PART-1

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
ELECTRICAL MAINTENANCE DIVISION

Part –1 : Pre-qualification Bid

E-TENDER
FOR

Name of work: Supplying, installing, testing, and commissioning of server-based centralized CCTV System- PH-II at IIT Bombay.

E-TENDER NO. PR. 1000036861, RFX No. 6100001699 dated. 15.04.2024

SUBMISSION OF TENDER

PART-1 Pre-qualification Bid Date & Time : 22.05.2024 : 15.00HRS
PART-2 Price Bid Date & Time : 22.05.2024 : 15.00HRS(ONLINE Only)

TENDER OPENING

PART- 1 Pre-qualification Bid Date &Time :22.05.2024:15.05HRS
PART- 2 Price Bid Date & Time :29.05.2024 : 15.05HRS

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
P.O. IIT POWAI , MUMBAI - 400 076.
OFFICE OF THE EXECUTIVE ENGINEER (ELECTRICAL)

Name of work : Supplying, installing, testing and commissioning of server-based Centralized CCTV System- PH- II at IIT Bombay.

Ref:E-Tender Notice NO PR. 1000036861, RFX No. 6100001699 dated. 15.04.2024

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INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
P.O. IIT POWAI , MUMBAI - 400 076.
OFFICE OF THE EXECUTIVE ENGINEER (ELECTRICAL)
TEL NO: 2576 7970 / 2576 7971 : : FAX NO : 022 - 2576 7972 / 2572 3480.

NO.EMD:PR. NO. 1000036861, RFX No.6100001699 **15.04.2024**

NOTICE INVITING TENDER
(Two Bid Tender: Part 1- Pre-qualification Bid and Part 2-Price Bid)

Dear Sir,
1.Digitally signed Two Bid Type Online Tender i.e. PART 1 – Pre-qualification Bid and PART 2 – Price Bid are hereby invited through E-Tendering process by the Office of the Executive Engineer (Electrical), IIT Bombay, Powai, Mumbai- 400 076 for the following work from eligible contractors. E-Tender will be available on Online Portal (https://ep.iitb.ac.in/irj/portal) and Central Public Procurement Portal (CPPP) **from , 16.04.2024 to 22.05.2024.** The agency should register their firm in SRM-IIT Bombay website link **https://portal.iitb.ac.in/vrp/index.jsp to submit the E-tender.**

Tender Summary:

Name of Work	Supplying, installing, testing and commissioning of server-based Centralized CCTV System- PH- II at IIT Bombay Ref:E-Tender Notice NO PR. 1000036861, RFX No. 6100001699 dated. 15.04.2024
Type of tender	Notice inviting E-Tender – Two bid system: a) Pre-qualification Bid (Part-1) consisting of all technical details along with commercial & general terms and conditions
	b) Price bid (Part-2) indicating item-wise price for the items mentioned in the Price Bid. (Available ONLINE only). https://ep.iitb.ac.in/irj/portal
Estimate value	**Rs. 17,83,65,078.00/- plus GST @18% extra.** (Selection of Tax code in 'N' series only i.e. N5, N7)
Cost of tender documents (non-refundable)	Rs. Nil/- (Tender to be downloaded from ONLINE PORTAL https://ep.iitb.ac.in/irj/portal in View Open Tender Tab or Central Public Procurement Portal (CPPP)).
Inco terms	Delivery Duty Paid (DDP) Location: Students Gymkhana, IIT Bombay
EMD	**Rs. 35,67,300/- (Rupees Thirty-Five Lakhs Sixty Seven Thousand Three Hundred Only)** by DD/PO in favour of "The Registrar, IIT Bombay" and the scan copy to be upload in E-tender at the place of **EMD TAB**. EMD in original to be submitted in the office of The Executive Engineer(Electrical) on or before ***22nd May, 2024 upto 15:00Hrs.*** E-tender without original Earnest Money Deposit (EMD) will be liable to be rejected from the competent authority.
E-tender available	E-Tender will be available on Online Portal - (https://ep.iitb.ac.in/irj/portal) ***from 15th April, 2024 to 22nd May 2024 upto 15:00Hrs.*** The agency should register their firm in SRM-IIT Bombay website link -

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	https://portal.iitb.ac.in/vrp/index.jsp to submit the E-tender.
Proof of Concept (POC)	Date : 26.04.2024 Time: 11.00AM Proof of concept will be evaluated based on Technical Annexure-B1,B2,B3,B4 and B5. Place: Office of the Executive Engineer (Electrical), IIT Bombay.
Site visit / Pre-bid Meeting (Willing Participants should raise relevant queries 2 days prior ie.29.04.2024 to pre-bid meeting over email only. None of the queries will be accepted, post to the said date. Kindly note that the queries and any similar communication related to this tender to be held apart from provided email ID's then such activities will be considered as violation of the tender norms.	Date : 02.05.2024 Time: 04.00 PM. Place: Office of the Executive Engineer (Electrical), IIT Bombay.
Email ID for Prebid Queries:	prashantsarafdar@iitb.ac.in, exengr.elect@iitb.ac.in
Submission of online tender (Part-1- Pre-qualification Bid with EMD and Part 2- Price Bid) on or before	Date: 22.05.2024 Time: 15.00 Hrs.
Opening of Online tender	Part-1: Pre-qualification Bid Date : 22.05.2024 Time: 15.05 Hrs Part-2: Price Bid Date : 29.05.2024 Time: 15.05 Hrs.
Contacting authority	Executive Engineer (Electrical) IIT-Powai, Mumbai-400 076. Ph: 022 2576 7970 / 2576 4975 / 4077 / 7971 E-mail: exengr.elect@iitb.ac.in

This forms part of the tender
Thanks

Yours faithfully,

15/04/24

Executive Engineer (Electrical)

15/4/24

Note: 1) All eligible agencies are mandated to get enrolled SRM E-tender portal of IIT Bombay.
2) The intending bidder must have valid class-III digital signature with encryption and decryption provision to submit the e-tender.

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INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
P.O. I.I.T. POWAI, MUMBAI – 400 076.
OFFICE OF THE EXECUTIVE ENGINEER (ELECTRICAL)
TEL. NO. 2576 7970 / 2576 7971: : FAX NO. 2576 7972 / 2572 3480

NO.EMD:PR. NO. 1000036861, RFX No.6100001699 **15.04.2024**

1. Digitally signed online E-tenders in "Two Bid System" i.e. Pre-qualification Bid (Part-1) and Price Bid (Part -2) are hereby invited on behalf of the Indian Institute of Technology, (IIT) Bombay, for the following work:

i)Description (Name of work)	: Supplying, installing, testing and commissioning of server-based Centralized CCTV System- PH- II at IIT Bombay
ii)Estimated cost	: Rs. 17,83,65,078.00/- plus GST extra.
iii)Earnest Money Deposit	: Rs. 35,67,300.00/-
iv)Cost of tender documents	: Rs. Nil/-
v)Time for completion	: 365 days from the date of receipt of work order.

2. It may also be noted that Site visit / Prebid discussion on the nature of work will be held on *02nd May , 2024 at 11.00AM* in the office of the Executive Engineer(Elect) with the interested tenderers.

3.a.**Earnest Money Deposit (EMD) of Rs. 35,67,300/- (Rupees Thirty-Five Lakhs Sixty-Seven Thousand Three Hundred Only)** should be paid in the form of Demand Draft/Pay Order in favour of **"The Registrar, I.I.T Bombay"**, and EMD in original to be submitted in the office of The Executive Engineer(Electrical) on or before ***22nd May, 2024 upto 15:00Hrs.*** E-tender without original Earnest Money Deposit (EMD) will be liable to be rejected by the competent authority.

3.b.The **Demand Draft / Pay Order** is herewith forwarded as Earnest Money Deposit, the full value of which is to be absolutely forfeited to the Director, IIT Bombay or his authorised representative, without prejudice to any other rights or remedies to the Director, IIT Bombay or his authorised representative, should contractor fail to commence the work within 30 days continuously from the scheduled date of commencement specified in the order.

3.c.**Exemption from submission of Earnest Money Deposit (EMD):** The Bidders registered with MSME/NSIC will be exempted for Earnest Money Deposit (EMD) as per GOI norms. Proof of valid registration should be attached with the tender, failing which the tender will be rejected. **(Declaration towards EMD Annexure-A is mandatory).**

3.d.**Lowest (L1) Bidder** availing exemption for Earnest Money Deposit (EMD) against MSME/NSIC certificate will have to submit Performance Security Deposit in the form of Demand Draft **(mandatory).**

4. SRM-IIT Bombay registration:

For registration, bidders have to carry out **TWO STAGE REGISTRATION** – 1) Vendor Registration and 2) E-Tender Registration. After successful registration at both stages, bidders are qualified for applying for E-tendering. Detailed procedure of registration is given below:

Stage No 1 - Vendor Registration

Vendors are requested to register themselves as VENDOR of IITB with the following link for generating **USER ID & PASSWORD**: https://portal.iitb.ac.in/vrp/index.jsp

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Stage No 2 - E-Tender Registration

After login as a **VENDOR** click on button "Register for E-Tender"

Please wait for your IITB E-Tender Registration request to be processed by MDM team.

After processing, the Login credentials for IITB E-Tender Portal will be sent you registered Email-ID. (Vendor registration & E-tender registration is one time activity, hence kindly keep the Login credentials details for future bidding)

KINDLY FOLLOW THE BELOW STEPS FOR ONLINE BIDDING

Step No.1 **MANDATORY SYSTEM REQUIREMENT FOR E-TENDERING** (This is one-time activity)

Kindly go through the manuals for System Requirements for Online bidding.

https://portal.iitb.ac.in/vrp/ERP_SRM_UserManuals/SRM-014_E Tendering_Application_System_Requirements_V1.1.pdf

Step No. 2 :- **EXTRACTING AND UPLOADING DIGITAL SIGNATURE** (This is one-time activity)

Kindly go through the manuals for extracting and Uploading Digital Signature.

https://portal.iitb.ac.in/vrp/ERP_SRM_UserManuals/SRM-016_Extract_Upload...

Step No.3 :- **UPLOADING OF ONLINE BIDS**

Kindly go through the manual for submission of online response.

https://portal.iitb.ac.in/vrp/ERP_SRM_UserManuals/SRM-008_Advertisement_...

Click on the following link for E-tender : https://ep.iitb.ac.in/irj/portal

For any difficulties in ONLINE registration contact on SRM Helpdesk No. +91 8291556377 / +91 8291556277 or Email : helpdesk.mdm@iitb.ac.in / srm@iitb.ac.in .

5. The intending bidder must have valid class-III digital signature for download, upload and submit the e-tender.

6. PREQUALIFICATION CRITERIA

i. Average annual financial turnover of the firm should be at least Rs.5,35,09,523/- during the immediate last 3 consecutive financial years ending 31st March 2023. This should be duly audited by a registered Chartered Accountant.

ii. Bank Solvency Certificate of nationalized Bank / Schedule Bank for a minimum of Rs. 7,13,46,031/- and should not be older than one year from the date of opening of tender.

iii. Bidder should have submitted ITR for last 3 years.

iv. The bidder should have satisfactorily completed 3 (Three) 'Extra Low Voltage (ELV) i.e Networking/CCTV/AV work orders with completion certificate each of value not less than Rs. 7,13,46,031/-

OR

2 (Two) 'Extra Low Voltage (ELV) i.e. Networking/CCTV/AV work orders with completion certificate each value not less than Rs. 10,70,19,047/-

OR

1 (One) 'Extra Low Voltage (ELV) i.e. Networking/CCTV/AV work order with completion certificate value at least Rs. 14,26,92,062/- during the last 7 (Seven) years ending on the last day of

the month previous to the one in which the tenders are invited.

v. Potential bidder should have office (minimum 3 years) within the range of 150KM in radius from the IIT Bombay. The verification will be carried out with reference to GST certificate i.e. provided by the bidder. Bidders also have to submit information about core employees that have been serve in that location since 3 years on company's letterhead mentioning name, address, employee no., mobile no. of the employee.

vi. The bidder must submit Manufacturer Authorization Form (MAF)/Product Genuine Certificate (PGC) along with tender documents for all major equipment(s) (like CCTV Cameras, GRP poles, Network Switches, Recording server, Management Server, Failover Server etc from respective approved OEM (Please Note:- The Tender reference no., Authorized person Name, Mobile Number and e-mail ID & Designation, should be mentioned in the MAF, else it will not be considered as the Valid MAF) along with PART-1 Pre-qualification tender.

vii. Contractor should have EPF and ESIC registration.

viii. Enclose Bidder's Information. **Annexure A1.**

ix. The bidder must **not be blacklisted/Suspended** or any service-related dispute with any organization/Govt. Organizations/ Bank in India or outside India. Self-declaration shall be submitted by the agency. **Annexure A2.**

x. The bidder must have to submit "list of quoted makes & models" **. Annexure A3**

xi. The tenderer should have sufficient technical skilled manpower having requisite experience, Machinery, equipment's, accessories and other infrastructure facilities to complete the work in time as applicable for this work.

xii. Rates should be fixed for next 3 years. L1 bidder is bound to provide any BOQ item for next three years to the same cost that he has quoted i.e. as good as Terms Contract Tender.

xiii. The bidder should quote 2years CAMC % rate as per the Annexure-B6. (To be submitted in a separate sealed envelope)

7. Submission of tender: Tenders should be submitted as details given below:

1	Earnest Money Deposit	Scan copy of Demand Draft to be upload in EMD tab. And Also, Demand Draft is required to be submitted in separate sealed and superscribed envelope with indicating – **(I) First Envelope: Earnest Money Deposit.**
2	Pre-qualification Bid (Part-1)	Scan copy of completely filled, signed & stamped Technical Bid with prequalification documents to be upload in 'C' folder. And Also, Technical Bid with prequalification documents required to be submitted at EMD office on or before due date in separate sealed and superscribed envelope with indicating – **(II)Second Envelope: Pre-qualification Bid.**
3	Price Bid (Part-2)	Submission of Price Bid is ONLINE only. Bidders have to be filled basic rate of per unit in 'Condition' tab AND SELECT APPLICABLE TAXES separately in 'Taxes' tab. (N5)/(N7)

PART-1

8. Part-1: Pre-qualification Bid will be opened by Executive Engineer (Electrical) or his authorized representatives in his office/any other place in the Institute at 15.05 hrs. on the 22nd May, 2024 in the presence of such tenderer who desire to attend.

9. The Institute will examine the prequalification bids to determine whether they are complete, whether the documents have been properly uploaded and whether the bids are generally in order. The Institute may discuss the technical bid with the bidders/tenderers, if required.

10. Part-2: Online Price Bid of only successfully Qualified Contractors from the Part-1 Pre-qualification Bid will be opened at 15.05 hrs. on 24th April, 2024 in the presence of such tenderer who desire to attend.

11. No modifications in the tender shall be allowed after opening tender Part-1 Pre-qualification Bid.

12.If any information furnished by the bidder is found to be incorrect at a later stage, they should be liable to be debarred from tendering/taking up works in IITB in future forever.
Also if such violation comes to the notice of Department before start of work, the Engineer –In-charge shall be free to forfeit the entire amount of EMD.

13.The time allowed for carrying out this work is **365 days from the date of receipt of work order.**

14.Statutory Duties, taxes and levies : Price shall remain firm and fixed. However, incase of statutory variation in rate of duties, taxes and levies and or gazette notification the price will be adjusted up / down if indicated in the tender. Reduction is to be voluntarily intimated by the contractor and if not intimated, the subsequent onus of responsibility rests with the contractor irrespective of the time period.

15.**The acceptance of the E- tender** shall rest with the competent authority of the Institute accepting the tender who does not bind himself to accept the lowest or any tender and reserves to himself the right to reject any or all tenders without assigning any reason. The institute reserves the right to accept the work in full or in part or reject the tender(s) in full or part without assigning any reasons thereof.

16.The estimated amount given is approximate which was worked out after taking into various factors into consideration. The amount given is only for guidance. The tenderer is to work out carefully and quote the rates against individual items correctly. The estimated amount may be on the higher side which depends upon several factors such as administrative approval, technical sanction, allotment of fund etc. The Institute shall have the right to accept or reject any or all tenders without assigning any reason whatsoever and will not be bound to accept the lowest tender.

17.The tender should be valid for **180 days (One Hundred Eighty days)** from the date of opening of the tender.
18. SUPERVISION OF ERECTION & COMMISSIONING:
Successful tenderer shall depute concerned specialist, for supervision of erection & commissioning of the machine to be carried out. The successful tenderer shall make necessarily arrangement at their own expenses for stay, transport and other expenses of their specialist during their stay in Mumbai which also includes imparting training to IIT Staff personally.

19.In case, the tender opening day happens to be a holiday, the same will be opened on the next working day.
20.All material sample is to be got approved before installing / fixing. Incorporating unapproved material will be at the cost and risk of the contractor.

21.The tenderer can visit the site and clarified any technical query with **Shri.Prashant Sarafdar, Instrumentation Engineer (Tel: 022 2576 4976, Mb.No. 9920967971) / Shri. Sidhyesh Ramugade, Tech. Supdt (Tel: 022 21596495, Mb.No. 9930095430)** by contacting directly in person /by telephone.

15/04/24

Executive Engineer (Electrical)

15/04/24

PART-1

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
P.O. I.I.T. POWAI, MUMBAI – 400 076.
OFFICE OF THE EXECUTIVE ENGINEER (ELECTRICAL)

GENERAL INSTRUCTIONS & CONDITIONS OF CONTRACT

1. All works proposed for execution by contractor will be notified in the form of invitation to tender. The form will state the work to be carried out, as well as the date for submitting and opening tenders, also the amount of Earnest Money Deposit (EMD), if any, to be deposited with the tender and the percentages, designs and drawings and any other document required in connection with the work, signed for the purpose of identification by Executive Engineer shall also be available by the contractor at the office of the Executive Engineer during office hours.

2.A tender by a firm must be digitally signed separately by each member thereof, or, in the event of the absence of any partner, it must be signed on his behalf by a person holding a power of attorney authorising him to do so, such power of attorney to be produced with the tender and it must disclose that the firm is duly registered under the Indian Partnership Act.

3.Any person who submitted a tender shall fill up the usual printed form stating, at what rates he is willing to undertake the work. Tenderer which propose any alteration in the work specified in the said form of invitation to tender or which contain any other conditions of any sort, will be liable for rejection. No single tender shall include more than one work, but contractors who wish to tender for two or more works shall submit a separate tender for each.

4.An Executive Engineer, or his duly authorised Assistant will open the E-tenders in the presence of representative of any intending contractor/s, Audit and Accounts section, who may be present at the time, and will enter amounts of the several tenderers in a comparative statement in a suitable form. In the event of a tender being accepted, a receipt for the earnest money forwarded therewith shall thereupon form the part of Security Deposit and signed copies of the specifications and other documents mentioned hereof shall form the part of Agreement. In the event of a tender being rejected, the earnest money if any, forwarded with such unaccepted tender shall thereupon be returned to the contractor(s).

5.The Officer inviting tenders shall have the right of rejecting all or any of the tenders, and will not be bound to accept the lowest tender.

6.The work is to be carried out with due diligence and all works expected are to be done in a professional manner. The material used when supplied by the party tendering, to be of the best of the several kinds procurable and in all cases is to be subject to the approval of the Executive Engineer or his authorised assistant for the time being, whose decisions as to the rate of progress and the quality of work or material shall be final.

7.The Engineer–in-charge may put an end to this agreement at his option at any time, and in the case of non-standard work or material, the Engineer–in-charge may remove the same and have it replaced deducting the value of the work rejected or material removed or the cost of replacing the same as he may think proper from any amount due or that may become due so from the party making this tender.

