMC by the Agency and shall continue to remain in force till such time all or any such claims are suitably addressed.

## 20. **Blacklisting**

Blacklisting of a business concern/entity or supplier may be resorted to in following cases:

- i) If the Director of the business concern/entity is convicted by a Court of Law, following prosecution under the normal process of Law for an offence involving moral turpitude in relations to business dealings;
- ii) If security consideration of the state i.e. any action that jeopardize the security of the State.
- iii) If there is justification for believing that the Proprietor or Partner or Director of the Concern/entity has been guilty of malpractices such as bribery, corruption, cheating, fraud and tender fixing etc.
- iv) If the business concern/entity refuses / fails to return the OMC’s dues without adequate cause;

- v) If the business concern/entity is blacklisted by any Department of the Central Government / State Government/Central PSU/State PSU.
- vi) If the business concern/entity is a concern/entity evader of Central / State taxes / duties for which OMC has received notice from the concerned department of Central / State Govt.
- vii) If internal violation of important conditions of contract/agreement.
- viii) If submission of false/fabricated/forged documents for consideration of the tender

## **21. Insurance**

- 21.1. The Agency will obtain an insurance policy covering all risks, damages, loss etc. for all manpower deployed by him. The insurance cover in favour of employer shall be from the start date to the end of Defect Liability Period. Insurance shall cover the following.
  - I. loss of or damage to the works, plant and materials
  - II. loss of or damage to Equipment
  - III. loss of or damage of property (except the Works, Plant, Materials and Equipment) in connection with the Contract and
  - IV. personal injury or death
- 21.2. Policies and certificates for insurance shall be delivered by the Agency to the Officer-in-Charge/Head of Department or his nominee for the approval before the start date of the Contract. All such insurances shall provide for compensation to be payable in the types and proportions of currencies required to rectify the incurred loss or damage.

## **22. Statutory and Legal requirements**

- 22.1. The Agency shall comply with all the statutory and legal requirements and requirements for obtaining license under the Contract Labour (Regulation and Abolition) Act 1970 and shall bear all necessary expenses in this regard.
- 22.2. The Agency shall abide by the applicable statutory provisions on minimum wages, payment of wages, EPF, ESI, gratuity, retrenchment, leave and leave encashment, health care and compensation to its employees and workmen.
- 22.3. The Agency shall not take any action in relation to handling of its personnel which may adversely affect the existing labour relations of OMC. The Agency has to maintain close liaison and cordial relations with the local people and the unions.

### **23. Compliances to policies and standards adopted or to be adopted by OMC**

The Agency shall abide by and ensure compliance with all the applicable Government policies and standards that is adopted or will be adopted time to time throughout the contract period.

### **24. Safety**

- 24.1. The Agency shall comply with all the stipulations and requirements of DGMS as well as with other applicable laws concerning mine safety and as applicable and relevant to its scope of services. The Agency shall at all times be responsible to carry out all operations as per the extant applicable laws. The Agency shall also be responsible for complying with the statutory obligations of the state Pollution Control Board and other environmental and safety regulations. The Agency shall ensure that its operations creates no hazards or disturbance for the surrounding inhabitants and areas.
- 24.2. OMC may from time to time audit the safety practices employed by the Agency and the Agency shall comply with the recommendations/ directions made by OMC as a result of such audit.
- 24.3. During the course of the contract period, if any accident occurs whether major or minor in which the Agency or its employees are involved or are responsible, the Agency shall immediately inform OMC without any delay.

## 12. Annexure 2: Special Conditions of Contract

### 1. General

These Special Conditions of Contract delete, amend, or add to the clauses in the General Conditions of Contract. In the event of an inconsistency, these Special Conditions of Contract shall supersede or take precedence over the General Conditions of Contract to the extent of that inconsistency.

### 2. Background

2.1. OMC is currently planning to introduce an exclusive governance process which enable technology and digital assets to monitor Mines-wide activities on a real time basis through the dedicated Command and Control Centre (CCC) at Baliparbat, Daitari.

#### 2.2. CCC needs to do an agile integration considering the following areas:

2.2.1. Currently, OMC is not using any system/ infrastructure to track various activities (refer the Functional Scope in Appendix 1) and work on the safety related requirements for its departments across mines locations. Through this project, OMC would like to bring in improved transparency and proactive safety measures in the process.

2.2.2. OMC expects the CCC Application (if any) in future if not now to be customized as per the mine specific requirement and ensure smooth implementation of the same.

2.2.3. Capability to have role-based configurable / customizable Mines Operations dashboard as part of future enhancement

2.2.4. OMC shall be the sole owner of the transactional data, applications, licenses, and devices.

### 3. Scope of work

The high-level scope of work for the Agency to implement CCC:

### 3.1. Implementation of CCC

- 3.1.1. To serve as a centralized decision-making center which supports and strengthens coordination in response to incidents/ emergency situations
- 3.1.2. To serve as central information, communication, incident management hub at Daitari
- 3.1.3. To serve as the centralized monitoring and decision-making hub for managing equipment, devices, resources and assets
- 3.1.4. CCC will enable OMC's stakeholders in following
  - 3.1.4.1. Effective decision making
  - 3.1.4.2. Delivering effective governance by aggregating various data feeds from sensors and systems
  - 3.1.4.3. Providing interface/ dashboards to generate alert and notifications in real time
  - 3.1.4.4. Quick and effective response to emergency or disaster situation
- 3.1.5. The Application(s) at CCC shall have the following characteristics / capabilities:
  - a) Must be easy to use, intuitive and user friendly
  - b) The data shall reside within the geographical boundary of India
  - c) The System must be compatible with the latest versions of web browsers viz. Google Chrome, Firefox, Microsoft Edge, Microsoft Internet Explorer, Safari etc.
  - d) Must have a well-defined workflow mechanism
  - e) Should have the ability to scale up with additional requirements around users, sections, features, mines etc. as part of future enhancements
  - f) Should have the ability to extend, modify and integrate with other application(s) in the future without a reliance on single company/vendor/team
  - g) Have training manuals and structured training sessions for various categories of user and necessary stakeholders

- h) Specific users from OMC must be able to login to the portal using unique User-ID and Password.
- i) As an enhanced security measure, there must be role-based access to the System. User types may be admin, user etc. Admin users shall be capable of creating new users and make changes in the master if required.
- j) The System must have real time monitoring tools with Dashboard for higher level supervision at OMC.
- k) The System must have facility for customization of MIS reports and statistical data of the key performance indicators and other necessary information as required by OMC users from time to time. The MIS reports shall have facilities like filtering and sorting. The MIS reports generated must be downloadable in at least .csv, .xls, .xlsx, .pdf formats.
- l) The designing and structuring of database must be in such a way that the information collected shall meet all the requirement of OMC for future use without any data loss.

3.1.6. During the implementation process of Command-and-Control Center, the Agency shall carry out the following:

- a) Prepare a Project Plan and Time schedule
  - i) Indicative Plan is provided in Clause 4 of Special Conditions of Contract
- b) Study of the AS IS Process shall include activities as following:
  - i) Study the activities at Mines (sales and production) and thereby mapping of all the upcoming tasks as per the requirement of OMC.
  - ii) The structure of the Design Basis Report (DBR) document shall be mutually discussed and agreed before preparing the same.
  - iii) Map the approval, reminder, and escalation matrix along with the responsible personnel
  - iv) Design Basis Report (DBR) shall be prepared and sign-off to be taken from OMC
- c) Carry out the necessary Customization /Configuration

- i) Customization/ Configuration should be done in a manner that it gives a reasonable assurance of upward compatibility with future versions/ feature rollouts of the application
  - ii) All the Customization/ Configuration must meet the requirements of security, performance, ease of use for operations, administration and management.
  
- d) Carry out Testing (Functional Testing, Integration Testing and UAT)  
Agency shall conduct testing for the system, application and any customized components. Testing shall include, but not limited to the following (Agency may propose others, based on their strategy / methodology):
  - i) Unit Testing
  - ii) System Integration Testing
  - iii) Facilitation of User Acceptance Testing (UAT)
  
- e) Create Training plan and provide training to users
  - i) Agency shall provide training to all task Users, Section heads, contractual supervisors and other personnel involved in the activities related to CCC/ its impact/ workflow/ any other activities required and the usage of software for ensuring effective compliance and tracking
  - ii) Agency shall impart Functional and technical training to business & IT staff in operating and using the System including database and application software.
  - iii) The mandatory training (functional and technical) to the OMC business and IT team shall be to the satisfaction of the OMC management. In case the training is found to be unsatisfactory, the training duration shall be suitably extended at no extra cost to OMC. The training shall be conducted in the OMC premises.
  - iv) The test environment required for the training must be set up by the Agency before the training commences. However, the Systems (Desktop Computers or Laptops) for UAT shall be arranged by OMC.
  
- f) Prepare User Manual documents for both Systems
  - i) The Agency shall provide the user manual for all the functionality which are part of CCC Implementation and the same shall be shared with OMC after mutual discussion and finalization.



- g) Manage Go-Live event
  - i) The Agency shall provide a detailed list of specific activities for go live event.
  - ii) The project plan submitted by the Agency must ensure that the activities are completed before the event. The go-live event will be dependent on the successful UAT sign-off.
  
- h) Provide Post Go-Live support (onsite)
  - i) Post successful “Go-Live” of Command-and-Control Center, the Agency shall also provide hand holding onsite support for a period of 1 (one) months from the dates of achievement of the corresponding Go-Lives. During these periods, the Agency shall resolve all implementation, operational and production issues, if any. The post Go-Live support will address all user level queries, fixing bugs, incorporation of new requirements owing to legal, statutory and policy changes, upgrades, security, etc.
  - ii) For this purpose, the Agency is required to provide the detailed processes to be followed for logging requests, assigning requests to specific individuals, recording resolution, tracking overall time taken for resolution, etc. The Agency must also submit an escalation matrix as part of deliverable. The Agency would also need to provide a detailed support plan for issues reported by OMC and an escalation matrix for resolution as well as a plan to undertake any change requests that might be considered important.

#### 3.1.7. Other terms and conditions

- a) Change Adaptability:
  - i) Implementation of new or changed business processes will affect users in OMC and require change in the functional processes followed. During implementation, the Agency will help in creating and maintaining effective communication and change management vital to the successful adoption of the new or changed processes.
  - ii) The Agency shall ensure change management to ensure the successful implementation and operationalization of the Command-and-Control Center by the concerned users groups of OMC.
  
- b) Sharing of technical information

- i) The implementation agency can't use the technical details (custom code or other artefacts like design documents, test reports etc.) else-where (outside OMC)
    - ii) Indicative list of documents as deliverable
      - a. Design Basis Report
      - b. High level design document
      - c. Low level design document
      - d. Training documents
      - e. Application Test Report
      - f. Project hand-over document
  - c) Data Encryption
    - i) Any data which is stored in encrypted format must be retrievable by OMC in decrypted form and in plain text.
- 3.1.8. OMC shall provide civil infrastructure (excluding interiors), electricity, and internet facilities. The day-to-day monitoring at command control centre shall be carried out by OMC's deployed personnel.
- 3.1.9. Agency is obligated to supply, install, commission the command Control Centre as per the Scope of Work. The equipment and accessories mentioned in Scope of Work are not exhaustive, in case of any incidental requirement of equipment for operationalization, Agency shall provide it at its cost.

### 3.2. **Annual Support of the Command-and-Control Center**

- 3.2.1. The Agency shall carry out all support related services for the Command-and-Control Center on a real-time basis for a period of 5 (five) years ("**Contract Period**") starting from 1 (one) months beyond the date of achievement of "**Go-Live**". AMC may be extended year wise (annually) based on the satisfactory performance and at the sole discretion of OMC. However, if the OMC IT teams have the required skillset to manage the Command-and-Control Center then AMC services shall be terminated at any point of time by giving a notice period of 30 days. In that case the agency shall do proper handover of the AMC activity along with technical documentations for trouble shooting and OMC may call the agency (if required) on call basis.
- 3.2.2. Annual Support shall include

- a) Patch upgrade
- b) Feature rollout
- c) Support in configuration and integration: Agency to provide both Onsite and Remote support, as may be required, to resolve all implementation, operational and production issues.
- d) User Trainings to all the relevant stakeholders (existing and new users)
- e) Remedial Support in case OMC end-users encounter difficulties with Command-and-Control Center.

3.2.3. Updates will be installed by Agency's staff or automated processes. Updates will be scheduled to minimize disruption to OMC's end users. All updates will be installed within 30 days of public release. Neither Agency nor OMC shall unreasonably delay installation. Updates to related documentation will be provided in electronic form.

3.2.4. The Command-and-Control Center including the availability of services & support must ensure required Uptime as per clause 10.2 . The system should be capable of generating reports regarding down time/complaint resolution time and the period of non-availability should be clearly separated with specific reason like network down time, server down time, manpower service failure, etc.

3.2.5. Under Remedial Support, the Agency shall respond and resolve OMC's requests/issues. The Agency must have a dedicated Support Center platform having dedicated customer care number to enable issue reporting by OMC

#### **4. Delivery Period and Delivery Milestones**

The Agency shall complete the customization and implementation of the Command-and-Control Center (including required IT infrastructure like networks, CCTV, Network Management System etc.) as well as achieve "Go-Live" within a timeframe as mentioned below from the date of issue of LoA.

The Agency is expected to follow the following time schedule during implementation of **Phase**.

Sl. No.	Milestone	Time for Completion
1	Project Start	T= Date of Signing of Agreement
2	Study of the AS IS Process and process mapping	T+ 1 Weeks
3	Finalization & Sign-off of Design Basis Report (DBR)	T+2 Weeks
4	Procurement of Hardware as per the DBR	T+4 Weeks
5	CCC Interior Completion	T+ 7 Weeks
6	Application Implementation (Design, Customize, Integration, Test)	T+8 Weeks
7	H/W Installation and Integration with S/W	T + 9 Weeks
8	Development of Training Plan	T+ 10 Weeks
9	UAT sign off	T+ 11 Weeks
10	Training to all other stake holders (wave/phase wise)	T+ 12 Weeks
11	<b>Go-Live</b>	T+ 12 Weeks
12	Preparation of User Manual	T+ 12 Weeks

Note: The above schedule is indicative. The detailed time schedule shall be finalized in joint consultation between the Agency and OMC. However, the overall timeline of 12 weeks for achievement of “Go-Live” for the Command-and-Control Center shall remain fixed.

## 5. Secrecy

- 5.1. The Technical and Business data and other related documents and such of those materials prepared by or made available to the Agency during the execution of the project shall not be used for any purpose other than for execution of this contract.
- 5.2. The Technical (Source Code) and Business (Transactional) data and other related documents shall not be divulged and or disclosed to a third party or used for any other

purpose whatsoever without OMC's previous consent in writing, except to the extent required for the execution of this contract.

- 5.3. Provisions of these clauses shall not be applicable for that information which are in public domain or already in possession of the Agency or independently developed by the Agency or obtained by the Agency from any third party.

## **6. Patents/Copy Rights/Designs**

- 6.1. The Agency shall indemnify OMC in the event of contingencies arising on account of infringement of patent rights, copy rights or other intellectual property-laws and other claims by third parties in respect of software design, data, drawings furnished by the Agency.

## **7. Change Request Management**

- 7.1. The Agency shall cater to Change Request tasks that may be intimated by OMC throughout the Contract Period. Only those tasks shall be covered under Change Request Management where the efforts to carry out those tasks are expected to span more than 1(one) man-day, which shall be mutually determined by OMC and the Agency. The basic functionalities of the Change Request tasks are as follows:

- a) Changes in Functional requirement (module, reports etc.)
- b) Integration with any new system

- 7.2. The process to address the change request shall be as follows:

- a) Documenting change request requirement: The details of scope of change will be analyzed and documented by OMC and intimated to the Agency. The Agency will submit the effort (in terms of number of man-days for both on-site and off-site professionals) and timeline for incorporation of changes in the application.
- b) Approval or disapproval of the Change Request: The Project team of OMC will discuss with the Agency and approve or disapprove the Change Request submitted by the Agency.
- c) Implementation of the Change Request: After approval of the Change Request, the Agency shall start the process of incorporation of changes in the application.

The change will be implemented in accordance to the agreed cost, effort and schedule.

- d) Validating Change Request implementations - The end user group/Project team of OMC will review the changes incorporated in the application and confirm on the same.

## **8. Quantity Variations**

BOQ for supply has been provided in Appendix 3. The Quantity may change during execution of contract. The variation in Quantity shall not be more than (+/-) 20% of Total Contract Value. Any variation in BOQ shall be assessed and approved by Competent Authority of OMC. However, for high value line items no upward variation in scope shall be permitted. High value items shall be identified after the finalization of tender and shall be part of agreement.

## **9. Payment terms:**

9.1. The Agency shall submit all the invoices/E-invoice (if applicable to vendor) in duplicate to the IT Section, Head Office. However, all invoices should be processed for payment after obtaining certification from the user section.

### **9.2. Payment for Supply and Implementation of Command Control Centre**

#### **9.2.1. Supply Charges**

- A. 50% of Total Supply Cost- on supply of all items as mentioned in BOQ along with 100% GST on the items supplied.
- B. 50% of Total Supply Cost- post Go Live of Implementation of Command Control Centre.
- C. The Invoice should accompany with e-way bill generated from GST portal for movement of goods as required under the GST Law.
- D. Authorised official of OMC shall certify the quantity of goods supplied by the Agency, against which payment shall be processed.

#### **9.2.2. Project Management and Service Charges for Implementation of Command Control Centre**

- A. 100 % of the implementation cost along with applicable GST shall be paid post successful Go Live of Implementation of Command Control Centre.

### **9.3. Payment for Annual Support Services for Command Control Centre**

9.3.1. Payment will be made on Quarterly basis based on evaluation of performance after completion of said quarter on deduction of applicable penalty if any. Following

documents are to be submitted at the end of each quarter along with the bill for making payments:

- i. Reports on patch upgrade and feature rollout, Report on configuration and integration support, report on trainings provided, and report on remedial support
- ii. Uptime reports of all equipment covered under the Maintenance and Support Services generated automatically through the monitoring software.
- iii. TDS as applicable will be deducted from the payment.

9.3.2. GST as applicable will be claimed by the Agency in the bill as per rule.

9.3.3. TDS under IT Act, GST Act and any other Act as applicable & statutory deductions as per Govt. norm shall be deducted from the bills. All bills are to be submitted as per GST Act & Rules as applicable.

9.3.4. The payments shall be made directly to the bank account of the agency. No cash payment is allowed.

9.4. The Income-tax, GST and other statutory dues are required to be deducted from the invoice unless exempted by the concerned Department in favour of the Agency mentioning OMC's work order number and the documentary evidence of such exemption is to be submitted for availing the exemption

## **10. Price Revision**

10.1. No price revision shall be applicable for the Supply, Implementation and Annual Support Services of Command Control Centre throughout the contract period.

10.2. If the contract is extended to another year after completion of the five years, the rate applicable in the 5th year shall be applicable to the 6th year as well.

## **11. Liquidated Damages / Penalty**

### **11.1. Delay in achievement of Go-Live**

11.1.1. If the selected agency fails to achieve Go-Live of the Command-and-Control Centre within the corresponding Delivery Period and any extension thereof, unless such failure is due to force majeure situation or due to OMC's default, liquidated damages (LD) shall be imposed by OMC on the selected agency. However, imposition of LD shall be without prejudice to the other remedies available to OMC under the terms of the Agreement.

11.1.2. In case of delay in achievement of Go-Live for Command and Control Centre, the LD shall be calculated as 2% (two per cent) of the Contract value (excluding

GST&AMC charges) for each month or part thereof of delay, subject to a maximum value of 10% of the Contract value (excluding GST& AMC charges). GST on LD shall be recovered in addition to the LD amount

**11.2. Service Level and Penalty**

The operations of the installed and commissioned system are critical and requires adherence to the below mentioned service levels for individual components specified below. The decrease in service levels will be monitored and the penalties will be imposed based on severity, unless such failure is due to force majeure situation or due to OMC’s default or Periodic/Scheduled maintenance. However, imposition of penalty shall be without prejudice to the other remedies available to OMC under the terms of the Agreement. This will be determined through the decrease percentage in Service Levels as provided herewith below.

S. No.	Slabs	Service Level Slabs	Applicable Penalty Rate
1.	Slab I	Less than SLA Requirement as per tables and up to 95%	Base penalty as per table below
2.	Slab II	Less than 95% up to 90%	Base Penalty plus 20% of the Base Penalty
3.	Slab III	Less than 90% up to 85%	Base Penalty plus 40% of the Base Penalty
4.	Slab IV	Less than 85%	Base Penalty plus 60% of the Base Penalty

There shall be 4 slabs as mentioned above. Base price of the penalty will be applicable for Slab I. Thereafter, 20% increment will be applicable for each subsequent slabs. The calculation of penalty for each of the slab will be as per the methodology provided in the tables below based on the penalty rate as per slabs provided herein above. These slabs will be applicable for the Service Levels provided below wherever there is requirement of availability of device and applications measured in percentage. These will not be applicable for cases in which the SLA is not measured in percentages like report submissions, repair time, etc. The SLA penalty calculation shall be undertaken / conducted quarterly.

**i. Public Address System- Availability**



“Availability”: When the system is working properly performing all business and functional requirements as defined in Tender Document.

S. No	Component	SLA Requirement	Falls By Unit	Quarterly Base Penalty Rate (INR)
1	All the components	98%	0.50%	For every decrease of 0.50% in availability of each device in a quarter, a penalty of 500 shall be imposed.

**ii. Surveillance System– Availability**

“Availability”: When the system is working properly performing all business and functional requirements as defined in Tender Document.

S. No	Component	SLA Requirement	Falls By Unit	Quarterly Base Penalty Rate (INR)
1	Fixed CCTV / CCTV – PTZ and other allied components	99%	0.50%	For every decrease of 0.50% in availability of each device in a quarter, a penalty of 200 shall be imposed.
2	NVR	99.50%	0.50%	For every decrease of 0.50% in availability of each device in a quarter, a penalty of 1000 shall be imposed
3	VMS	99.50%	0.50%	For every decrease of 0.50% in availability of each device in a quarter, a penalty of 1000 shall be imposed

**iii. Communications Network– Availability**

“Availability”: When the system is working properly performing all business and functional requirements as defined in Tender Document.

S. No	Component	SLA Requirement	Falls By Unit	Quarterly Base Penalty Rate (INR)
1.	Overall Network Availability in backbone, distribution and access levels	99%	0.25%	Calculation – Quarterly For every decrease of 0.25% availability of network availability in a quarter, a penalty of 2500 shall be imposed.
S. No	Component	SLA Requirement	Increases By Unit	Quarterly Penalty Rate (INR)
2	Mean Time To Repair (MTTR) for Fibre	< 24 hours	1 Hour	For every increase of 1 Hour in repairing of Fibre & its associated component in an instance, a penalty of 250 shall be imposed

**iv. Command & Control Centre- Availability**

“Availability”: When the system is working properly performing all business and functional requirements as defined in Tender Document.

S. No	Component	SLA Requirement	Falls By Unit	Quarterly Base Penalty Rate (INR)
1.	Video wall & Application Server & PCs.	99.5%	0.50%	For every decrease of 0.50% in availability of each device in a quarter, a penalty of 100 shall be imposed
2	NMS	99.5 %	0.50%	For every decrease of 0.50% in availability of each device in a

S. No	Component	SLA Requirement	Falls By Unit	Quarterly Base Penalty Rate (INR)
				quarter, a penalty of 100 shall be imposed
3	Application Servers & Storage & Operator PC	99.5 %	0.50%	For every decrease of 0.50% in availability of each device in a quarter, a penalty of 100 shall be imposed
4	AC	99%	0.50%	For every decrease of 0.50% in availability of each device in a quarter, a penalty of 100 shall be imposed

**v. Other Components- Availability**

“Availability”: When an application is working properly, performing all business processing to the end user with all activities and tasks. Each application’s availability shall be measured separately to calculate downtime.

S. No	Component	SLA Requirement	Falls By Unit	Quarterly Base Penalty Rate (INR)
1	UPS & remaining all other components like Fire Detection & suppression, Rodent Repellent etc.	99%	0.5%	For every decrease of 0.5% in availability of each such devices (Calculated individually) in a quarter, a penalty of 500 shall be imposed

**vi. Problem Management SLA**

S. No	Component	Severity Level	SLA Requirement	Falls By Unit	Penalty (INR)
1	<p>Problem Management</p> <p>The Agency shall analyse all the incidents and provide a root cause report quarterly if there are more than 10 incidents of the same type. The Agency shall take the needed corrective action to prevent further issues due to the same cause</p>	High	Within 5 days	1 day	For every increase in number of day after 5 days to submit the root cause report, the penalty of 100/day shall be imposed.

GST on Penalty shall be recovered in addition to the Penalty amount.

- 11.3. In case of any loss/theft, concerned officer of OMC will consider the circumstances leading to the loss/theft and submit a report to OMC and for fixing responsibility and if the responsibility is fixed upon the Agency, the Agency shall make good the loss within the period specified by OMC or else deduction of the cost shall be made from the following quarter's invoice.

## 12. Contract Period

- 12.1. Subject to Clause 11.2 below, the Agency shall carry out the Scope of Work in following time period

- A. Supply & Implementation : 12 Weeks from the date of signing of agreement
  - B. Annual Support Service shall be for a period of 5 years after one month from the date of “Go Live , which may be extended by another 1 year at the sole discretion of OMC.
- 12.2. OMC shall review the operational performance of the Agency after 11 months of each Contractual Year (which shall be 12 calendar months calculated from the Commencement Date). On satisfactory result of such review, OMC will issue a letter to the Agency to continue for the subsequent Contractual Year. If the performance of the Agency is determined to be unsatisfactory by OMC, the Agreement may be terminated prematurely at the end of the Contractual Year for which performance of the Agency is reviewed.

### **13. Taxes & Duties**

#### **13.1. Indirect Taxes**

- A) The Agency agrees to and, hereby accepts full and exclusive liability for payment of any and all taxes, duties, charges and levies as per the Applicable Laws as applicable for the Scope of Supply in accordance with the provisions of this Service Order / Agreement. In case it is increased or decreased under any statute, rules, regulations, notifications, etc. of any Authority, the impact shall be to the account of OMC subject to submission of documentary evidence to the satisfaction of OMC.
- B) In case any fresh tax is imposed by any Authority under any Applicable Law during the Contract Period, the Agency shall deposit the same to the appropriate Authority which shall be reimbursed by OMC on actuals and upon submission of documents evidencing such payment.
- C) Obligations relating to Goods and Services Tax (GST)
  - i) The Agency should have registration under GST Acts
  - ii) The Agency has to raise Invoice as required under section 31 of the GST Act and relevant Rules made there under.
  - iii) The Invoice should contain the following particulars as required under Rule 46 of CGST Rules;
    - a. Name, address and Goods and Services Tax Identification Number of the Supplier;
    - b. A consecutive serial number not exceeding sixteen characters, in one or multiple series, containing alphabets or numerals or special

characters- hyphen or dash and slash symbolised as “-” and “/” respectively, and any combination thereof, unique for a financial year;

- c. Date of its issue;
  - d. Name, address and Goods and Services Tax Identification Number or Unique Identity Number, if registered, of the recipient;
  - e. Harmonized System of Nomenclature code for goods or SAC code for services;
  - f. Description of goods or services;
  - g. Quantity in case of goods and unit or Unique Quantity Code thereof;
  - h. Total value of supply of goods or services or both;
  - i. Taxable value of the supply of goods or services or both taking into account discount or abatement, if any;
  - j. Rate of tax (Central tax, State tax, integrated tax, Union territory tax or Cess);
  - k. Amount of tax charged in respect of taxable goods or services (Central tax, State tax, integrated tax, Union territory tax or Cess);
  - l. Place of supply along with the name of the State, in the case of a supply in the course of Inter-State Trade or Commerce;
  - m. Address of delivery where the same is different from the place of supply;
  - n. Whether the tax is payable on reverse charge basis; and
  - o. Signature or digital signature of the supplier or his authorized representative.
- iv) The Agency should file the GST Returns as required in the GST Acts, and details of Invoice submitted to OMC and GST amount charged thereon should reflect in Form GSTR-2A/GTSR-2B within a reasonable time, so as to make OMC enable to take Input Tax Credit (ITC) of the GST amount paid against those Bills.
- v) If due to any reason attributable to the Agency, Input credit of the GST amount paid on Invoices raised by the Agency is not available to OMC/denied by the dept. then the same will be recovered from the payments of the Agency or the Agency has to deposit an equivalent amount.
- vi) The Agency has to comply with all the Provisions of GST Acts, Rules and Notifications issued there under.

- vii) The Agency will comply with the "Anti profiteering Measure" as required under Section 171 of the CGST Act.
- viii) The Agency hereby undertakes to indemnify OMC, from any liabilities arising in future due to noncompliance by the Agency of the GST Acts, Rules and any other Acts currently in force and applicable to the Agency in relation to the job assigned to the Agency by OMC.
- ix) The Agency shall comply with the provisions of e-Invoice as required under GST Act, if the Agency fails to comply with the provisions of the e-Invoice as applicable to the Agency, no payment shall be released to the Agency.

### 13.2. Direct Taxes

TDS as applicable shall be deducted under Income Tax Act,1961 and certificate of deduction shall be provided by OMC to the Agency in accordance with the provisions of Income Tax Act,1961.

### 14. Limitation of Liability

- 14.1. Notwithstanding anything contrary contained herein, the aggregate total liability of Agency under the Service Order / Agreement or otherwise shall be limited to 100% of Service Order / Agreement price. However, neither party shall be liable to the other party for any indirect and consequential damages, loss of profits or loss of production.

### 15. Compliances to policies and standards adopted or to be adopted by OMC

- 15.1. The Agency shall abide by and ensure compliance with the following policies and standards adopted or to be adopted by OMC:

- i) Integrated Management System (IMS) policy of OMC – as available on the website of OMC and as may be updated by OMC from time to time

- 15.2. Sustainable Development Framework (SDF) – The Ministry for Mines, Government of India has implemented a “Star Rating” system for mining leases to promote sustainable development practices, which includes addressing the social impact of resettlement and rehabilitation and key information’s of the mining activity including mines basic information’s environmental safeguard measures, CSR activities as a whole. A star rating program is the implementation to be given to mining leases for the efforts and initiatives taken for implementation of the SDF. In order to implement its performance with respect to the SDF on environmental, social and operational aspects, OMC has constituted a Sustainable Development Unit (SDU). In this context, the Agency shall adhere to

implement at its own costs all aspects, requirements and directives of the SDF and SDU as may be applicable to the Agency.



## Appendix 1: Functional Scope of Command-and-Control Center (CCC) at Daitari

### Overview

A **4-Seater Command-and-Control Center** is expected to be a secure room in one of OMC's facilities at Daitari that would provide centralized monitoring, control, and command of a situation. Primarily, the CCC here should have below features:

- Public Address System
- Emergency Call Box
- Video Management System for 24 X 7 CCTV Surveillance
- 24 X 7 Network Equipment Monitoring

OMC has a state-of-the-art Stockyard and Logistic Management System which is an application (standalone/ web based) to manage Sales, Transportation and Production activities at various locations within the mines area in Baliparbat. The upcoming CCC should have the provision to be integrated with required existing and new software and hardware if required in future.

Indicative list of locations to be considered for this project are:

- Entry and Exit Gates
- Tare and Gross weighment at Sales weighbridges
- Tare and Gross weighment at Production weighbridges
- Loading Points
- Stockyards
- Parking Plaza
- Mining Office

In future, OMC may setup an Integrated CCC at Head Office (Bhubaneswar) which will sync live data from CCC at various mines of OMC. So, CCC at Baliparbat should have necessary provision to be integrated with above mentioned eco-system of CCC.

Locations/ Mines to be considered as part of the **implementation of CCC:**

- Daitari Iron Ore Mines at Baliparbat

The table below contains indicative requirements from various modules:

#	Modules – Indicative Functional Modules
CCC which will be applicable for monitoring activities inside mines.	
1	<p><b>Video Management System for CCTV Surveillance</b></p> <p>The core objective of Video Management System is to create a supporting mechanism for the Daitari Mines through 24x7 surveillance and monitoring throughout the mines area as well as enable proactive identification of security issues leveraging intelligent analytics from the surveillance system. This module proposes implementation of a holistic surveillance system across the mines including:</p> <ul style="list-style-type: none"> <li>• Integration of the feed of the existing 30+ CCTV Cameras</li> <li>• A full-fledged command and control for ensuring 24X7 monitoring and enabling effective action to be taken in case of emergency situations</li> </ul>
2	<p><b>Public Address System</b></p> <p>Public Address (PA) system shall be used at strategic locations as identified by OMC to make important announcements for the public. It shall be able to broadcast messages across all PA systems or specific announcement for particular location supporting single zone / multi zone operations. The system shall also deliver pre-recorded messages to the loud-speakers attached to them from external sources like pen drives etc. for public announcements. This system shall be used to announce informatory and emergency messages to the road users and will be connected to the CCC system. The PAS shall be capable of playing pre-defined audible messages from the CCC.</p> <p>Some of locations to have Public Address System for emergency are parking yard, tare weighbridge, gross weighbridge, loading point, exit point etc.</p>

#	Modules – Indicative Functional Modules
3	<p><b>Emergency Call Box</b></p> <p>Emergency Call Box System shall provide an end-to-end solution for road-side assistance in case of emergency events. It is expected to be a robust communication system that comprises of telephone boxes installed at the strategic locations within Mines and connected to a control center for swift emergency response.</p> <p>Some of the locations to have Emergency Call Box are parking yard, tare weighbridge, gross weighbridge, loading point, exit point and stockyard.</p>
4	<p><b>Network Equipment Monitoring</b></p> <p>The NMS solution should be Scalable, Secure, Robust, Advanced, State of Art, flexible, easy to deploy, reliable and should support distributed architecture along with 3rd party integrations. Network Management Solution should provide end-to-end, comprehensive, unified and integrated management of IT infrastructure components to maximize the availability of IT services and SLA performance.</p> <p>The Agency shall work in coordination with existing vendors of OMC for adding existing devices in offered NMS solution required, if any.</p> <ul style="list-style-type: none"> <li>▪ 24 X 7 monitoring of all the required Network Equipment like switches, router, firewall, IP devices etc. through Simple Network Management Protocol.</li> <li>▪ Health, link and bandwidth Monitoring of all IP devices (Existing and Proposed Devices) IP Devices like RFID Reader, Boom Barrier, CCTV, PAS and ECB etc.</li> <li>▪ Integration with email and SMS for scheduled and real-time alert and notification</li> </ul>
5	<p><b>Interior Design for CCC with room size 15 X 22 sq.ft.</b></p> <ul style="list-style-type: none"> <li>• OMC approved Wall-paper and putty</li> <li>• False Ceiling (350 sq. ft.)</li> <li>• False Flooring with two steps (350 sq. ft.)</li> <li>• Rodent repellent</li> <li>• Fire safety system</li> <li>• Electrical and passive networking</li> </ul>

#	Modules – Indicative Functional Modules
	<ul style="list-style-type: none"> <li>• Access control system</li> </ul>
6	<p><b>Network Infrastructure Upgrade</b></p> <ul style="list-style-type: none"> <li>• Installation and configuration of L2 and L3 managed switch</li> <li>• Laying, splicing and termination of single mode fiber optical cable</li> <li>• The entire fiber optic cable network will have the proper slack built-in to the design for restoration and splicing in future</li> <li>• Fiber termination shall meet fiber manufacturer’s specs regarding DB loss</li> <li>• Overhead laying of optical fiber cable</li> <li>• The Agency must submit OTDR report after successfully installation of overhead fiber cable.</li> <li>• 6-meter GI Pole will be used in every 30-to-50-meter distance for fiber laying where ever it requires includes necessary accessories</li> <li>• The Agency must build foundation for fixing GI poles</li> <li>• All the passive equipment must be from same OEM</li> </ul>

## Appendix 2: Technical features of Command-and-Control Center

The Command-and-Control Center is expected to have features as captured in the below tables. The Agency is required to develop/ customize and configure the requirements for OMC.

### 1. Technical features of the Command-and-Control Center

#	Description	Req. Type
1	<p><b>User Dashboard:</b></p> <ul style="list-style-type: none"> <li>The system should have the capability to be integrated with user specific single view dashboard to capture critical KPIs related to the operations</li> </ul>	Optional
2	<p><b>Alerts and escalation management (NMS)</b></p> <ul style="list-style-type: none"> <li>Automated reminders to required users/ task owners</li> <li>Escalation mechanism using auto trigger                             <ul style="list-style-type: none"> <li>Field User – Mines Manager – Regional Manager – HoD</li> </ul> </li> </ul>	Must have
3	<p><b>MIS reports for NMS</b></p> <ul style="list-style-type: none"> <li>Automatic generation of report weekly/ monthly/ quarterly / yearly to the respective users</li> <li>Customization of report as per OMC Limited format (if any) specified</li> <li>The MIS reports generated must be downloadable in at least .csv, .xls, .xlsx, .pdf formats.</li> </ul>	Must have
4	<p><b>Email and SMS Integration</b></p> <ul style="list-style-type: none"> <li>Automated triggering of email and sms to notify concerned users of NMS</li> <li>Enable facility for the administrator/user to send adhoc email through official email id</li> </ul>	Must have
5	<p><b>Integration with 3rd party Onvif Cameras, NVR &amp; VMS</b></p> <ul style="list-style-type: none"> <li>System should have the provision to integrate with 3<sup>rd</sup> Party Onvif Cameras, NVR &amp; VMS.</li> </ul>	Should have
6	<p><b>Future Integration with Command &amp; Control Centre Platform</b></p> <ul style="list-style-type: none"> <li>In future a Central Command &amp; Control Centre Platform will be</li> </ul>	

	deployed by OMC and all the systems proposed by the SI should be open to be integrated with the same.	
7	<b>Web and Mobile Application – VMS and NMS</b> <ul style="list-style-type: none"> <li>▪ A device agnostic (web and mobile) application to be enabled for users to monitor all relevant parameters, activities etc.</li> <li>▪ The application is expected to be responsive and be accessible seamlessly from various user devices like desktop, mobile etc.</li> </ul>	Should have
8	<b>Functional and Technical Support</b> <ul style="list-style-type: none"> <li>▪ A prompt user support on functional (like feature understanding etc.) and technical matters (like system errors, bugs etc.) resulting in uninterrupted use of the product</li> </ul>	Should have
9	<b>Access Control</b> <ul style="list-style-type: none"> <li>▪ A custom defined role-based access control mechanism</li> </ul>	Must have
10	<b>Search</b> <ul style="list-style-type: none"> <li>▪ Search for objects like document, events, assets, tasks etc.</li> </ul>	Should have
11	<b>Export and Import</b> <ul style="list-style-type: none"> <li>▪ The product shall have the capabilities to export the data on to file (.csv, .pdf, video files)</li> <li>▪ The product shall have the capabilities to import the data from to external file (.csv, .pdf, video files) as bulk upload.</li> </ul>	Must have
12	<b>User Management</b> <ul style="list-style-type: none"> <li>▪ User can be created, modified and viewed by the admin or concerned user</li> </ul>	Must have

Note: All software licenses (e.g. Database license), if required, to be used shall be procured by the bidder in the name of Odisha Mining Corporation.

## Appendix 3: BOQ

Network infrastructure shall provide end to end fiber connectivity for the new locations where PA system, ECB and additional CCTV camera are required.

The fiber cable shall be 12 core single mode.

Below table contains the indicative BOQ (bill of quantity) which may be required to set up a **four-seater CCC**:

### 1. Mandatory Hardware:

Sl. No.	Items	OUM	Qty.	Remark
1	L2 Industrial Grade switch (8 port Gigabit +2 Port 1G SFP)	Nos.	10	
2	1G SFP Module 10KM	Nos.	60	
3	UTP Cable	Mtr.	1255	
4	24 Port Patch Panel	Nos.	7	
5	CAT 6 IO	Nos.	28	
6	Faceplate	Nos.	28	
7	1 Mtr. UTP Patch cord	Nos.	48	
8	2 Mtr. UTP Patch cord	Nos.	59	
9	SM Fiber Patch cord	Nos.	62	
10	24C SM Fiber Cable	Mtr.	11900	
11	6 Mtr. GI Pole for Fiber laying	Nos.	125	
12	48 Port LIU	Nos.	11	
13	1G Media Converter	Nos.	4	
14	Dome Camera	Nos.	17	
15	Bullet Camera	Nos.	11	
16	PTZ Camera	Nos.	7	
17	10-meter GI Pole for PTZ camera with foundation	Nos.	15	
18	2 KVA UPS	Nos.	10	
19	15U Rack	Nos.	1	
20	Junction BOX	Nos.	10	
21	Public Address (PA)- Amplifier	Nos.	6	
22	Public Address (PA) speaker	Nos.	18	
23	ECB at Field	Nos.	5	
24	L3 Switch (24 Port Gigabit 802.3at+8 Port 10G/1G SFP)	Nos.	2	
25	L2 Access Switch, 24 Port PoE	Nos.	18	
26	Network Management System	Nos.	1	
27	42U Server Rack	Nos.	2	

28	Video Wall (2 Nos 55" LED Display) + Software + Controller	Nos.	1	
29	CCC Operator PC	Nos.	4	
30	Control Desk for Operator PC	Nos.	4	
31	Application Server	Nos.	2	
32	PAS Operator Console	Nos.	1	
33	PAS & ECB Central Software	Nos.	1	
34	Fire Alarm & Suppression System	Nos.	1	
35	Rodent Repellent System	Nos.	1	
36	Access Control System	Nos.	1	
37	Water Leak Detection System	Nos.	1	
38	Joystick for CCTV	Nos.	1	
39	Video Management System	Nos.	1	
40	Video Management license for 64 Channel NVR	Nos.	1	
41	Storage (200 TB)	Nos.	1	
43	Command Centre Interior Design (350 sq. ft.)	LS	1	
44	10 KVA UPS (N+1)	Nos.	1	
45	Chemical Earthing and electrical cabling	Nos.	14	
46	E-Mail & SMS Integration (using gateways)	No.	1	
47	Network SPD	No.	46	
48	Power SPD	No.	10	
49	Air Conditioner, 2 Tonne	No.	4	
50	Chair	No	4	
51	Unloaded Jack Panel	No.	7	



## Appendix 4: Uptime calculation

$$\text{Up-time} = \text{MTBF} / (\text{MTBF} + \text{MTTR})$$

Where MTBF = Mean Time between Failures, MTTR = Mean Time to Repair.

Illustration:

Availability (%)	Down time per year
98	7.30 days
97	10.95 days
96	14.6 days
95	18.25 days

**Note:**

- Any planned downtime shall be excluded from Up-time/SLA calculation.
- Faults for which replacement assets provided to continue to business shall also be excluded from SLA
- The formula mentioned here shall be applicable in case there is NO other mutually agreed tools or methodology to calculate the downtime and uptime. However, OMC may consider any system generated data for the same.