8.If the contractor/s or his/their work people or servants shall break, deface, injure or destroy any part of the building in which they may be working or any building, road, road kerbs, fence, enclosure, water pipes, cables, drains, electric or telephone posts or wires, trees, grass or grass land or any cultivated ground contiguous to the premises on which the work or any party of it is being executed, or if any damage shall happen to the work while in progress from any cause whatever or any imperfections become apparent in it within three months after a certificate final or other of its completion shall have been given, the contractor/s shall make good the same at his/their own expenses, and in the event of his/their refusing / or failing to do so, the damage shall be repaired at his/their expense by Engineer-in-charge, who shall deduct the cost including supervision charge @23.75% from any sums due, or which become due to the contractor/s.

9.The Executive Engineer shall supply materials as shown in attached schedule, but does not undertake to take back from the party tendering either after or before the completion of the work or termination of this agreement, surplus materials which was originally procured by the party tendering or were issued to him by IIT. The party tendering shall not remove from the site of work the materials supplied to him for use on the works without previous sanction obtained in writing from the Engineer-in-charge.

10.a. No labour below the age of eighteen years shall be employed on the work.

10.b. The contractors who are engaging persons more than twenty should get labour licence from competent authority and act according to the rules and regulations.

10.c. The contractor should not engage persons below 18 years old and should pay the wages to the persons as per the minimum wages act and circular issued by the Regional Labour Commissioner, Mumbai and to maintain registers/books /display boards as required and also obtain signature of the Engineer-in-charge / site supervisor of IIT Bombay. Contractor will be fully held responsible for non compliance of the above.

Incase of any accident / incident, the contractor will be fully held responsible for that and should get the Workman compensation/Insurance / group Insurance/ESIS scheme. IIT Bombay will not be held responsible for any compensation. The contractor should file returns in the office of the Assistant Labour Commissioner (Central), Sion, Mumbai-22, after completion of said work.

11. Applicable "Income Tax" , GST, Labour Welfare Cess @ 1% (for the work order amount 10 Lakhs and above) etc shall be deducted at the source from all bills payable to the contractor. Any other taxes/cess as per Government directives shall be deducted from each bill paid to the contractor from time to time.

12. Injury to persons of the contractor.

The contractor shall be liable for and shall indemnify the owner against any liability loss, claim or processing whatsoever arising under any states or at common law in respect of personal injury to or the death of any persons whomsoever arising out of and in the course of or caused by while carrying out the work, unless due to any act of neglect of the owner or of any persons for whom the owner is responsible for that he should give ESIC benefit to the worker/employee as per the Act of the Employee's State Insurance Corporation.

13. The contractor shall pay not less than fair wages to labourers engaged by him on the work.

Explanation:

(a)Fair wages means wage whether for time or work notified at the time of inviting tenders for the work and where such wages have not been so notified the wages prescribed by the Maharashtra Govt. notified by them from time to time. The wages shall not be less than the minimum rates of wages fixed by the Government for the case or employees engaged on the same type of work in the same area.

(b)The contractor shall not withstanding the provisions of any contract to the contrary, cause to be paid fair wage to labourers indirectly engaged on the work, including any labour engaged by his sub-contractor in connection with the said work, as if the labourers had been immediately employed by him.

(c)In respect of all labour directly or indirectly employed in the work for performance of the contract or part of this agreement the contractor shall comply with or cause to be compiled with labour Regulations made by Government from time to time in regard to payment of wages, wage period, deductions from wages, recovery of wages at paid and deductions authorisedly made, maintenance of wages books, wage slips, publication of scale of wages and other terms of employment, inspection and submission of periodical returns and all other matters of a like nature.

(d)IIT Bombay, shall have the right to deduct from the monies due to the contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reasons on non fulfillment of the conditions of the contract for the benefit of the workers nonpayment of wages or of deductions made from his or their wages which are not justified by their terms of the contract or non observance of the regulations.

(e)Under the provisions of the Minimum Wages Act, 1948 including amendments and the Minimum Wages (Central) Rules, 1950 the contractor is bound to allow or cause to be allowed to the labourers directly or ndirectly employed in the works one day's rest for six days continuous work. The minimum rate of wages shall include payment of such working day of rest. In the event of default, the IIT Bombay, shall have the right to deduct the sum or sums not paid on account of wages for weekly holiday to any labourers, and pay the same to the persons entitled thereto from any money due to the contractor by the IIT Bombay.

(f)Vis-à-vis IIT, the contractor shall be primarily liable to all payments to be made under, and for the observance of their regulations aforesaid without prejudice to the Institute the right to claim indemnity from his sub-contractor.

(g) The regulations aforesaid shall be deemed to a part of this contract and any breach thereof shall be deemed to be, breach of his contract.

14.Compensation for Delay:

Time is the essence of the contract and shall be reckoned from 10th day after the date of which the order to commence the work is issued to the contractor. The work shall be proceeded throughout the stipulated period of contract with all the diligence and contractor shall pay amount equal to one fourth percent (¼%) of the value of the work order/final amount as compensation for delay attributable to the contractor for every week after the expiry of the said time subject to maximum 10% of the above value. It may be noted that compensation will not be levied to the contractor for the delay Not attributable to the contractor.

15.**Termination of contract:**

The competent authority accepting the tender may without prejudice to his right against the contractor in any respect of any delay or inferior workmanship or otherwise or to any claims for damage in respect of any breaches of contract and without prejudice to any rights or remedies under the provisions of this contract or otherwise and whether the date of completion has or has not elapsed, by notice in writing, absolutely determine the contract in any of the following cases:-

i)If the contractor having been given by the Engineer-in charge a 7 days notice to rectify, reconstruct or replace any defective work or that work is being performed in any inefficient or otherwise improper or un-workmanship like manner, shall delay or suspend the execution of work and in the opinion of the Engineer-In charge will be unable to secure completion of work by the date for completion or he has failed to complete the work by that date.

ii)If the contractor being a company , passes a resolution or the Court shall make order that company shall be wound up or any instructions are received from Income Tax Department or any Govt. organisation,

iii)If the contractor commits breach of any of terms and conditions of the contract.

iv) If the contractor becomes insolvent When the contractor has made himself liable for action under any of the cases aforesaid the Engineer- in-charge / Dean(Planning) on behalf of IIT shall take action as under :-

(a) To determine or rescind the contract and upon such determination or rescission, Security Deposit(SD) of the contract shall be liable to be forfeited and shall be at disposal of the IIT.

(b)To carry out the balance work through another agency and recover the balance amount arising out of difference between the latter rate and former rate from the original selected tenderer, from any amount payable to him including Earnest Money, any bills payable, security deposit or any amount payable to him for any other work.

(c) To take possession all or any tools, plants, materials and stores in or upon the works or site thereof belonging to the contractor and procured by the contractor and intended to be used for execution of work and give due credit while settling account or give requisite notice to remove all such materials failing which shall take action to either remove them from the site of work at the contractor's expense or sell them by auction on account of the contractor at his risk and cost.

16. Extension of time:

If the contractor shall desire any extension of time for the completion of work on the grounds of his having unavoidably hindered in its execution or any other ground, he shall apply in writing to Engineer-in-charge within 7 days from the date of such hindrance on account of which he desires such extension (which shall be final) on reasonable grounds be shown. Therefore, authorise such extension of time, if any as may be, in his opinion be necessary or proper to keep the contract active. Recommendation / decision of the Engineer-in-charge / Executive Engineer / Dean (Planning)/ Director to grant such extension with or without levy of compensation shall deemed to be final and binding.

17. Defect liability period (DLP):

DLP is **36Months** from receipt of material at IITB premises. The security deposit shall not be refunded before the expiry of DLP. The security deposit amount can be released against Bank Guarantee (BG) of equivalent amount. It is responsibility of L1 vendor to renew BG on every year.

18. Settlement of Disputes Arbitration.

Except where otherwise provided in the contract, all questions and disputes relating to the meaning of the specifications, designs, drawings and instructions herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever, in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works, or the execution or failure to execute the same, whether arising during the progress of the work or after the completion or abandonment thereof, shall be referred to the sole arbitration of the person appointed by the Dean (Planning) / Dy. Director , IIT Bombay at the time of dispute. The arbitrator to whom the matter is originally referred being transferred or vacating his office or being unable to act for any reason. "Dean (Planning)/Dy. Director, IIT Bombay" shall appoint another person to act as arbitrator in accordance with the terms of the contract. It is a term of this contract that no person other than a person appointed by the Dean (Planning)/Dy. Director, IIT Bombay, as aforesaid should act as arbitrator.
In all cases where the amount of the claim in dispute is Rs. 50,000.00 (Rupees fifty thousand only) and above , the arbitrator shall give reasons for the award.

Subjects as aforesaid the provisions of the Arbitration and conciliation Act, 1996 or any statutory modification or re-enactment thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause.

It is the term of the contract that the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute. Provided further that the contractor shall demand reference to arbitration within 90 days of the payment of the final bill and if no such demand is made this arbitration clause shall not be applicable to the dispute relating to the work covered by the contract and the remedy of reference to arbitration shall not be available to the contractor.

19.Deviation Limit:

Deviation limit in quantities to be executed shall be upto a maximum of 25% (Twenty-five percent) at rates in the order and those in excess of that limit shall be determined and decided mutually before execution.

20.Maharashtra Sales Tax on Contract Turnover.

TAX DEDUCATION AT SOURCES (TDS) FOR CONTRACT WORKS

As per the Govt. notification dated January 1, 2000 appeared in the news paper "Times of India" dated 10.1.2000" stating that "The limit for TDS has been enhanced to all payments upto Rs.2 lakhs and above". Earlier, TDS was deductible on all payments exceeding Rs.50,000/-. A flat rate of two percent (2%) and as applicable has been provided for all types of contract. Only principle contractor will be liable for TDS,. The sub contractors have been exempted.

21. Procedure for submission of bills of work for payment.

The measurements and abstract should be prepared using macros in excel format on their letterhead, manual computation should be totally avoided. If called upon by the Institute, the contractor should submit soft copies of the bills to facilitate checking of the same. The bills will be processed for payment after

following approved procedure for their checking and verification at various stages, a soft copy also may be produced for verification & checking.

22.Payments

a.The quantity of work executed shall be measured and payments made usually once in a month and on the completion of the work. On termination of this agreement, final measurements will be made, and the accounts adjusted accordingly.

b.Payments due to the contractors if so desired by him/them be made to his/their representative instead of directed to him/them, provided that the contractors/s furnish/es to the Executive Engineer (1) an authorisation in the form of legally valid documents such as power of attorney conferring authority on the bank to receive payments and (2) his/their own acceptance of the correctness of the account made out as being due to him/them by the IIT, his / their signature on the bill or other claim preferred against the IIT before settlement by the Executive Engineer of the account or claim by payment to the bank. While the receipt given by such bank shall all constitute a full and sufficient discharge, for the payment, the contractor/s should wherever possible, present his/their bills duly received and discharged through his/their bankers.

The party tendering shall permit the IIT at the time of the making any payment to him/them for work done in pursuance of the acceptance of his tender to deduct 5 percent (5%) from all monies payable on final bill and 5percent (5%) on running bills(s) and to hold such monies as security for the due performance by him/them of the work hereby tendered for. It is also hereby agreed that any sum of the money payable by the party tendering to the IIT Bombay in connection with this work may be released from the amount deducted as aforesaid or from any sums which may be due or become due to him/them by IIT or any account whatsoever.

c.Over payment if any noticed upto a period of 3 years from the date of final bill submitted by the contractor will be recovered/deducted from the payment due to the contractor from IIT or any other source or by other means.

d.Payment will be withheld if defective work, is not remedied/failure of the contractor to make payment properly to sub contractor or for materials or labourers/damage to another contractor or subcontractor / Damage not remedied / A reasonable doubt that the contract can be for the balance amount unpaid.

Payment will be deducted if the work is not done in accordance with the contract including the not corrected/ damaged/ defective work.

e. The contractor whose tender is accepted will be required to furnish by way of security deposit for the due fulfillment of his contract. Security deposit shall be 5% (five percent) of the amount of work order for DLP (Defect Liability Period) of 36 months (Thirty Six Months) from the date of commissioning / handing over of the work, No Bank guarantee is accepted for the works below Rs.5 lakhs. For above 5 lakhs Bank Guarantee from a Nationalized Bank/ Scheduled bank towards security deposit for the guarantee period will be accepted with the final bill and not for running bill. The security deposit will be collected by deductions from the running account bills of the contractor at the rate mentioned above. The Earnest money deposit paid at the time of tender, will be released after submission of final bill as applicable.

f.Security deposit will be recommended for release on receipt of written request from the contractor subject to clearing of all defects intimated during the guarantee period/defect liability period. In case of Bank guarantee the validity/period is to be extended as and when required until clearance of the defects. Otherwise the defects carried out subsequent to the invalid bank guarantee will be recovered from the contractor's bill or other source/means.

g. Secured Advance

Secured advance upto 75% of supplied materials cost directly incorporated in the work (except those which are considered perishable) shall be paid along with intermediate bills, on submission of the indemnity bond by the contractors, such advances shall be recovered in next running account as per consumption of such materials in the works.

h. One bill shall be paid to the contractor per month on the basis of acceptance of joint measurements taken with representative of the contractor and IIT. The final bill shall be submitted by the contractor or shall be recorded and processed for the payment within 3 months of the submission of the bill or completion of work

in all respects, whichever is later. No extra item or substituted items of work shall be carried out unless prior approval in writing has been received by the contractor of such rates submitted by him.

23. Refund of interest free Earnest Money Deposit (EMD) to the unsuccessful tenderers / bidders will be released after the expiry of validity period of the tender / or issue of work order whichever is later. The Earnest money deposit paid at the time of tender, will be released after payment of final bill as applicable.

24. The tendered work, if required, will be split up among the various parties and order issued accordingly for execution.

25. The quantity given is approximate and may vary before/during execution. The items may be deleted before/during execution. The quote rate items may be operated for execution if required/used for deducting the rate wherever applicable.

26. All approvals are subject to the condition that equipments and works are as per specification of the work order under which all items are clearly indicated. This is irrespective of the fact whether the same are shown in the drawing or not.

27. All the items whether specifically mentioned or not but which are required or usual to make a complete working and to ensure safe and satisfactory operation are to be provided by contractor without any extra charge.

28. The electrical contractor is to coordinate with the civil contractor closely at each and every step of execution of work right from the beginning.

29. Inventory and as built drawing should be submitted in triplicate along with final bill without any extra cost.

30. Agreement.

Agreement for the contract is to be made in a stamped paper of appropriate value by the successful contractor for the value of work order exceeding **"Rupees Five Lakhs".** In case of value less than Rs.5 Lakhs tender documents signed by the contractor while submitting the tender and correspondences if done subsequently, will be treated as agreement. It is therefore impressed upon all tenders to fill up the tender properly duly signed in all pages with stamp including the witness wherever required. Alternatively, the successful tenderer is to make his own arrangement for making the preparation of the agreement document complete.

Executive Engineer(Electrical)

PART-1

SPECIAL CONDITIONS

1. Institute reserves the rights to select any of the optional make in BOQ and also for this tender.

2. Its responsibility of the contractor/vendor/SI to visit site and concur and weighted BOQ. The contractor/vendor/SI has fully responsible to make said BOQ/CCTV system fully functional.

3. DLP warranty of BOQ other than consumables is 3 year from date of completion of work and or OEM standard warranty.

4.Factory/Dealer/Distributors inspection by institute representative (Mini. 3 Nos) for equipment covered under (like CCTV Cameras, GRP poles, Network Switches, Recording server, Management Server, Failover Server etc. is to be arranged by the contractor/vendor/System Integrator (L1-lowest vendor) in all respect without. Any extra charges. The QAP (Quality Assurance plan) needed to be arranged by L1 vendor and same should be approved by the competent authority/Engineer- In-charge of IIT B as well as OEM before factory inspection. Competent authority / Engineer-In-charge will reserve all rights to attend/cancel /waive-off the Factory inspection.

5. The bidder must submit Manufacturer Authorization Form (MAF)/Product Genuine Certificate (PGC) along with tender documents for all major equipment(s) (like CCTV Cameras, GRP poles, Network Switches, Recording server, Management Server, etc from respective approved OEM (Please Note:- The Tender reference no., Authorized person Name, Mobile Number and e-mail ID & Designation, should be mentioned in the MAF, else it will not be considered as the Valid MAF) along with PART-1 Pre-qualification tender.

6.The contractor shall abide by all security regulations issued by the security staff from time to time and as per rules appended herewith.

7.Unless otherwise provision is made, the contractor will have to make his own arrangement of articles like cement and steel etc.

8.All the conduits/trunking/cables along with its laying & excavation for this entire work are under the scope of vendor/contractor/SI (L1) . The excavation should to a depth aprox.900mm, backfilling, levelling etc. all as specified. L1 vendor also responsible for designing of raceway/conduits etc in CAD. The designing/excavation in such way that, it will not disturb/damage other utilities. The drawing CAD should we get approved by the Institute Authorities/ EIC before initiation of the work.

9.The rates quoted by the tenderer shall include all taxes, duties and no extra shall be paid on this account. Similarly, no price escalation during the tenure of the contract for the extended period permitted by the institute, shall be allowed and the rates quoted in the contract shall be firm for the contract.

10. Sufficient care should be taken by the contractor to brick walls, floor, glass windows etc. while carrying out the works. Any damage done to the departmental property shall be rectified by the contractor at his own expenses.

11.Apart from the approved makes, if any system integrator (SI) wants to participate with different makes, then he has to do a proof of concept (POC) before the prebid meeting. The newly introduced make should abide by all specifications provided in the tender documents. Otherwise, it will not be considered an approved make.

12. For Better installation work,the L1 vendor has to submit OEM Certified Technician Certificate.

13.The contractor shall remove all surplus materials, debris etc. out of the IIT campus from the site of work on completion of work and will hand over the site clean before the processing of final bill. In case of dismantled materials such as wires, light fittings, pipes switchboards etc. as specified in the Schedule of work shall be returned to the Electrical Maint. Division Store by the contractor at his own cost.

14.The contractor shall not be permitted to construct labour hutments anywhere in the campus. However, in case the work necessitates the construction of temporary store for storing the cement or any other materials, the same shall be permitted to be constructed by the contractor at his cost with the prior permission of the Engineer-in-charge. The site, however, shall have to be vacated including all encumbrance immediately after completion of work and before processing of the final bill.

15.All materials such as wires, cables, lugs, switch gears, power boards, distribution boards, transformers etc and other materials as incorporated in the items of work shall be as per latest Indian Standard specifications. However, special requirement as indicated in the schedule of quantities shall prevail and work shall be carried out as per this specification. Contractor shall also make his own arrangements for all other materials required for the work.

16.All contractors are to make their own arrangement for all required tools & tackles, testing kits, ladder etc. and if at all any of the above item is required to be used, it should be done with the permission of the user and the user should be told or shown before leaving for the day. It is also brought to the notice that if any damage is done to the above property, the same is to be replaced by the contractor at the contractor's cost else the same will be deducted from the bill.

17. The contractor shall constantly keep one or more qualified and competent Engineer(s) and a full time licensed electrical supervisor. Work charged staff deputed at site for execution of awarded work will have the required skill (qualification / license / experience) upto the satisfaction of Engineer - in- charge and general practice. The contractor, on intimation, shall be immediately dismiss from the works any person employed thereon by him who may be in the opinion be incompetent or misconduct himself and such persons should not be again employed in the works without written permission by the Engineer-in- charge.