## Appendix 5: Technical Specification for required components

### 1. Specifications for CCTV Cameras

#### OEM Criteria for CCTV Cameras

1. OEM company for Camera & NVR if any should have its own company registered in India.
2. The MAC address of the IP cameras must be registered in the name of quoted OEM brand. Evaluation to be done during PoC/product approval.
3. The CCTV OEM should have the CMMI Lev-5 certification.
4. The Products quoted should be of international repute & enlisted in the IHS report. Any of the Top 10 OEMs from the latest global IHS report for Network Security Cameras may be submitted.
5. The CCTV OEM should have an ISO 9001:2008 and ISO 14001:2004 for its manufacturing process. All relevant Documents needed to be attached along with the bid.
6. The CCTV OEM should have an ISO 27001 for Information Security Management System. Documents needed to be attached along with the bid.
7. The CCTV OEM should have an FIPS140-2 certificate for Information Security System to ensure security system is not compromised. Documents needed to be attached along with the bid.
8. CCTV OEM should be full time member of Onvif.
9. The CCTV OEM should have below ISO Certifications for Quality, Environment, Security management and Health & Safety Management system for manufacturing of all types of Cameras & NVR/ DVR.
10. All CCTV cameras offered in the project should be UL, BIS, CE, RoHS & FCC certified.
11. The CCTV OEM should have presence in India for the past seven years with a fully equipped repair and maintenance center and a toll-free number.
12. The OEM should have a dedicated online CCTV support center available during working hours and a fully equipped repair and maintenance office in India. The OEM document details need to be submitted for the same.
13. Proposed Cameras, , joystick should be from same OEM

#### A. Dome Camera

Sr. No.	Parameter	Specifications
1	Imaging Device, Imager Type & Readout and Resolution	1/ 2.8 inch or better, CMOS & Progressive Scan
2	Electronic Shutter Range	1/3- 1/10000 or above
3	Lens	2-4 mm Fixed Lens
4	Video Codec/ Compression	H.265 or higher
5	Light sensitivity/ minimum illumination	Colour: 0.05 Lux
		B/W: 0 Lux with IR on

6	WDR	120 dB or better
7	Signal-to-Noise Ratio (SNR)	50 dB or better
8	<b>Video</b>	
9	IR illuminator	Internal Illuminator with visibility shall be at least 25 meters
10	Video Resolution & Frame Rate	2MP (1920x1080) @ 25/30 FPS
11	HLC/BLC	Shall be available
12	Video Streams	Triple Stream, individually configurable video streams (H.265)
		At least 1 stream at 2MP @ 25/30FPS
13	<b>Network &amp; Interface</b>	
14	Network Interface	RJ-45 for 10Base-T/100Base-TX Ethernet
15	Supported Protocols	IPv4, IPv6, HTTP, HTTPS, TCP/IP, UDP/IP, DHCP, NTP/SNTP, DNS, DDNS, FTP, SMTP, SNMP, Multicast, Telnet (Optional)
16	Compatible Integration	ONVIF profile S/G, SDK/API. Profile T and Q will be optional. And the OEM must be a full-time member of ONVIF
17	On board Storage	Support minimum 128 GB (card to be included with camera)
18	<b>General Camera Features</b>	
19	Operational Temperature °C	-5°C ~ 50°C
20	Casing	IP66/67, IK10(Optional for camera with metal body)
21	Power	12 V DC ±10%, PoE (IEEE 802.3af)
22	Certifications	UL, CE, FCC, IEC/BIS, IP 66/67 (all certificates to be attached)

## B. Bullet Camera

Sr. No.	Parameter	Specifications
1	Imaging Device, Imager Type & Readout and Resolution	1/ 2.8" or better, CMOS & Progressive Scan
2	Electronic Shutter Range	1/3- 1/10000 or above
3	Lens	2.8mm ~ 12mm or better motorized varifocal lens

4	Video Codec/ Compression	H.265 or higher
5	Light sensitivity/ minimum illumination	Colour: 0.05 Lux @ F1.6 or better
		B/W: 0 Lux with IR on
6	WDR	120 dB or better
7	Signal-to-Noise Ratio (SNR)	50 dB or better
8	<b>Video</b>	
9	IR illuminator	Internal Illuminator with visibility shall be at least 25 meters
10	Video Resolution & Frame Rate	2 MP (1920x1080) @ 25/30 FPS
11	Image Settings	HLC/ BLC, Defog (Optional), Privacy Mask & White Balance (Auto/ Manual)
12	Video Streams	Triple Stream, individually configurable video streams, (H.265) At least 1 stream at 2 MP @ 25/30FPS
13	<b>Network &amp; Interface</b>	
14	Network Interface	RJ-45 for 10 Base-T/100Base-TX Ethernet
15	Supported Protocols	IPv4, IPv6, HTTP, HTTPS, TCP/IP, UDP/IP, DHCP, NTP/SNTP, DNS, DDNS, FTP, SMTP, SNMP, Multicast, Telnet (Optional)
16	Compatible Integration	ONVIF profile S/G, SDK/API. Profile T and Q will be optional. The OEM must be a full-time member of ONVIF
17	On board Storage	Support up to minimum 128 GB (card to be included with camera)
18	<b>General Camera Features</b>	
19	Operational Conditions	Temperature: -5°C ~ 50°C
20	Housing	IP 66/67, IK10(Optional for camera with metal body)
21	Power	12 V DC ±10%, PoE (IEEE 802.3af)
22	Certifications	UL, CE, FCC, IEC/BIS, IP 66/67 (all certificates to be attached)

### C. PTZ Camera

Sr. No.	Parameter	Specifications
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1	Camera Type	IP PTZ
2	Standard	ONVIF Profile S Compliant
3	Certification	UL, CE, FCC, IEC/BIS, IP 66/67, IK10 (all certificates to be attached)
4	Edge Storage	microSD/microSD/micro SDXC slot with memory card minimum 256 GB. (Min. Class 6 or higher, Card to be included). In the event of failure of connectivity to the network storage the camera shall record video locally on the SD card automatically. After the connectivity is restored these recordings shall be automatically merged with the network storage recording such that no manual intervention is required to transfer the SD card-based recordings to network storage.
5	Image Sensor	1/2.8" CMOS or better
7	Resolution	2MP at 25 FPS or better
6	Compression	H.264, H.265, H.265+
7	Streaming	Min. Triple compressed stream (Individually Configurable)
8	Encryption	HTTP(S)/HTTPS
9	Protocol	Minimum TCP, HTTP, RTP, RTSP, SNMP, IPV4, IPv6, FTP, NTP, DHCP, RTP, SMTP, UDP, UPnP, ICMP, IGMP, SSL, QoS, 802.1x, DNS, DDNS, HTTPS
10	PC Client	PC application client with a channel recording feature support
11	Lens Type	4.3–129 mm/4.5–135 mm (x30), F1.6 or better motorised Varifocal, Autofocus, Autoiris
12	Dynamic Noise Reduction	3D
13	Intelligent Defog / EIS	Bidder can provide "Intelligent Defog/EIS" or both.
14	Illumination	Color: 0.3 lux, F1.6 or better B/W: 0.04 lux, F1.6 or better at 30 IRE Inbuilt IR (175 mtrs. or better)
15	Motion Detection Zones/ privacy zones	3 or higher
16	Features	AGC, BLC, HLC
17	Electronic Shutter	1/10000s to 1 s or better
18	White Balance	Yes

19	Wide Dynamic Range	min 120 db (Sensor based)
20	Day and Night	Yes (as per minimum illumination)
21	Operating Temperature	0 °C to 60 °C Humidity 20–80% RH (non-condensing)
22	Power Source	Suitable adaptor shall be supplied to make the equipment work on 230V +10%, 50Hz and Power over Ethernet (POE 802.3 at)
23	Internet protocol Support	IPv4 and IPv6
24	Housing	Poly Carbonate/ Aluminium Construction with IP-66/67 Including pole mount/wall mount accessories, Power and data cables
25	Anti-Vandalism rating	IK10
26	Panning Range and Speed	0 deg to 360 deg, 0.2°/s–160°/s
27	Tilting Range and Speed	180°, 0.2°/s–120°/s
28	Pre-sets	100 pre-sets or higher
29	Edge based video content Analytics	Video motion detection and Active tampering alarm

#### D. Joystick for CCTV

Sl.	Parameter	Specifications
1	Keyboard Key panel	Electromechanical
2	Joystick	3-axis, vector-solving, with twisting, return to-centre head
3	Keyboard Connector	RJ-45, RS232, RS485, RS422, USB
4	Keyboard Communication	Direct Mode, Network Mode
5	Direct Mode	Interface: RS232/RS485
6	Resolution	LCD, 75.2mm x 33.85mm
7	Network Mode	Interface: RJ45 DVR/Network Dome: IP Address/Port/Protocol
8	Power Supply	Power adapter, input 100V~240V 50Hz / 60Hz, Output DC12V/1000mA

## 2. Video Management System

### OEM Criteria for CCTV VMS

1. OEM should have its own company registered in India.
2. The VMS OEM should be ISO 9001:2008 certified. All relevant Documents needed to be attached along with the bid.
3. The VMS OEM should have an FIPS140-2 certificate for Information Security System to ensure security system is not compromised. Documents needed to be attached along with the bid.
4. VMS OEM should be full time member of Onvif.

Sr. No.	Parameter
1	The IP Video Management Software should allow Live Viewing, Recording, viewing and Management solution of Network Video surveillance systems of all the Police stations, CIA and outposts & shall not have any Limit on the Number of Cameras to be Connected & shall be Scalable to 20000 IP Cameras in Future by Augmentation of Camera channel Licenses
2	The Open Platform Video Management Software (VMS) Application, should be Brand Agnostic & should support various third Party ONVIF IP Cameras, this is Compulsorily required so that the Same VMS Applications can be scaled up in future by just Adding third Party IP Cameras & Additional Software Licenses.
3	The Video Management Software shall be Client-NVR based IP Video security solution that shall provide seamless management of Digital Video, Audio and data across an IP network. Cameras, Network Video recorders, and viewing stations may be placed across the terminal in the IP network.
4	The Offered VMS Software should be ONVIF S, G, T Profile Compliant.
5	The VMS shall support iPad, Android and iPhone devices as well
7	The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple storage installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, storage and users and must empower a flexible rule-based system driven by schedules and events.
6	The VMS system shall be a scalable client – storage architecture built using well known operating systems
7	The VMS shall be able to intelligently scan an IP network for new devices (cameras or storage)
8	The VMS shall allow access to a system manager in the form of Configuration Client from where the administrator can configure and manage all storage, cameras, and users.
9	The software must come as one unit and not multiple loadable units, the VMS shall be loaded on a Single Machine, from which all the Cameras, Additional Recording storage, & Viewing Clients, shall be managed Centrally.

10	<b>Recording Parameters</b>
11	Should record H.265+, H265, H.264, MPEG4 or MJPEG in at minimum 5 fps to 30 fps at minimum CIF to Full HD (1080p) and 4K resolution.
12	Should support multiple brand IP cameras as per ONVIF profile. Shall provide SDK & API for third party integrations on demand at any time
13	Export the desired portion of video in .avi/.mp4/.wmv/ .asf/.mpvc/ bmp formats in DVD/USB or any external device.
14	Edge Recording Synchronization: VMS and Camera should sync recordings in case of network or other communication failure between camera and VMS, through ONVIF G Profile
15	<b>Live, Playback Control Parameters</b>
16	View sequencing with user driven time interval.
17	Dual Streaming and Automatic Switching from Low to High Quality on Full screen mode.
18	Option to change Live View directly from cameras or from VMS using RTSP and HTTP options
19	It should support event-based playback.
20	Ability to search based on Date/Time/Camera, Name, ID and Location for more than one camera simultaneously.
21	Event window with specific snapshot of that event should be shown in Live view screen. Clicking on the event should play recording of that event time.
22	Event based search: Event based Timeline to quickly show coloured dots in Timeline and view recorded videos at the event time.
23	<b>Mobile Surveillance &amp; Remote Viewing Parameters</b>
24	Ability to view live video on iOS and Android phones or devices with or without installing proprietary Apps.
25	VMS and Mobile App support for multiple sites spread across WAN to be controlled and viewed from central location.
26	Remote Administration over internet.
27	<b>Streaming Parameters</b>
28	Option for RTSP, HTTP, RTSP over HTTP streaming or both simultaneously at individual camera level.
29	Authentication parameters (username, password) for streaming to remote clients.
30	<b>Administration &amp; Failover Parameters</b>



31	Automatic discovery of devices using UPnP and/or ONVIF
32	Add all cameras with single click. Apply settings to multiple cameras of same model with single click.
33	System watchdog feature be available to alert in case of failure of cameras.
<b>34</b>	<b>Camera Support Parameters</b>
35	Should support multiple brand IP cameras, encoders, NVR's and DVRs. No restriction on camera hardware.
36	Should support ONVIF protocol including Profile-S, G, T.
<b>37</b>	<b>Alarm Centre Parameters</b>
38	Option to view cameras only on alarm. Matrix grid size should change automatically if alarms are generated from multiple cameras simultaneously
39	Automatic or manual reset & close option of video panel
<b>40</b>	<b>VMS Web Client</b>
41	The VMS Web Client shall have Dash boarding Capabilities, such that the Dashboard should Support for Drawings/Maps GIS Layer, OSM Layer, AutoCAD .dwg File, .JPEG file format, .PDF file format, Customized Video Grid for Live & Playback of Video & Events Table
42	The VMS Web Client shall have a Reporting functionality in the form Camera Uptime, Downtime.
43	The VMS Web Client must support for H.265 Codec Live & Playback Streaming.
<b>44</b>	<b>Video Management Software Pre-Qualification Criteria</b>
45	The Video Management Software (VMS) Application should be an Open Platform Application

### 3. Network Management System

The licenses need to be calculated by the SI in the following way:

1. All the licenses for the current scope need to be calculated and provided along with 20% spare.
2. Other than the above additional 200 point licenses need to be considered by SI. These licenses are required for the addition of existing IP devices into the NMS system and the same to be done by the SI under the current scope.

SI.	Requirement
1	For effective operations and management of IT Operations, there is a need for an industry-standard Network Monitoring System (NMS). Given the expanse and scope of the project, NMS becomes very

	<p>critical for IT Operations and SLA Measurement. Some of the critical aspects that need to be considered for operations of IT setup of are:</p> <p>a) Network Fault Management b) Network Performance Management c) Server Performance Monitoring d) Centralized and unified Dashboard</p>
2	The Monitoring Solution should provide Unified Architectural design offering seamless common functions including but not limited to: Event and Alarm management, Auto-discovery of the Network environment, Correlation and root cause analysis, reporting and analytics
3	There should be a tight integration between infrastructure metrics and logs to have the single consolidated console of Infrastructure & security events.
4	<p>The solution must provide discovery &amp; inventory of heterogeneous physical network devices like Layer-2 &amp; Layer-3 switches, Routers and other IP devices and do mapping of LAN &amp; WAN connectivity with granular visibility up to individual ports level.</p> <p>The operator should be able to build correlation rules in a simple GUI based environment where the Operator should be able to correlate cross domain events</p>
5	The solution shall provide future scalability of the whole system without major architectural changes.
6	All the required modules should be from same OEM and should be tightly integrated for single pane of glass view of enterprise monitoring
7	The platform must provide complete cross-domain visibility of IT infrastructure issues
8	The platform must consolidate monitoring events from across layers such as Network, Server, Application, Database, Camera, UPS etc.
09	The solution should support single console for automated discovery of enterprise network components e.g., network device, servers, virtualization, cloud, application, and databases
10	The solution must support custom query-based widget with multiple visualization methods including Chart, Gauge, Grid, Top N list etc. to visualize and represent collected data with ease.
11	The solution must support out of the box data widgets for Metric, Log, and network flow data with multiple visualization methods such as gauge, grid, charts, Top N etc.
12	The solution should provide superior view of infrastructure health across system, networks, application and other IT Infrastructure components into a consolidated, central console
13	The solution must provide agentless and agent-based method for managing the nodes and have the capability of storing events / data locally if communication to the management server is not possible due to some problem. This capability will help to avoid losing critical events.

14	The agents should be to set polling interval as low as 1 second with low overhead on target server infrastructure
15	The NMS admin console must provide the ability to start, stop and restart the agent on target server infrastructure and the agent should provide collection capabilities not limited to just KPIs but also support collecting raw logs as well as packets.
16	The NMS should provide very powerful event correlation platform/engine and thus must filter, correlate & process, the events that are created daily from network devices. It should assist in root cause determination and help prevent flooding of non-relevant console messages.
17	The proposed solution should provide out of the box root cause analysis with multiple root cause algorithms inbuilt for root cause analysis. It should also have a strong event correlation engine which can correlate the events based on event pairing, event sequencing etc.
18	The Platform must include an event correlation automatically fed with events originating from managed elements, monitoring tools or data sources external to the platform. This correlation must perform event filtering, event suppression, event aggregation and event annotation.
19	The proposed solution should provide alert console with alert summary such as no. of correlated alert, network alert, server alert, virtualization alert, cloud alert, application alert etc.
20	The system must have provision to overlay alert on reported metric to understand alert triggering behavior across multiple drill down pages
21	NMS OEM must be an industry standard, enterprise grade solution.

#### 4. Application Servers

As per the BOQ there are 2 Servers asked, 1 no. would be used just for the VMS application and the other server to be used for all other applications. The specifications mentioned below are minimum and if additional resources are required as per the application requirement, then SI need to consider the same within these BOQ line item of Servers and no additional server could be asked.

The connectivity requirements between the Servers and Storage need to be considered by SI. We have assumed that the L3 Switch should be sufficient for the purpose but if anything, additional is required then additional cards on the Switch may be considered.

SI must consider necessary OS, Database and Virtualization as per application requirement.

SI.	Parameter	Minimum Specifications
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1	Processor	The server should have 2 nos. of Intel Xeon latest Generation Processor. 64-bit x86 processor fully binary compatible to 64/32-bit applications. Number of cores on a single die/socket will be treated as a single processor. Database Server: 2 x 16-core, minimum 2.4 GHz clock rate.
2	Memory	Minimum 64GB latest DDR memory using minimum 16GB DIMMs or higher. Advanced ECC with multi-bit error protection. The memory should have native capability of identifying and reporting the geniuses of the memory installed in the server.
3	HDD Controller	12 Gbps SAS RAID Controller supporting RAID 0, 1, 5 and 6 with minimum 2GB battery backed up Cache
4	HDD	2 x 1.92TB SSD Hot Swap or Higher
5	Network Controller	Network Controller: Minimum 4 x 1 Gbps ports & 2 x 10/25 Gbps ports with 10 Gbps transceiver.
6	Fiber Channel HBA	Support for 16Gb and 32Gb FC HBA
7	Bays	Minimum 8 Hot Swap drive bays
8	System Chassis	Rack Mount, 2U (max), Redundant Hot Swappable Power Supply with platinum efficiency
9	OS Certification	Certification for latest Server version of Windows and Linux.
10	System Management	a) Monitoring ongoing management, service alerting, reporting and remote management with embedded dedicated Gigabit out of band management port. Remote Management of Server over LAN & WAN with SSL encryption, Virtual Media and virtual folder with required advanced license, Remote KVM, Server Health logging, Directory Services compliance (AD or LDAP), REST/XML API, dynamic/group management of power, licenses including firmware or self-updating firmware system, Configuration backup, zero touch repository manager, Syslog (local / remote).
11		b) Management software should support integration with popular virtualization platform management software like VCentre, SCVMM and Red Hat RHEV.
12		c) Offered Server platform must be ready for container workload deployment

13	Security	<p>1) UEFI Secure Boot and Secure Start support</p> <p>2) Security feature to ensure servers do not execute compromised firmware code</p> <p>3) Tamper-free updates - components digitally signed and verified</p> <p>4) Secure Recovery - recover critical firmware to known good state on detection of compromised firmware</p> <p>5) Ability to rollback firmware</p> <p>6) TPM (Trusted Platform Module) 2.0</p>
14	Serviceability	<p>a) System should support embedded remote support to transmit hardware events support. The server should support monitoring and recording changes in the server hardware and system configuration. It assists in diagnosing problems and delivering rapid resolution when system failures occur. Should provide remote firmware update functionality.</p> <p>b) Should help provide proactive notification of actual or impending component failure alerts on critical components like CPU, Memory and HDD.</p> <p>c) Solution should be provided for monitoring &amp; analysis feature to predict, prevent and auto-resolve problems and by providing automating case creation and log file submission for the problems that can't be auto-resolved.</p> <p>d) Should provide silicon-based hardware root of trust, automatic secure BIOS recovery, cryptographically signed firmware updates.</p>

## 5. Storage

### OEM Criteria for Storage

- Proposed Storage should be offered with 5 Years onsite Warranty

Sl. No.	Parameters	Specification
1	Form Factor	Rack 2U or higher
2	Controller	The proposed NAS should be configured with minimum single controller/Processor.
3	Processor	Intel® Xeon-Silver 4208 (2.1GHz/8-core/85W) Processor or better
4	Cache /Memory	NAS must be with minimum 64 GB ECC RAM and upgrade up to 128 GB or higher.

5	Internal storage capacity	<ol style="list-style-type: none"> <li>1. Support for SAS/SATAIII 3.5" HDD or SSD.</li> <li>2. Offered NAS solution must support at-least 60 bay HDD slot and should be at least 200 TB usable capacity from day one after RAID 5.</li> <li>3. For OS and DB if installed on NAS then that should be on SSD drives.</li> </ol>
6	Front/Back-end ports	<ol style="list-style-type: none"> <li>1. Minimum 4 x 1G Ethernet Ports.</li> <li>2. Minimum 2x10G SFP+ Ports</li> <li>3. Two or more USB 3.0 Ports.</li> </ol>
7	RAID	Must Support for RAID Levels: 0, 1, 5, 6, 10, 50, 60
8	Functionality /Features and Protocols support	<ol style="list-style-type: none"> <li>1. The NAS must support Amazon S3 / Google Drive / Dropbox Cloud / Azure / One Drive Sync of Shares.</li> <li>2. The NAS should be able to recover modified data through appropriate means</li> <li>3. The NAS must support Replication of volume with Snapshot retention feature.</li> <li>4. The NAS must support CIFS, NFS and FTP protocol.</li> </ol>
9	Authentication Support	NAS must support Windows AD authentication.
10	License	The storage system should provide features for NAS quota management, user management, CIFS & NFS protocols for windows and Linux users. All required licences (if any) should be included for the same from day one.
11	Network Client Type Support	Windows and Linux.
12	Operating system	Windows storage server 2019 or OEM proprietary operating system.
13	Management	Must support GUI.
14	Cables, Driver's connectors and accessories	Must come with require accessories, cable and connector from day one.
15	Power Supply	Dual Redundant Hot-Swappable Power Supplies

## 6. Operator PC

Sl.	Parameter	Minimum Specifications
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1	Processor	i 7 Quad core Processor @ 3.20 GHz or higher (without turbo) with 8 MB cache or higher (64 bit). Processor should be of latest generation as on RFP release date
2	Chipset	Compatible Professional Chipset
3	Operating System	Pre-installed Genuine OEM Microsoft Windows 10 Professional (64 bit) with OEM recovery partition/ recovery DVD
4	Memory	16/32 GB DDR4 2666/ 2933 MHz or higher with minimum 2 DIMM Slots
5	Storage	256GB SSD and 1TB SATA HDD
6	Graphics Card	NVIDIA Graphics card with 2 GB onboard video memory (non shared), graphics card shall be chosen such that each workstation supports 4 monitors simultaneously with no degradation in video quality considering HD video quality and 25 fps
7	Media Drive	16X DVD +RW
8	Ports	Minimum 6 USB ports with at least 2 USB 3.0 ports, 1- VGA, HDMI, audio jack for headphone & microphone
9	Displays	2 number of 24 inch monitor, Minimum 1920 x1080 resolution, TCO 03 (or higher) certified
10	Antivirus	Preloaded (Latest Version) Internet Security with 5 years support
11	Keyboard & Mouse	OEM USB Keyboard & OEM USB two button optical Mouse with mouse Pad
12	Network Interface	Integrated 10/100/1000 GB Ethernet
13	Certification	ROHS Compliance, BEE/ Energy Star Certified, EPEAT Certified

## 7. Switches

### A. 24 Port L3 Switch

#### **OEM Criteria for L3 Switch**

1. OEM should be listed among Top 3 of IDC report/Gartner's Quadrant during any of the previous 4 quarters.
2. OEM should have Service /Support network in India since last 5 years.
3. All the Network Switches except for the industrial grade 8 Port L2 field switch should be from the same vendor

SI.	Minimum Specifications
1	<b>Architecture</b>
	Shall be modular chassis-based switch, 19" Rack Mountable
	Shall have minimum four slots each of which is available for hot-swappable network port modules
	The switch shall have 8x1/10G SFP+ ports and 24x10/100/1000 Base-T ports from day-1; Switch should be populated with 4 Nos. 10G SFP Module from same OEM.
	The Switch should support Smart Rate Multi-Gigabit ports and 40G interfaces for future needs
	1 RJ-45 (serial RS-232C) console port
	Packet buffer size of minimum 10 MB per module to support video/streaming traffic
	Shall have routing/switching capacity of 960 Gbps
	Shall have up to 570 million pps switching throughput
	The Switch should have Redundant power supply from day 1; Should support Redundant management module
2	<b>Quality of Service (QoS)</b>
	The Switch should classify traffic using multiple match criteria based on Layer 2, 3, and 4 information; applies QoS policies such as setting priority level and rate limit to selected traffic on a per-port or per-VLAN basis
The switch should support IEEE 802.1p priority tag based on IP address, IP Type of Service (ToS), Layer 3 protocol, TCP/UDP port number, source port, and DiffServ	3
<b>Management</b>	
The switch should mirror selected ingress/egress traffic based on ACL, port, MAC address, or VLAN to a local or remote Switch located anywhere on the network	
The switch should support RMON/XRMON, and sFlow/netflow	
The switch should support IEEE 802.1AB Link Layer Discovery Protocol (LLDP)	
The switch should leverage RADIUS to link a custom list of CLI commands to an individual network administrator's login	
The switch should support provide independent primary and secondary operating system files for backup while upgrading and support Multiple configuration files	