18.Rates should be fixed for next 3 years. L1 bidder is bound to provide any BOQ item for next three years to the same cost that he has quoted i.e. as good as Terms Contract Tender.

19.The bidder should quote 2years CAMC % rate as per the Annexure-B6. (To be submitted in separate sealed envelope)

Note : Kindly note that the queries and any similar communication related to this tender to be held apart from provided email ID's (prashantsarafdar@iitb.ac.in, exengr.elect@iitb.ac.in) then such activities will be considered as violation of the tender norms.

Executive Engineer(Electrical)

PART-1

CONDITIONS OF WORKING IN RESTRICTED AREAS / SECURITY

Following conditions shall be followed for working within the restricted areas and for security.

1.Visit to site within the restricted areas:

Permission to enter the restricted areas at the time of submission of tenders can be obtained through the Executive Engineer (Electrical) concerned. Tenderers are advised to send prior intimation to the Executive Engineer concerned about the particulars of their agents, representatives, etc. so that necessary arrangements may be made by him to secure admission. Whether a tenderer visits the site or not he shall be deemed to have full knowledge of the restrictions on entering into, exit from and working within the restricted areas.

2.Entry and Exit:

The contractor, his agents, representatives, workmen, etc and his materials, carts, trucks or other means of transport, etc. will be allowed to enter through and leave from only such gate or gates and at such times as the Executive Engineer concerned authorized in charge of the restricted area may, at their sole discretion, permit. Contractor's authorised representatives, if required, are to be present at the places of entry and exit for the purpose of identifying his carts, trucks, etc. to the personnel in charge of the security of the restricted area.

3.Temporary Identity Permits:

The contractor or his representatives/site in charge, overseers and other regular staff are required individually to be in possession of identity cards or temporary entry permit which will be issued by the security section on the recommendation of the Engineer-in- charge. Regarding casual labourers, skilled workers engaged in the execution of the work, the following procedures shall be followed:

The casual/skilled workers who will be engaged by the contractor shall be allowed to enter IIT premises through gate, on production of daily attendance card which will be marked by the authorised representative of the contractor before entering at the security gate. The security officer shall have authority not to allow any labourers who do not possess the marked mustered roll cards. The labourers working and moving in the campus should always carry the muster roll card with them for the identification. Contractor shall be responsible for the conduct and action of his workmen/agent or representative at all times.

4.Movement of contractors' materials:

Any materials which are removed from the site of works and are required to be taken out from the IIT campus, the contractor should follow the following procedures. The contractor shall apply in writing to the Engineer- in-charge the details of the materials to be removed including which are rejected etc. This application shall be endorsed by the engineer in charge or his authorised representatives. The materials shall only be allowed to go out of IIT campus after counter signature of the security officer and checked at the gate. No materials/tools will be allowed to be brought on holidays/Saturdays/Sundays in side the campus. Contractors can bring the materials/tools/between 0900 hours and 1700 hours on any working day(Monday to Friday).This may please be noted.

5. **Search:**

Thorough search of all persons and transport shall be carried out at each gate and for as many times as gate is used for entry or exit and may also be carried out at any time or any number of times at the works site within the restricted area.

6. **Working Hours:**
The units controlling restricted areas usually work during five days in the week and remain closed on Saturdays and Sundays. The working hours available to contractor's labour and staff are however appreciably reduced because of the time of entry and exit during working hours. The exact working hours, working days and non working days observed for the restricted areas where works are to be carried out shall be deemed to have been ascertained by the contractor before submitting the tender. The tenderer's attention is invited to the fact that the total number of working hours for units are prescribed in regulations and no work beyond the prescribed working hours shall be permitted.

7. **Work on holidays**
The contractor shall not carry out any work on declared holidays of IIT and other non working day unless he is expressly authorised in writing to do so by the Executive Engineer (Electrical) concerned.

8. **Access to restricted areas after completion of work:**
After the works are completed and surplus stores etc, removed, the contractor, his agents, representatives or workmen etc, may not be allowed any access to the restricted area except for attending to any rectification of defects pointed out to him by Executive Engineer (Electrical) concerned or his representatives.

9. **Fire / Safety Precautions:**
The contractor, his agents, representatives, workmen etc, shall strictly observe the orders pertaining to fire/safety precautions prevailing within the restricted area. Contractor firm will be the sole responsible for all the safety related concerns and addressing of their employees deployed in work execution.

15/04/24

Executive Engineer(Electrical)

15/4/24

PART-1

Company declaration for Pre-Qualification criteria
(On the applicant Company's Letterhead)

To
The Executive Engineer(Electrical)
IIT Bombay,
Powai, Mumbai

Sub : Supplying, installing, testing and commissioning of server-based Centralized CCTV System- PH- II at IIT Bombay.

We would like to clearly state that we qualify for this work as our company meets all the eligibility criteria of the tender. The details are as under:

Sr.No.	Description	Details	Documents uploaded (Yes /No)	Documents submitted (Yes /No)
1	Average annual financial turnover of the firm should be at least Rs.5,35,09,523/- during the immediate last 3 consecutive financial years ending 31st March 2023. This should be duly audited by a registered Chartered Accountant. . (Attached copy of balance sheet / Profit-Loss account / ITR of 3 years) FY 2022-23: Rs… FY 2021-22: Rs… FY 2020-21: Rs…			
2	Bank Solvency Certificate of nationalized Bank / Schedule Bank for a minimum of Rs. 7,13,46,031/- and should not be older than one year from the date of opening of tender.			
3	The bidder should have satisfactorily completed 3 (Three) 'Extra Low Voltage (ELV) i.e. Networking / CCTV/AV' work orders with completion certificate each of value not less than Rs. 7,13,46,031/- OR 2 (Two) 'Extra Low Voltage (ELV) i.e. Networking/ CCTV/AV' work orders with completion certificate each value not less than Rs. 10,70,19,047/- OR 1 (One) 'Extra Low Voltage (ELV) i.e. Networking/ CCTV/AV' work order with completion certificate value at least Rs. 14,26,92,062/- during the last 7 (Seven) years ending on the last day of the month previous to the one in which the tenders are invited.			

15/4/24

PART-1

4	Potential bidder should have office (minimum 3 years) within the range of 150KM in radius from the IIT Bombay. The verification will be carried out with reference to GST certificate i.e. provided by the bidder. Bidders also have to submit information about core employees that have been serving in that location since 3 years on company's letterhead mentioning name, address, employee no., mobile no. of the employee.			
5	The bidder must submit Manufacturer Authorization Form (MAF)/Product Genuine Certificate (PGC) along with tender documents for all major equipment(s) (like CCTV Cameras, GRP poles, Network Switches, Recording server, Management Server, etc from respective approved OEM (Please Note:- The Tender reference no., Authorized person Name, Mobile Number and e-mail ID & Designation, should be mentioned in the MAF, else it will not be considered as the Valid MAF)			
6	The contractor should have EPF/ESIC registration.			
7	Enclose Bidder's Information. **Annexure A1.**			
8	The bidder must **not be blacklisted/Suspended** or any service-related dispute with any organization/Govt. Organizations/ Bank in India or outside India. Self declaration shall be submitted by agency. **Annexure A2.**			
9	List of the quoted make and model.**(Annexure A3)**			
10	Duly signed copy of Tender Part 1- Pre-qualification Bid as a token of acceptance of all the terms & conditions			
11	Technical Pre-qualification Annexure B1 to Annexure B5.			
12	BOQ- C-AMC Annexure - B6.			

We understand that if the details given in support of the claims made above are found to be untenable or unverifiable or both, our bid may be rejected without any reference to us.

15/04/24

Yours sincerely,

(Signature, Name, designation, contact address and telephone number of the authorized signatory& Seal)

15/4/24

Indian Institute of Technology Bombay

Purchase Requisition

Department/Section:	EMD WORKS	**Created By:**	Prashant Sarafdar
Indent #:	1000036861	**Created on:**	15.12.2023
Indenter Name:	EMD INSTRUMENT. (656)	**Purchase Type:**	PR: Adverts. Tender
Local/International:	Local	**Currency:**	INR

Amount: 178365078.00(Seventeen Crore Eighty Three Lakh Sixty Five Thousand Seventy Eight Rupees)

Short Description: Name of work: SITC of server based Centralized CCTV System-PH-II IITB

Location : Various locations Of IITB

Cost center: 1111017

Item Details:

Item No	Item Code	Item Description	Quantity	Unit	Rate	Amount
10		4MP Outdoor Bullet camera Supply of4MP Outdoor Bullet camera with 1/2.7-inch CMOS, Effective pixels 2688(H) x 1944(V), 30fps, Sensitivity, Color 0.1 lx Mono 0.04 lx With IR 0.0 lx or better, 120 dB Dynamic range, Electronic Day/ Night, Automatic Electronic Shutter (AES), H.265, H.264 MP (Main Profile); M-JPEG Video compression, White balance, Backlight Compensation, Privacy Mask, Edge based/ server based analytics such as Line crossing, Enter/ leave	250.000	each	Unit rate to be in condition tab	filled online
		field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, Minimum 6 analytics should run simultaneously, Object classes (Upright persons, Vehicles) detect up to 50 objects simultaneously, Audio detection (if microphone used), 4.9mm- 8mm Automatic Varifocal (AVF) lens, MicroSD card slot for edge recording, Motion, tamper and audio detection, FTP,IR range upto 60mtrs,ON VIF Profile S,G,T and M, PoE,IP66 and NEMA 4X, IK10, CE, FCC,UL certified: dual power supply, SD card support upto 2TB. Approved Makes: Bosch / Axis/ Mobotix / Avigilon			Unit rate to be in condition tab	filled online
20		4MP Outdoor Bullet camera Supply of4MP Outdoor Bullet camera with 1/1.8 inch CMOS, Effective pixels2688(H) x 1520(V), 60fps, Sensitivity – (Measured according to IEC 62676 Part5 Color 0.078l x Mono 0.008l x With IR 0.002 lx or better, 141 dB Dynamic range, Electronic Day/ Night, Automatic Electronic Shutter (AES), H.265, H.264 MP (Main Profile); M-JPEG Video compression, White balance, Backlight Compensation, Privacy Mask, Edge based/ server based analytics such as Line crossing, Enter/ leave field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, Minimum 6 analytics should run simultaneously, Object classes (Upright persons, Vehicles) detect up to 50 objects simultaneously, Audio detection (if microphone used),4.70mm–10mm Automatic Varifocal (AVF) lens, Micro SD card slot for edge recording, Motion, tamper and audio detection, FTP, IR range upto 80mtrs, ONVIF Profile S , G, T and M , PoE,IP66,IP67,IP6 K9K and NEMA 4X, IK10, CE, FCC, UL certified. SD card support up to 2TB.Dual power supply. Approved Makes: Bosch/ Axis / Mobotix / Avigilon	4.000	each	Unit rate to be in condition tab	filled online

15/12/23

EMD INSTRUMENT.

Signature of Indenter

19

30		4MPIR Bullet camera Supply of 4MP IR Bullet camera with 1/1.8-inch CMOS,Total sensor pixels 2688 x 1520, 4MP; 60fps, H.265; H.264; M- JPEG, Automatic Electronic Shutter(AES); Intelligent Dynamic Noise Reduction, Intelligent Defog, Edge based/ server based analytics such as Line crossing, Enter / leave field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, Minimum 6 analytics should run simultaneously, Object classes (Upright persons, Bikes, Cars, Trucks), Training camera for specific object, Accurate classification of person, bike, car, truck, Audio detection (if microphone used),Privacy Masking, Pixel counter, Memory card slot, IR Rang 140mtr, Automatic Vari focal 12 - 47 mm lens, Alarm Input 1/1, Audio Input/output, RJ45, Trusted platform module and PKI, G.711, Signal–to-Noise Ratio > 55 dB, Audio Streaming Full-duplex / half duplex, ONVIF Profile S and G and T, IP66, IK10. Dual micro sd card for mirror, failover, extended service, Dual power supply, UL certified, FTP, Drop box and e-mail applications. Approved Makes: Bosch/Axis/ Mobotix / Avigilon	5.000	each	Unit rate to be in condition tab	filled online
40		4MP Indoor Dome camera Supply of 4MP Indoor Dome camera with 1/2.7-inch CMOS, Effective pixels 2592(H) x 1944(V), 30fps, Sensitivity – (Measured according to IEC 62676 Part 5 Color 0.060 lx Mono 0.0120 lx With IR 0.0 lx or better, 120 dB Dynamic range, Electronic Day/ Night, Automatic Electronic Shutter (AES), H.265, H.264 MP (Main Profile); M-JPEG Video compression, White balance, Backlight Compensation, Privacy Mask, Edge based/ server	14.000	each	Unit rate to be in condition tab	filled online
		based analytics such as Line crossing, Enter /leave field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, Minimum 6 analytics should run simultaneously, Object classes (Upright persons, Vehicles) detect up to 64 objects simultaneously, Audio detection(if microphone used), 4.5mm to 8.4 mm Automatic Varifocal (AVF) lens, MicroSD card slot for edge recording, Motion, tamper and audio detection, FTP, IR range upto 40mtrs, 3 axis adjustment, ONVIF Profile S,G,T and M,PoE,IP54 and NEMA 4X, IK10, CE, FCC , UL certified. SD card support up to 2TB, Dual power supply. Approved Makes: Bosch/ Axis/ Mobotix / Avigilon				
50		1080p HD PTZ Camera Supply of 1080p HD PTZ Camera with 1/2" progressive scan CMOS, Effective pixels 1937 x 1097 (2.12 MP), 30x Optical Zoom, 12X Digital Zoom, Minimum Illumination - Color:0.0047 Lux, B/ W: 0.0013 lux or better,120dB WDR, H.265, H.264, MJPEG streams, Intelligent Dynamic Noise Reduction, BLC, White Balance, Pan Range 360° continuous, Tilt Range Upright: -65° to +90°, Pan: 120°/s, Presets 250, Tours, Audio- 1/1 Channel In/ Out, Micro SD card support up to 1TB, Edge based/server based analytics such as Line crossing, Enter / leave field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, Minimum 6 analytics should run simultaneously,32 individually configurable privacy masks, Dual Power options, , IP66/67/68 and NEMA NEMA TS-2, IK10, ONVIF Profiles S, G ,T,M, FCC, CE, UL Certified, AES/ FIPS encrption, signed firm ware, up to 500ml Rinetrnal / external, Wiper in built/external, electronic image stabilization, salt test report, wind load minimum 100mph,MTBF > 80000 hours, SDcard support up to 2TB, Dual power supply. Approved Makes: Bosch/ Axis/ Mobotix / Avigilon	3.000	each	Unit rate to be in condition tab	filled online

EMD INSTRUMENT.

Signature of Indenter

60		SIP-based IP horn loudspeaker	1.000	Activ. unit	----------	----------
60.1		SIP-based IP horn loudspeaker Supply of 15W long throw SIP-based IP horn loudspeaker designed for Excellent speech reproduction suitable for indoor and outdoor applications(IP66).The speaker shall support PoE IEEE 802.3af Class3 and PoE+IEEE802.3 at Class4.The speaker shall have a built-in class Damplifier and Digital Signal Processing (DSP) to optimize the speech intelligibility in the environment. The speaker shall have an integrated Electret Condenser microphone for two-way SIP communication (talk back function), ambient noise level trigger, and automatic volume control. Shall be remotely configurable via WEB-GUI. Approved makes should be the same as the camera OEM. Approved Makes: Bosch/ Axis/ Mobotix /Avigilon	26.000	each	Unit rate to be in condition tab	filled online
70		Glass-reinforced plastic (GRP)	1.000	Activ.unit	----------	----------
70.1		Glass-reinforced plastic (GRP) Supply and installation of a Glass-reinforced plastic (GRP) pole Complete with mounting accessories, as required for the pole and The cameras, suitable to mount the Outdoor cameras. The GRP poles shall be ultraviolet-resistant, corrosion-proof,	55.000	each	Unit rate to be in condition tab	filled online

EMD INSTRUMENT.

Signature of Indenter

		electrically insulated, and shall have no reaction to direct contact with water. GRP Poles shall be manufactured by Automatic CNC 4 Axis Filament Winding Process and should be designed to withstand wind speed of 50 M/sec. Depending up on the classification of the wind zone. The glass Content in the GRP material shall be≥70%.GRP Poles shall be fire Retardant with low flammability when tested in accordance with IS6746 & ASTMD635.The Arms should be such that they are Easily fixable and interchangeable and should be able to rotate On its axis for aminimum of 90°one it her side so that it is Easier to make adjustments if required at site. The Pole shall be tested for deflection as per ASTM D 4923: the deflection under load should not be more than 15% of the length of the pole. Permanent Deflection should not be more than 1% of the length of the pole after performing the deflection test. The manufacturer should possess a valid certificate of EN-40-7 for deflection at the time of submission of the offer. The manufacturer Should possess an EN12767 certificate for passive safety for Any conical pole at the time of submission of the offer. The Pole shall be with a Box to house the power supply / Convertor, etc., with the Following Specification: (The shade of the pole Is metallic silver, hardware MS zinc passivated wherever required, the bar will be painted with U.V. Stabilized, specially developed poly urethane paint for external application, tolerance in length ± 50mm & thickness ± 0.5mm, average thickness of pole will be 6mm, tolerance in diameter ±5mm, the bottom surface (below ground line) of light pole is rough),7000 MM Height, 89MM Top Diameter 162MM Bottom diameter, with anti-rotating Fins) With external junction box of size 165X165X105 mm(IP65) with 4 terminals of 6sq.mm & 10AMP SP MCB with JB Clamp. Approved Makes: SUMIP/ WIMCO/ PROFAB				
80		Hard Soil Digging	1.000	Activ. unit	----------	----------
80.1		Hard Soil Digging SITC of Hard Soil Digging a 1m deep and 0.45m wide trench, Then covered with a layer of sand. The cables are laid In the trench and covered with a 10cm thick layer of sand. To protect against mechanical injury, it is recommended That the trench be covered with bricks and other materials. It has to be restored to its original position by the bidder	7500.000	m3	Unit rate to be in condition tab	filled online

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		(Eg, digging on cement/asphalt road; it has to be again made in the same conditions as before after completion of work with prior permissions from authorities.)				
90		Soft Soil Digging	1.000	Activ.unit	----------	----------
90.1		Soft Soil Digging Soft Soil Digging a 1m deep and 0.45m wide trench, then covered With a layer of sand. The cables are laid in the trench and Covered with a 10cm thick layer of sand. To protect against Mechanical in jury, it is recommended that the trench be Covered with bricks and other materials. It has to be restored to its original position by the bidder (Eg, digging on cement/asphalt road; it has to be again made in the same conditions as before after completion of work with prior permissions from authorities.)	12500.000	m3	Unit rate to be in condition tab	filled online
100		Outdoor Access Switch: SITC of Outdoor Access Switch: Supply, Installation, and Testing Commissioning of IndustrialGradeFullyManagedLayer2switch,8x 10/100/1000 Mbps POE+ ports with 4 SFP slots. Theswitchshouldbeloadedwithaminimumof2x 1Gbps single-mode SFP modules. The switch should have a minimum of one AC DC adapter. Detailed specs are given in the Technical Specification. Approved Makes: Allied Telesis/CISCO/ ARUBA	75.000	each	Unit rate to be in condition tab	filled online
110		Core Switch SITC of Core Switch: Supply, Installation, Testing Commissioning of Enterprise Grade Layer 3 stackable switch,24 x SFP slots, 2 x 10G SFP+ slots, and 2 x 10 G stacking ports with required stacking cables. The switch should be loaded with a minimum of 12 x 1Gbps SFP copper modules and 12 x 1Gbps single-mode SFP modules. The switch should have two AC power supplies. Detailed specs are given in the Technical Specification. Approved Makes: Allied Telesis/CISCO/ ARUBA	5.000	each	Unit rate to be in condition tab	filled online
120		Indoor Access Switch SITC of Indoor Access Switch: Supply, Installation, Testing Commissioning of Enterprise Grade Fully Managed Layer 2 switch, 24 x 10/ 100/1000 Mbps Non-Po E ports with 4 SFP slots. The switch should be loaded with a minimum of 2x 1Gbps single-mode SFP modules. The switch should have a minimum of one AC power supply. Detailed specs are given in the Technical Specification. Approved Makes: Allied Telesis/CISCO/ ARUBA	1.000	each	Unit rate to be in condition tab	filled online
130		Indoor Access Switch SITC of Indoor Access Switch: Supply, Installation, Testing Commissioning of Enterprise Grade Fully Managed Layer 2 switch, 24 x 10/ 100/1000Mbps POE + ports with 4SFP slots.The switch should be loaded with a minimum of 2 x 1Gbps single-mode SFP modules. The switch should have a minimum of one AC power supply. Detailed specs are given in the Technical Specification. Approved Makes: Allied Telesis/CISCO/ ARUBA	1.000	each	Unit rate to be in condition tab	filled online