	The switch should support Unidirectional Link Detection (UDLD)/DLDP
4	<b>IPv6 Feature</b>
	The switch should support Dual stack (IPv4 and IPv6)
	The switch should support IPv6 ACL/QoS
	The switch should support static, RIPng, OSPFv3 routing protocols from day one
	The switch should have RA guard, DHCPv6 protection, dynamic IPv6 lockdown, and ND snooping
5	<b>Resiliency and high availability</b>
	The Switch should create one virtual resilient switch from two switches and attached the network devices using standard LACP for automatic load balancing and high availability to simplify network operation by reduce the need for complex protocols like Spanning Tree Protocol (STP), Equal-Cost Multipath (ECMP), and VRRP
	The switch should support Virtual Router Redundancy Protocol (VRRP) from day one
	The switch should support IEEE 802.1s Multiple Spanning Tree Protocol and 802.1w Rapid Spanning Tree Protocol
	The switch should support IEEE 802.3ad Link Aggregation Control Protocol (LACP) and port trunking
	The switch should support Uplink Failure Detection
6	<b>Layer 2 switching</b>
	MAC address table size of minimum 64000 entries
	The switch should support IEEE 802.1ad Q-in-Q
	The switch should support MAC-based VLAN
	The switch should support Rapid Per-VLAN Spanning Tree (RPVST+)
	The switch should support dynamically load balancing across multiple active redundant links to increase available aggregate bandwidth to allow concurrent Layer 3 routing
	The switch should support GVRP and MVRP or equivalent
	allows automatic learning and dynamic assignment of VLANs
	The switch should support VxLAN encapsulation (tunneling) protocol for overlay network that enables a more scalable virtual network deployment
	The switch should support IEEE 802.1Q standard and 4096 VLANs simultaneously

7	<b>Layer 3 services</b>
	The switch should support User Datagram Protocol (UDP) helper function, Loopback interface address, Route maps, DHCP server, Bidirectional Forwarding Detection (BFD)
8	<b>Layer 3 routing from Day 1</b>
	The switch should support 10000 (IPv4), 5000 (IPv6) routing entries
	The switch should support Static IP routing for both IPv4 and IPv6 networks
	The switch should support OSPFv2 for IPv4 routing and OSPFv3 for IPv6 routing from day one
	The switch should support Policy-based routing from day one
	The switch should support Border Gateway Protocol (BGP) from day one
	The switch should support RIPv1, RIPv2, and RIPv6 routing from day one
9	<b>Security</b>
	The switch should provide filtering based on the IP field, source/destination IP address/subnet, and source/destination TCP/UDP port number on per-VLAN or per-port basis
	The switch should support Web-based authentication from a Web browser for clients that do not support IEEE 802.1X supplicant
	The switch should support Concurrent IEEE 802.1X, Web, and MAC authentication schemes per port
	The switch should support DHCP protection to blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks
	The switch should support CPU protection
	The switch should support STP BPDU port protection
	The switch should support Dynamic ARP protection
	The switch should support STP Root Guard
	The switch should support Port security to allow access only to specified MAC addresses, which can be learned or specified by the administrator
	The switch should support Source-port filtering or equivalent
	The switch should support RADIUS/TACACS+
	The switch should support Secure Sockets Layer (SSL)
The switch should support Secure FTP	

	The switch should support secure management interfaces such as SNMP, telnet, SSH, SSL, Web, and USB at the desired level
	helps secure switch CLI logon by optionally requiring either RADIUS or TACACS+ authentication
	The switch should support customized security policy when users log in to the switch
	The switch should support Private VLAN
<b>10</b>	<b>Environmental Features</b>
	Shall support IEEE 802.3az Energy-efficient Ethernet (EEE) to reduce power consumption
	Operating temperature of 0°C to 40°C
	Safety and Emission standards including EN 60950; IEC 60950; FCC part 15 Class A

## 1. 24 Port L2 PoE Access Switch (for Control Room)

### OEM Criteria for L2 Access Switch

1. OEM should be listed among Top 3 of IDC report /Gartner's Quadrant during any of the previous 4 quarters.
2. OEM should have Service /Support network in India since last 5 years.

SI.	Minimum Specifications
<b>1</b>	<b>Architecture</b>
	Shall be 19" Rack Mountable
	The switch should have dedicated Console Port
	Should have minimum 4GB SDRAM and 8GB flash and 10 MB Packet buffer size
	The Switch should support minimum 8000 MAC address
	The switch should have minimum 512 Ipv4 Unicast Routes and 512 Ipv6 Unicast Routes ,512 IgmP Groups ,512 Mld Groups
	The switch should have 24x ports 10/100/1000 BASE-T POE+ ports and 4x 1/10 SFP+ ports
	The switch should have 128 Gbps of Switching Capacity and 95 Mpps throughput Capacity
	Should have minimum 370W POE budget
<b>2</b>	<b>IPv6 feature</b>

	IPv6 host enables switches to be managed in an IPv6 network
	Dual stack (IPv4 and IPv6) transitions from IPv4 to IPv6, supporting connectivity for both protocols
	MLD snooping forwards IPv6 multicast traffic to the appropriate interface
	IPv6 ACL/QoS supports ACL and QoS for IPv6 network traffic
	IPv6 Static routing
<b>3</b>	<b>High Availability and Resiliency</b>
	The Switch should support Uni-directional Link Detection (UDLD) to monitor link connectivity and shut down ports at both ends if uni- directional traffic is detected, preventing loops in STP- based networks
	The Switch should support IEEE 802.3ad LACP supports up to 8 LAGs, each with up to 8 links per LAG and provide support for static or dynamic groups and a user-selectable hashing algorithm
	The Switch should support IEEE 802.1s Multiple Spanning Tree provides high link availability in VLAN environments where multiple spanning trees are required and legacy support for IEEE 802.1d and IEEE 802.1w
	The switch should support Strict priority (SP) queuing, Traffic prioritization (IEEE 802.1p) ,Class of Service (CoS) ,IP Type of Service (ToS), Layer 3 protocol, TCP/UDP port number, source port and DiffServ
<b>4</b>	<b>Management</b>
	The Switch should support to use REST API interface
	The Switch should support Industry-standard CLI with a hierarchical structure
	The Switch should support SNMP v2c/v3 provides SNMP read and trap support of industry standard Management Information Base (MIB), and private extensions sFlow (RFC 3176)
	The Switch should support TFTP and SFTP support offers different mechanisms for configuration updates;
	The Switch should support Network Time Protocol (NTP) synchronizes timekeeping among distributed time servers and clients
	The Switch should support IEEE 802.1AB Link Layer Discovery Protocol (LLDP) advertises and receives management information from adjacent devices on a network, facilitating easy mapping by network management applications
	The Switch should support Dual flash images provides independent primary and secondary operating system files for backup while upgrading

	The Switch should support Multiple configuration files which can be stored to a flash image
	The Switch should support Ingress and egress port monitoring enable more efficient network problem solving
<b>5</b>	<b>Multicast</b>
	The Switch should support IGMP Snooping to allow multiple VLANs to receive the same IPv4 multicast traffic
	The Switch should support Multicast Listener Discovery (MLD) enables discovery of IPv6 multicast listeners; supports MLD v1 and v2
	The Switch should support Internet Group Management Protocol (IGMP) and Any-Source Multicast (ASM) to manage IPv4 multicast networks; supports IGMPv1, v2, and v3
<b>6</b>	<b>Layer 2 Switching</b>
	The Switch should support 4094 VLAN IDs(minimum 512 active VLAN)
	The Switch should support Jumbo packet to improves the performance of large data transfers and support frame size of up to 9198 bytes
	The Switch should support Rapid Per-VLAN Spanning Tree (RPVST+) to allow each VLAN to build a separate spanning tree to improve link bandwidth usage.
	The Switch should support MVRP/equivalent to allow automatic learning and dynamic assignment of VLANs
	The Switch should support Bridge Protocol Data Unit (BPDU) tunnelling to Transmits STP BPDUs transparently
	The Switch should support Port mirroring duplicates port traffic (ingress and egress) to a monitoring port
	The Switch should support STP supports standard IEEE 802.1D STP, IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
<b>7</b>	<b>Layer 3 Routing</b>
	The Switch should support Static IP routing.
	The Switch should support Static IPv4 and IPv6 routing to provide simple manually configured IPv4 and IPv6 routes
<b>8</b>	<b>Convergence</b>

	The Switch should support IP multicast snooping (data-driven IGMP) to prevent flooding of IP multicast traffic
	The Switch should support LLDP-MED (Media Endpoint Discovery) to define a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones
	The Switch should support Auto VLAN configuration for voice RADIUS VLAN uses a standard RADIUS attribute and LLDP-MED to automatically configure a VLAN for IP phones
<b>9</b>	<b>Security</b>
	The Switch should support ACLs filtering based on the IP field, source/ destination IP address/subnet, and source/ destination TCP/UDP port number on a per-VLAN or per-port basis
	The Switch should support Terminal Access Controller Access-Control System (TACACS+) delivers an authentication tool using TCP with encryption of the full authentication request to provide additional security
	The Switch should support multiple user authentication methods. Uses an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server to authenticate in accordance with industry standards
	The Switch should support Web-based authentication provides a browser-based environment, similar to IEEE 802.1X, to authenticate clients that do not support IEEE 802.1X
	The Switch should support MAC-based client authentication
	The Switch should support Concurrent IEEE 802.1X, Web, and MAC authentication schemes per switch port accepts up to 32 sessions of IEEE 802.1X, Web, and MAC authentications
	The Switch should support Secure management access delivers secure encryption of all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv3
	The Switch should support Identity-driven ACL to enable implementation of a highly granular and flexible access security policy and VLAN assignment specific to each authenticated network user
	The Switch should support STP BPDU port protection to block Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks
	The Switch should support STP root guard to protects the root bridge from malicious attacks or configuration mistakes
	The Switch should support Port security to allow access only to specified MAC addresses, which can be learned or specified by the administrator

	The Switch should support MAC address lockout to prevent configured MAC addresses from connecting to the network
	The Switch should support Source-port filtering to allow only specified ports to communicate with each other
	The Switch should support Secure shell to encrypt all transmitted data for secure remote CLI access over IP networks
	The Switch should support Secure Sockets Layer (SSL) to encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch
	The Switch should support Secure FTP to allow secure file transfer to and from the switch and protect against unwanted file downloads or unauthorized copying of a switch configuration file
	The Switch should support MAC Pinning to allows non-chatty legacy devices to stay authenticated by pinning client MAC addresses to the port until the client's logoff or get disconnected
	The Switch should support Management Interface Wizard to help secure management interfaces such as SNMP, SSH, SSL, Web.
	The Switch should support Security banner displays a customized security policy when users log in to the switch
	<b>Certification</b>
<b>10</b>	The Switch should support Green initiative for RoHS (EN 50581:2012) and WEEE regulations
	EN 60950-1/IEC 60950-1 EN 60825 CAN/CSA C22.2 No. 60950, 2nd Edition UL 60950-1, 2nd Edition

**B. 8 Port L2 PoE + Switch**

**OEM Criteria for L2 Switch**

1. OEM should be listed among Top 3 of IHS / ARC report. Anyone Report of last 3 year need to furnish excluding current year
2. OEM or their distributor should have Service /Support network in India since last 5 years
3. OEM should furnish Test Report/Certificate against the Standards/Approval demanded.
4. OEM Should have installation base of 5000 Industrial Switches in India since past 10 years

SI.	Requirement
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	<b>GENERAL</b>
1	Shall have 2* 100/1000BaseSFP Single mode ports,10 KM Support with LC connectors, 8 No's of 10/100/1000 BaseT(X) copper ports (RJ45 connectors)
2	IPv6 Ready logo
3	8 IEEE 802.3af and IEEE 802.3at PoE+ standard ports • 36-watt output per PoE+ port in high-power mode (PoE power management functions)
4	Advanced PoE management function like (PoE port setting, PD failure check, and PoE scheduling)
5	IEEE 1588 PTPV2(Precision Time Protocol) for precise time synchronization of networks
6	DHCP Option 82 for IP address assignment with different policies
7	Ethernet/IP, PROFINET, and Modbus/TCP protocols for device management and monitoring
8	IGMP snooping and GMRP for filtering multicast traffic from industrial Ethernet protocols
9	IEEE 802.3ad, LACP for optimum bandwidth utilization
10	Bandwidth management prevents unpredictable network status
11	Lock port to restrict access to authorized MAC addresses
12	Multi-port mirroring for online debugging
13	Automatic warning by exception through email, relay output
14	Line-swap fast recovery
15	RMON for efficient network monitoring and proactive capability
16	QoS (IEEE 802.1p/1Q) and TOS/DiffServ to increase determinism
17	Configurable by web browser, USB-serial console
18	Works with Industrial network management software
19	System backup and restoration tool to enhance maintenance efficiency and reduce system downtime.
	<b>Cyber-security Features</b>
20	User passwords with multiple levels of security protect against unauthorized configuration Command line interface (CLI) for quickly configuring major managed functions: More than 200 command lines
21	SSH/HTTPS is used to encrypt passwords and data



22	Lock switch ports with 802.1x port-based network access control so that only authorized clients can access the port
23	Disable one or more ports to block network traffic
24	802.1Q VLAN allows you to logically partition traffic transmitted between selected switch ports VLAN Unaware: Supports priority-tagged frames to be received by specific devices
25	Secure switch ports so that only specific devices and/or MAC addresses can access the ports
26	Radius/TACACS+ allows you to manage passwords from a central location
27	SNMPv3 provides encrypted authentication and access security
	<b>PROTOCOLS</b>
28	IGMPv1/v2/v3, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 66/67/82, BootP, TFTP, SNTP, SMTP, RARP, RMON, HTTP, HTTPS, Telnet, SSH, Syslog, EtherNet/IP, PROFINET, Modbus/TCP, SNMP Inform, LLDP, IEEE 1588, IPv6, NTP Server/Client
	<b>MIB</b>
29	MIB-II, Ethernet-Like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9
	<b>FLOW CONTROL</b>
30	IEEE 802.3x flow control, back pressure flow control
	<b>SWITCH PROPERTIES</b>
31	Priority Queues 4
32	IGMP Groups 2048
33	MAC Table Size: 8 K
34	Jumbo Frame Size: 9.6 KB
35	Packet Buffer Size: 1 Mbit
36	Max. Number of Available VLANs more than 200
37	VLAN ID Range VID 1 to 4094
38	Alarm Contact 1 relay outputs with current carrying capacity of 1 A @ 24 VDC
39	LED Indicators: PWR1, PWR2, FAULT, STATE, 10/100/1000M, MSTR/ HEAD, CPLR/TAIL

40	<p>Digital Inputs: Digital Inputs: 1 input with the same ground, but electrically isolated from the electronics.</p> <ul style="list-style-type: none"> <li>• +13 to +30 V for state “1”</li> <li>• -30 to +3 V for state “0”</li> <li>• Max. input current: 8 mA</li> </ul>
41	<p>Console Port: USB-serial console Storage Port: USB storage</p>
42	Overload Current Protection
43	Reverse Polarity Protection
44	Button: Reset button
	<b>ENVIRONMENTAL</b>
45	Operating Temperature: -10 TO 60 Degree
46	Humidity 5 to 95 %(non-condensing)
47	Mounting: DIN-Rail mounting, wall mounting (with optional kit)
48	Housing: Metal, IP30 protection
	<b>INPUT VOLTAGE</b>
49	Input Voltage: 48 VDC (46 to 57 VDC), redundant dual inputs
	<b>Standard and Certifications</b>
50	<p>Safety: UL 508, EN60950-1 (LVD) EMI: FCC Part 15 Subpart B Class A, EN 61000-6-4 (Industrial) EMS: EN 61000-6-2 (Industrial), EN 61000-4-2 (ESD) Level 4, EN 61000-4-3 (RS) Level 3, EN 61000-4-4 (EFT) Level 4, EN 61000-4-5 (Surge) Level 4, EN 61000-4-6 (CS) Level 3, EN 61000-4-8 Rail Traffic: EN 50121-4 Shock: IEC 60068-2-27 Freefall: IEC 60068-2-32 Vibration: IEC 60068-2-6 NEMA-TS2</p>
51	MTBF: More than 300,000 hrs.

## 8. 1G SFP Module 10KM

Industrial 1-port Gigabit Ethernet SFP modules	
Sl.	Minimum Specifications
1	Digital Diagnostic Monitor Function
2	1000BaseLX port with LC connector for 10 km transmission,
3	0 to 60°C operating temperature range
4	IEEE 802.3z compliant
5	Differential LVPECL inputs and outputs
6	TTL signal detect indicator
7	Hot pluggable LC duplex connector
8	Class 1 laser product, complies with EN 60825-1
9	Safety: CE, FCC, TÜV (EN 60825), UL 60950-1

## 9. Specification for 1Gbps Media Converter

Sl.	Parameter	Minimum Specifications
1	Fiber Connector	LC type
2	Fiber Mode	Single Mode
3	Copper UTP Port	1G, RJ-45
4	Support Distance	10 KM
5	Wavelength	1310nm
6	Operating Temperature	0°C to +60°C
7	Humidity	5%~90% Non-condensing
8	Certifications	CE, FCC

## 10. Public Address System (PAS) and Emergency Call Box (ECB)

### A. PAS & ECB Central Software

The system shall deliver pre-recorded and live messages to the loudspeakers attached to them for public announcements. The system shall contain an IP based amplifier and uses power that could drive the speakers. The system shall also contain the control server that could be used to control/monitor all the components of the system that includes Controller, Calling Station & Amplifier.

The SI shall describe in detail the design, operational and physical requirements of the proposed public announcement system to demonstrate compliance with all the specified requirements.

All the PA components including speaker mentioned below under section 10 should be from the same OEM.

Sr. No	Parameter
1	Central Server operating on Linux Debian 10 (64bit) 2 network interfaces 1Gbps data rate Compliance – UL 62368-1
2	Integration with VMS and any other component if required

### B. Public Address (PA) speaker

Sr. No	Parameter
	<b>30-Watt Horn Speaker</b>
1	Speaker – 30 Watts with minimum 10W tapping
2	Protection – IP66 and IK10
3	Frequency Range – 350 to 10Khz
4	Sound pressure level – 123db

5	Temperature - -40 to +80C
6	Construction – ABS Self Extinguishing

### C. Public Address (PA) Amplifier

Sr. No	Parameter
1	Should have the capability to control individual PAS i.e. to make an announcement at select location (1:1) or multiple locations (1: many). The PAS should also support both, Live and Recorded inputs
2	IP amplifier with minimum 125 Watts, Class D. Amplifier should be UL62368-1 certified.
3	Native IP connectivity, no convertors to be used
4	0 to 55 C Temperature rating for Amplifier
5	Automatic Volume Control
6	Frequency Response: 50Hzto 15000 Hz for Amplifier
7	2 Inputs and 1 Output relay contacts in Amplifier for connecting external beacon
8	Speaker: Minimum 3 Speakers 30 W capacity per location
9	Frequency Response of Speaker 350 -10,000Hz
10	Line Monitoring Facility for speakers
11	230V mains supply and 24VDC backup supply for amplifier.