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140		Indoor Access Switch SITC of Indoor Access Switch: Supply, Installation, Testing Commissioning of Enterprise Grade Fully Managed Layer 2 switch, 16 x 10/ 100/1000Mbps POE + ports with 2SFP slots.The switch should be loaded with a minimum of 2 x 1Gbps single-mode SFP modules. The switch should have a minimum of one AC power supply. Detailed specs given in Technical Specification. Approved Makes: Allied Telesis/CISCO/ ARUBA	1.000	each	Unit rate to be in condition tab	filled online
150		2Mtr patch cord (Cat6)	1.000	Activ. unit	----------	----------
150.1		2Mtr patch cord (Cat6) SITC of 2Mtr Factory moulded patch cord(Cat6) Approved Makes: DLINK/AFL/ COMMSCOPE	450.000	each	Unit rate to be in condition tab	filled online
160		10 Mtr patch cord (Cat6)	1.000	Activ. unit	----------	----------
160.1		10 Mtr patch cord (Cat6) "SITC of 10Mtr Factory moulded patch cord (Cat6) Approved Makes: DLINK/AFL/ COMMSCOPE"	200.000	each	Unit rate to be in condition tab	filled online
170		24 Port patch panel	1.000	Activ. unit	----------	----------
170.1		24 Port patch panel "SITC of 24 Port Fully Loaded patch Panel Approved Makes: DLINK/AFL/COMMSCOPE"	3.000	each	Unit rate to be in condition tab	filled online
180		I/O Face plate	1.000	Activ. unit	----------	----------
180.1		I/O Face plate "SITC of I/O Face plate with box Approved Makes: DLINK/AFL/ COMMSCOPE"	400.000	each	Unit rate to be in condition tab	filled online
190		LIU 24 Ports LC with Pigtails	1.000	Activ.unit	----------	----------
190.1		LIU 24 Ports LC with Pigtails "SITC of Fully loaded LIU24 Ports LC with Pigtails Approved Makes: DLINK/AFL/ COMMSCOPE"	3.000	each	Unit rate to be in condition tab	filled online
200		LIU 6 Ports LC with Pigtails	1.000	Activ. unit	----------	----------
200.1		LIU 6 Ports LC with Pigtails "SITC of Fully loaded LIU 6 Ports LC with Pigtails Approved Makes: DLINK/AFL/ COMMSCOPE"	77.000	each	Unit rate to be in condition tab	filled online
210		1mtr LC to LC Single Mode Patch Cords	1.000	Activ. unit	----------	----------
210.1		1mtr LC to LC Single Mode Patch Cords "SITC of 1mtr LC to LC Single Mode Patch Cords Approved Makes: DLINK/AFL/ COMMSCOPE"	202.000	each	Unit rate to be in condition tab	filled online
220		Self Adhesive Labels	1.000	Activ. unit	----------	----------
220.1		Self Adhesive Labels SITC of Self Adhesive Labels (Length 5cmX Height 1 CM); For naming and Identification of the cables and devices	1.000	Lot	Unit rate to be in condition tab	filled online
230		CAT-6 / 6A Armoured Cables	1.000	Activ. unit	----------	----------
230.1		CAT-6 / 6A Armoured Cables SITC of CAT-6/6AArmoured Cables: Supply, Installation, Testing, And Commissioning of Flexible LSZH Cat-6/6Ato be laid, cable Laid in Conduits/ cable Trays shall include IO Box with	15000.000	M	Unit rate to be in condition tab	filled online

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		Face plate along with the junction box at field end Approved Makes: Polycab/DLINK/AFL/ Comm Scope				
240		single mode outdoor 6 core fiber optic	1.000	Activ. unit	----------	----------
240.1		Single mode out door 6 core fiber optic armored cable Supply, installation, testing, and commissioning of single mode outdoor 6 core fiber optic armored cable, zero halogen low smoke Outers heath, and laid in underground trenches and shafts, Complete with all terminations as required. The fiber optic cable shall Be used for connecting all the above-mentioned Edge Switches (located in DC, DG, Admin & Substation building) to the Core Switches located in the main DC Building. Approved Makes: Polycab/DLINK/AFL/ COMMSCOPE	15000.000	m	Unit rate to be in condition tab	filled online
250		42U Rack	1.000	Activ.unit	----------	----------
250.1		42U Rack SITC of 42U Rack with Cable Management & Rack Mounted Power Strips Full-size Monitor tray x 2no,Vertical PDU25 Socket PDU With 4Sq Cabe 32Amp Topx2, Cable manager-Metalcable manager - 01 U - Plastic Cable loop x6,Four fans for M cab/ProTekFS, Mounting hardware Pkt 20set of 20 (For Servers and Network Switches), Approved Makes: APC/ Valrack/ Rittal / Legrand	3.000	each	Unit rate to be in condition tab	filled online
260		6U Junction Box/Rack	1.000	Activ.unit	----------	----------
260.1		6U Junction Box/Rack SITC of IP66 rated 6U Junction Box/Rack with wall/ Pole mounting Arrangements with support brackets, front door with compression lock, removable high-quality EPDM or PU gaskets for IP, complete welded structure with fixed rates and sides, rain canopy. Cable Manager horizontal, earthing kit with earth studs, provision for cable entry, earthing wire on front door, MCB double pole, din rail full width assemble din mounting plate top & bottom plate, Tamper switch, Din rail mounted 6Port Patch vertical Panel & other required accessorie Need to be considered (For Industrial Switches). Approved Makes: Rittal /Sumip/ Valrack	75.000	each	Unit rate to be in condition tab	filled online
270		Industrial POE Media Converter	1.000	Activ.unit	----------	----------
270.1		Industrial POE Media Converter SITC of Single Mode Industrial POE Media Converter Approved Makes: Allied Telesis/ Syrotech / Cisco	80.000	each	Unit rate to be in condition tab	filled online
280		4U Junction Box/Rack	1.000	Activ.unit	----------	----------
280.1		4U Junction Box/Rack SITC of IP66 rated 4U Junction Box/Rack with wall/ Pole mounting Arrangements with support brackets, front door with compression lock,	80.000	each	Unit rate to be in condition tab	filled online

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		removable high-quality EPDM or PU gaskets for IP, complete welded structure with fixed rates and sides, rain canopy. The cable Manager horizontal, earthing kit with earth studs, provision for cable entry, earthing wire on the front door, MCB double pole, din rail full width assembled in mounting plate top & bottom plate, Tamper switch Din rail mounted 6Port Patch verticle Panel other required Accessories need to be considered (For Industrial Switches). Approved Makes: Rittal /Sumip/ Valrack				
290		3 Core Electrical Armoured Cable	1.000	Activ.unit		
290.1		3 Core Electrical Armoured Cable "SITC of 3Core Electrical Armoured Cable 1.5Sqmm Approved Makes: Polycab/Finolex"	18000.000	m	Unit rate to be in condition tab	filled online
300		Electrical Universal Power Point	1.000	Activ.unit		
300.1		Electrical Universal Power Point SITC of Electrical Universal Power Point 5/15Amp, 6 Modules (2Socket&1switch,1Blankwithbox) Approved Makes: ROMA/ANCHOR	310.000	each	Unit rate to be in condition tab	filled online
310		MAIN RECORDING SERVER SITC of MAIN RECORDING SERVER Rack Type: 900Mbpsor 138 Cameras recording with 288TB Usable Storage after RAID 5/6, 1 x Intel Xeon E-2226 G Processor with 16 bays(16x18TB7200 RPM Disk) for Storage, minimum 32GB RAM, as per detailed specs given in Technical Specification. Recording at 25 FPS @1080P @1800Kbps bit rate for 90 days. Minimum quantity mentioned, Number of servers to be vetted by respective VMS and Camera OEM on letter head Approved Makes: DELL/ HP/ Camera OEM	6.000	each	Unit rate to be in condition tab	filled online
320		FAILOVER RECORDING SERVER SITC of FAILOVER RECORDING SERVER Rack Type: 900 Mbps or 138 Cameras recording with 288 TB Usable Storage after RAID 5/6, 1 x Intel XeonE-2226 G Processor, with 16 bays (16x18TB 7200RPMDisk) for Storage, minimum 32GB RAM, as per detailed specs given in Technical Specification. Recording at 25 FPS @1080P @1800 Kbps bit rate for 90 days. Minimum quantity mentioned, Number of servers to be vetted by respective VMS and Camera OEM on letter head Approved Makes: DELL/ HP/ Camera OEM	1.000	each	Unit rate to be in condition tab	filled online
330		Main MANAGEMENT SERVER SITC of Main MANAGEMENT SERVER Rack Type Trusted Platform Module 2.0 V3, 2.5" Chassis with up to 8 Hard Drives (SAS/SATA),2CPU,PERC11 Intel®Xeon®Silver4410T2.7G,10C/20T,16GT/s, 27M Cache, Turbo, HT (150W) DDR5-4000 Intel®Xeon®Silver4410T2.7G,10C/20T,16GT/s, 27M Cache, Turbo, HT (150W) DDR5-4000 Heats ink for 2 CPU configurations (CPU less than or equal to 150W). Performance Optimized 4800MT/s RDIMMs 16GB X2 RDIMM, 4800MT/s Single Rank C7, Un configured RAID for HDDs or SSDs (Mixed Drive Types Allowed) Front PERC H755 Front Load 960GB X4 SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD 480GB X2 SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD. Power Saving Active Power Controller, UEFIBIOS	1.000	each	Unit rate to be in condition tab	filled online

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		Boot Mode with GPT Partition. No Energy Star Standard Fan X7. Dual, Hot-plug, Power Supply Fault Tolerant Redundant (1+1), 1400W, Mixed Mode, NAF. Jumper Cord - C13/C14, 4M, 250V, 10A (India BIS). Riser Config 3, Low Profile, 1x16 LP Slots(Gen4),Mother board with Broad com 5720 Dual Port 1Gb On-Board LOM. Broadcom 57416 Dual Port 10GbE BASE-T Adapter, OCP NIC 3.0. Standard Bezel for x 8 and x10 chassis. No Media Required. iDRAC9 Datacenter 16G with Open Manage Enterprise Advanced Plus. No Quick Sync. iDRAC, Factory Generated Password, iDRAC Service Module (ISM), NOT Installed Ready Rails A11 drop-in/stab-in Combo Rails With Cable Management Arm. Short Drive Shipping Material. BIS Marking, No CE and No CCC Marking for 2.5" Chassis, APCC- For India Basic Next Business Day 36 Months, 36 Month(s). Pro Support and Next Business Day Onsite Service, 36Month(s) according to the detailed specifications given in Technical Specification. Include MS SQL Server 2019 or above Database or better—number of servers to be vetted by respective VMS and Camera OEM on letterhead. Approved Makes: DELL/ HP/ Camera OEM				
340		FAILOVER MANAGEMENT SERVER SITC of FAILOVER MANAGEMENT SERVER Rack Type Trusted Platform Module 2.0 V3, 2.5" Chassis with up to 8 Hard Drives (SAS/SATA),2CPU,PERC11 Intel®Xeon®Silver4410T2.7G,10C/20T,16GT/s, 27M Cache, Turbo, HT (150W) DDR5-4000 Intel®Xeon®Silver4410T2.7G,10C/20T,16GT/s, 27M Cache, Turbo, HT (150W) DDR5-4000 Heats ink for 2CPU configurations (CPU less than or equal to 150W). Performance Optimized 4800MT/s RDIMMs 16GB X2 RDIMM, 4800MT/s Single Rank C7, Un configured RAID for HDDs or SSDs (Mixed Drive Types Allowed) Front PERC H755 Front Load 960GB X4 SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD 480GB X2 SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD. Power Saving Active Power Controller, UEFI BIOS Boot Mode with GPT Partition. No Energy Star Standard Fan X7. Dual, Hot-plug, Power Supply Fault Tolerant Redundant (1+1), 1400W, Mixed Mode, NAF. Jumper Cord - C13/C14, 4M, 250V, 10A (India BIS). Riser Config 3, Low Profile, 1x16 LP Slots (Gen4), Motherboard with Broad com 5720 Dual Port 1Gb On-Board LOM. Broadcom 57416 Dual Port 10GbE BASE-T Adapter, OCP NIC 3.0. Standard Bezel for x8 and x10 chassis. No Media Required. iDRAC9 Datacenter 16G with Open Manage Enterprise Advanced Plus. No Quick Sync. iDRAC, Factory Generated Password, iDRAC Service Module (ISM), NOT Installed Ready Rails A11 drop-in/stab-in Combo Rails With Cable Management Arm. Short Drive Shipping Material. BIS Marking, No CE and No CCC Marking for 2.5" Chassis, APCC- For India Basic Next Business Day 36 Months, 36 Month(s). Pro Support and Next Business Day Onsite Service, 36Month(s) according to the detailed specifications given in Technical Specification. Include MS SQL Server 2019 or above Database or better—number of servers to be vetted by respective VMS and Camera OEM on letterhead. Approved Makes: DELL/ HP/ Camera OEM	1.000	each	Unit rate to be in condition tab	filled online
350		ANPR Workstation SITC of ANPR Work station :Rack/Tower Mount, IntelCorei7-11700 or better, minimum 32 GB RAM	1.000	each	Unit rate to be in condition tab	filled online

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		or better, minimum 240 GB SSD for OS & VMS Application, 1TB SATA HDD, 1 GbE (RJ45), Windows 11 Pro 64 bit or above, DVD RW, Standard and Keyboard & Mouse; Number of servers to be vetted by by respective VMS and Camera OEM on letter head. Approved Makes: DELL/ HP/ Camera OEM				
360		Client Workstation SITC of Client Workstation :Workstation capable to display maximum 36 cameras@H.264@1080P @25FPS Processor – Intel Core i7-10700K or latest CPU (Intel Quick Sync Supported),Memory– Minimum 32 GB, Hard disks – 500GB SSD Disk, OS- Windows 10 Pro, 64bit,Network Card – 1Gbit/s network card, GPU - NVIDIA GTX 1080p Series or Quadro P4000 Graphic card WHQL Certified or better; Number of workstation to be vetted by respective VMS and Camera OEM on letter head. Approved Makes: DELL/ HP/ Camera OEM	25.000	each	Unit rate to be in condition tab	filled online
370		Client PC "Client PC :SITC of Workstation capable to display maximum 36 cameras @H.264 @ 1080P @25FPS Processor – Intel Core i7-10700K or latest CPU (Intel Quick Sync Supported),Memory– Minimum 32 GB, Hard disks – 500GB SSD Disk,OS-Windows10Pro,64bit,NetworkCard– 1Gbit/s network card ,GPU NVIDIART X 4000 or better Series WHQL Certified or better. Number of workstation to be vetted by by respective VMS and Camera OEM on letter head. Approved Makes: DELL/ HP/ Camera OEM"	9.000	each	Unit rate to be in condition tab	filled online
380		Tripple arm table top brackets	1.000	Activ.unit	----------	----------
380.1		Tripple arm table top brackets " SITC of Tripple Arm table Top Brackets Approved Makes: DELL/HP / Lumi / Inofit Or Custom"	9.000	each	Unit rate to be in condition tab	filled online
390		Server Rack Type Intel Video analytics SITC of Server Rack Type Intel Xeon 2.2Ghz with Base Frequency (32Cores) or Higher, 64GBRAM, 3 TB HDD. Including NVIDIA RTX A2000 (12GB) or Higher (Graphics Card 2 Nos) Number of Server to be vetted by by respective VMS and Camera OEM on letter head. Approved Makes: DELL/ HP/ Camera OEM	2.000	Lot	Unit rate to be in condition tab	filled online
400		Video wall SITC of Video wall display 55"24x7 Operational, 500 Nits , 0.8-0.9 mm bezel width Professional FHD monitor. Approved Makes: Samsung/ LG/ Barco	10.000	each	Unit rate to be in condition tab	filled online
410		Video Analytics Processing Software	1.000	Activ.unit	----------	----------
410.1		Video Analytics Processing Software SITC of Video Analytics Processing Software TO Support a Minimum of one camera programmed with any one or all Of the following Video Analytics features: Fire & Smoke Detection- for 10 camera Face Recognition system - for 8 Camera ANPR - for 10 Camera Slip & fall Detection - for 10 Camera Multi Camera Tracking - for 50 Camera Alarm Centre Application license -1 Nos One time Online Installation and Training Charges(The System shall allow implementation of Video Analytics on any	1.000	each	Unit rate to be in condition tab	filled online

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		user-defined cameras during commissioning).-The Software should be able to inter face with the Video Management System either by an interface or shall be offered as a Unified Solution consisting of Access Control and Video management systems in a single software. Independent servers, if required, for video analytics shall be included in this item as needed. The Cost shall be considered for 50 cameras in the beginning and shall have expand ability for up to 1000 cameras if required. Approved Makes: Milestone/Algovision/IRIS(Agent VI)/OOSTO				
420		ANPR License	1.000	Activ.unit	----------	----------
420.1		ANPR License ANPR License with all required support package and 5 years License Support Approved Makes: Milestone/ Genetec/ Axis	4.000	each	Unit rate to be in condition tab	filled online
430		FHD moniter SITC of 21"colour,Flat Screen type Professional FHD monitor with HDMI Interface and Tabletop Stand Approved Makes: DELL/HP/Lenovo/LG/ Samsung	52.000	each	Unit rate to be in condition tab	filled online
440		Network Video Management Base Software	1.000	Activ.unit	----------	----------
440.1		Network Video Management Base Software SITC of Network Video Management Base Software expandable up to 2000 camera sin Single Data base server,Multi-server, multi-site solution Virtual Matrix capability & unlimited user clients. The VMS should Support ON VIF Profile S, G ,T & Q, network joystick controller, GPU Rendering support for H.264 and H.265 decoding, video on demand, Adaptive video throttling, rule engine, operator role management, server-based Video Motion Detection(VMD),edge storage backfill support, a bookmark with a manual comment, bookmark based search, time line search, Pre view search, dual recording server instances with out virtualization, synchronous play back from all recording servers monitor wall support, Cyber secured with features such as Digital Signing, HTTPS & SSL base, smart web client, camera firmware & password management, support ANDROID& iOS phones. • Camera Device License (600Nos) (Including Old and New Cameras) • Camera License with 5Years Support (600 Nos) • Failover License for Management & Recording Server (2 Nos) • Operator Client Licences (100 Nos) • Mobile and web client licenses (100 Nos) • Dashboard & Reporting Tool Plugin (1 Nos) • SDK/APK Cost for Integration with Access Control, BMS (1 Nos) Approved Makes: Milestone/ Genetec/ Axis	1.000	each	Unit rate to be in condition tab	filled online

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450		Multi Screen FHD Video Wall Controller	1.000	Activ.unit	----------	----------
450.1		Multi Screen FHD Video Wall Controller SITC of Multi Screen FHD Video Wall Controller Pure hardware system structure, which processes images with the use of a fast internal bus and FPGA. It is integrated with the functions of distributed and centralized controllers, leading to a quick start, stable function, mass IP stream processing, and real-time display of images. It supports signa Over lapping and roaming. Moreover, Controller can be widely applied To control centers of Traffic, Electric Power, Telecom, Data Centre, Monitoring, Conferences, Public Security, Military, etc. Including Wall Management Software feature, -Any Source on Any Display- Source Over lapping-PIP and POP, -Auto Source Detection,-Ticker Scrolling Text-Up to 4x4 Grids Option in Each Display,- Unlimited Layouts,- Crestron/ AM X devices can control layouts,-Multi Video wall Supports- Scheduling of Layouts, - Supports Control by Web Browser- Hot Swappable Graphic Card, Fan, Power Supply,- Support 4K Resolution Background Images on the Whole Video Wall,-4 Slot Chassis with capabilities to add Input and Output using any slot. - 1 Slot having 8 HDMI Inputs or Output Cards – Include 2 HDMI Input Cards(16Nos HDMI Inputs) and 2 HDMI Output Cards (16 Nos HDMI Outputs) Approved Makes: Drita/ Jupiter/ Seada	1.000	each	Unit rate to be in condition tab	filled online
460		Professional Wall Mount	1.000	Activ.unit	----------	----------
460.1		Professional Wall Mount SITC of Professional Wall Mount with Quick Lock Push System, with pop-in, pop-out hydraulic system. Multi-dimensional micro adjustment to fit the Video wall display. Approved Makes: Lumi / Btech / Chief	10.000	each	Unit rate to be in condition tab	filled online
470		HDMI Transmitter & Recevier	1.000	Activ.unit	----------	----------
470.1		HDMI Transmitter & Recevier SITC of 4K604:4:4HDMI Transmitter & Recevier Extender Over Cat 6 up to 70 Meter. Compatiable for HDR10 +, and HDCP 2.3. Approved Makes: Crestron / Extron / Kramer	20.000	Pair	Unit rate to be in condition tab	filled online
480		Cat 6 Cable	1.000	Activ.unit	----------	----------
480.1		Cat 6 Cable SITC of Cat6 Cable Approved Makes: DLINK/AFL/ COMMSCOPE	300.000	m	Unit rate to be in condition tab	filled online
490		AV Rack	1.000	Activ.unit	----------	----------
490.1		AV Rack SITC of Custom Size AV Rack with Spike protector rack mount Approved Makes: Approved Makes: APC/Valrack/ Rittal / Legrand	1.000	each	Unit rate to be in condition tab	filled online

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500		HDMI Patch Cables	1.000	Activ . unit	----------	----------
500.1		HDMI Patch Cables SITC of HDMI Patch Cables 1.8 Mtr Approved Makes: Crestron / Extron / Grandlogic	20.000	each	Unit rate to be in condition tab	filled online
510		connectors & Cables Packages	1.000	Activ.unit	----------	----------
510.1		connectors & Cables Packages SITC of Various types of connectors & Cables Packages Approved Makes: Crestron / Extron / Grandlogic	1.000	Lot	Unit rate to be in condition tab	filled online
520		Installation and configuration	1.000	Activ. unit	----------	----------
520.1		Installation and configuration Installation and configuration of VMS (Server)for complete monitoring & Recording system for IP Cameras and Speakers. It should include, Define and activate the camera, Setup the deployment, Camera Recording Setting, VMS /Camera Setting conflict, Camera defaults, Compression Scales, Multi-streaming Setup, Server side motion detection, camera Grouping, Camera batch configuration, time synchronization,motion boosting. Each server can communicate with up to 600 cameras /encoders. MS Server Client—graphical interface enabling remote viewing and control from anywhere on the Internet or corporate network	1.000	each	Unit rate to be in condition tab	filled online

PR has been electronically approved by;

Prashant Sarafdar

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PART-1

ANNEXURE A1 : BIDDER'S INFORMATION

(On Company / firm's Letterhead)

Details of the bidders :		
1	Name of the bidder	
2	Address of the bidder	
3	Status of the Company (Public Ltd./ Pvt. Ltd.)	
4	Valid Sales Tax Registration No. (if applicable)	
5	Valid GST Registration No.	
6	Details of the Incorporation of the Company	Date:
		Ref. Document-
7	Permanent Account No. (PAN)	
8	Name & Designation of the Contact person to whom all references shall be made regarding this tender.	
9	Telephone No. (with STD Code)	
10	Email Address of the Contact person	
11	Fax No. (with STD Code)	
12	Main Partner Name & Contact No.	

PART-1

Annexure A2: Declaration

To whomsoever it may concern

I ..... authorized signatory of M/s....., with office address ..... declares that our company M/s ..... has not been ever blacklisted or suspended from any work from any organization/ Govt. Organizations/ Bank in India or outside India. If ever found otherwise our registration can be cancelled from IIT Bombay and Ernest Money Deposit, Security deposit or any pending due may be withheld indefinitely.

Signature with stamp (company seal)

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexture- A3 Commertial PQ

LIST OF QUOTED MAKES AND MODELS

SR. NO	SPECIFICATION	Make	Model	Remarks
1.00	Supply of 4MP Outdoor Bullet camera with 1/2.7-inch CMOS, Effective pixels 2688 (H) x 1944 (V), 30fps, Sensitivity, Color 0.1 lx Mono 0.04lx With IR 0.0 lx or better, 120 dB Dynamic range, Electronic Day/Night, Automatic Electronic Shutter (AES), H.265, H.264 MP (Main Profile); M-JPEG Video compression, White balance, Backlight Compensation, Privacy Mask, Edge based/server based analytics such as Line crossing, Enter /leave field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, Minimum 6 analytics should run simultaneously, Object classes (Upright persons, Vehicles) detect up to 50 objects simulataneously, Audio detection (if microphone used), 4.9mm- 8mm Automatic Varifocal (AVF) lens, MicroSD card slot for edge recording, Motion, tamper and audio detection, FTP, IR range upto 60 mtrs, ONVIF Profile S, G, T & M, PoE, IP66 and NEMA 4X, IK10, CE, FCC, UL certified: dual power supply, SD card support up to 2TB. **Approved Makes: Bosch/Axis/Mobotix/Avigilon**			
2.00	Supply of 4MP Outdoor Bullet camera with 1/1.8 inch CMOS, Effective pixels 2688(H) x 1520(V), 60fps, Sensitivity – (Measured according to IEC 62676 Part 5 Color 0.078 lx Mono 0.008lx With IR 0.002 lx or better, 141 dB Dynamic range, Electronic Day/Night, Automatic Electronic Shutter (AES), H.265, H.264 MP (Main Profile); M-JPEG Video compression, White balance, Backlight Compensation, Privacy Mask, Edge based/server based analytics such as Line crossing, Enter /leave field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, Minimum 6 analytics should run simultaneously, Object classes (Upright persons, Vehicles) detect up to 50 objects simulataneously, Audio detection (if microphone used), 4.70 mm – 10 mm Automatic Varifocal (AVF) lens, MicroSD card slot for edge recording, Motion, tamper and audio detection, FTP, IR range upto 80mtrs, ONVIF Profile S , G, T & M , PoE, IP66,IP67,IP6K9K and NEMA 4X, IK10, CE, FCC , UL certified. SD card support up to 2TB.Dual power supply. **Approved Makes: Bosch/Axis/Mobotix/Avigilon**			
3.00	Supply of 4MP IR Bullet camera with 1/1.8-inch CMOS, Total sensor pixels 2688 x 1520, 4MP; 60fps, H.265; H.264; M- JPEG, Automatic Electronic Shutter (AES); Intelligent Dynamic Noise Reduction, Intelligent Defog, Edge-based/server based analytics such as Line crossing, Enter /leave field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, Minimum 6 analytics should run simultaneously, Object classes (Upright persons, Bikes, Cars, Trucks), Training camera for specific object, Accurate classification of person, bike, car, truck, Audio detection (if microphone used), Privacy Masking, Pixel counter, Memory card slot, IR Rang 140 mtr, Automatic Varifocal 12 - 47 mm lens, Alarm Input 1/1, Audio Input/output, RJ45, Trusted platform module and PKI, G.711, Signal-to-Noise Ratio >55 dB, Audio Streaming Full-duplex / half duplex, ONVIF Profile S & G & T, IP66, IK10. Dual micro SD card for mirror, failover, extended service, Dual power supply, UL certified, FTP, Dropbox, and e-mail applications. **Approved Makes: Bosch/Axis/Mobotix/Avigilon**			
4.00	Supply of 4MP Indoor Dome camera with 1/2.7-inch CMOS, Effective pixels 2592 (H) x 1944 (V), 30fps, Sensitivity – (Measured according to IEC 62676 Part 5 Color 0.060 lx Mono 0.0120lx With IR 0.0 lx or better, 120 dB Dynamic range, Electronic Day/Night, Automatic Electronic Shutter (AES), H.265, H.264 MP (Main Profile); M-JPEG Video compression, White balance, Backlight Compensation, Privacy Mask, Edge based/server based analytics such as Line crossing, Enter /leave field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, Minimum 6 analytics should run simultaneously, Object classes (Upright persons, Vehicles) detect up to 64 objects simulataneously, Audio detection (if microphone used), 4.5mm to 8.4 mm Automatic Varifocal (AVF) lens, MicroSD card slot for edge recording, Motion, tamper and audio detection, FTP, IR range upto 40mtrs, three axis adjustment, ONVIF Profile S , G, T & M, PoE, IP54 and NEMA 4X, IK10, CE, FCC, UL certified. SD card support up to 2TB, Dual power supply. **Approved Makes: Bosch/Axis/Mobotix/Avigilon**			
5.00	Supply of 1080p HD PTZ Camera with 1/2" progressive scan CMOS, Effective pixels 1937 x 1097 (2.12 MP), 30x Optical Zoom, 12X Digital Zoom, Minimum Illumination- Color: 0.0047 Lux , B/W: 0.0013 lux or better, 120dB WDR, H.265, H.264, MJPEG streams, Intelligent Dynamic Noise Reduction, BLC, White Balance, Pan Range 360° continuous, Tilt RangeUpright: -65° to +90°, Pan: 120°/s, Presets 250, Tours, Audio- 1/1 Channel In/Out, Micro SD card support up to 1TB, Edge based/server based analytics such as Line crossing, Enter /leave field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, Minimum 6 analytics should run simultaneously, 32 individually configurable privacy masks, Dual Power options, , IP66/67/68 and NEMA NEMA TS-2, IK10, ONVIF Profiles S, G ,T,M, FCC, CE, UL Certified, AES/FIPS encrption, signed firmware, up to 500m IR inetrnal/external,Wiper inbuilt/external, electronic image stabilization, salt test report, wind load minimum 100 mph, MTBF>80000 hours, SD card support up to 2TB, Dual power supply. **Approved Makes: Bosch/Axis/Mobotix/Avigilon**			

SR. NO	SPECIFICATION	Make	Model	Remarks
6.00	Supply of 15 W long throw SIP-based IP horn loudspeaker designed for excellent speech reproduction suitable for indoor and outdoor applications (IP66). The speaker shall support PoE IEEE 802.3af Class 3 and PoE+ IEEE 802.3at Class 4. The speaker shall have a built-in class D amplifier and Digital Signal Processing (DSP) to optimize the speech intelligibility in the environment. The speaker shall have an integrated Electret Condenser microphone for two-way SIP communication (talkback function), ambient noise level trigger, and automatic volume control. Shall be remotely configurable via WEB-GUI. Approved makes should be the same as the camera OEM. **Approved Makes: Bosch/Axis/Mobotix/Avigilon**			
7.00	Supply and installation of a Glass-reinforced plastic (GRP) pole complete with mounting accessories, as required for the pole and the cameras, suitable to mount the Outdoor cameras. The GRP poles shall be ultraviolet-resistant, corrosion-proof, electrically insulated, and shall have no reaction to direct contact with water. GRP Poles shall be manufactured by Automatic CNC 4 Axis Filament Winding Process and designed to withstand wind speed of 50 M/sec. Depending upon the classification of the wind zone. The glass content in the GRP material shall be ≥ 70%. GRP Poles shall be fire retardant with low flammability when tested in accordance with IS 6746 & ASTM D 635. The Arms should be such that they are easily fixable and interchangeable and should be able to rotate on its axis for a minimum of 90° on either side so that it is easier to make adjustments if required at site. The Pole shall be tested for deflection as per ASTM D 4923: the deflection under load should not be more than 15% of the length of the pole. Permanent Deflection should not be more than 1% of the length of the pole after performing the deflection test. The manufacturer should possess a valid certificate of EN-40-7 for deflection at the time of submission of the offer. The manufacturer should possess an EN 12767 certificate for passive safety for any conical pole at the time of submission of the offer. The Pole shall be with a Box to house the power supply / Convertor, etc., with the Following Specification: (The shade of the pole is metallic silver, hardware MS zinc passivated wherever required, the bar will be painted with U.V.Stabilized, specially developed poly urethane paint for external application, tolerance in length ± 50mm & thickness ±0.5mm, average thickness of pole will be 6 mm, tolerance in diameter ± 5 mm, the bottom surface (below groundline) of light pole is rough), 7000 MM Height, 89MM Top Diameter 162 MM Bottom diameter, with anti-rotating Fins) with external junction box of size 165X165X105 mm (IP65) with 4 terminals of 6sq.mm & 10 AMP SP MCB with JB Clamp. **Approved Makes: SUMIP/ WIMCO/ PROFAB**			
8.00	SITC of Hard Soil Digging a 1m deep and 0.45m wide trench, then covered with a layer of sand. The cables are laid in the trench and covered with a 10 cm thick layer of sand. To protect against mechanical injury, it is recommended that the trench be covered with bricks and other materials. It has to be restored to its original position by the bidder (e.g., digging on a cement/asphalt road; it has to be made in the same conditions as before after completion of work with prior permissions from authorities).			
9.00	Soft Soil Digging a 1m deep and 0.45m wide trench, then covered with a layer of sand. The cables are laid in the trench and covered with a 10 cm thick layer of sand. To protect against mechanical injury, it is recommended that the trench be covered with bricks and other materials. It has to be restored to its original position by the bidder (Eg, digging on cement/asphalt road; it has to be again made in the same conditions as before after completion of work with prior permissions from authorities.)			
10.00	SITC of Outdoor Access Switch: Supply, Installation, and Testing Commissioning of Industrial Grade Fully Managed Layer 2 switch, 8 x 10/100/1000 Mbps POE+ ports with 4 SFP slots. The switch should be loaded with a minimum of 2 x 1Gbps single-mode SFP modules. The switch should have a minimum of one AC DC adapter. Detailed specs are given in the technical specifications. **Approved Makes: Allied Telesis/CISCO/ ARUBA**			
11.00	SITC of Core Switch: Supply, Installation, Testing Commissioning of Enterprise Grade Layer 3 stackable switch, 24 x SFP slots, 2 x 10G SFP+ slots, and 2 x 10 G stacking ports with required stacking cables. The switch should be loaded with a minimum of 12 x 1Gbps SFP copper modules and 12 x 1Gbps single-mode SFP modules & 4 x 10 Gbps SFP+ Modules. The switch should have two AC power supplies. Detailed specs are given in the technical specifications. **Approved Makes: Allied Telesis/CISCO/ ARUBA**			
12.00	SITC of Core Switch: Supply, Installation, Testing Commissioning of Enterprise Grade Layer 3 stackable switch, 24 x SFP slots, 2 x 10G SFP+ slots, and 2 x 10 G stacking ports with required stacking cables. The switch should be loaded with a minimum of 4 x 10 Gbps SFP+ modules and 6 x 1Gbps single-mode SFP modules. The switch should have two AC power supplies. Detailed specs are given in the technical specifications. **Approved Makes: Allied Telesis/CISCO/ ARUBA**			
13.00	SITC of Indoor Access Switch: Supply, Installation, Testing Commissioning of Enterprise Grade Fully Managed Layer 2 switch, 24 x 10/100/1000 Mbps Non-PoE ports with 4 SFP slots. The switch should be loaded with a minimum of 2 x 1Gbps single-mode SFP modules. The switch should have a minimum of one AC power supply. Detailed specs are given in the technical specifications. **Approved Makes: Allied Telesis/CISCO/ ARUBA**			
14.00	SITC of Indoor Access Switch: Supply, Installation, Testing Commissioning of Enterprise Grade Fully Managed Layer 2 switch, 24 x 10/100/1000 Mbps POE+ ports with 4 SFP slots. The switch should be loaded with a minimum of 2 x 1Gbps single-mode SFP modules. The switch should have a minimum of one AC power supply. Detailed specs are given in the technical specifications. **Approved Makes: Allied Telesis/CISCO/ ARUBA**			