### D. PAS Operator Console

Sl.	Specifications
1	Should have the capability to control individual PAS i.e. to make an announcement at select location (1:1) or multiple locations (1: many).
2	Noise cancelling gooseneck microphone

3	Frequency range – 200Hz – 16Khz
4	Display – 8 lines X 14 characters
5	Connectivity- IP Based, POE powered
6	Amplifier – Inbuilt 2.5W class D
7	Operating temperature - 0 to 50C
8	Keys – Keypad with special keys. Minimum 3 programmable function buttons.
9	It should have RJ-45 Information Outlet, Dual Port

## E. Emergency Call Box

Sl.	Specifications
1	The unit shall preferably have a single button which when pressed, shall connect to the Integrated Command and Control Centre.
2	The system shall be integrated to the CCC to provide status of Call of the ECB at some locations, this can be also used for Public Address
3	Construction: Cast Iron/Steel Foundation, Sturdy Body for equipment
4	Call Button: Watertight Large backlit Rectangular Push Button, Visual Feedback for button press and call indication
5	Connectivity: Ethernet
6	IP66 as per EN 60529, IK09 Protection EN 62262
7	Operating Temperature 0 to 70 C
8	Speaking Distance minimum 5 ft
9	Inbuilt Class D Amplifier, 99db SPL
10	Minimum 3 Inputs and 2 Output relay contacts
11	ECB should be able to make calls to the PA system
12	Transmission Bandwidth 16000 Hz

13	Front panel: stainless steel of minimum 3 mm
14	ISO 27001:2013 Information security management system certification

## 11. Video Wall System

### A. Video Wall, 55" Displays

Sl.	Parameter	Specifications
1	Overview Display	The displays shall utilize direct LED lit LCD panel technology with a "Typical" lifetime rating of $\geq 100K$ hours, with a matrix in 2(C) and 2(R) The screens shall be able to align physically auto organise the position on the videowall  All panels shall of 55" diagonal size with bezel-less design to have seamless technology with only 0.88mm gap between two panels
2	Native Resolution per Panel	1920 x 1080.
3	Aspect Ratio	16:9, Colour temperature upto 10500 K can also be set for camera application
4	Backlight	Direct LED with 500 Nits of brightness and $\geq 100K$ Hours lifetime of LED minimum
5	Brightness	The "Typical" Luminance specification must be 500 Cd/m <sup>2</sup> (nits) or higher with a "Typical" Static Contrast Ratio of 1100:1 or greater in normal operation.
6	Viewing angle	Each display shall utilize a high contrast screen (anti-glare) with sizes of 55" diagonal. The screen shall have a H 178°/V 178° viewing angle or greater with a screen "haze" value of 28% or greater for wide viewing angles for operators.
7	Automatic colour and brightness adjustment.	Each LCD Panel must have Built-in light and colour sensors with feedback loops to keep display performance, such as luminance and colour, uniform in time across the entire display wall. The sensors must measure both brightness and colour. Human intervention should not be involved

8	Input signal flexibility	The LCD panels shall have digital input connectivity options, including, but not limited to, HDMI, full Display Port and IP inputs supporting up to Quad HD resolutions at 60fps or higher.  Each LCD panel shall have the ability to “loop-through” any selected digital input signal via a DP1.2 connection
9	Connectivity	2x DP1.2 , 2x HDMI2.0 , 2x USB , 2x LAN, HDCP 2.2
10	Ethernet ports	2
11	OEM Certification	EMC, CE, CB, UL, BIS and Class A EMC
12		The Display Modules, Display Mount, Display Controller & Software should be from a single OEM.
13	Signal cropping	Each LCD panel shall have signal “cropping” capabilities allowing a single image to be displayed across the entire video wall array
14	Remote Management	The control of the wall shall be possible via a network. All LCD panels shall have their own IP address, and the control software can access all of them at the same time. The available features shall be: On/Off, Brightness and Colour, Input control
15	EMC Protection	LCD Panel should comply with EMC (Electro-Magnetic Compatibility) Standard  Class A and follows CE, FCC or UL Emission
16	Safety	EN 60950-1/2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013  Auto sensing of physical alignment of video wall
17	RoHS	ROHS Compliant

## B. Video Wall Controller with Software

Sl.	Parameter	Specifications
1	CPU	Intel® Xeon® Octa core 2 Ghz



2	Memory	min. 32 GB RAM and expandable up to 64 GB
3	Hard Disk	R.A.I.D-1 redundant setup with 2x 1000GB 2.5" HDD Hard disk
4	Cooling	Should be equipped with dual FAN for cooling
5	Network	2x 1Gb/s LAN
6	Outputs	Up to 4 FHD displays
7	Inputs	4x HDMI inputs; H.264 inputs from cameras at least 8 Full HD inputs @30 Hz simultaneously can be shown
8	Graphics Card	4ch Graphic card; Each port of graphics card should support minimum 3840x2160 @60Hz
9		GPU Memory 5GB GDDR5 per Graphics Card to have flicker free and smooth graphics
10		3840x2160@60Hz
11		Memory Bandwidth Up to 200GB/s per Graphics Card
12	Operating System	Windows 10 64-bit IoT Enterprise edition only
13	Output	DP/DVI/HDMI
14	Protocols Supported	H.264, MPEG2/4, MxPEG, MJPEG, V2D, H.263, Screen Scrapping Screen Scrapping via Freeware Software like VNC is not at all acceptable
15	Dimensions	19" Rack mount
16	Operating Conditions	100-240V ,10-5A, 50/60Hz, Redundant Power supply
17	Operating Temperature	0° to 40°C   32° to 104°F
18	Humidity	Max. 80% Rh(noncondensing) @ 40°C
19	Regulation Compliance	UL, CB, BIS, FCC, CE, IEC-60950, IEC-62368
20	Software	The software should be able to preconfigure various display layouts and access them at any time with a simple mouse click or schedule/timer based.
21	Software	The software should be able display multiple sources anywhere on video wall in any size. Key features of Video Wall management Software <ul style="list-style-type: none"> <li>• Central configuration database</li> </ul>

		<ul style="list-style-type: none"> <li>• Browser based user interface</li> <li>• Auto-detection of network sources</li> <li>• Online configuration of sources, displays and system variables</li> </ul>
22	Software	<p>Video Wall Control Software shall allow commands on wall level or cube level or a selection of cubes:</p> <ul style="list-style-type: none"> <li>• Switching the entire display wall on or off.</li> <li>• Setting all projection modules to a common brightness target, which can be either static (fixed) or dynamic to always achieve maximum (or minimum) common brightness between projection modules.</li> <li>• Fine-tune colour of each cube</li> </ul>
23	Software	Should support Multiple clients / Consoles to control the Wall layouts
24	Software	The Software should be able to share layouts b/w available different videowalls on same network as well as preview of sources on the workstation
25	Software	Software should enable the user to display multiple sources (both local & remote) up to any size and anywhere on the display walls (both local & remote).
26	Software	The software should be able to create layouts and launch them as and when desired
27	Software	The Display Wall and sources (both local & remote) should be controlled from Remote PC through LAN without the use of KVM Hardware.
28	Software	Software should support display of Alarms
29	Software	The software should provide at least 2 layers of authentication
30	Software	Software should be able to Save and Load desktop layouts from Local or remote machines
31	Software	<p>All the Layouts can be scheduled as per user convince.</p> <p>Software should support auto launch of Layouts according to specified time event by user</p>
32	Software	<p>It should be possible to create layouts comprising of screen scrapped content of Workstations, DVI inputs, Web sources, URLs configured as sources. Layouts can be pre-configured or changed in real time</p> <p>Can be pre-configured or changed in real time</p>
33	Software	<p>It should be possible to schedule specific Layout based on time range It should be possible to share the layouts over LAN/WAN Network with</p>

		Display in meeting room or on Remote Workstations connected on LAN/WAN Network
34	Software	The system shall include complete Bi-directional Soft KVM to permit operators to take mouse & keyboard control of Displays, Screen Scrapped applications and DVI source
35	Software	It should be possible to create two separate Tickers which run concurrently. These can be positioned at top or bottom and can run independently
36	Software	The system should have the capabilities of interacting (Monitoring & Control) with various applications on different network through the single Operator Workstation. It shall be possible to launch layouts, change layouts in real time using Tablet
37	Software	The control of the wall shall be possible via a network. All cubes shall have their own IP address, and the control software can access all of them at the same time. The available features shall be: On/Off, Brightness and Colour, Input control Separate hardware server for monitoring features Wall or Panel On/Off, Brightness and Colour, Input control, health monitoring.  Also, software have feature to show maximum, minimum and current brightness / colour values of all the projectors.
38	Software	Central setup & Connection management, Central configuration database, fully distributed & modular component technology, Browser based UI, Auto-detection of network sources
39	Software	Online configuration of sources, backup & restore, Scheduled backup, fully features web services-based API covering all legacy and encrypted communications
40	Software	Save and load layouts (complete display pre-sets including perspectives and applications), start stop and position applications & sources freely over the complete desktop, remote keyboard and mouse control from and towards other networked desktops (bi-directional)
41	Modules	The Display Modules, Display Controller & Software should be from a single OEM

## 12. Field Junction Boxes

### **OEM Criteria for All type of Junction Boxes**

- IP55 Rated Outdoor Sheet Junction Box,
- Door with 180-degree hinge with all-round foamed-in PU seal
- Enclosure with different triple layer painting including nano ceramic coat, electrolytic Dip coat and pure polisher powder-coat for maximum corrosion protection throughout product life.
- Enclosure OEM certified from ISO9001,14001,18001 and Product Certified from UL, TUV, CSA, Bureau Veritas, LRS, RMRS, RU with Rain Canopy and Pole OEM mount kit from same OEM. Enclosure must pass 450Hrs of salt spray test.

### A. Floor Mount JB

SI.	Parameters	Minimum Requirements
1	Size	Suitable size as per site requirements to house the field equipment
2	Cabinet Material	GI with powder coated (Antirust coating)
3	Material Thickness	Min 1.2 mm
4	Number of Locks	Preferably Two
5	Protection	IP 55, Junction Box design should ensure to keep the temperature within suitable operating range for equipment's and should also avoid intentional water splash and dust intake
6	Form Factor	Rack Mount/DIN Rail
7	Other Features	Rain Canopy, Cable entry with glands, proper earthing and Fans/any other accessories as required for operation of equipment's within junction box.

## 13. Specification for UPS

### **OEM Criteria for All type of UPS**

- Standards: BIS Approved
- The OEM shall be present in India from minimum 10 Years with Overall UPS business of > 400 Cr in India from last 3 years consistently.
- UPS shall be Single in and Single Out.
- The UPS shall be double conversion VFI SS 111 online topologies designed to protect electronic equipment by supplying reliable, network-grade power featuring extremely tight voltage and frequency regulation.
- The UPS shall be with input power factor correction (PFC).
- The UPS contains a battery charger, which operates from the DC bus.
- UPS shall be with Rack and Tower Convertible Battery Packs
- UPS shall be both Tower as well as Rack
- Manufacturer should be ISO 9001, ISO 14001 certified
- All type of UPS should be from same OEM

### A. 2 KVA UPS

Sl.	Parameters	Minimum Requirements
1	Power rating (VA/Watt/KVA)	2000VA/1600W/2KVA
	<b>Input</b>	
2	Nominal input voltage	230V
3	Input voltage range at full load (half load)	160 – 280 V (110-280 V)
4	Input frequency	40-70 Hz auto-selecting
5	Input connection	IEC 60320 C20 / Hardwired
	<b>Output</b>	
6	Nominal output voltage	230V (220V, 240V user selectable)
7	Output frequency	50/60 Hz $\pm$ 3 Hz (On Mains) 50/60 Hz $\pm$ 0.1 Hz (On Battery)
8	Topology	Double-conversion online

9	Waveform type	Pure sinewave
10	Efficiency: Double conversion mode (typical)	Up to 88%
11	Efficiency: ECO mode (typical)	Up to 95%
12	Output connections	Hardwired + (3) India socket
<b>Battery and Runtime</b>		
13	Battery type	Sealed maintenance free valve regulated lead acid battery (leak proof)
<b>Communications and management</b>		
14	Interface ports	Serial RS-232, USB (type B), Intelligent Smart-Slot
15	Control panel	LED indicators, multi-function LCD, status and display console
<b>Physical</b>		
16	Rack height (U)	2U
17	Colour	RAL7010
<b>Environment</b>		
18	Operating temperature	0°C to 40°C
19	Relative humidity	0 to 95% non-condensing
20	Protection class	IP 20
<b>Conformance</b>		
21	Regulatory approvals	BIS

## B. 10 KVA UPS (N+1)

Sl.	Parameters	Minimum Requirements
1	Country	Shall be Make in India
2	Capacity (in kVA / kW)	10 kVA, O/P PF - 0.9

3	Technology and Capability	True Online configuration with double conversion VFI SS 111
		Microprocessor /DSP based control, using IGBT devices and high switching frequency PWM (>5kHz)
		Active Power Factor Correction (APFC) in converter to improve Input Power Factor > 0.95
		Rack & Tower Convertible Both
4	Input facility -Phases / Wires	1 Phase IN & 1 Phase Out
5	Input Voltage Range	110 – 277 V AC
6	Input Frequency Range	40 to 70 Hz
7	Input Power Factor	> 0.95 on Full Load
8	Generator Compatibility	Compatibility to genset supply required
9	Input Protection Circuit Breaker	Should be provided at the input of the UPS suitable for the full rated capacity of the UPS
10	Nominal Output voltage	220/ 230/ 240VAC (Selectable)
11	Output Connections	Hardwire
12	Nominal Output Frequency	50 / 60 Hz
13	Output Wave Form	Pure sine wave
14	Output Voltage Distortion (THDu)	<= 3% for Linear load
15	Crest Factor	03:01
16	Output Short circuit Protection	Electronic / Fused
17	Transfer Time (Mode of operation)	Nil from Mains mode to Battery Mode
		Nil from Battery Mode to Mains mode
18	Transfer Time (Inverter to Bypass / Bypass to Inverter)	< 4 ms (Synchronized Mode)
19	Automatic By-pass (In-built)	To be provided
20	Overall Efficiency (AC to AC) - Online (Double Conversion)	> 85% at Full Load

21	Green Mode / Eco Mode	Shall be provided
22	Measurements (On LCD)	Input: Voltage / Frequency
		Output: Voltage / frequency
		Battery: Remaining time / Voltage
		Load: Percentage / kW
23	Fault Indication (On LCD)	Charger Failure
		Battery Failed
		Battery Low
		Overload
24	Indications (LED/LED)	AC indicator/Battery Mode of Operation / Bypass feeding the load / UPS Fault
25	Audible Alarms	Battery Low beep / DC Fault beep/ UPS Overload beep/ o/p short circuit fault beep/ Shutdown beep
26	Backup Required	30 Min back up at 0.8 PF and 1.75 ECV.
27	Battery Type	Rack and Tower Convertible Battery Packs
28	Batteries Type	Sealed Maintenance Free (SMF) - 12V Cells
29	Battery recharge time (After complete discharge) to 90% capacity	8-10 hours
30	USB Port	Shall be present in the UPS
31	Emergency Power Off	Should be provided as standard in the UPS
32	NMC	NMC Card shall be provided with each UPS.
33	Cold Start	UPS should start up
		On AC Supply (Mains) without DC Supply (Batteries)
		On DC Supply (Batteries) without AC Supply (Mains)
34	Automatic Restart	UPS should start up automatically on mains resumption after battery low shutdown
35	Operating Temperature	0 to 40 deg C



36	Storage Temperature	-15 to 55 deg C
37	Operating Humidity	0% ~ 95%RH (No Condensing)
38	Operating Elevation	0 - 1000 m without derating
39	Type of Cooling	Natural Convection Cooling through air vents
40	Noise Level	< 60 dbA at 1-meter distance
41	Form Factor	Rack & Tower mountable both
42	Product Certificates	BIS Certification

## 14. 42U Network Rack

Sl.	Parameters	Minimum Requirements
1	Basic Structure	Rack should be of All Steel Construction with powder coated finish. Rack design should enable shipping of the rack in (CKD) Completely Knock Down condition and it should permit an easy assembly of the racks at site as per the requirement at site. All Steel structure of frames and depth mounting channels should rest positively fastened onto the integral Plinth of box like Configuration. Thus, ensuring the higher level of Rigidity of the Basic rack skeleton while effectively distributing and transferring the entire load to integrated Plinth. Construction of all direct load bearing structural members like Frames, Plinth and Vertical Mounting rails should not be less than 2.0mm CRCA Steel. Integral Plinth should have provision for Cable Entry on rear and two sides along with cable entry gland plate on the top face of the Plinth. Minimum opening of this top gland plate on the plinth should be at least 300mm x 300mm depth with separate opening for electrical / power cables entry.
2	Plinth & Castors	The plinth should also have provision to mount castors (4 Nos.) and Levelling Feet – (4 Nos.) simultaneously. This is required for the facility of moving the rack while installation process and then resting the same rigidly at the final location. When the rack is resting on the levelling feet, castors should not touch the ground surface. (All castors should be without any brake or any other locking mechanism)

3	Front Door	Front door – Front Perforated Door with dual Cam Lock for security purpose. This door should have provision to get mounted on Right or Left side of the rack front. This means that it should be possible to change the door configuration from Left to Right at site. It should also be possible to open this door by 180 Degrees to ensure proper approach to front of rack.
4	Rear Door	Rear door should be completely perforated to facilitate the air circulation at the maximum without offering any resistance to the same. Ideally, it should be possible to remove it easily and should have centre handle lock for the security purpose. Rear doors should have provision to mount fan trays.
5	Side panel	Side Panels should be easily removable type along with the provision for locking. Ideally, the panels should have latching arrangement to facilitate easy removal and putting back the panel along with locks for the security purpose.
6	Space	Height - The Rack should Provide 42U Usable Space.
		Width – The rack should be 800mmW with 19” mounting provision
		Depth – The rack should be at least 1000mmD. Usable Depth should be not less than 970mm
7	Load Bearing Capacity	Load carrying capacity of rack should be 850 Kg.
8	Mounting Provisions	Mounting rails (for Standard 19" mounting) should be made up of steel. (Minimum 2.0mm thickness) and should be of Multi-fold design for enhanced loading capacity and rigidity. It should have unique U Marking along with U locator notch. U Number Markings should be clearly visible even after mounting of the equipment.
9	Cable Management	1U Cable Managers to be supplied. Cable Managers should have Metal Hoops
10	Heat Management	Top roof should be well ventilated, especially with ventilation provided on the vertical side of the roof. This will greatly enhance the hot air outflow while in operation. Roof should also have provision to mount the cooling fan trays. It should be possible to mount at least 4 nos. of 90 CFM cooling fans on this roof and in addition there should be space for the cable entry from the top.
11	Powder Coating Details	Thickness of powder coating should be 60 microns or more.

12	Thickness of Material	Colour of the cabinet should be: Black
		The structure and all its components should be made from CRCA Steel Material – at least 1.2mm thick
13	Shelving Options	The rack should be provided with 1 Heavy Duty Shelf of 727mmD
14	Power Management	Vertical power distribution units provided should have 12 outlets of 5/15 amp capacity. These should be split in to two internal circuits so as to avoid overloading of the interconnection cables inside the unit. All cables used should be of ISI grade with 2.5sq mm cross sectional area. All the connecting ends must be tinned to avoid any loose wire strands. Rack should have the appropriate mounting provision for the multiple of these PDUs at the rear of the rack. Each Rack should have 2 Nos PDU per Rack

## 15. 15U Network Rack

1	Should be 15U with adjustable front and rear vertical rackmount rails
2	Front door should be glass door.
3	The dimension should be 750mm (H) x 600mm (W) x 500mm (D)
4	Should be fitted with FAN, 4 port 16 Amp PDU and cable manager.

## 16. Specification for Poles

### A. 6 Meter GI Pole for Fiber laying

Sl.	Specifications
1	The Conical/Polygonal pole and cantilever arm should be designed to with stand maximum wind speed as per IS: 857 (Minimum 50 m/Sec) suitable structure design calculations to be submitted to justify the pole dimension as per BSEN 40-3.2003 Pr EN-40-3-3. Structural design calculation shall be submitted to justify the pole dimensions.

2	Pole shaft and cantilever have conical/polygonal cross section and shall be preferably continuously tapered with single longitudinal welding.
3	Pole shaft shall be provided with a grade flange plate of suitable thickness with provision of fixing suitable no. of foundation bolts. This base plate shall be filleted welded to the pole shaft at two locations i.e. from inside & outside structural design calculations shall be submitted to justify the flange & foundation bolt dimensions.
4	Material of construction shall be:
A	Conical/Polygonal pole shaft - HT Steel Conforming to grade S355 with minimum 3 MM thick sheet.
B	Pole base plate - Fe 410 Conforming to IS 226/IS 2062
C	Pole foundation Bolt- EN 8 grade
6	Pole shall be hot dip galvanized as per IS 2629/IS2633/IS 4759 standard with average coating thickness of 86 Micron. The galvanizing shall be done in single dipping.
7	The pole manufacturing & galvanizing unit shall be ISO 90001 2000, ISO14001 & BS OHSAS 18001, certified to ensure consistent quality & environmental protection and ISO 3834 II
8	Minimum dimensions: a) Bottom section: 135 MM, Top Section: 75 MM b) Base Plate: Square Plate of 225 MM of 12 MM Thick Plate
9	Minimum anchor bolt cage templates to be provided with the pole @ minimum 10% of the overall quantity of the pole.
10	4 nos. Anchor bolt of size M20 X 600 MM to be provided with each pole basis the soil bearing test report of the actual site.
11	SI can use direct burial type poles too for this purpose subject to meeting all the structural and environmental conditions of the location.

## B. 10 Meter GI pole for PTZ Camera

### OEM Criteria & Design Guidelines for 10 Meter Poles

Bidders need to submit a Manufacturing Authorization Certificate from Pole manufacturer.

#### Design Codes: -

Design should comply to following Standards/Codes/ and Documents

- a. Load combination as per IS 800: 2013
- b. Indian Standard IS 875 (Part 3):2015
- c. Design Code - EN40
- d. Deflection Criteria should be in line with EN40
- e. Design Life of the structure should be minimum 25 years.
- f. Basic Wind Speed shall be as per IS875-III

#### **Material Grades: -**

1. Pole shaft: GRADE 50 or Equivalent
2. Base plate: A572-50 or Equivalent
3. Anchor bolts: EN8 Grade
4. Structural shapes for Channel, angle, pipes as per IS:808 / IS:1161 / IS:2329 (YS: 240 Mpa or equivalent)
5. Connection Bolts: Grade 5.6

#### **Galvanizing**

1. Galvanizing of the Conical structure need to be in compliance with ASTM A123/153
2. Galvanizing zinc tank should be lead free and Minimum Average Galvanization thickness should be 86 microns.

#### **Traceability**

Manufacturer of the structures should have systems in place that will provide the following levels of test report traceability:

- a. Direct, one-to-one traceability to pole shafts and base plates
- b. Batch to other structural components
- c. The test reports and inspection records are maintained at manufacture place. When requested, these can be provided to the customer no sooner than two weeks after the fabrication of the component

#### **Standards & Certifications**

Manufacturing facility available in India should have compliance to following standards and their workmen involved in welding and testing should meet the minimum requisite qualification standards, bidders need to submit all the necessary supporting documents along with the bid.

- a. ISO 9001
- b. ISO 18001
- c. ISO 14001
- d. ISO - 3834 -II Certification
- e. AWS- CW I
- f. ASNT-UT II
- g. ASNT-VT II

h. Certificate of Incorporation

**Type of Foundation**

Manufacturer of Conical poles should design foundation with appropriate Grade of concrete should on the soil test report (SBC) report provided by the execution agency or minimum 10t/SBC for foundation and Anchor Bolts design. Steel anchor bolts are embedded in the foundation. Base plate is welded at bottom of pole shaft and pole is fixed to foundation through base plate to anchor bolts connection.

Sl.	Specifications
1	The Conical/Polygonal pole and cantilever arm should be designed to with stand maximum wind speed as per IS: 857 (Minimum 50 m/Sec) suitable structure design calculations to be submitted to justify the pole dimension as per BSEN 40-3.2003 Pr EN-40-3-3. Structural design calculation shall be submitted to justify the pole dimensions.
2	Pole shaft and cantilever have conical/polygonal cross section and shall be preferably continuously tapered with single longitudinal welding suitable to take the load of 1 PTZ Camera and 2 nos. Fixed Camera.
3	Pole shaft shall be provided with a grade flange plate of suitable thickness with provision of fixing suitable no. of foundation bolts. This base plate shall be filleted welded to the pole shaft at two locations i.e. from inside & outside structural design calculations shall be submitted to justify the flange & foundation bolt dimensions.
4	Conical/Polygonal pole shall have approximately 500 MM door opening length at the elevation of 500 mm from base plate. The door shall be vandal resistant and shall be weatherproof to ensure safety of electrical connections inside the pole. The door shall be flash with locking facility. The pole shall be additionally reinforced with welded steel section, so that the section at door is unaffected and undue bucking of the cut section is prevented.
5	Material of construction shall be:
A	Conical/Polygonal pole shaft - HT Steel Conforming to grade S355 with minimum 3 MM thick sheet.
B	Pole base plate - Fe 410 Conforming to IS 226/IS 2062
C	Pole foundation Bolt- EN 8 grade
6	The welding shall be carried out conforming to approve to approve procedures dully qualified by third party inspection agency.
7	Pole shall be hot dip galvanized as per IS 2629/IS2633/IS 4759 slandered with average coating thickness of 86 Micron. The galvanizing shall be done in single dipping.

8	The pole manufacturing & galvanizing unit shall be ISO 90001 2000, ISO14001 & BS OHSAS 18001, certified to ensure consistent quality & environmental protection and ISO 3834 II
9	Minimum dimensions: c) Bottom section: 175 MM, Top Section: 95 MM Base Plate: Square Plate of 275 MM of 16 MM Thick Plate
10	Minimum anchor bolt cage templates to be provided with the pole @ minimum 10% of the overall quantity of the pole.
11	4 nos. Anchor bolt of size M24 X 750 MM of EN 8 grade to be provided with each pole basis the soil bearing test report of the actual site.