SR. NO	SPECIFICATION	Make	Model	Remarks
15.00	SITC of Indoor Access Switch: Supply, Installation, Testing Commissioning of Enterprise Grade Fully Managed Layer 2 switch, 16 x 10/100/1000 Mbps POE+ ports with 2 SFP slots. The switch should be loaded with a minimum of 2 x 1Gbps single-mode SFP modules. The switch should have a minimum of one AC power supply. Detailed specs given in Technical Specification. **Approved Makes: Allied Telesis/CISCO/ ARUBA**			
16.00	SITC of 2 Mtr Factory moulded patch cord (Cat6) **Approved Makes: DLINK/AFL/ COMMSCOPE**			
17.00	SITC of 10 Mtr Factory moulded patch cord (Cat6) **Approved Makes: DLINK/AFL/ COMMSCOPE**			
18.00	SITC of 24 Port Fully Loaded patch Panel **Approved Makes: DLINK/AFL/ COMMSCOPE**			
19.00	SITC of I/O Face plate with box **Approved Makes: DLINK/AFL/ COMMSCOPE**			
20.00	SITC of Fully loaded LIU 24 Ports LC with Pigtails **Approved Makes: DLINK/AFL/ COMMSCOPE**			
21.00	SITC of Fully loaded LIU 6 Ports LC with Pigtails **Approved Makes: DLINK/AFL/ COMMSCOPE**			
22.00	SITC of 1mtr LC to LC Single Mode Patch Cords **Approved Makes: DLINK/AFL/ COMMSCOPE**			
23.00	SITC of Self Adhesive Labels (Length 5cm X Height 1 CM); For naming and Identification of the cables and devices			
24.00	SITC of CAT-6 / 6A Armoured Cables: Supply, Installation, Testing, and Commissioning of Flexible LSZH Cat-6 / 6A to be laid, cable laid in Conduits/cable Trays/PVC pipe/flexible (to connect end devices) shall include IO Box with faceplate along with the junction box at field end, and required other accessories. **Approved Makes: Polycab/DLINK/AFL/ CommScope**			
25.00	Supply, installation, testing, and commissioning of single mode outdoor six core fiber optic armored cable, zero halogen low smoke outer sheath, and laid in underground trenches and shafts, in conduit/PVC pipe complete with all terminations as required. The fiber optic cable shall connect all the above-mentioned Edge Switches (located in DC, DG, Admin, and substation building) to the Core Switches located in the main DC Building and distance Cameras with media convertor. **Approved Makes: Polycab/DLINK/AFL/ COMMSCOPE**			
26.00	SITC of 42U Rack with Cable Management & Rack Mounted Power Strips Full-size Monitor tray x 2 no, Vertical PDU 25 Socket PDU With 4Sq Cabel 32Amp Top x2, Cable manager-Metal cable manager - 01 U - Plastic cable loop x6, Four fans for Mcab/ProTek FS, Mounting hardware Pkt 20 set of 20 (FOr Servers and Network Switches), **Approved Makes: APC/ Valrack/ Rittal / Legrand**			
27.00	SITC of IP65 rated 6U Junction Box/Rack with wall/Pole mounting arrangements with support brackets, front door with compression lock, removable high-quality EPDM or PU gaskets for IP, complete welded structure with fixed rates and sides, rain canopy. Cable Manager horizontal, earthing kit with earth studs, provision for cable entry, earthing wire on the front door, MCB double pole, din rail full width assembled in mounting plate top & bottom plate, Tamper switch, Din rail mounted 6 Port Patch verticle Panel & other required accessories need to be considered (For Industrial Switches). **Approved Makes: Rittal /Sumip/ Valrack**			
28.00	SITC of Single Mode Industrial POE Media Converter with 2 Single Mode Fiber 1G SFP modules **Approved Makes: Allied Telesis/ARUBA/ CISCO**			
29.00	SITC of IP65 rated 4U Junction Box/Rack with wall/Pole mounting arrangements with support brackets, front door with compression lock, removable high-quality EPDM or PU gaskets for IP, complete welded structure with fixed rates and sides, rain canopy. The cable Manager horizontal, earthing kit with earth studs, provision for cable entry, earthing wire on the front door, MCB double pole, din rail full width assembled in mounting plate top & bottom plate, Tamper switch, Din rail mounted 6 Port Patch verticle Panel other required accessories need to be considered (For Industrial Switches). **Approved Makes: Rittal /Sumip/ Valrack**			
30.00	SITC of 3 Core Electrical Armoured Cable 1.5 Sq mm **Approved Makes: Polycab/Finolex**			
31.00	SITC of Electrical Universal Power Point 5/15 Amp, 6 Modules (2 Socket & 1 switch , 1 Blank with box) **Approved Makes: ROMA/ANCHOR**			
32.00	SITC of MAIN RECORDING SERVER Rack Type: 900 Mbps or 138 Cameras recording with 288 TB Usable Storage after RAID 5/6, 1 x Intel Xeon E-2226G Processor with 16 bays (16 x 18TB 7200 RPM Disk) for Storage, minimum 32GB RAM, as per detailed specs given in Technical Specification. Recording at 25 FPS @1080P @1800Kbps bitrate for 90 days. The minimum quantity mentioned, Number of servers to be vetted by respective VMS and Camera OEM on letterhead **Approved Makes: DELL/ HP/ Camera OEM**			

SR. NO	SPECIFICATION	Make	Model	Remarks
33.00	SITC of FAILOVER RECORDING SERVER Rack Type: 900 Mbps or 138 Cameras recording with 288 TB Usable Storage after RAID 5/6, 1 x Intel Xeon E-2226G Processor, with 16 bays (16 x 18TB 7200 RPM Disk) for Storage, minimum 32GB RAM, as per detailed specs given in Technical Specification. Recording at 25 FPS @1080P @1800Kbps bitrate for 90 days. The minimum quantity mentioned, Number of servers to be vetted by respective VMS and Camera OEM on letterhead **Approved Makes: DELL/ HP/ Camera OEM**			
34.00	**SITC of Main MANAGEMENT SERVER Rack Type** Trusted Platform Module 2.0 V3, 2.5" Chassis with up to 8 Hard Drives (SAS/SATA), 2 CPU, PERC 11 Intel® Xeon® Silver 4410T 2.7G, 10C/20T, 16GT/s, 27M Cache, Turbo, HT (150W) DDR5-4000 Intel® Xeon® Silver 4410T 2.7G, 10C/20T, 16GT/s, 27M Cache, Turbo, HT (150W) DDR5-4000 Heatsink for 2 CPU configurations (CPU less than or equal to 150W). Performance Optimized 4800MT/s RDIMMs 16GB X2 RDIMM, 4800MT/s Single Rank C7, Unconfigured RAID for HDDs or SSDs (Mixed Drive Types Allowed) Front PERC H755 Front Load 960GB X4 SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD 480GB X2 SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD. Power Saving Active Power Controller, UEFI BIOS Boot Mode with GPT Partition. No Energy Star Standard Fan X7. Dual, Hot-plug, Power Supply Fault Tolerant Redundant (1+1), 1400W, Mixed Mode, NAF. Jumper Cord - C13/C14, 4M, 250V, 10A (India BIS). Riser Config 3, Low Profile, 1x16 LP Slots (Gen4), Motherboard with Broadcom 5720 Dual Port 1Gb On-Board LOM. Broadcom 57416 Dual Port 10GbE BASE-T Adapter, OCP NIC 3.0. Standard Bezel for x8 and x10 chassis. No Media Required. iDRAC9 Datacenter 16G with OpenManage Enterprise Advanced Plus.No Quick Sync. iDRAC, Factory Generated Password, iDRAC Service Module (ISM), NOT Installed ReadyRails A11 drop-in/stab-in Combo Rails With Cable Management Arm. Short Drive Shipping Material. BIS Marking, No CE and No CCC Marking for 2.5" Chassis, APCC- For India Basic Next Business Day 36 Months, 36 Month(s). ProSupport and Next Business Day Onsite Service, 36 Month(s) according to the detailed specifications given in Technical Specification. Include MS SQL Server 2019 or above Database or better—number of servers to be vetted by respective VMS and Camera OEM on letterhead. **Approved Makes: DELL/ HP/ Camera OEM**			
35.00	**SITC of FAILOVER MANAGEMENT SERVER Rack Type** Trusted Platform Module 2.0 V3, 2.5" Chassis with up to 8 Hard Drives (SAS/SATA), 2 CPU, PERC 11 Intel® Xeon® Silver 4410T 2.7G, 10C/20T, 16GT/s, 27M Cache, Turbo, HT (150W) DDR5-4000 Intel® Xeon® Silver 4410T 2.7G, 10C/20T, 16GT/s, 27M Cache, Turbo, HT (150W) DDR5-4000 Heatsink for 2 CPU configurations (CPU less than or equal to 150W). Performance Optimized 4800MT/s RDIMMs 16GB X2 RDIMM, 4800MT/s Single Rank C7, Unconfigured RAID for HDDs or SSDs (Mixed Drive Types Allowed) Front PERC H755 Front Load 960GB X4 SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD 480GB X2 SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive, 1 DWPD. Power Saving Active Power Controller, UEFI BIOS Boot Mode with GPT Partition. No Energy Star Standard Fan X7. Dual, Hot-plug, Power Supply Fault Tolerant Redundant (1+1), 1400W, Mixed Mode, NAF. Jumper Cord - C13/C14, 4M, 250V, 10A (India BIS). Riser Config 3, Low Profile, 1x16 LP Slots (Gen4), Motherboard with Broadcom 5720 Dual Port 1Gb On-Board LOM. Broadcom 57416 Dual Port 10GbE BASE-T Adapter, OCP NIC 3.0. Standard Bezel for x8 and x10 chassis. No Media Required. iDRAC9 Datacenter 16G with OpenManage Enterprise Advanced Plus.No Quick Sync. iDRAC, Factory Generated Password, iDRAC Service Module (ISM), NOT Installed ReadyRails A11 drop-in/stab-in Combo Rails With Cable Management Arm. Short Drive Shipping Material. BIS Marking, No CE and No CCC Marking for 2.5" Chassis, APCC- For India Basic Next Business Day 36 Months, 36 Month(s). ProSupport and Next Business Day Onsite Service, 36 Month(s) according to the detailed specifications given in Technical Specification.Include MS SQL Server 2019 or above Database or better—number of servers to be vetted by respective VMS and Camera OEM on letterhead. **Approved Makes: DELL/ HP/ Camera OEM**			
36.00	SITC of ANPR Workstation : Rack/Tower Mount, Intel Core i7-11700 or better, minimum 32GB RAM or better, minimum 240 GB SSD for OS & VMS Application, 1TB SATA HDD, 1 GbE (RJ45), Windows 11 Pro 64 bit or above, DVD RW, Standard & Keyboard & Mouse; Number of servers to be vetted by by respective VMS and Camera OEM on letter head. **Approved Makes: DELL/ HP/ Camera OEM**			
37.00	SITC of Client Workstation : Workstation capable to display maximum 36 cameras @H.264 @ 1080P @25FPS Processor – Intel Core i7-10700K or latest CPU (Intel Quick Sync Supported),Memory – Minimum 32 GB,Hard disks – 500GB SSD Disk,OS- Windows 10 Pro, 64bit,Network Card – 1Gbit/s network card,GPU - NVIDIA GTX 1080p Series or Quadro P4000 Graphic card WHQL Certified or better; Number of workstation to be vetted by by respective VMS and Camera OEM on letter head. **Approved Makes: DELL/ HP/ Camera OEM**			

SR. NO	SPECIFICATION	Make	Model	Remarks
38.00	Client PC : SITC of Workstation capable to display maximum 36 cameras @H.264 @ 1080P @25FPS Processor – Intel Core i7-10700K or latest CPU (Intel Quick Sync Supported), Memory – Minimum 32 GB,Hard disks – 500GB SSD Disk,OS- Windows 10 Pro, 64bit,Network Card – 1Gbit/s network card,GPU - NVIDIA RTX 4000 or better Series WHQL Certified or better. Number of workstation to be vetted by by respective VMS and Camera OEM on letter head. **Approved Makes: DELL/ HP/ Camera OEM**			
39.00	SITC of Tripple Arm table Top Brackets **Approved Makes: DELL /HP / Lumi / Inofit Or Custom**			
40.00	**Video analytics** SITC of Server Rack Type Intel Xeon 2.2Ghz with Base Frequency (32 Cores) or Higher, 64GB RAM, 3 TB HDD. Including NVIDIA RTX A2000 (12GB) or Higher (Graphics Card 2 Nos) Number of Server to be vetted by by respective VMS and Camera OEM on letter head. **Approved Makes: DELL/ HP/ Camera OEM**			
41.00	SITC of Network Video Management Base Software expandable up to 2000 cameras in Single Database server, Multi-server, multi-site solution, Virtual Matrix capability & unlimited user clients. The VMS should support ONVIF Profile S, G, T & Q, network joystick controller, GPU rendering support for H.264 and H.265 decoding, video on demand, Adaptive video throttling, rule engine, operator role management, server-based Video Motion Detection (VMD), edge storage backfill support, a bookmark with a manual comment, bookmark based search, timeline search, Preview search, dual recording server instances without virtualization, synchronous playback from all recording servers, monitor wall support, Cyber secured with features such as Digital Signing, HTTPS & SSL base, smart web client, camera firmware & password management, support ANDROID & iOS phones. •Camera Device License (600 Nos) (Including Old and New Cameras) •Camera License with 5 Years Support (600 Nos) •Failover License for Management & Recording Server (2 Nos) •Operator Client Licences (100 Nos) •Mobile and web client licenses (100 Nos) •Dashboard & Reporting Tool Plugin (1 Nos) •SDK / APK Cost for Integration with Access Control, BMS (1 Nos) **Approved Makes: Milestone/ Genetec/ Axis**			
42.00	SITC of Video Analytics Processing Software TO Support a Minimum of one camera programmed with any one or all of the following Video Analytics features : Fire & Smoke Detection- for 10 camera Face Recognition system - for 8 Camera ANPR - for 10 Camera Slip & fall Detection - for 10 Camera Multi Camera Tracking - for 50 Camera Alarm Centre Application license -1 Nos One time Online Installation and Training Charges(The System shall allow implementation of Video Analytics on any user-defined cameras during commissioning). -The Software should be able to interface with the Video Management System either by an interface or shall be offered as a Unified Solution consisting of Access Control and Video management systems in a single software. Independent servers, if required, for video analytics shall be included in this item as needed. The Cost shall be considered for 50 cameras in the beginning and shall have expandability for up to 1000 cameras if required. **Approved Makes: Milestone/ Algovision/IRIS(Agent VI)/OOSTO**			
43.00	ANPR License with all required support package and 5 years License Support **Approved Makes: Milestone/ Genetec/ Axis**			
44.00	SITC of 21" colour, Flat Screen type Professional FHD monitor with HDMI Interface & Tabletop Stand **Approved Makes: DELL / HP/ Lenovo / LG / Samsung**			
45.00	SITC of Videowall display 55" 24 x 7 Operational , 500 Nits , 0.8-0.9 mm bezel width Professional FHD monitor. **Approved Makes: Samsung/ LG/ Barco**			

SR. NO	SPECIFICATION	Make	Model	Remarks
46.00	SITC of Multi Screen FHD Video Wall Controller Pure hardware system structure, which processes images with the use of a fast internal bus and FPGA. It is integrated with the functions of distributed and centralized controllers, leading to a quick start, stable function, mass IP stream processing, and real-time display of images. It supports signal overlapping and roaming. Moreover, Controller can be widely applied to control centers of Traffic, Electric Power, Telecom, Data Centre, Monitoring, Conferences, Public Security, Military, etc. Including Wall Management Software feature, - Any Source on Any Display- Source Overlapping-PIP and POP,-Auto Source Detection,-Ticker Scrolling Text - Upto 4x4 Grids Option in Each Display, - Unlimited Layouts,- Crestron/AMX devices can control layouts, - Multi Videowall Supports- Scheduling of Layouts, - Supports Control by Web Browser- Hot Swappable Graphic Card, Fan, Power Supply, - Support 4K Resolution Background Images on the Whole Video Wall, - 4 Slot Chassis with capabilities to add Input and Output using any slot. - 1 Slot having 8 HDMI Inputs or Output Cards - Include 2 HDMI Input Cards (16 Nos HDMI Inputs) and 2 HDMI Output Cards (16 Nos HDMI Outputs) **Approved Makes: Drita/ Jupiter/ Seada**			
47.00	SITC of Professional Wall Mount with Quick Lock Push System. with pop-in, pop-out hydraulic system. Multi-dimensional micro adjustment to fit the Video wall display. **Approved Makes: Lumi / Btech / Chief**			
48.00	SITC of 4K60 4:4:4 HDMI Transmitter & Recevier Extender Over Cat 6 upto 70 Meter. Compatiable for HDR10+, and HDCP 2.3. **Approved Makes: Crestron / Extron / Kramer**			
49.00	SITC of Cat6 Cable **Approved Makes: DLINK/AFL/ COMMSCOPE**			
50.00	SITC of Custom Size AV Rack with Spike protector rack mount **Approved Makes: Approved Makes: APC/ Valrack/ Rittal / Legrand**			
51.00	SITC of HDMI Patch Cables 1.8 Mtr **Approved Makes: Crestron / Extron / Grandlogic**			
52.00	SITC of Various types of connectors & Cables Packages **Approved Makes: Crestron / Extron / Grandlogic**			
53.00	Installation and configuration of VMS (Server) for complete monitoring and recording system for IP Cameras and Speakers. It should include, Define and activate the camera, Setup the deployment, Camera Recording Setting, VMS/Camera Setting conflict, Camera defaults, Compression Scales, Multi-streaming Setup, Server side motion detection, camera Grouping, Camera batch configuration, time synchronization, motion boosting. Each server can communicate with up to 600 cameras/encoders. MS Server Client — graphical interface enabling remote viewing and control from anywhere on the Internet or corporate network			

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B1 Technical PQ:

CRITERIA FOR OEM ELEGIBILITY OF TECHNICAL PRE-QUALIFICATION:

Sr.No.	Descriptions	Status		IITB Remark
		Yes	No	
1	OEM of Camera should have experience of successfully implementing a solution with more than 5000 cameras along with video analytics in all the cameras either in one project or 6000 cameras (with video analytics) combining upto max 10 projects. (with completion certificates) Need to attached OEM certification duly stamped and signed alogn with contact details of OEM (authorised person):			
2	OEM Of Camera should be a member of Onvif steering committee from last consecutive seven years Need to attached OEM certification duly stamped and signed alogn with contact details of OEM (authorised person):			
3	OEM of Camera must have data security certificate for Kaspersky/ McAfee / Symantec valid for next 6 months. In case same not available, OEM must get it done before the tender bidding date. Need to attached OEM certification duly stamped and signed alogn with contact details of OEM (authorised person):			
4	Bidder supplying the product should have an own service center from past 10 year by OEM in India to support service life of the product. (with documentary proof i.e. past repair invoices/ address proof).			
5	OEM ownership shouldn't be transfer not more than 2 times in last 7 years. (ON OEM's Letterhead)			
6	OEM of Camera shouldn't be debarred / blacklist in any PSU/ Govt. (ON OEM's Letterhead)			
7	OEM of Cameras should be present in India from last 15 years and registered under Company act, 1956 (ON OEM's Letterhead)			
8	OEM of Cameras should have created enough Job opportunities in India and should have a minimum of 7500 employees on its payroll in India. Any OEM that is part of a larger group company but meets the 7500 employee criterion is also eligible. This is to justify that OEM has made substantial investment in India via sales offices, research center, training academy, warehouses and is serious about its business in India which will ensure long term after sales support and spare support from the OEM. (ON OEM's Letterhead)			
9	OEM Camera should be ISO9001: 2015 and ISO 14001:2015 certificated (ON OEM's Letterhead)			
10	Camera SoC (System-on-Chip) shouldn't be from land border shared country. (ON OEM's Letterhead)			
11	The IP CCTV System OEMs should own the MAC Address of the proposed components &/or network devices.			
12	Warranty on cameras should be minimum 5 years			
13	All Offered cameras should be from same OEM (ON OEM's Letterhead)			

Note: One can marge all concern information and provide with one document alongwith OEM's letterhead (every page).

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

	Qualification Criteria to be adhered for selection of VMS OEM.	Compliance (Y/N)
1	OEM of VMS should be in the manufacturing for minimum 10 years globally. Bidder to submit OEM undertaking with details.	
2	OEM of VMS should be part of Global Top 3 VMS list as per IHS Report	
4	OEM of VMS should have Direct Presence (Not through JV, Distributor, OR any other way) in India and Should have register Sales & Support office in India from minimum Last 3 Years documentary evidence needs to be submitted along with bid document.	
5	OEM of VMS should have Service Centre Support in Maharashtra or in India from minimum last 3 years.	
6	OEM of camera and VMS must have supplied and executed min. 1000 IP CCTV Camera and 1000 IP camera license in any CCTV surveillance system project (Either directly by OEM or SI) to any state / central govt / PSU / Judiciary / or any govt. institution in last 05 years ending on the tender floating date.	
7	To ensure openness VMS should not be from the OEM of CCTV camera and OEM of Video Analytics	
8	VMS should be Founding Members of Open Security & Safety Alliance	
9	VMS to be device level integrated with camera OEM other than onvif platform for better accuracy in edge based analytics of cameras	
	Minimum Technical Specification	
	General	
	The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, servers and users and must empower a flexible rule-based system driven by schedules and events.	
	VMS shall already support IP cameras from at least forty (40) major vendors. Bidders shall clearly list in their proposal the brands and models already integrated into VMS thru dedicated camera drivers.	
	To ensure openness, VMS, Cameras and Video Analytics may not be from the same manufacturer.	
	VMS should support ONVIF S, G, T, Q & M Profile supported by IP Devices	
	VMS should be Full Member of ONVIF or Affiliate to Parent Company or Contributing membership level	
	VMS manufacturer shall provide their SDK (or any other integration means) libraries and documentation) to ensure a seamless integration with any other system	
	VMS shall be open to any standard storage technologies integration.	
	VMS shall support HTTPS connections from devices to recording server that support HTTPS connections.	
	VMS shall have the possibility to integrate external Video Analytics systems.	
	The VMS system shall be a scalable client – server architecture or equivalent built using well known operating systems	

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Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

The VMS system shall enable recording to be done at the aggregation sites and shall allow the local Control center to import selected videos on demand.	
Aggregation site types shall be categorized according to function and size as per the table below.	
To facilitate the VMS system architecture, the BIDDER shall ensure that sufficient capacity is designed into the data communications & telecommunications infrastructure to deliver the required functionality, along with the ability to allocate and reserve resources (including bandwidth).	
The VMS data communications and telecommunications network shall use a suitable transport medium and associated cabling and data transmission infrastructure that will support real-time video display of cameras at the nominated operations centers. The type of transmission network shall be determined by the BIDDER.	
The VMS system shall be compatible to single and multiple processor servers. The server processor & hardware shall be optimized in all cases.	
The VMS system shall cluster the processing & memory load across several machines. The failure of any one server in the solution shall not cause a failure in the entire system.	
The VMS system device drivers shall be stored separately to the central core application to ensure any instability in 3rd party SDKs do not affect the core application.	
The VMS management server shall be able to intelligently scan an IP network for new devices (cameras or servers) along with automatic model detection.	
Network infrastructure and installation are the responsibility of the Bidder. Network components both active and required for the successful implementation of the video surveillance detailed in this tender shall be provided by the Bidder. The network infrastructure shall meet the streaming requirement of the project without any bottlenecks. The network infrastructure shall support UDP multicast, UDP unicast and TCP transmission.	
The VMS system shall provide an integrated secure, scalable and easily accessible software-based solution for the management of the existing & future physical security infrastructure	
The VMS system shall provide a powerful and efficient management interface for all the security systems across all monitored sites.	
The VMS system shall support Device firmware upgrade of single and multiple devices in bulk from within the VMS Management Interface	
The VMS system shall support to Manage device password on one or multiple devices from within the VMS Management Interface	
VMS Shall support encrypted communication between the recording server and services that retrieve streaming data.	
The Video Management System shall contain recording servers used for recording video feeds and for communicating with cameras and other devices. The recording servers shall process the recordings and playback the video streams.	
The management server shall allow access to a system manager from where the administrator can configure and manage all servers, cameras, and users.	

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Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

The system shall allow the management server to be installed on multiple servers within a cluster of servers ensuring that another server in the cluster automatically takes over in case the first server fails.	
The Video Management System shall support installation and ability to run on Physical / virtual servers	
The Video Management System shall allow an unlimited number of cameras to be connected to each recording server and an unlimited number of recording servers to be connected to each management server across multiple sites, if required.	
The Video Management System shall support high availability of recording servers. A failover option shall provide standby support for recording servers with automatic synchronization to ensure maximum uptime and minimum risk of lost data.	
The Video Management System shall support a versatile rule system including scheduled or event-driven actions with numerous options including support to time profiles.	
The Video Management System software shall include multicast and multi-streaming support.	
The Video Management System shall include automatic camera discovery.	
The Video Management System shall support archiving for optimizing recorded data storage through unique data storage solutions by combining performance and scalability with cost efficient long-term video storage.	
The Video Management System shall incorporate fully integrated matrix functionality for distributed viewing of any camera in the system from any computer with the client viewer.	
The Video Management System shall incorporate intuitive map functions allowing for multilayered map environment. The map functionality shall allow for the interactive control of the complete surveillance system, at-a-glance overview of system integrity, and seamless drag-and-drop integration with video wall module option.	
The Video Management System shall support AES 128 / 256-bit or better (like captcha authentication, etc.) encryption of video for export purposes.	
The Video Management System shall support full two-way audio between clients and remote devices as per requirements.	
The Video Management System software shall provide fast evidence export by exporting in video to various formats, including video from multiple cameras in encrypted native database format with an included viewer.	
The Video Management System shall show full awareness of the system through audit logs and shows user activity through comprehensive logs.	
The Video Management System shall include support for a framework data module designed to integrate multiple third-party Video Content Analysis (VCA) solutions seamlessly into client viewer environments.	
VMS should support centralized search which enable users to apply multiple search categories and filters to find recording sequences, bookmarks, recordings with motion, alarms, events, vehicles, people, location and data from third-party systems. Logical operators shall enable users to match any or all the search categories.	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

	The Video Management System shall include a Software Development Kit (SDK) / Application programming interface (API) that offers important capabilities for integrating the Video Management System with third party software and applications.	
	The Video Management System shall include a stand-alone viewer application to be included with video exported from the client viewer application. The viewer application shall allow recipients of the video to browse and playback the exported video without installing separate software on their computers.	
	The Video Management System ONVIF Out: Optional server, plus 64-bit plug-in for management client. This is to enable private-to-public video integration.	
	The Video Management System shall include support for Active Directory to allow users to be added to the system. Use of Active Directory requires that a server running Active Directory, acting as a domain controller, to be available on the network.	
	The Video Management System shall be designed to support each component on the same computer for efficiency in smaller systems, or each component on separate systems for large system deployments.	
	Object classification like Person, bike, car, truck to be displayed on operator screen seamlessly	
	If camera is trained for special applications like opening closing of boom barrier, Door opening closing, car parking count etc, the same should be reflected in VMS	
	Incident search should be able to be done in recorded videos in VMS through video analytics	
	Rolling, crawling of person should be triggered from camera to VMS for perimeter cameras	
2	**Edge Storage**	
	Edge storage shall secure that when a lost or broken connection is back up, the data stored on the camera's internal storage shall be retrieved and stored in the media database.	
3	Edge storage shall secure that after recovery from a malfunction it shall be possible to play back and view the video, and audio recorded by the device, while the malfunction persisted	
	VMS Shall support Video and Audio Retrieval: Retrieving video and audio recordings across low-bandwidth connections based on time profiles, events, or manual requests.	
4	**Bookmarking**	
	A bookmarking feature shall be included in the Video Management System, allowing the client viewer users to mark incidents on live and/or playback video streams.	
5	**Optimized Video Archiving**	
	Administrators shall be able to select a storage container for each device and move a device from one storage container to another or move all recordings inclusive archives to the new storage container, or delete them all.	
	Administrators shall be provided with an overview of the defined storage containers, their archives with path, and free and used space on the drives for each device, including the used storage space in the recording database, and in archives.	
	Failover Support	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

5	The system shall support automatic failover for recording servers. This functionality must be accomplished by a failover server that shall work as a standby unit, which takes over in the event that one of a group of designated recording servers fails. Recordings shall be synchronized back to the original recording server once it is back online.	
	The system shall support multiple failover servers for a group of recording servers.	
	The system shall provide monitoring of all failover servers from the graphical alarm management module.	
	The system shall provide seamless access to recordings on the failover Server for all clients through the same client views once the services are fully started.	
6	**Multicast Support**	
	The system shall support multicasting of video feeds to client workstations in order to conserve network resources. Multicasting should be enabled from the recording servers and not directly from the cameras. Thus, the IGMP network would be necessary only for the switches where server and clients are connected.	
	Multicasting shall send a single stream of video to multiple clients, where the stream may be decoded and displayed on all clients simultaneously. This functionality shall support virtual matrix configurations.	
	The infrastructure provided for the system shall support Internet Group Management Protocol (IGMP) for each remote network.	
	The system shall automatically switch to unicast, if the client fails to connect to the multicast stream.	
7	**Multi-streaming Support**	
	The recording server must accept, display and record individual streams of video from each camera that supports it, for example, display a stream in H.264 / H.265 format and record another stream in MPEG4 format. The intent of this functionality shall be providing independent streams of video from the camera to the server with different resolution, encoding and frame rate.	
	Multi-streaming support shall allow the system to be configured with H.264 with a high frame rate for live viewing and shall allow the system to be configured with high resolution H.264 at low frame rates for recording and playback.	
	The system shall allow recorded video to be recorded at 8fps.	
8	**SNMP Support**	
	The system shall act as an SNMP agent which can generate an SNMP trap as a result of rule activation in addition to other existing rule actions.	
	The system shall be able to utilize Microsoft Windows SNMP Service for triggering of SNMP traps.	
9	**NAT Firewall Support**	
	The system shall support port forwarding, which must allow clients from outside of a Network Address Translation (NAT) firewall to connect to recording servers without using a VPN.	
	Each recording server shall be mapped to a specific port and this port must be forwarded through the firewall to the recording server's internal IP address.	
10	**Application Server Redundancy**	
	The management server shall provide a resilient system solution based on Windows Server Clustering or Native, to secure maximum uptime.	
	Alarms Support	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

11	The alarm support shall allow for continuous monitoring of the operational status and event-triggered alarms from servers, cameras and other devices.	
	The alarm support shall provide a real-time overview of alarm status, or technical problems, while allowing for immediate visual verification and troubleshooting.	
12	**Matrix Functionality**	
	The system shall include an integrated matrix solution for distributing video to any computer with the client viewer installed. A computer on which the matrix-triggered images can be shown must be known as a matrix recipient.	
	The client viewer shall provide remote users with a comprehensive suite of features:	
	It shall be possible to view live video from cameras on the surveillance system from 1 to 100 per view.	
	It shall be possible to playback recordings from cameras on the surveillance system, with a selection of advanced navigation tools, including an intuitive timeline browser.	
	It shall be possible to create and switch between an unlimited number of views, each able to display video from up to 100 cameras from multiple servers at a time. The system shall allow views to be created which are only accessible to the user, or to groups of users based on 37 different layouts optimized for 4:3, 4:3 Portrait, 16:9 and 16:9 Portrait display ratios & so on	
	It shall be possible to access views of cameras on any PC with a client viewer application installed.	
	It shall be possible to use multiple screens as well as floating windows for displaying different views simultaneously.	
	It shall be possible to quickly substituting one, or more of a view's cameras with other cameras.	
	It shall be possible to view images from several cameras in sequence in a single camera position in a view – a so called carousel.	
	It shall be possible to view video from selected cameras in greater magnification and/or higher quality in a designated hotspot.	
	It shall be possible to receive and send video through the matrix functionality.	
	It shall be possible to include HTML pages and static images (for example, maps, or photos) in views.	
	It shall be possible to control PTZ cameras.	
	It shall be possible to use digital zoom on live as well as recorded video.	
	It shall be possible to activate manually triggered events.	
	It shall be possible to activate external outputs (e. g. lights and sirens).	
	It shall be possible to use sound notifications for attracting attention to detected motion.	
	It shall be possible to get quick overview of sequences with detected motion.	
	It shall be possible to get quick overviews of alerts.	
	It shall be possible to quickly search selected areas of video recording for motion.	
	It shall be possible to skip gaps during playback of recordings.	
	It shall be possible to configure and use several different joysticks.	
	It shall be possible to print images, with optional comments.	
	It shall be possible to copy images for subsequent pasting into word processors, email, etc.	

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Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

	It shall be possible to export recording (for example, for use as evidence) in AVI, JPEG and database formats.	
	It shall be possible to use pre-configured as well as customizable keyboard shortcuts to speed up common actions.	
	It shall be possible to insert overlay buttons, for example, for activation of speakers, events, outputs, movement of cameras etc.	
	It shall be possible to use a sequence function that lists thumbnail images representing recorded sequences from an individual camera or all cameras in a view.	
	It shall be possible to use a forced playback mode allowing the user to playback recorded video from inside the 'live' mode while viewing 'live' video.	
13	The client viewer shall support the use of 3-axis USB joysticks for control of pan, tilt, zoom and auxiliary camera functions.	
	The client viewer shall support the use of multimedia control devices, which are capable of emulating keystrokes, for the efficient review of recorded video.	
	The client viewer shall support the use of keyboard shortcuts for control of standard features. It shall allow the user to program numerical keyboard shortcuts for camera views. The shortcut number shall be displayed with the view description in the live and playback displays. The shortcut shall allow the user to change views with 2 to 3 keyboard entries.	
	The client viewer shall have the capability to receive multicast streams. The client viewer shall have the capability to detect if the network becomes unreliable and to automatically switch to unicast to ensure that the operator is able to receive video.	
	The operator shall have the ability to use digital zoom where the zooming is performed in the image only on any number of cameras simultaneously. This functionality shall be the default for fixed cameras. The use of digital zoom shall have no effect on recording, or other users.	
14	**Map Functions**	
	Built-in map function in the client viewer shall provide an intuitive overview of the system and shall offer integrated access to all system components.	
	Map function shall be able to use standard graphical file formats including: BMP, GIF, JPEG, JPG, PNG, TIF, TIFF, and WMP.etc.	
	It shall be possible to use any number of layered maps, and it shall be possible to easily drag-and-drop and point-and-click definition of cameras, servers, microphones, speakers, I/O devices, hot-zones, and PTZ camera presets.	
	Hot zones shall be allowed for intuitive navigation between different map levels.	
	Map function shall support instant camera preview when moving the mouse pointer over a specific camera.	
	Provide a geographic information system to accurately reflect geography in the real world, enabling video view and cameras access at multiple locations around the world in a geographically correct way. Supported services shall include Bing, Google and OpenStreetMap map services. Geo-referenced GIS Maps, such as shapefiles, and geo-referenced CAD drawings and building maps with multiple floor levels, such as dwg and dxf files, are supported.	

Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

	Map function shall support central overview of the surveillance system via an alarm list containing alarm indicators of high, medium or low prioritized alarms. Furthermore the alarms shall be categorized by the following states; new, in progress, on hold, or closed. Alarms must be possible to acknowledge by right-clicking elements on maps.	
	Remote Client Viewer	
15	*The web-based remote client viewer shall offer live view of up to 16 cameras, including PTZ control with joystick, fisheye (360 degrees) cameras and event/output activation. The playback function shall give the user concurrent playback of up to 16 recorded videos with date, alert sequence, or time searching.*	
	The web-based remote client viewer shall offer quick overviews of sequences with detected motion.	
	The web-based remote client viewer shall be able to generate and export evidence in AVI (movie clip) and JPG (still image) formats.	
	Web Browser-based application should work on any HTML5 supported browser (without installing any browser plugin) for remote user that needs easy access to live video monitoring and audio listening with PTZ control including use of presets, and video and audio playback and export, with defined exports available for later usage or download.	
	The system shall support the use of separate networks, VLANs, or switches for connecting the cameras to the recording servers providing physical network separation from the clients, and facilitate the use of static IP addresses for the devices.	
	The system shall support H.264, H.265, MPEG-4 (Part 2), MPEG-4 ASP, MxPEG, and MJPEG compression formats for all analog cameras connected to encoders, and all IP cameras connected to the system.	
	The system shall support dual-streaming cameras and shall cover the following compression formats: H.264, H.265, MPEG-4 (Part 2) and MJPEG.	
16	The recording server shall utilize high performance ISCSI, SCSI, SAS and SSD disk drives for online recording storage and shall allow the use of lower cost SATA drives for the RAID arrays for online archive storage. Use of online archiving shall ensure that data always is readily available. Use of tape-backup systems shall not be acceptable.	
	The system shall allow the frame rate, bit rate and resolution of each camera to be configured independently for recording. The system shall allow the user to configure groups of cameras with the same frame rate, bit rate and resolution for efficient set-up of multiple cameras simultaneously.	
	The recording server(s) shall have the ability to support multiple Network Interface Cards (NIC) and shall support connection to the cameras on a network separate from the client viewer, management server and system manager.	
	The recording server shall have the ability to accept the full frame rate supplied by the cameras, while recording a lower frame rate yet still shall make the higher frame rate available to the clients for live viewing.	
	Remote Mobile App	
	Integrated Mobile Application to monitor overall CCTV system and for required coordination during emrgency	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

17	*Mobile Client support Native mobile app for smartphone or tablet users, for easy access to live and playback of cameras, and to activate system events and outputs. Additionally, for use as a remote recording device by using the mobile device's built-in camera, whereby video from the device's camera is streamed back to the VMS and recorded like a standard camera.*	
	Support Smart Connect: Easy configuration of internet access to the mobile server by automatic configuration of firewalls and internet routers via UPnP, with verification of configuration and operation of internet connection, with option to email connection details to mobile client users. Includes automatic mobile server on LAN via UPnP.	
	Shall support Android as well as Apple IOS softwares, with respective smart phones	
	Use of the mobile device's camera as a camera in the VMS	
18	**System Capacities: Provide the following maximum capacities, constrained only by the physical performance capabilities of installed server hardware and network infrastructure:**	
	Unrestricted devices.	
	Unrestricted client software users.	
	Unrestricted mobile devices.	
	Unrestricted client PCs or laptops.	
	Unrestricted servers.	
	Unrestricted video walls, with an unrestricted number and combination of display monitors.	
	Unrestricted sites.	
	Unrestricted system rules.	
	Unrestricted time profiles.	
	Unrestricted software client profiles.	
	Unrestricted media storage.	
	Recording rates of at least 30 FPS per camera, limited only by hardware capabilities.	
19	**Security**	
	HTTPS connections from devices to recording server that support HTTPS connections.	
	Encrypted communication between the recording server and services that retrieve streaming data	
	Encrypted communication between the management server and the recording server.	
	HTTPS connections from recording server to VMS clients, SDK clients and services that support HTTPS connections.	
	Light Encryption. Encrypts only the first part of the MJPEG or MPEG-4/H.264 video, audio and metadata, to use less processing power for encrypting the video. Video cannot be decoded without the information contained in the encrypted header.	
	Strong Encryption. Encrypts all parts of the video, audio and metadata stored in the database.	
	Digital sign media databases with SHA-2 algorithm to establish a means of detecting modification of stored video, audio and metadata.	
	FIPS 140-2 compliant mode: The VMS has the ability to operate in a FIPS 140-2 compliant mode.	
20	**SDK-Based Integration with third-party systems:**	
	Seamless integration of video analytics algorithms and other third-party applications in full viewing client and management client.	
	Support for displaying SDK plug-in items on smart map	
	Functionality for external applications to make changes to the system's configuration.	

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Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

	Event integration via a simple message-based socket communication interface enabling external applications to trigger events in the VMS.	
	Functionality for external applications to trigger user-defined events in the VMS.	
21	**VMS should provide API/SDK without any additionaly charges and should be available in the platform like NuGet, GitHub & Visual Studio Marketplace**	
	VMS should support Video Summarization / Synopsis / Forensic Tool	
	VMS should Support Case management: Organize all video assets of an investigation in a single container, bookmark objects of interest, and summarize case findings (including all relevant exhibits) in an exportable report, while dynamically collaborating on cases with other users.	
	VMS should support simultaneously presents objects that have appeared at different times within the video. The result is a dramatically shorter video segment that fully preserves the viewer's ability to analyze the scene, enabling the review of hours of video in minutes and sometimes seconds.	
	VMS should support advanced multi-camera search capabilities for all the below listed search filters:	
	a. Time Range – Shall be able to limit the search criteria to specific time ranges b. Source – Shall be able to limit objects to specific files c. Classes – Post-analysis, reviewed video shall be shown based on People, Two-Wheeled Vehicles, Other Vehicles with the following categories: i. People Class: Man, Woman, child etc. ii. 2-Wheeled Vehicle Class: Bicycle, Motorcycle etc. iii. Other Vehicles Class: Car, Pickup, Van, Truck, Bus, Train, Airplane, Boat etc. iv. Capturing license plates of Vehicles appeared in the video feeds. d. People Attributes – Shall be able to select the attributes within the people class to refine the search Like: i. Proximity: Filter people based on their distance from other people. ii. Bags: Backpacks, Handheld Bags iii. Hats: Hats, No Hats iv. Upper Wear: Short/No Sleeves, Long Sleeves v. Lower Wear: Long, Short vi. Colour - Identify objects according to any combination of Brown, Red, Or-ange, Yellow, Green, Lime, Cyan, Purple, Pink, White, Grey, and Black. vii. Faces of appeared people in the input video feeds. f. size - Select objects based on their actual (real-life) size specified in meters. g. Speed - Select objects based on their actual speed specified in KMPH h. Dwell - Select objects dwelling for longer than a certain period in a scene i. Area - Identify objects included or excluded within one or more user-defined areas. j. Path - Identify objects traveling along one or more user-defined paths k. License Plate Recognition: Search all license plates that were detected in a case and search using a watchlist of license plates, data import of license plate numbers, or existing plates from video	
	Dashboards	
	Workspace	
	The VMS Solution should allow the creation of user specific Workspaces/Dashboards so as to provide powerful visualization that effectively communicates complex information and KPIs in a simple and easy-to-understand way. There are several key elements that can make a powerful visualization.	
	An agile workspace combines the latest technologies and practices to create a highly efficient and responsive work environment. Agile workspaces allow for flexibility and collaboration while smart building technologies optimize security, energy usage and overall productivity.	