## 17. Specification for Passive Components

### OEM Criteria for Passive Components

- OEM must provide declaration on conformity of all the passive components to the following standards:
  - a) TIA/EIA 568-C.2;
  - b) TIA/EIA 568-C.3;
  - c) ISO/IEC 11801
- OEM must be having TIA Steering committee member.
- Undertake that the support including spares, patches for the quoted products shall be available for minimum five years.
- OEM should have valid ISO 9001 and ISO 14001 certificate on Design, development and manufacture of SW and HW solutions for communication networks.
- OEM must provide 25 year Performance warranty.
- All the products must have RoHS Compliance.
- All passive components such as OFC, CAT6, LIU, Patch Panels, Patch cords along with AIM tools should be from the same OEM

### A. CAT-6 UTP Cable

Sl.	Description
1	4 Pair Cable with integral cross -member pair separator for uniform characteristic impedance.

2	Category 6 Unshielded Twisted 4 Pair 100 $\Omega$ cable shall be compliant with ANSI/TIA/EIA-568-C.2-1 Additional ISO/IEC 11801 2ndEd. Transmission Performance Specification for 4 Pair 100 $\Omega$ Category 6 Cabling
3	Category 6 UTP cables shall extend between the work area location and its associated telecommunications closet and consist of 4 pair, UTP cable jacket.
4	Conductor: Solid Copper
5	Conductor Diameter: 0.555+-0.01mm (23AWG)
6	Insulator High Density Polyethylene
7	Inner Jacket: LSZH
8	Outer Jacket: PE –Black, Anti-Rodent with 1.1 thickness
9	Aarmor: ECCS Tape (Thickness > 0.125 mm)
10	Outer Diameter: 10.0 $\pm$ 0.3mm
11	Max Temperature: -20°C to +70°C
12	Minimum crush resistance of CAT-6 UTP cable should be more 1000N or better.
13	Channel length should not exceed 80 meter.
	<b>Mechanical Test</b>
14	Should have Pulling force of 50 Kg.
15	Bend Radius: 20 x Cable Diameter
	<b>Electrical Test</b>
16	Conductor Resistance: <9.38 $\Omega$ /100m
17	Resistance Unbalance 5% Max
18	Mutual Capacitance: < 5.6nF/100m
19	Capacitance Unbalance: 330pF/100m.
20	Characteristic Impedance: 100 +15 $\Omega$ conductor

## B. Cat 6 UTP RJ 45 Keystone Jack



Sl.	Minimum Specifications
1	RJ45 Jack of Category 6, for the establishing of transmission channels of class E with up to 4 plugged connections, complies with Category 6 requirements of the standards ISO/IEC 11801:2nd edition, EN 50173-1, DIN EN 50173-1: 2002 as well as ANSI/TIA/EIA 568-B.2-1, de-embedded tested in acc. with IEC 60603-7 (603-7), interoperable and backwards compatible with Cat.5e and Cat.5.
2	Compatible with RJ standard plugs (RJ11, RJ12, RJ45), PCB- and tool-based connection of installation cables AWG 24 – 22 (0.5 mm – 0.65 mm) and flexible cables AWG 26/7 – AWG 22/7.
3	IDC termination should feature nil crossover in acc. with EIA/TIA 568-A/B, gold-plated bronze contacts for >750 mating cycles, >200 insertion cycle
4	Material: RoHS complied
5	Housing material: Polycarbonate (UL-94-V0)
6	Should be available with or without dust protection feature
7	Should be 3P certified
8	Electrical parameters of Keystone jack should be suitable as per the CAT6 cable selected

### C. Faceplate

Sl.	Minimum Specifications
1	Should be UK style Keystone-type Faceplates available with 2 port configurations
2	Should be featured with shutter options, the screws not to be visible
3	Should support Work with both Flush and Wall mount box
4	Should support Operating Temperature: -10~+60; Storage Temperature: -40~+68; Humidity: 10%~90% RH
5	Material: ABS, UL 94V-0; Spring: SUS304; Surface Finish: Polished

### D. 24 port Patch Panel

1	Should Be made of cold rolled steel and conform to TIA / EIA 568-C.2 Component Compliant
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2	Each Ports should be with individual spring loaded shuttered for dust protection. Each port (jack) and individual replaceable.
3	Should confirm to EIA/TIA 568A wiring Pattern
4	Should have integral rear cable management shelf.
5	Commercial Standards: TIA/EIA-568-B.2-1 Component Compliant FCC Subpart F 68.5 Compliant IEC-603-7 Compliant ISO 11801 Class E Compliant ETL Verified for Category 6 Component Compliance

### E. 1/2 Mtr. UTP Patch cord

Sl.	Description
1	Standardization: Compliant with Cat.6, Class E requirements: ISO/IEC 11801 2nd Edition Compliant with Cat.6 component standards IEC 60603-7-4 and 60603-7-5
2	Cable shield: Tinned-copper braid
3	Number of conductors: 8
4	Stranding: 7 x 0.16 mm (26 AWG)
5	Cable jacket characteristics: cable CM
6	Cable overall diameter: 6.0 ± 0.2mm max.
7	Tube / Wire type: stranded conductor
8	Insulation: solid polyolefin, 0.97±0.02 mm diameter
9	Plug: Feature cable retention, with enhanced pull strength. The plug is designed to ensure precision wire placement, providing superior performance.
10	Cat 6 patch cord plug to have round cable holder and strain relief boot to avoid bending.
11	Jacket: LSZH with 8 different colour options
12	Plug should be featured with colour ring options
13	Plug should have high repeatability cross talk performance

14	Plug design should be patented with unique feature
15	Should be ETL verified; 4 Channel ETL certificate should have part code mentioned

## F. SM Fiber Patch cord

SI.	Description
1	Cable Protection/Armor: Armoured Fiber patch cords must have constructed with a helical stainless-steel tube over a buffered Fiber surrounded by a layer of aramid with an outer jacket.
2	Cable Jacket: Low Smoke Zero halogen
3	It should be available with UPC and APC Connector.
4	RoHS Compliance
5	Fire resistances comply with low smoking (IEC 61304) Halogen free (IEC 60754-1) Flame retardant (IEC 60332-3C / IEC 60332.1)
6	Tensile Strength - 70N
7	Connector durability more than 450 cycles

## G. 24C SM Fiber Cable

<b>ADSS Aerial F/O Cable, Loose Tube, SM, G652D, 6 Fibers, Central FRP, Water Blocking Tape &amp; Yarn, Aramid Yarns, UV Resistant, HDPE</b>	
SI.	Description
1	The cable should be lightweight cable and all-dielectric construction with aramid yarn for safe installation in high voltage overhead power lines
2	Should fulfil the requirements of ISO.IEC 11801 - 2nd Edition, type OS2, ITU-T REC G 652D spec IEC 60794-1-2
3	Fiber Count: 24
4	Loose tube count: 6

5	Fibber count per tube :4 -6 Fibber per tube
6	RoHS (2011/65/EU)
7	Max. Attenuation: At 1310 nm $\leq$ 0.38 dB/km, At 1550 nm $\leq$ 0.25 dB/km, At 1625 nm $\leq$ 0.25 dB/km
8	Fiber protection (Tubes): Polybutylene Terephthalate (PBT)
9	Nominal Diameter for Tube: 2.1 mm
10	Outer Thickness: 1.7 +/- .5%mm
11	Outer Sheath: UV Stabilised Polyethylene (PE)
12	Central Strength Member: Fiber Reinforced Plastic (FRP)
13	Core Wrapping: Water Blocking Tape & Yarn
14	Cable Diameter (D): 12-14 $\pm$ 0.5 mm
15	Mass (Nominal): 120 kg/km
16	Span length: 65m
17	Impact Strength: 25N at 0.5M
18	Installation (no load): 1000N
19	Tensile Strength <ul style="list-style-type: none"> <li>• Short term: 3000N</li> <li>• Long term: 1500N</li> </ul>
20	Crush Resistance: 3000N
21	Min. Bending Radius (during Installation): 20 D;D-Outer Diameter
22	Water Penetration: 1M Head, 3M Saples 24H
23	Max. Tensile Strength-Short Term: 3000N
24	Max. Crush Resistance-Short Term: 3000N/100 mm
25	Operating Temperature range: -40°C to +70°C
26	Drum length: 2 KM
27	All the cable and accessories are from the same OEM

## H. 48 Port LIU

Sl.	Minimum Specifications
1	Fiber optic patch panel: Fiber optic patch panel FMS Termination Drawer should have sufficient slots to accommodate 3 of 12/16 Port LC Adaptor Plates.
2	Should have Slide type drawer structure
3	Height: 1 U, 1.75 inches (12 & 24 Ports)
4	Material: Cold Rolled Steel in surface coated by electrostatic epoxy powder
5	Slots: FMS should have sufficient slots to accommodate adaptor plates
6	Empty Slots of FMS should be covered with blank plates.
7	Splice Tray: Splice Tray of ABS, comply with UL 94V2 material should be supplied with LIU.
8	12/16 Port LC/SC Type Adaptor Plates (Single mode)
9	The adaptor plate should be pre-loaded with LC/SC Type Single mode Duplex Adaptors.
10	Port Density :12/16 LC/SC Single mode Ports
11	All LC adapters should be duplex type with shutter for protection. Adapters should be snap mount for easy insertion and removal.
12	Insertion Loss: <0.2 to <0.1 dB
13	Compliance: RoHS Compliant

## 18. Specification for Other Items

### A. Electrical Cable

Sl.	Minimum Specifications
1	P/Laying P.V.C. / XLPE insulated & P.V.C. sheathed cable of 1.1 KV grade with Copper conductor of IS:1554 P-I / IS :7098 P - I of Group 1 of approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand, IInd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size. Trench: Open trench / Trench excavation in C.C. flooring or Tar road as per site requirement

2	Termination: Supplying and making end termination with heavy duty single compression brass gland SIBG type, heavy duty Copper lugs duly crimped with crimping tool, PVC tape etc for following size of Armoured PVC insulated & PVC sheathed/ XLPE aluminum conductor cable of 1100 volt grade as required of size.
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## B. Air Conditioner

Sl.	Parameters	Minimum Requirements
1	Type: Split units	
2	Capacity: minimum 2.0 Ton	
3	Cooling Capacity: minimum 24000 BTU / Hr	
4	Noise Level: < 50 dB	
5	Operation: Remote Control	
6	Power: 230VAC, 50Hz	
7	Type of Refrigerant: R 32 (CFC free)	
8	Inclusive of Cables, Refrigerant pipes, drainpipes, MS Stand or any other item if required to make the same operational.	

## C. Chemical Earthing

Sl.	Parameters	Minimum Requirements
1	Height	3000 mm
2	Material	Copper Bonded GI Rod
3	Diameter	25 mm
4	Coating	90-200 Microns
5	Pointing	Pointed from Bottom
6	Earthing Should have Copper bonded rods meeting international standards for earthing	

7	Having electrical conductivity and corrosion resistance
8	Should have Durable mild FRP/PP cover and body

## D. Rodent Repellent System

The entry of rodents and other unwanted pests shall be controlled at the Integrated command and control center using non-chemical, non-toxic devices. Ultrasonic pest repellents shall be provided in the false flooring and ceiling to repel the pests without killing them. However, the SI shall conduct periodic pest control using chemical spray once in a quarter as a contingency measure to effectively fight pests.

## E. Control Desk for Operator PC

### **OEM Criteria for Modular Control Desk**

Below certifications to be considered for Console Manufacturer to get the right product / solution.

- a. ANSI / BIFMA Certificate for Consoles
- b. ISO 9001, ISO 14001 & ISO 45001 Certificate
- c. ROHS Compliance
- d. Seismic Zone 5
- e. ASTM E84
- f. Green Guard Certificate

Sl.	Item	Description
1	Console Structure	Console System must be of modular design. The Console design shall address the functional, ergonomic, and aesthetic requirements of the particular working environment while complying with accepted human factor design and ergonomic standards for viewing distance, angle, keyboard height, and knee space requirements.
2		Standard top height of modular control desk shall be 750 mm. The Console Tabletop / Working Surface should be made of 25mm MDF Board with 1mm Laminate and with Polyurethane Nosing.
3		The Basic Structure should consist of Extruded AL Profiles (6063T6 grade) binded by Top & Bottom (min 2mm) MS Frames formed in such a way as to provide maximum buckling and torsion resistance. The Front & Back

		Panels should be openable / removable (with Push Lock Mechanism) made of laminated MDF Board in min thickness of 18mm. The Side Panels should be fixed type, made in 26mm MDF Board Cladded on 18mm MDF Board. All panels must be attached to the frame with concealed fasteners. Console access panels (Front & Rear Panels) must be removable without the use of tools. The Front panel should be positioned in such a way that there should be sufficient leg space (min of 400mm from the front edge of the TableTop)
4		All sheet metal / aluminum parts must be finished with electrostatic powder coating with average of min 80 microns over all surfaces.
5		The console frame shall have provisions for leveler legs to be incorporated into the frame.
6	Work Surface	The Console Tabletop should be made of 25mm MDF Board with Polyurethane Nosing. The work surface platform shall have smooth edges and transitions, thus avoiding sharp corners or potential rib catchers for operator safety.
7		Wall should be of min 86 mm (Height) and approx. 200-300 mm high from the Monitor Base.
8	Modular real wall (Slat wall)	Modular walls shall be made of 2mm thick Extruded Aluminum (6063T6 aluminum alloy).
9		It should have high Load bearing capacity. Minimum weight carrying capacity has to be 20 KGs per Meter.
10		It shall be capable for mounting all type of existing LCD monitor with dimensions between 17" to 24" using suitable adopter/additional base plate, if required any.
11	Monitor Arm	Vendor shall provide the suitable adopter/additional base plate for mounting the existing LCD monitors.
12		It shall allow the rotate/ tilt/ raise/the monitors as well as fix their adjustment.
13		The monitor arm should be Articulating monitor arm
14	miscellaneous	There shall be a closed cabinet below the modular control desk for placing of CPU. Cabinet should have proper cooling system. CPU needs to be accessible from front as well as rear side of control desk for easy working and maintenance.



15	Chair	The cabinet shutters shall be of Butt Hinged type with 18mm thick MDF.
16		Rear shutters of each console should have provision of Airflow opening for cooling and heat dissipation effect.
17		Rear panel shall have ventilation fans mounted on it.
18		It shall have proper arrangement for flow of cables i.e. LAN Cable, Power cable, VGA cable, Mouse cable, Keyboard etc.
19		Design of control desk shall allow cables from the floor cable channel.
20		Control desk shall be equipped with individual power distribution unit (PDU) (06 no for one Modular Control Desk) and capable of being switched on/off individually. Power supply socket should be dual type i.e. Universal type.
21		All bolts must be of SS material to avoid rust due to environment.
22		HIGH BACK CHAIR
23		Structure: High back chair
24		Mechanism: Recline-Glide Motion MB Mechanism
25		Armrest: Adjustable Armrest
26		Base: Grey Epoxy Aluminum Base (VG)
27		Base: V Base for Mesh Series
28		BIFMA & GREEN GUARD certified
29		Seat Back Adjustment, Height Adjustment, Button less chair

## F. Fire Alarm & Suppression System

Sl. No.	System Parameter	Technical Specification
1	Control Panel	The primary function of the control panel shall be to automatically respond to the operation of one or more detectors to give fire alarm and to indicate area (zone) from where the devices are activated. Required specifications of Control Panel are

		<p>2 Zone / 4 Zone Microprocessor based Master Control Panel as per IS: 2189-2008. On activation it should initiate Audio alarm as well as visual signal on the control panel.</p> <p>2 Zone / 4 Zone Main Control Panel should be latest microprocessor technology based and as per IS:2189-2008.</p> <p>The panel should be compatible with all type of standard conventional detectors.</p> <p>The Panel should have a manual OFF switch for manual operation in case of continuous fault alarm.</p> <p>The Panel should have 2 or more zones and zone disable switches accordingly to the number of zones.</p> <p>On activation it should initiate Audio alarm (The sound characteristic of the alarm should be continuous and similar throughout the protected premises) as well as visual signal on sector/zonal panel of the control panel.</p> <p>Each zone can relate to 20 conventional detectors.</p> <p>Control Panel should have inbuilt SMPS with spike/ transient reduction circuit, to avoid any false alarming in case of transient/abrupt voltage fluctuations.</p> <p>Control Panel should have Test Certificate with details like Model No., Serial No., Zones, etc.</p> <p>The Panel should have feature of continuous uninterrupted power supply in case of External Power supply failures. The battery backup with built battery charger for not less than 12 hours normal working.</p> <p>Panel should be compatible for installation of external Auto-dialler – both PSTN and GSM types.</p> <p>The Panel should have approvals listing of BIS/ UL /LPCB/ FM/ VDS.</p>
2	Power supply	<p>The fire panel shall operate from a 230 v + / - 10 % 50Hz mains supply and in case of power failure shall automatically switch over to a built-in sealed maintenance free (SMF) battery with a switch over time of less than 100 ms</p>
3	Display / Indication	<p>Master Control Panel should have audible and visual indications of system status as under</p> <ul style="list-style-type: none"> <li>LCD display showing system status</li> </ul>

		<ul style="list-style-type: none"> <li>• System ON indication (ON – OFF indicators)</li> <li>• Fault status LED indication</li> <li>• Low Battery / AC power off indications</li> </ul>
4	Number of zones	Minimum 2 zones with Zone Isolation facility and loop voltage cut off. iv. The panel should have facility to isolate/open individual zones.
5	Lamp Test facility & Walk Test facility	<p>The master control panel should be provided with Lamp Test facility &amp; Walk Test facility.</p> <p>The control panel should also have acknowledged, cancel, reset, isolation, silence, self-check buttons</p>
6	Battery back up	Battery backup of minimum 10 hours duration in normal working condition and 20 minutes in alarm activated condition (All hooters activated) thereafter.
		Battery should be of sealed maintenance free (SMF) type with capacity of 7Ah or more.
		Panel should have in built battery charger with over charging and deep discharging protection.
		Battery Low visual warning with audible tone.
7	Smoke detectors	<p>The System should have smoke detectors of both ionization type (below false ceiling) and optical type (above false ceiling) conforming to the IS: 2189-2008. Both ionization and optical type smoke detectors will be installed in the ratio 2:1. (Note: If Ionization sensors are not available in market Optical sensors are to be used in lieu).</p>
		Smoke detector should have LED, which should flash periodically to indicate that the detector is in proper working mode and glow continuously if smoke is detected. iii. Smoke detectors should have approvals/ listing of BIS / UL/LPCB/ FM/ VDS.
8	External Hooters	External hooters (150 db) (sounders) of fire alarm system should be electronic hooters/horns/electric bell having a frequency range of 500 to 1000 Hz. iv. Sound from the hooters on activation of the Fire Detection and Alarm System should be clearly audible up to 500 meters.
9	Response indicators (RI)	Response indicators with LED indicators to indicate activation of a detector installed inside rooms / cabins and above false ceiling or generally hidden

10	Manual Call Points (MCP)	The Manual Call Point (MCPS) should be break glass type with hammer or thumb press type.
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## G. Network SPD, CAT-6

The Surge Protection Device for LAN network line protection shall be suitable for use in 10/100/1000 MBPS LAN line protection of PCs and other LAN connected user devices. Shall be capable for 1 GB transmission speed.

Sl.	Parameter	Specifications
1	Connection Type	Series connection
2	Application	Secondary 8 wire category 6
3	Connector	RJ 45
4	Nominal Surge Current	Core to Core: 350 A (8/20 $\mu$ s) Core to Ground: 2 KA (8/20 $\mu$ s)
5	Pulse discharge current	1 kA
6	Maximum Continuous operating voltage	$\pm$ 5 V DC ( $\pm$ 57 V DC / PoE+)
7	Enclosure	IP20
8	Temperature (Ambient)	-40°C to 80 °C
9	Voltage Protection level	Core – core $\leq$ 20 V Core – Earth $\leq$ 700 V
10	SPD Compliance	IEC 61643-21
11	Approvals	UL Listed

## H. Power SPD

### **SPD for Sub Distribution Panel – 230 VAC Rated**

1. Type-2 SPD in accordance with IEC 61643-11:2011 and following National Building Code 2016.
2. Product should be tested and certified from KEMA KEUR / VDE and UL as per IEC 61643-11:2011. SPD should be pluggable and must have provision of testing respective plugs for preventive periodic health monitoring.

3. SPD must be capable for giving protection from Switching Surge current having current waveform 8/20 $\mu$ s. Device should have provision of Mechanical Health Indication with potential free remote monitoring feature.
4. SPD should have provision of mounting in DIN Rail: 35mm channel.

Sl.	Parameter	Specifications
1	IEC test Classification	II / T2
2	Technology	L-N: MOV Technology & N-PE: GDT Technology
3	Certification	KEMA KEUR / VDE and UL as per IEC 61643-11:2011
4	Pluggability	Pluggable for Safe and Easy Maintenance
5	Nominal Voltage Un	240 / 415 V AC (TN-S / TT)
6	Maximum Continuous Operating Voltage	335 V AC
7	Nominal Discharge Current	20 kA
8	Maximum Discharge Current	40 kA
9	Short Circuit Current rating ISCCR	25 kA
10	Voltage Protection Level Up (L-N)	$\leq 1.5$ kV
11	Temporary Over Voltage UT (L-N)	415 V AC (5s / Withstand Mode)
12	Temporary Over Voltage UT (N-PE)	1200 V AC (200ms / Withstand Mode)
13	Response time	L-N: $\leq 25$ ns N-PE: $\leq 100$ ns

#### **SPD for Sensitive Electrical & Electronic Equipment – 24 VAC/VDC**

1. Type-3 SPD should be installed for Precision protection of Sensitive Electrical and Electronic equipment complying IEC 61643-11:2011 and following National Building Code 2016.
2. Product should be tested and certified from KEMA KEUR / VDE and UL as per IEC 61643-11:2011.
3. SPD should be pluggable & should have provision of Mechanical Health Indication with potential free remote monitoring feature.
4. SPD should have provision of mounting in DIN Rail: 35mm channel.

Sl.	Parameter	Specifications
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1	IEC test Classification	T3
2	Certification	DNV GL / CCA / UL Recognized / KEMA-KEUR / cUL Recognized / IECCEB Scheme / EAC / cULus Recognized as per IEC 61643-11:2011.
3	Pluggability	Pluggable for Safe and Easy Maintenance
4	Nominal Voltage	24V
5	Maximum continuous voltage Uc	34 V AC
6	Nominal Discharge Current	1 kA
7	Maximum Discharge Current	4 kA
8	Voltage Protection Level Up (L-N)	≤0.2kV
9	Temporary Overvoltage UT (L-N)	50V AC (120 min /withstand mode)
10	TOV behaviour at UT (L-PE)	50V AC (120 min / withstand mode)
11	Response Time (tA) (L-N)	≤25ns
12	Short Circuit Current rating ISCCR	10 kA AC

**Approved Make list of major components subject to compliance to specifications as below:**

Sl. No.	Items	UM	Approved OEM			
			OEM-1	OEM-2	OEM-3	OEM-4
1	L2 Industrial Grade switch (8 port Gigabit +2 Port 1G SFP)	Nos.	Moxa	Allied Telesys	CISCO	

2	1G SFP Module 10KM	Nos.	Moxa	Allied Telesys	CISCO	
3	UTP Cable	Mtr.	CommScope	Siemon	Panduit	Molex
4	Unloaded Jack Panel	Nos.	CommScope	Siemon	Panduit	Molex
5	CAT 6 IO	Nos.	CommScope	Siemon	Panduit	Molex
6	Faceplate	Nos.	CommScope	Siemon	Panduit	Molex
7	1 Mtr. UTP Patch cord	Nos.	CommScope	Siemon	Panduit	Molex
8	2 Mtr. UTP Patch cord	Nos.	CommScope	Siemon	Panduit	Molex
9	SM Fiber Patch cord	Nos.	CommScope	Siemon	Panduit	Molex
10	24C SM Fiber Cable	Mtr.	CommScope	Siemon	Panduit	Molex
11	48 Port LIU	Nos.	CommScope	Siemon	Panduit	Molex
12	1G Media Converter	Nos.	Moxa	Allied Telesys	CISCO	D-link
13	Dome Camera	Nos.	Hikvision	Panasonic	Pelco	cpplus
14	Bullet Camera	Nos.	Hikvision	Panasonic	Pelco	cpplus
15	PTZ Camera	Nos.	Hikvision	Panasonic	Pelco	cpplus
16	10-meter GI Pole for PTZ camera with foundation	Nos.	Valmont	Ramboll		
17	2 KVA UPS	Nos.	APC	EATON	Vertiv	
18	15U Rack	Nos.	Rittal	Schneider	Valrack	Netrack/ TATA
19	Junction BOX	Nos.	Rittal	Schneider	Molex	
20	Public Address (PA)- Amplifier	Nos.	Commend	Zenitel		

21	Public Address (PA) speaker	Nos.	Commend	Zenitel		
22	ECB at Field	Nos.	Commend	Zentitel		
23	L3 Switch (24 Port Gigabit 802.3at+8 Port 10G/1G SFP)	Nos.	HPE	Juniper	Cisco	
24	L2 Access Switch, 24 Port PoE	Nos.	HPE	Juniper	Cisco	
25	Network Management System	Nos.	Motadata	Microfocus		
26	42U Server Rack	Nos.	Rittal	Schneider	NetRack	Valrack / TATA
27	Video Wall (2 Nos 55" LED Display) + Software + Controller	Nos.	Barco	Delta		
28	CCC Operator PC	Nos.	Dell	HP		
29	Control Desk for Operator PC	Nos.	Cosmotec	Pyrotech		
30	CCC Operator License for VMS	Nos.	Hikvision	Milestone		
31	Application Server	Nos.	HP	Dell	Lenovo	
32	PAS Operator Console	Nos.	Commend	Zenitel		
33	PAS & ECB Central Software	Nos.	Commend	Zenitel		



34	Fire Alarm & Suppression System	Nos.	Honeywell	Siemens	Velox	
35	Rodent Repellent System	Nos.	Maser	C-Systems		
36	2.Air Conditioning for server room	Nos.	Daikin	Bluestar	Panasonic	Vertiv
37	Joystick for CCTV	Nos.	CP Plus	HICKVISION	Panasonic	Pelco
38	Storage (200 TB)	Nos.	HPE	Netapp		
39	10 KVA UPS (N+1)	Nos.	APC	EATON	Vertiv	
40	24 Port POE with 4 port 1/10G Fiber port L2 Switch	No.	HPE	Juniper	Cisco	
41	Network SPD	No.	Phoenix Contact	DEHN		
42	Power SPD	No.	Phoenix Contact	DEHN		
43	6 Mtr. GI Pole for Fiber laying	No.				
45	Water Leak Detection System	No	Maser	C-Systems		
46	Access Control System	No	Honeywell	Spectra	IDCube	

## 1. General Specifications for Command Center Interior Design

#### **a) CCC-Interiors**

The CCC interiors shall be state of the art adhering to various best practices norms for control center wherein the scope includes designing, engineering, supply & installation of 24X7 Critical Control Room Interiors. It shall be designed properly in terms of Aesthetics, Ergonomics and Functionality. Various aspects should be considered while designing Control Room area to create ideal workplace, considering physiological aspects such as line of sight and field of vision and cognitive factors such as concentration and perceptivity as per latest ISO Ergonomic Norms. The following norms shall be adhered to: -

- a. The entire wall paneling and partition system must be 100% modular with type self inter lockable panels.
- b. Quality Certifications for Control Room (Wall Paneling/ Partition & Ceiling) -
  - ASTM standards, as applicable from time to time, for Wall Paneling & Partition tiles.
  - Compliant to IS and ISO standards.
  - Must be Green guard certified.
  - The proposed interior system should be modular, scalable & Sustainable and shall comply to ISO 11064 (Ergonomic Design of Control Centers).
  - All material / finished components should be rugged enough to handle 24/7, 365 days VOC's (within permissible limits) working environment.

#### **b) Civil and Architectural work**

The scope for civil work in this RFP is to furnish the CCC and temporary Command and Control Centre in all aspects. The furnishing includes but not limited to the following:

- Cutting and chipping of existing floors
- Hardware and metals
- Glazing
- Paint work
- False flooring
- False ceiling
- Storage
- Partitioning
- Doors and locks
- Fireproofing all surfaces
- Cement concrete works
- Insulation and Soundproofing
- Plumbing
- Woodwork and Paneling.

All material to be used shall be of fine quality ISI marked unless otherwise specified.

### **c) False Ceiling**

The SI shall install the top false ceiling at CCC. This false ceiling shall house A/C ducts (if required) and cables of electrical lighting, firefighting, and CCTV. Appropriate pest control measures shall be taken to keep pests at bay.

### **d) Raised flooring**

The SI shall be responsible for raised flooring at CCC and provide for suitable pedestal and under structure designed to withstand various static and rolling loads subjected to it in server racks. The entire raised floor shall have laminated floor covering and beadings on all sides of the panel.

### **e) Electrical Distribution System**

The SI shall be responsible for installation of electrical distribution system at CCC. SI shall be responsible for proper and uninterrupted working and shall ensure this by having the IT equipment, essential building infrastructure necessary of uninterrupted operations, and server room power distribution system with redundancy:

- Emergency Diesel- Generator automatic backup on failure of both main feeders. Bidder to ensure availability of DG set at CCC for redundancy.
- UPS system with battery bank for critical loads
- Connection between UPS system and the IT equipment shall be redundant. No single point of failure shall exist in the power connectivity between network racks and UPS system.

### **f) Air Conditioning and Natural Convection**

Since CCC is a critical area, air conditioning system shall be exclusively installed to maintain the required temperature. The A/C shall be capable of providing sensible cooling capacities at ambient temperature and humidity with adequate air flow. The task of the SI shall include (but not limited to):

- Connecting the indoor unit with the mains electrical point
- Connecting indoor and outdoor units mechanically (with insulated copper piping)
- Connecting indoor and outdoor unit electrically
- The air conditioner shall be linked to secondary power supply as well to prevent them from shutting down in case of power outage.

### **g) Electrical and Communication work**

SI shall do complete electrical cabling and, communication infrastructure work for CCC (Command and Control Centre) which shall include but not limited to:

- Main electrical panel in CCC
- Power cabling
- UPS distribution board
- UPS point wiring

- Power cabling for utility component and utility points etc.
- Online UPS
- Separate Earth pits for the component
- Metering for different loads
- The SI shall use fire retardant cables of rated capacity exceeding the power requirements of existing and proposed components to be used at maximum capacity.
- All communication network and infrastructure works including Ethernet cabling, modems, switches, routers, patch panels, Wi-Fi routers etc. for facilitation of inter-CCC and temporary command and control center networking.
- All materials to conform to ISI standards as per industry practice.

#### **h) Lighting Works**

SI shall be responsible for the lighting works at CCC and temporary Command and Control Centre. Following items need to be undertaken by SI for lighting:

- Supply of all equipment associated with implementation of lighting including fixtures, lamps, wiring etc.;
- Wiring for lighting system in the building;
- Installation of lighting fixtures;
- Warranty for the lighting equipment;
- Critical lights shall be connected to UPS for uninterrupted lighting;
- Post the installation, SI shall ensure that lux levels of the building are as per IES-HB-10-11.

#### **i) CCTV System**

The SI shall provide CCTV system within the CCC on 24X7 basis. All important areas of the CCC along with the non-critical areas like locations for DG sets, entry exit of CCC, Entry and Exit of building premises need to be under constant video surveillance. Monitoring cameras shall be installed strategically to cover all the critical areas of all the respective locations. The SI shall also provide the CCC operations room to be Wi-Fi enabled.

#### **j) Access control system**

The Biometric/Access card-based Access Control System shall be deployed at CCC with the objective of allowing entry and exit to and from the premises to authorized personnel only with appropriate door locks and controller assemble connected with BMS system. The system deployed shall be based on proximity as well as biometric technology for critical areas and proximity technology for non-critical areas.

#### **k) Water leak detection system**

The Water Leak Detection System shall be installed at CCC to detect any seepage of water into the critical area and alert the security control room for such leakage. It shall consist of water leak detection cable and

alarm module. The cable shall be installed in the ceiling and floor areas around the periphery. Rodent Repellent System shall not be installed at temporary command and control center.

## 2. General Specifications for Good Construction practices

### Lightning-proof measures

The SI shall comply with lightning-protection and anti-interference measures for system structure, equipment type selection, equipment earthing, power, signal cables laying. The SI shall describe the planned lightning-protection and anti-interference measures in the As-Is report. Corresponding lightning arrester shall be erected for the entrance cables of power line, video line, data transmission cables. All crates shall have firm, durable shell. Shell shall have dustproof, antifouling, waterproof function & should be capable to bear certain mechanical external force. Signal separation of low and high frequency; equipment's protective field shall be connected with its own public equal power bodies; small size/equipment signal lightning arrester shall be erected before the earthing. The Internal Surge Protection Device for Data Line Protection shall be selected as per zone of protection described in IEC 62305, 61643-11/12/21, 60364-4/5. Data line protection shall be used for security system, server data path and other communication equipment. Data line protection shall be installed as per zone defined in IEC 62305. Type 1 device shall be installed between zone 0B and zone 1. Type 2 devices shall be installed before the equipment in zone 2 and 3.

### Earthing Systems

All electrical components are to be earthed by connecting two earth tapes from the frame of the component ring and will be connected via several earth electrodes. The cable arm will be earthen through the cable glands. The entire applicable IT infrastructure i.e. field locations/traffic junctions or traffic command center shall have adequate earthing. Further, earthing should be done as per Local state national standard in relevance with IS standard.

- Earthing should be done for the entire power system and provisioning should be there to earth UPS systems, Power distribution units, AC units, etc. to avoid a ground differential. OMC shall provide the necessary space required to prepare the earthing pits.
- All metallic objects on the premises that are likely to be energized by electric currents should be effectively grounded.
- There should be enough space between data and power cabling and there should not be any cross wiring of the two, to avoid any interference, or corruption of data.
- The earth connections shall be properly made.

- A complete copper mesh earthing grid needs to be installed for the server farm area; every rack needs to be connected to this earthing grid. A separate earthing pit needs to be in place for this copper mesh.
- Provide separate Earthing pits for Servers, & UPS as per the standards.

#### **All Junction Boxes, Poles and Cantilever**

- The SI shall provide the Junction Boxes, poles, and cantilever to mount the field sensors like traffic light aspects, active network components, controller and UPS at all field locations
- The Junction Box needs to be appropriately sized in-order to accommodate the systems envisaged at the Junctions considering future requirements as well.
- It should be noted that the SI would have designed the Junction box keeping in mind the scalability requirements of Integrated Traffic System project
- The junction box should be designed in a way that, separate compartment will be available for the active components and UPS with batteries.
- The junction box should be weatherproof, theft proof and vandal proof. It should be certified for IP55 or above.
- All electrical connections/joints must be above 1 meter from nearest Road level, so that uninterrupted power supply can be maintain during flood/water logging situation. All poles" base, Junction boxes, etc. should be installed accordingly.
- All Poles, Cantilevers, Gantries, Junction Boxes, other outdoor fixtures, etc. must be fixed strongly in such a way to handle the wind load up to wind speed of 120 Km/Hr.
- All the junction box, controller box, poles and gantry should be made of galvanized iron and should be painted, and the paint should last for minimum 6 years once painting is done.

#### **Cabling Infrastructure**

- The SI shall provide standardized cabling for all devices and subsystems in the field.
- SI shall ensure the installation of all necessary cables and connectors between the field sensors /devices assembly, outstation junction box, for pole mounted field sensors/devices the cables shall be routed down the inside of the pole and through underground duct to the outstation cabinet.
- All cables shall be clearly labelled with indelible indications that can clearly be identified by maintenance personnel. The proposed cables shall meet the valid directives and standards.
- Cabling must be carried out per relevant BIS standards. All cablings shall be documented in a cable plan by the SI.
- Sufficient storage space shall be provided by OMC but the responsibility of the safeguarding of material would be in bidders scope. OMC in no way will be responsible for any loss or damage of material in any circumstances.
- All the cablings should be done underground via relevant ISI standard duct.

- The ducting should be done via HDD or micro trenching (min, 12 inch deep from the road surface level and will be measured from road surface to the top of the duct.) methodology without damaging any existing infrastructure and utility with prior approval from OMC and relevant authority.
- The duct size should be appropriate for pulling the cable with the spare space availability for 1 more cable.
- SI must reinstatement /restore the road from the original road material. Where HDD or micro trenching has been performed, after the reinstatement the road level should be maintained, and no damage should occur to road in future.
- All the cable entering and exiting to and from the controller, junction box, poles etc. should be covered via appropriate conduit and no cable should be visible and loose at any place.
- SI should remove the debris from site after work completion and should reinstate the site.

### **Common guidelines regarding compliance of systems/equipment**

- The specifications mentioned for various IT / Non-IT components are indicative requirements and should be treated for benchmarking purpose only. SIs are required to undertake their own requirement analysis and may propose higher specifications that are better suited to the requirements.
- All IT Components should support IPv4 and IPv6
- All IT/Electronics components shall comply to the IEC/ISI/BSI standards as applicable
- All systems will be designed to ensure accessibility to the disabled hence all the components related to IT, electronics and/or digital technology should be in accordance to the latest version of WCAG and the European Standards - EN 301 549 or an equivalent standard as approved
- Bidders should provide complete make, model, for all equipment/software quoted, in the Technical Bid. Technical Bid should also be accompanied by OEM's product brochure / datasheet and MAF for each line item (wherever applicable).
- Bidder should ensure that only one make and model is proposed for one component in Technical Bid for example all cameras must belong to a single OEM and must be of the same model for particular use.
- Bidders should ensure warranty and support for all equipment from OEMs during the contract period. All the back-to-back service agreements should be submitted along with the Technical Bid.
- All equipment, parts should be original and new.
- The user interface of the system should be a user friendly Graphical User Interface (GUI).
- Critical core components of the system should not have any requirements to have proprietary platforms and should conform to open standards.
- For custom made modules, industry standards and norms should be adhered to for coding during application development to make debugging and maintenance easier. Object oriented programming methodology must be followed to facilitate sharing, componentizing and multiple use of standard code. Before hosting the application, it shall be subjected to application security audit (by any of the

CERTIN empaneled vendors) to ensure that the application is free from any vulnerability; and approved by the ISCDL.

- All the Clients Machines / Servers shall support static assigned IP addresses or shall obtain IP addresses from a DNS/DHCP server.
- The system servers and software applications will be hosted in Data Centers as specified in the Bid. It is important that the entire set of Data Center equipment are in safe custody and have access from only the authorized personnel and should be in line with the requirements & SLAs defined in the RFP.
- The Servers provided should meet industry standard performance parameters (such as CPU Utilization of 60 percent or less, disk utilization of 75 percent or less). In case any non-standard computing environment is proposed (such as cloud), detail clarification needs to be provided in form of supporting documents, to confirm (a) how the sizing has been arrived at and (b) how SLAs would be met.
- SI is required to ensure that there is no choking point / bottleneck anywhere in the system (end-to-end) and enforce performance and adherence to SLAs. SLA reports must be submitted as specified in the Bid without fail.
- All the hardware and software supplied should be from the reputed Original Equipment Manufacturers (OEMs). OMC/or any other authorized agency as nominated by the Authority reserves the right to ask replacement of any hardware / software if it is not from a reputed brand and conforms to all the requirements specified in the RFP documents.
- Cameras and the Video Management / Video Analytics Software should be ONVIF Core Specification '2.X' or 'S', 'G' compliant and provide support for ONVIF profiles such as Streaming, Storage, Recording, Playback, retrieval of local stored video and Access Control.
- All licenses should be in the name of Orissa Mining Corporation (OMC).

### 3. Manpower

Monitoring Centre at CCC shall have dedicated manpower to trouble shoot and resolve any issues or problems faced during the operations and maintenance phase of this project. This shall act as a single point of contact for complaint management and resolution for all required stakeholders.

The Agency shall employ minimum 2 (TWO) such personnel at the sites whose qualifications, abilities, and experiences are relevant to the scope of work.

If OMC asks the Agency to remove a person who is a member of the Agency's work force stating valid reasons, then Agency shall ensure that the person leaves the site within two days and should not have any further connection with the work as per the Contract.

The mines operate 24X7, so manpower need to be planned for 3 shifts. The Agency need to make sure that all the labour laws are followed related to minimum wages and working times. Any non-compliance to any governing laws could result in imposition of penalties and could affect the contract.



The Agency need to assess the requirement to meet the SLA and uptime requirement of the system as asked in the Tender and accordingly decide on the final count. Systems performance and uptime cannot be compromised at any cost and that is the prime responsibility of the SI. The Bidders shall include Manpower cost in Annual Support Services.

#### 4. Other Conditions

**A. Common OEM for Solution:**

- Proposed Cameras, NVR if any, Joystick, should be from same OEM.
- All the Network Switches except for the industrial grade 8 Port L2 field switch should be from the same vendor.
- All passive items such as OFC, CAT6, LIU, Patch Panels, Patch Cords, AIM tools should be from same OEM.
- All type of UPS should be from same OEM.
- All PA components including speakers should be from same OEM.

All make and models should be clearly mentioned in the Unpriced BOQ (Annexure 13) to be submitted as a part of Technical bid. Only one make is allowed for any line item

#### 5. Technical Specification for required components

The Agency shall provide below manufacturer authorization form signed by manufacturer with the supply of equipment / software products. Manufacturer Authorisation form must be provided for all the components except for Power Cables, AC, Lightning Arrestor, Earthing, workstation

*<<To be printed on letter head of OEM and signed by Authorized signatory of OEM>>*

Tender Ref.

Date:

To:

**Subject:** Manufacturers Authorization Form

**Ref:** RFP No. <<....>> dated <<.....>>

Dear Sir,

We,----- (name and address of the manufacturer) who are established and reputed manufacturers of -----having factories at----- (addresses of manufacturing development locations) do hereby authorize M/s ----- (name and address of the bidder) to bid, negotiate and conclude the contract with you against the above mentioned tender for the above equipment / software manufactured / developed by us.

We herewith certify that the above mentioned equipment / software products are not end of life, end of sale and We hereby undertake to support these equipment/software for duration of minimum 5 years from the date of Power-up (for hardware), Installation, configuration and Application deployment.

We also confirm that the offered system will not be end of life for min 18 months from the date of supply of the product.

Yours faithfully,

(Authorized Signatory)

Signature:

Name:

Designation:

Address:

Seal:

Date:

## Annexure 2A: Proforma of the Agreement

Ref: [•]

This Agreement (hereinafter called the “Agreement”) is made on this [•] day of the month of [month], [year].

BETWEEN

Odisha Mining Corporation Limited, an undertaking of the Government of Odisha and having its head office at OMC House, Bhubaneswar-751001 (hereinafter referred to as “OMC”, which expression shall, unless repugnant to or inconsistent with the context, mean and include its successors and assigns) of the first part.

AND

M/s. [•], a company incorporated under the provisions of the Companies Act, 1956/2013 or a registered partnership firm under the provisions of the Indian Partnership Act, 1932 or a LLP firm registered under LLP Act, 2008 and having its registered office at [•] (hereinafter referred to as the “Agency” which expression shall unless repugnant to or inconsistent with the context, mean and include its successors and assigns) of the other part.

WHEREAS

- i) the Agency, in the ordinary course of its business, is engaged in providing Maintenance and Support Services to its clients, and have represented to OMC through their bid(s), against NIT No. [•] dated [•] (hereinafter called the “Tender”) for Engagement of an Agency to provide Maintenance and Support Services and Support Services in OMC (through e-tendering);
- ii) on the basis of the said Tender, OMC has adjudged the Agency as a successful Bidder and issued Letter of Award (LoA) No. [•] dated [•] for the same;
- iii) the Agency has agreed through their letter of acknowledgement vide letter No. [•] dated [•] to perform and undertake the scope of work as described in the Tender;
- iv) the Agency is being engaged to provide the required services for a period of 5 (five) years on the terms and conditions set forth in this contract;

NOW THEREFORE THE PARTIES hereby agree as follows:

1. The mutual rights and obligations of the Agency and OMC shall be as set forth in this contract, in particular:

- (a) The Agency shall provide out the services in accordance with the provisions of this contract; and
- (b) OMC shall make payments to the Agency in accordance with the provisions of this contract.

2. Conditions of Contract

- (a) Contract Period: <include relevant clauses from SCC>
- (b) Payment Terms: <include details related to the final quoted /negotiated prices>
- (c) The Agreement shall be governed by the laws of India and the courts of Bhubaneswar shall have exclusive jurisdiction over all disputes arising under, pursuant to and/or in connection with this Agreement
- (d) This Agreement has been executed in English, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Agreement
- (e) All the terms and conditions as per the NIT No. [•] dated [•] (including the General Conditions of Contract and Special Conditions of Contract) shall be applicable for this Agreement

IN WITNESS WHEREOF, the parties hereto have caused this contract to be executed by their respective authorized representatives on the day and year first before written.

For and on behalf of Odisha Mining Corporation  
 (Authorized Representative)  
 Name:  
 Designation:  
 Odisha Mining Corporation  
 OMC House, Bhubaneswar-751001

For and on behalf of M/s.  
 (Authorized Signatory)  
 Name:  
 Designation:  
 Name of the Agency:  
 Address:

In presence of the following witnesses

Name:  
 Designation:  
 Odisha Mining Corporation  
 OMC House, Bhubaneswar-751001

Name:  
 Designation:  
 Name of the Agency:  
 Address:

## Annexure 3: Format for Power of Attorney

(to be executed on INR 100 non judicial stamp paper and to be duly notarized)

Known all men by these presents, we..... (name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr./ Ms. (name), ..... son/daughter/wife of ..... and presently residing at ....., who is presently employed with us and holding the position of ....., as our true and lawful attorney (hereinafter referred to as the "Attorney") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our tender against the NIT no. OMC/e-Proc/CMC/54/2021dated 04.03.2021published by Odisha Mining Corporation Limited for Engagement of an Agency to provide Maintenance and Support Services and Support Services in OMC, including but not limited to signing and submission of all applications, bids and other documents and writings,

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE,....., THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS ..... DAY OF ..... 20[•].