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Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

	The Dashboards in the VMS need to be widget based and each widget can be resized and positioned as per user needs. A rich selection of widgets of pre-built components or elements that can be used to build user interfaces needs to be provided.	
	Support for Hierarchical Dashboards needs to be available to be able to nest child sites under parent sites.	
	Creating importable/exportable dashboards allows users to share customized dashboards that are tailored to specific scenarios or use cases. This feature enables users to create and share dashboards that can be imported into other applications or shared with clients or stakeholders.	
	To create an importable/exportable dashboard, the following steps can be taken:	
	1. Choose the visualization: Select the appropriate visualization for each metric or data point, considering the audience and the dashboard's goals.	
	2. Customize the dashboard: Modify the dashboard to suit the specific needs of the scenario or use case. This might include changing the layout, adding, or removing widgets, or adjusting the data sources.	
	3. Export the dashboard: Export the dashboard in a format that can be easily imported into other applications. This might include exporting the dashboard as a PDF file.	
	4. Import the dashboard: Import the dashboard into other applications as needed or share the dashboard with colleagues or stakeholders.	
22	The ability to create importable/exportable dashboards can be particularly useful in scenarios where multiple users need to access the same dashboard, or where data needs to be shared across different workspaces or systems. It allows users to create and share customized dashboards that are tailored to specific scenarios, without the need for extensive coding or development quickly and easily.	
	Dashboards need to have widgets to display the following information.	
	1- Number of cameras online	
	2- Number of cameras offline	
	3- Number of recording servers online	
	4- Number of recording servers offline	
	5- Number of speakers online	
	6- Number of speakers offline	
	7- Number of microphones online	
	8- Number of microphones offline	
	9- List of all cameras	
	10- Live view of camera	
	11- List of all recording servers	
	12- Total open alarms	
	13- List of users currently logged in to the VMS	
	14- Cameras with weak or no passwords	
	15- Camera health	
	16- Recording server health	
	17- Warranty Information of Cameras	
	18- IoT sensor values	
	19- Web pages	
	20- Weather information	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

The patterns and trends that can be observed in alarm events within a system or process. An alarm event is triggered when a system detects a condition or event that requires attention, such as a malfunction, fault, or abnormal behavior.	
By analyzing alarm trends, one can identify patterns in the data and make informed decisions about how to optimize the system's performance and prevent failures. Here are some examples of the types of trends that can be identified through alarm analysis:	
1. Frequency of alarms: The number of alarm events that occur over a period can indicate whether the system is operating within normal parameters or is experiencing issues.	
2. Time of day: Some systems may experience more alarm events during specific days of the month, such as during peak usage periods.	
3. Alarm priority: Analyzing the priority level of alarm events can help operators identify which issues require immediate attention and which can be addressed later.	
Overall, analyzing alarm trends can help operators and engineers identify issues before they become critical, improve system performance, and reduce downtime.	
Alarms triggered each day categorized by the source or origin of the alarm. This type of analysis is useful in identifying patterns and trends in alarm behavior, which can be used to optimize alarm settings and improve overall system performance.	
A carousel option for views that would allow users to view footage from a set of cameras, and then quickly switch to view footage from another set of cameras automatically based on a set timer value.	
View for cameras would provide a more efficient and intuitive way for users to view footage from multiple cameras, improving their ability to monitor and respond to events in real-time.	
A visual representation of camera uptime or availability over a specified time.	
By analyzing, the users can gain valuable insights into camera performance and identify potential issues or trends.	
A visual representation of camera storage availability over a specified time.	
By analyzing, the users can gain valuable insights into camera performance and identify potential issues or trends.	
Data visualization that displays data related to the properties of cameras in a ranked order is a powerful tool for visualizing and analyzing camera data, providing users with an intuitive and informative view of how different cameras compare to one another in terms of their properties.	
Data visualization that displays data related to the alarms in a ranked order is a powerful tool for visualizing and analyzing alarm data, providing users with an intuitive and informative view of how different sites compare to one another in terms of their alarms.	
Reporting Service	
Reporting capabilities to generate insightful and informative reports. Key elements that make for reporting capabilities are:	
1. Data integration: The ability to gather data from various sources is critical for reporting capabilities.	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

2. Data visualization: Visualizing data in a clear and meaningful way is an important aspect of reporting capabilities. This includes the use of charts, graphs, and other visual aids to help users understand complex data.	
3. Customization: The ability to customize reports to meet the needs of individual users is another essential element of reporting capabilities. This includes the ability to customize the logos, headers, footers, font, color etc.	
4. Collaboration: The ability to collaborate on reports and share them with others is essential for reporting capabilities. This includes the ability to share reports, export/import, set up permissions and access levels, and track changes to the report.	
Pre-built report designs that can be tailored to specific business needs or requirements. These templates provide a starting point for creating reports, saving time and effort in the report creation process.	
These elements can be easily modified and customized to meet the specific needs of the business or user.	
The benefits of using customizable report templates include:	
1. Consistency: By using pre-built templates, businesses can ensure that all reports have a consistent look and feel, making them easier to read and understand.	
2. Saves time: Templates can save time in the report creation process, as users do not have to start from scratch every time, they need to create a new report.	
3. Customization: Templates can be easily customized to meet specific business needs, allowing users to modify elements such as colors, fonts, and data visualizations to match their requirements.	
The VMS should allow recording and reporting on warranty information of cameras. User interface that allows users to select the date on which a camera was installed. This is commonly used in security camera systems, where it is important to keep track of when cameras are installed and when they need to be serviced or replaced.	
The reporting should be part of and within the VMS application. All reports need to be accessed within the VMS client	
The VMS should support creation of tags and tagging of cameras to allow filtering of cameras in reports and dashboards based on tag values.	
A report of all the audit events that occur in a system or process. It provides a detailed history of actions taken, changes made, and transactions processed.	
Reports for analyzing data related to user logins to a system or application involve collecting data on user login behavior, such as the time and location of logins, the number of logins per user, and the devices used to access the system.	
Report for analyzing alarm information such as Alarm Name, Time, Duration, Status, Actions, Time to first acknowledge.	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

23	Report that provides information on all events related to access control in a particular system or facility. This report typically includes information on user access attempts, successful and unsuccessful login attempts, and other related activities, commonly used in security systems to monitor and track user access, ensure compliance with security policies, and identify potential security threats.	
	Report that provides a summary of bookmarks created from video footage captured by cameras. Bookmarks are typically created to highlight specific events or incidents captured in the video stream, such as accidents, thefts, or other noteworthy activities, commonly used in security and surveillance systems to enable easy access and review of important events captured by cameras.	
	Report summarizing the operational status of cameras installed in a particular system or facility. This report typically includes information on camera performance metrics, such as resolution, frame rate, storage usage, and connectivity status, commonly used in security and surveillance systems to monitor the performance of cameras and ensure that they are functioning properly.	
	Report that provides a summary of all devices installed in a particular system or facility. This report typically includes information on the type of device, its location, and its operational status.	
	Report that provides a summary of all devices that have been disabled or taken offline in a particular system or facility, to track devices that are temporarily out of service.	
	Report that provides a summary of video evidence captured by cameras in a particular system or facility. This report typically includes information on the date, time, and location of the video footage and a description of the events captured in it, commonly used in security and surveillance systems to enable easy access and review of video evidence related to specific incidents or activities.	
	Report summarizing the status of recording servers in a video surveillance system, commonly used in security and surveillance systems to monitor the performance of recording servers and ensure that they are functioning properly.	
	Report that provides a summary of the storage usage of cameras in a particular system or facility. This report typically includes information on the amount of storage space used by each camera, the percentage of total storage used, and the date and time of the last recording, commonly used in security and surveillance systems to monitor the storage usage of cameras and ensure that they have sufficient space to record video footage.	
	All reports should be automated to be generated and delivered regularly, such as daily, weekly, or monthly. This allows users to receive up-to-date information regularly without having to manually run reports each time.	
	The filter option in reports allows users to narrow down the report's results by applying specific filters to the data. For example, users may choose to filter the camera report by location, date range, camera type, or other relevant criteria.	
	The level of access for reporting chosen depends on the intended purpose and audience of the resource.	
	Private access restricts access to a select individual, while public access makes a resource available to anyone who wants to access it.	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B2 Technical PQ:

CRITERIA FOR VMS COMPLIANCE OF TECHNICAL PRE-QUALIFICATION:

	Allow users to schedule reports to be automatically generated and sent to a specific recipient or list of recipients via email. This can be an especially useful feature for businesses or organizations that need to provide regular updates to stakeholders or team members, without requiring manual intervention or additional resources.	
	The ability to view and analyze camera data based on specific tags or labels that have been assigned to them. Tags are typically used to categorize cameras based on certain properties or characteristics, such as location, camera type, resolution, or other attributes.	
	The ability to take action on the Report by making bulk changes based on Report data	
	Bulk updates to change camera passwords, recording properties	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B3 Technical PQ:

CRITERIA FOR 'TECHNICAL SPECIFICATIONS OF EQUIPMENTS' OF TECHNICAL PRE-QUALIFICATION:

Sr No	Technical Specifications	PTZ camera	Yes/No
1	Camera Type	1080p HD PTZ	
2	Image Sensor	1/2 inch CMOS or better	
3	Wide Dynamic Range	120 dB WDR or better	
4	Illumination	Color 0.0047 lx Mono 0.0013 lx or better	
5	Operating Temperature	-40 °C to +65 °C (-40 °F to +149 °F)	
6	Humidity	0% to 100%	
7	Lens	30x motorized Zoom, 12x optical zoom; 7 mm to 198 mm F1.5 to F4.8 or better	
8	Shutter Speed	1/1 sec to 1/10000 sec (22 steps)	
9	Video resolution	1080p HD, 720p HD, 1.3 MP 5:4 (cropped), D1 4:3 (cropped), 640x 480, 432p SD, 288p SD, 144p SD	
10	Frames per second	Upto 60 fps	
11	Power	24 VAC, 50/60 Hz High Power over Ethernet 56VDC nominal	
12	No of pixel	1937 x 1097 (2.12 MP)	
13	Pan range	360° continous	
14	Tilt range	Upright: 310° Inverted or Canted: 290° (with or without illuminator) Upright: -65° to +90° Inverted: -95° to +55° Canted: -80° to +65° (with or without illuminator)	
15	Preposition speed/range	120°/second	
16	Preposition accurancy	+/-0.05°	
17	Memory card slot	Supports up to 2 TB microSDXC card. (A memory card of Class 6 or higher is recommended for HD recording)	
18	Digital Noise reduction	iDNR	
19	Preset	256 Pre-positions, each with 20 characters per Title	
20	Tours	Custom Recorded Tours - two (2), total duration 30 minutes: Pre-position tour - one (1), consisting of up to 256 scenes consecutively, and one (1) customized with up to 256 user-defined scenes	
21	ONVIF Confirmation	ONVIF Profile S, ONVIF Profile G, T	
22	Video Settings	Image mirror, Image flip, Pixel counter, Video watermarking, Display stamping, User modes	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B3 Technical PQ:

CRITERIA FOR 'TECHNICAL SPECIFICATIONS OF EQUIPMENTS' OF TECHNICAL PRE-QUALIFICATION:

23	Analytics	Object in field, Crossing line, Entering field, Leaving field, Loitering, Following route, Idle object, Removed object, Counter, Occupancy, Crowd detection, Condition change, Similarity search, Tampering; Filters based on Duration, Size, Aspect ratio v/h, Speed, Direction, Color, Object classes (Upright persons, Bikes, Cars, Trucks), Minimum 6 analytics should run simultaneously	
24	Analytics on move	Camera should trigger analytics while moving and should track the object	
25	Auto tracking	Camera should track object on trigger, auto and on click	
26	Vibration rating	IEC 60068-2-6: 10-150 Hz, 1.0G (05.G on canted unit), 10m/s², 20 Sweeps NEMA TS-2 Section 2.2.8: 5-30 Hz, 0.5G MIL-STD-167-1A	
27	Stabilization	Electronic image stabilization	
28	Salt Mist Spray (Corrosion Test)	ISO 12944-6: C5-M (High); Aluminum Housing Components	
29	Wind Load	161 km/h (100 mph) (sustained; camera with illuminator will hold its position) (Camera can endure gusts up to 241 km/h (150 mph) but may not hold its position.) Gusts up to 257 km/h (160 mph) (canted camera with illuminator will hold its position) Coefficient of Drag: TBD drag	
30	Ingress/Impact protection	IP68 Nema TS2-2003 (R2008)/IK10	
31	Digital Noise reduction	iDNR	
32	IR	500 meters inbuilt/external	
33	Wiper	Integrated, long-life silicone wiper	
34	Audio communication	Two-way, full duplex	
35	Audio IN/OUT	Yes	
36	Data security	Trusted platform module/PKI/ AES 256 encryption/ ULCAP	
37	Certification	UL, CE, WEEE, RCM, EAC, VCCI, FCC, RoHS	
38	MTBF	MTBF >80000 hour with test certificate	
39	Warranty	5 year OEM warranty	
40	Approved makes	Bosch/Axis/Mobotix/Avigilon	

Sr No	Technical Specifications for Bullet camera-60m IR	Complaince	Yes/No
1	Camera Type	4MP IR Bullet camera	
2	Image Sensor	1/2.7 inch CMOS or better	
3	Total pixels	2688 x 1944 or better	
4	Frames per second	30 fps	
5	Wide Dynamic Range	120dB WDR	
6	Illumination	Color 0.1 lx, Mono 0.04 lx or better	
7	Video Compression	H.265; H.264; M- JPEG	
8	Shutter Speed	Automatic Electronic Shutter (AES); Fixed (1/25[30] to 1/15000) selectable; Default shutter	

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Annexure-B3 Technical PQ:

CRITERIA FOR 'TECHNICAL SPECIFICATIONS OF EQUIPMENTS' OF TECHNICAL PRE-QUALIFICATION:

9	Edge /Server based Analytics	Based on Artificial intelligence and machine learning such as Object in field; Line crossing; Enter / leave field; Loitering; Follow route; Counting; Occupancy; Condition change; Similarity search; Objects stopping or starting to move, Object Classification of Person, Bike, Car, Truck, Minimum 6 analytics should run simultaneously	
10	Memory card slot	Supports up to 2 TB microSDXC card. (A memory card of Class 6 or higher is recommended for HD recording)	
11	Lens	4.9 mm -8 mm or better	
12	IR Range	Inbuilt/External IR range upto 60 meters or better	
13	Digital Noise reduction	iDNR	
14	Alarm Inputs & Outputs	1 I/P & 1O/P	
15	Audio IN/OUT	Yes	
16	Video features	Privacy masking, pixel counter	
17	ONVIF Confirmation	ONVIF profile S, G, T and M	
18	Environment/Impact rating	IP67 and IK10	
19	Defog	Yes	
20	Data security	usted platform module/ PKI/ AES 256 encryption/ ULCAP	
21	Power	POE IEEE 802.3af / 802.3 at Type 1, Class 3 12 VDC ±30%	
22	Operating Temperature	-40 ºC to +55 ºC	
23	Defog	Yes	
24	Certification	CE, FCC, UL, cUL, C-tick, CB, VCCI, EAC	
25	MTBF	> 250000 hours with test certificate	
26	Warranty	5 year OEM warranty	
27	Approved makes	Bosch/Axis/Mobotix/Avigilon	

Sr No	Technical Specifications Bullet Camera -80m IR	Complaince	(Yes/No)
1	Camera Type	4MP Bullet	
2	Image Sensor	1/1.8 inch CMOS or better	
3	Total pixels	2688(H) x 1520(V)	
4	Frames per second	60 fps	
5	Wide Dynamic Range	120 dB	
6	Illumination	Color 0.008 lx, Mono 0.002 lx or better	
7	Video Compression	H.265; H.264; M- JPEG	
8	Manual exposure control adjustme	Shutter, Gain, Iris	
9	Analytics	Based on Artificial intelligence and machine learning such as Any object; Object in field; Line crossing; Enter / leave field; Loitering; Follow route; Counting; Occupancy; Condition change; Similarity search; Objects stopping or starting to move; Person rolling and crawling should be detected ; Filters based on Duration, Size, Aspect ratio v/h, Speed, Direction, Color, Object classes (Upright persons, Bikes, Cars, Trucks), Minimum 6 analytics should run simultaneously	

Annexure-B3 Technical PQ:

CRITERIA FOR 'TECHNICAL SPECIFICATIONS OF EQUIPMENTS' OF TECHNICAL PRE-QUALIFICATION:

10	Machine learning capability	Train camera for non standard objects such as door open/close, boom barrier open/close, car park count, etc	
11	Memory card slot	Dual micro SDHC; Dual micro SDXC; Dual micro SD card up to 2 TB	
12	Lens	5 mm to 10 mm, P-iris lens motorized or better	
13	IR Range	Inbuilt/External IR range upto 80 meters	
14	Digital Noise reduction	iDNR	
15	Alarm Inputs & Outputs	1 I/P & 1O/P	
16	Audio IN/OUT	Yes	
17	Video features	Privacy masking, pixel counter	
18	ONVIF Confirmation	ONVIF profile S, G, T, M	
19	Environment/Impact rating	IP67 and IK10	
20	Data security	Trusted platform module, PKI, AES 256 encryption	
21	Power	PoE IEEE 802.3af / 802.3at Type 1, Class 3; PoE and auxiliary power can be connected simultaneously for redundant operation	
22	Operating Temperature	-40 °C – 60 °C PoE; -50°C - +60°C 12VDC/24VAC;	
23	Defog	Yes	
24	Certification	CE, FCC, WEEE, cULus, C-Tick, VCCI	
25	MTBF	> 250000 hours with test certificate	
26	Warranty	5 year OEM warranty	
27	Approved makes	Bosch/Axis/Mobotix/Avigilon	

Sr No	Technical Specifications - Bullet Camera -140m IR	Complaince	(Yes/No)
1	Camera Type	4MP Box/Bullet	
2	Image Sensor	1/1.8 inch CMOS	
3	Total pixels	2688(H) x 1520(V)	
4	Frames per second	60 fps	
5	Wide Dynamic Range	120 dB	
6	Illumination	Color 0.008 lx, Mono 0.002 lx or better	
7	Video Compression	H.265; H.264; M- JPEG	
8	Manual exposure control adjustme	Shutter