For

Witnesses

.....  
(Signature, name, designation and address)

1.

2.

Accepted

(Signature)  
(Name, Title and Address of the Attorney)

## Annexure 4: Price Bid Format

(The price bid mentioned below is indicative only. The actual price bid is available in e-procurement portal (tenderodisha.gov.in). The bidders are requested to download the same & quote accordingly.)

### PRICE BID FORMAT- PART I

Sl. No.	Items	OUM	Qty.	BASIC RATE per each in Figures To be entered by the Bidder INR	TOTAL AMOUNT Without GST	TOTAL AMOUNT In Words
I	<b>Implementation Charges</b>					
A	Project Management and Service Charges for Implementation	Nos	1			
B	<b>Supply</b>					
1	L2 Industrial Grade switch (8 port Gigabit +2 Port 1G SFP)	Nos.	10			
2	1G SFP Module 10KM	Nos.	60			
3	UTP Cable	Mtr.	1255			
4	24 Port Patch Panel	Nos.	7			
5	CAT 6 IO	Nos.	28			
6	Faceplate	Nos.	28			
7	1 Mtr. UTP Patch cord	Nos.	48			
8	2 Mtr. UTP Patch cord	Nos.	59			
9	SM Fiber Patch cord	Nos.	62			
10	24C SM Fiber Cable	Mtr.	11900			
11	6 Mtr. GI Pole for Fiber laying	Nos.	125			
12	48 Port LIU	Nos.	11			
13	1G Media Converter	Nos.	4			

14	Dome Camera	Nos.	17			
15	Bullet Camera	Nos.	11			
16	PTZ Camera	Nos.	7			
17	10-meter GI Pole for PTZ camera with foundation	Nos.	15			
18	2 KVA UPS	Nos.	10			
19	15U Rack	Nos.	1			
20	Junction BOX	Nos.	10			
21	Public Address (PA)- Amplifier	Nos.	6			
22	Public Address (PA) speaker	Nos.	18			
23	ECB at Field	Nos.	5			
24	L3 Switch (24 Port Gigabit 802.3at+8 Port 10G/1G SFP)	Nos.	2			
25	L2 Access Switch, 24 Port PoE	Nos.	18			
26	Network Management System	Nos.	1			
27	42U Server Rack	Nos.	2			
28	Video Wall (2 Nos 55" LED Display) + Software + Controller	Nos.	1			
29	CCC Operator PC	Nos.	4			
30	Control Desk for Operator PC	Nos.	4			
31	Application Server	Nos.	2			
32	PAS Operator Console	Nos.	1			
33	PAS & ECB Central Software	Nos.	1			
34	Fire Alarm & Suppression System	Nos.	1			
35	Rodent Repellent System	Nos.	1			
36	Access Control System	Nos.	1			
37	Water Leak Detection System	Nos.	1			
38	Joystick for CCTV	Nos.	1			

39	Video Management System	Nos.	1			
40	Video Management license for 64 Channel NVR	Nos.	1			
41	Storage (200 TB)	Nos.	1			
42	Command Centre Interior Design (350 sq. ft.)	LS	1			
43	10 KVA UPS (N+1)	Nos.	1			
44	Chemical Earthing and electrical cabling	Nos.	14			
45	E-Mail & SMS Integration (using gateways)	No.	1			
46	Network SPD	No.	46			
47	Power SPD	No.	10			
48	Air Conditioner, 2 Tonne	No.	4			
49	Chair	No	4			
50	Unloaded Jack Panel	No.	7			



## PRICE BID FORMAT- PART II

### Annual Support Services including required manpower and AMC of Equipment and Hardware

Sl. No.	Services	Quantity*	Annual Support Service Charges	Total Amount per annum in INR
(a)	(b)	(c)	(d)	(e)
1	Annual Support Services for Year 1	1		
2	Annual Support Services for Year 2			
3	Annual Support Services for Year 3			
4	Annual Support Services for Year 4			
5	Annual Support Services for Year 5			

Note: The technically qualified L1 (Refer Clause No 8.19) will be decided after computing the least price Total Annual Amount of Price Bid Part I and Part

## Annexure 5: Declaration by the Bidder

(to be executed on INR 100 non judicial stamp paper and to be duly notarized)

Date: \_\_\_\_\_

Sub: Tender No. \_\_\_\_\_

In response to the Tender Document above stated, I/We hereby declare and solemnly swear that our Company/ firm \_\_\_\_\_ is not banned/blacklisted as on date by any competent court of Law, forum or any State Government or Central Government or their agencies or by any statutory entities or any PSUs.

AND, if at any stage the declaration/statement on oath is found to be false in part or otherwise, then without prejudice to any other action that may be taken, I/We, hereby agree to be treated as a disqualified Bidder for the ongoing Contract.

In addition to the disqualification our concern/entity may be banned/blacklisted.

AND, that I/We, shall have no right whatsoever, to claim for consideration of my/our bid at any stage and the money deposited in the form of EMD shall be liable for forfeiture in full, and the tender, if any to the extent accepted may be cancelled.

Signature of the Deponent

(Authorized signatory of the Bidder with Seal)

Date:

Place:

## Annexure 6: Checklist for the Techno-Commercial Bid

(to be enclosed with the Techno-Commercial Bid)

1. Name of the Bidder, Postal address & Registered Office:
2. Type of organization:
3. Contact name & designation of the Authorized Signatory of the Bidder & contact number:
4. Official email, phone, fax:
5. Official website:

Sl. No.	Qualification Requirement	Complied	Documents
1	Bidder's Experience – Documents in support of meeting Technical Criteria and Financial Criteria		
2	Incorporation related documents		
3	Tax related documents		
4	Declaration by the Bidder - Annexure 5		
5	Proof of payment of Tender Document Cost		
6	Proof of payment of EMD/ documents related- to exemption from the same		
7	Power of Attorney - Annexure 3		
8	Signed copy of check list with seal - Annexure 6		
9	Bank details – Annexure 7		
10	Annexure – 9 – No Deviation Certificate		
11	Annexure 11 – Total Responsibility Certificate		
12	Annexure 12 – SA 8000 Compliance		
13	ISO 9001 and/or ISO 27000 Certification, if available		

Date

Signature of the Authorized Signatory of the Bidder with Seal

## Annexure 7: Mandate Form - on the letterhead of the Bidder

To

Odisha Mining Corporation Limited  
 OMC House, Post Box No. – 34, Unit 5, Bhubaneswar  
 Odisha – 751001

Sub: Mandate for payment through electronic mode i.e. EFT/NEFT/RTGS

Dear Sir,

We are hereby giving our consent to get all our payments due from Odisha Mining Corporation Ltd. through electronic mode i.e. EFT/NEFT/RTGS. We also agree to bear all the bank charges payable in this regard.

(Please furnish the information in capital letter)

1. Name of the Bidder
2. Address of the Bidder

PIN Code			
IT PAN			
e-mail Id		Mobile No	
Phone		FAX No	

3. Bank Particulars

Bank Name					
Branch Name					
Branch Place					
Account No.					
Account Type	Saving/Current/Cash Credit		Branch State		
RTGS Enable	Yes/No	NEFT Enabled	Yes/No	Core-Bank Enabled *	Yes/No
Branch Code		MICR Code		IFSC Code	

\* In case of Bidders having Bank account in Union Bank of India

4. Effective Date

We hereby declare that the particulars furnished are correct & complete. If any transaction is delayed or not effected for incomplete/incorrect information/any other technical reasons, we will not hold the OMC Ltd. responsible.

Date

Signature of the Authorized Signatory of the Bidder with Seal

Certified that the Bank particulars furnished are correct as per our record.

Date:

Signature of the Bank with seal

## Annexure 8: Format for Performance Security

*BG should be obtained from Nationalised/ Scheduled Bank and should be operable and invokable at its Branch in Bhubaneswar*

(To be executed on INR 100/- non-judicial stamp paper)

B.G. No.

Dated:

WHEREAS:

- (A) ..... (“AGENCY”) and Odisha Mining Corporation having its office at OMC House, Bhubaneswar – 751 001 (“OMC”) has issued a Letter of Award (LoA) dated ..... (the “LoA”) whereby OMC has agreed to engage the Agency for ..... (the “agreement”).
- (B) The LOA requires the AGENCY to furnish a Performance Security to OMC of a sum of INR \_\_\_\_\_/- (the “Guarantee Amount”) as security for due and faithful performance of its obligations, under and in accordance with the AGREEMENT, for a period of \_\_\_\_\_ (the “Guarantee Period”).
- (C) We, ..... through our branch at .....(Bhubaneswar) (the “Bank”) have agreed to furnish this bank guarantee (“Bank Guarantee”) as Performance Security. NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:
1. The Bank hereby, unconditionally and irrevocably, guarantees and undertakes to pay to OMC upon occurrence of any failure or default in due and faithful performance of all or any of the AGENCY’s obligations, under and in accordance with the provisions of the agreement, on its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Agency, such sum or sums up to an aggregate sum of the Guarantee Amount as OMC shall claim, without OMC being required to prove or to show grounds or reasons for its demand and/ or for the sum specified therein.
  2. A letter from OMC that the AGENCY has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that OMC shall be the sole judge as to whether the AGENCY is in default in due and faithful performance of its obligations under the agreement and its decision that the Agency is in default shall be final, and binding on the Bank, notwithstanding any difference between OMC and the Agency, or any dispute between them pending before any court, tribunal, arbitrator or any other judicial or quasi-judicial body or by the discharge of the Agency for any reason whatsoever.
  3. In order to give effect to this Bank Guarantee, OMC shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Agency and/ or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Bank Guarantee.

4. It shall not be necessary, and the Bank hereby waives any necessity, for OMC to proceed against the Agency before presenting to the Bank its demand under this Bank Guarantee.
5. OMC shall have the liberty, without affecting in any manner the liability of the Bank under this Bank Guarantee, to vary at any time, the terms and conditions of the agreement or to extend the time or period for the compliance with, fulfilment and/ or performance of all or any of the obligations of the AGENCY contained in the agreement or to postpone for anytime, and from time to time, any of the rights and powers exercisable by OMC against the AGENCY, and either to enforce or forbear from enforcing any of the terms and conditions contained in the agreement and/ or the securities available to OMC, and the Bank shall not be released from its liability and obligation under this Bank Guarantee by any exercise by OMC of the liberty with reference to the matters aforesaid or by reason of time being given to the AGENCY or any other forbearance, indulgence, act or omission on the part of OMC or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would, but for this provision, have the effect of releasing the Bank from its liability and obligation under this Bank Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Bank Guarantee is in addition to, and not in substitution of, any other guarantee or security now or which may hereafter be held by OMC in respect of, or relating to, the agreement or for the fulfillment, compliance and/ or performance of all or any of the obligations of the Agency under the agreement .
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Bank Guarantee is restricted to the Guarantee Amount and this Bank Guarantee will remain in force until the expiry of the Guarantee Period, and unless a demand or claim in writing is made by OMC on the Bank under this Bank Guarantee no later than twelve (12) months from the date of expiry of the Guarantee Period, all rights of OMC under this Bank Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
8. The Bank undertakes not to revoke this Bank Guarantee during its validity, except with the previous express consent of OMC in writing, and declares and warrants that it has the power to issue this Bank Guarantee and the undersigned has full powers to do so on behalf of the Bank.
9. Any notice by way of request, demand or otherwise hereunder may be sent by hand/messenger or by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of OMC that the envelope was so posted shall be conclusive.
10. This Bank Guarantee shall come into force with immediate effect and shall remain in force and effect until the expiry of the Guarantee Period (including the claim period) or until it is released earlier by OMC pursuant to the provisions of the agreement.
11. Capitalized terms used herein, unless defined herein, shall have the meaning assigned to them in the agreement.
12. Notwithstanding anything contained herein:
  - i) Our liability under this Bank Guarantee shall not exceed INR .....

- ii) The Bank Guarantee shall be valid up to ..... (“Expiry Date including claim period” ..... of the Bank Guarantee).
- iii) We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and if you serve upon us a written claim or demand made in the manner prescribed in this Bank Guarantee on or before ..... (Claim Period of the Bank Guarantee) at our Branch at \_\_\_\_\_ Bhubaneswar.
- iv) After claim period all your rights under this Bank Guarantee will be forfeited and we shall be relived and discharged from all liabilities thereunder, irrespective of whether the original has been returned to us or not.

13. The Bank Guarantee is issued in paper form and Advice transmitted through SFMS with required details to the beneficiary’s advising bank (UNION BANK OF INDIA, OMC CAMPUS BRANCH, BHUBANESWAR, IFSC Code UBIN0810592)

Signed and Delivered by \_\_\_\_\_ Bank By the hand of Mr./Ms. \_\_\_\_\_, its \_\_\_\_\_ and authorized official.

(Signature of the Authorized Signatory) (Official Seal)

NOTE: (i) The Bank Guarantee should contain the name, designation and code number of the officer(s) signing the Bank Guarantee.

(ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing Branch.

For \_\_\_\_\_ [Indicate name of Bank]

Signature.....

Full Name.....

Designation.....

Power of Attorney No.....

Date.....

Seal of the Bank.....

WITNESS: (SIGNATURE WITH NAME AND ADDRESS)

(1)

Signature.....

Full Name.....

(2)

Signature.....

Full Name.....



## Annexure-9 No Deviation Certificate

(To be provided on the Company letter head)

Tender Ref.

Date:

To:

**Subject:** Self Declaration of No Deviation

**Ref:** RFP No. <<....>> dated <<.....>>

Dear Sir,

This is to certify that our offer is exactly in line with your tender enquiry/RFP (including amendments) no. -----dated----- . This is to expressly certify that our offer contains no deviation either Technical (including but not limited to Scope of Work, Business Requirements Specification, Functional Requirements Specification, Hardware Specification and Technical Requirements Specification) or Commercial in either direct or indirect form.

(Authorized Signatory)

Signature:

Name:

Designation:

Address:

Seal:

Date:

## Annexure 10: Indemnity Bond

(To be furnished in Stamp paper as per Stamp Act)

(Stamp Paper should be purchased in the name of the Agency)

This deed of Indemnity executed by ..... hereinafter referred to as 'Indemnifier' which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, representative and assignees in favour of M/s. Odisha Mining Corporation Ltd., Bhubaneswar, hereinafter referred to as the 'Indemnified' which expression shall unless repugnant to the context or meaning thereof, include its successors and assignees witnesses as to.

Whereas the indemnified herein has awarded to the Indemnifier herein a purchase order/ service order For the supply of ..... on terms and conditions set out inter alia in the Purchase order/ Service Order No..... valued at Rs.....(Rupees ..... only)

And Whereas, it is required under the above mentioned purchase order/ service order to provide an Indemnity bond to the indemnified to safeguard its interest, to be free from defect due to faulty material or workmanship For a period of.....calendar months from the date of receipt of stores or ..... actual working hours from the date of commissioning whichever is earlier of the stores supplied by the Indemnifier to the indemnified.

The indemnifier hereby irrevocably agrees to indemnify the indemnified that For any and all claims, liabilities, damages, losses, costs, charges, expenses, proceedings & actions of any nature whatsoever made or instituted against or caused to be suffered by the Indemnified directly or indirectly by reasons of.

- I. Any wrongful, incorrect, dishonest, criminals, fraudulent or negligent work default, failure, bad faith, disregard of its duties and obligation, act or omission by the Indemnifier.
- II. Any theft robbery, fraud, or other wrongful action or omission by the Indemnifier and /or any of its staff.

The indemnifier hereby irrevocably agrees to indemnify the indemnified that any items/ services Loaned by indemnified For use by the indemnifier in the event of the products/ services getting damaged/ non-operational, or such that it affects its life guarantee, the indemnifier shall as may be deemed necessary repair or make good the defective assets at site, free of cost, within a reasonable time specified by the indemnified or reimburse the pro-rata cost of the stores to the extent the life not achieved as per the guarantee, or supply spare stores For the defective portion only free of cost at site in respect of the purchase order/ service order obligations that emanate from the same already referred to the extent of ₹..... (Rupees..... only) for .....

(Signature with Name and Designation)

Station:

Date: Company Seal

Witness

## Annexure-11 Total Responsibility Certificate

(To be provided on the Company letter head)

Tender Ref.

Date:

To:

**Subject:** Self Declaration of Total responsibility

**Ref: RFP No. <<....>> dated <<.....>>**

Dear Sir,

This is to certify that we undertake the total responsibility for the defect free operation of the proposed solutions as per the requirement of the RFP for the duration mentioned in all the volumes of the RFP.

(Authorized Signatory)

Signature:

Name:

Designation:

Address:

Seal:

Date:

## Annexure-12: SA 8000 Compliance Format

### A. Basic information

<b>Name of the organization</b>	
<b>Registered Office Address</b>	
<b>Telephone No / Mobile No.</b>	
<b>Name of the contact person</b>	
<b>Number of employees (staff and Workers)</b>	

### B. Information regarding Social Accountability

- What is the minimum age required to join your organization? \_\_\_\_\_ Years
- Do you engage child labour in any light work? Yes / No
- What types of certificates / ID proof (Like mark sheet, Birth certificate, aadhar card) you keep with you?  
Original / Photocopy
- Do you require to keep any kind of deposit at the time of employment? Yes / No
- Do the workers know the risk / hazard associated with their work? Yes / No
- Do you provide personal protective equipment(s) to your employees free of cost? Yes / No
- Do you ensure canteen facility for your employees? Yes / No
- What types of medical benefits you provide to your employees?

---

- Do you allow trade union and collective bargaining? Yes / No  
If no, how do you ensure freedom of expression? (Write NA if you mark as yes)

---



---

- In case of non-performance of any employee, how do you deal with such situations?

---

- What are the procedures of hiring /promotion in your organization?

---



---

- Do you provide appointment letter to your employees? Yes / No
- Do you maintain a documented terms and conditions of employment, or personnel file? Yes/ No
- If no, how do you terminate your employee?

---



---

- How do you ensure that your employees are not discrimination on the basis of cast creed, gender, religion, age etc?

---



---

- How many shift you have? \_\_\_\_\_ shifts

- Which day is off day in your organization? \_\_\_\_\_

- In case, a person works in off day or holiday, how he / she is compensated?

---



---

- Do you engage worker in overtime? Yes / No
- Do you pay overtime to your employees as per law? Yes / No
- Lowest amount (salary / wage) you pay to your employees? Rs. \_\_\_\_\_/- (per day)
- Highest amount paid by you? Rs. \_\_\_\_\_/- (per day)
- Is there any case of deduction in wage? Yes / No
- In case, it is yes, what are the general reasons for such deduction?

---



---

- Have you taken care to look into issues related to child labour, Forced labour, health & safety, working hours and remuneration of your suppliers Yes / No

**Declaration:**

We do hereby declare that our organization is committed to the principles of social accountability. We will promptly implement remedial / corrective actions identified against the requirement and will promptly inform your organization. We also declare that the sub contractors / sub supplier's performances are monitored by us regarding issues related to SA8000.

Moreover, we declare that if invited, we shall participate in awareness programme as well as monitoring programme organized by you.

We declare that the above-mentioned information are correct to the best of our knowledge

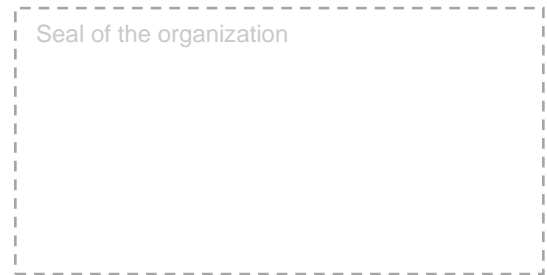
\_\_\_\_\_

(Signature)

Name of the person: \_\_\_\_\_

Designation: \_\_\_\_\_

Date \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_



## Annexure-13: Unpriced BOQ with Make & Model

Sl. No.	Items	OUM	Qty.	Make / Model
	<b>Supply</b>			
1	L2 Industrial Grade switch (8 port Gigabit +2 Port 1G SFP)	Nos.	10	
2	1G SFP Module 10KM	Nos.	60	
3	UTP Cable	Mtr.	1255	
4	24 Port Patch Panel	Nos.	7	
5	CAT 6 IO	Nos.	28	
6	Faceplate	Nos.	28	
7	1 Mtr. UTP Patch cord	Nos.	48	
8	2 Mtr. UTP Patch cord	Nos.	59	
9	SM Fiber Patch cord	Nos.	62	
10	24C SM Fiber Cable	Mtr.	11900	
11	6 Mtr. GI Pole for Fiber laying	Nos.	125	
12	48 Port LIU	Nos.	11	
13	1G Media Converter	Nos.	4	
14	Dome Camera	Nos.	17	
15	Bullet Camera	Nos.	11	
16	PTZ Camera	Nos.	7	
17	10-meter GI Pole for PTZ camera with foundation	Nos.	15	
18	2 KVA UPS	Nos.	10	
19	15U Rack	Nos.	1	
20	Junction BOX	Nos.	10	
21	Public Address (PA)- Amplifier	Nos.	6	
22	Public Address (PA) speaker	Nos.	18	
23	ECB at Field	Nos.	5	
24	L3 Switch (24 Port Gigabit 802.3at+8 Port 10G/1G SFP)	Nos.	2	
25	L2 Access Switch, 24 Port PoE	Nos.	18	
26	Network Management System	Nos.	1	
27	42U Server Rack	Nos.	2	
28	Video Wall (2 Nos 55" LED Display) + Software + Controller	Nos.	1	

29	CCC Operator PC	Nos.	4	
30	Control Desk for Operator PC	Nos.	4	
31	Application Server	Nos.	2	
32	PAS Operator Console	Nos.	1	
33	PAS & ECB Central Software	Nos.	1	
34	Fire Alarm & Suppression System	Nos.	1	
35	Rodent Repellent System	Nos.	1	
36	Access Control System	Nos.	1	
37	Water Leak Detection System	Nos.	1	
38	Joystick for CCTV	Nos.	1	
39	Video Management System	Nos.	1	
40	Video Management license for 64 Channel NVR	Nos.	1	
41	Storage (200 TB)	Nos.	1	
43	Command Centre Interior Design (350 sq. ft.)	LS	1	
44	10 KVA UPS (N+1)	Nos.	1	
45	Chemical Earthing and electrical cabling	Nos.	14	
46	E-Mail & SMS Integration (using gateways)	No.	1	
47	Network SPD	No.	46	
48	Power SPD	No.	10	
49	Air Conditioner, 2 Tonne	No.	4	
50	Chair	No	4	
51	Unloaded Jack Panel	No.	7	

NA: Not Applicable

(Authorized Signatory)

Signature:

Name:

Designation:

Address:

Seal:

Date:



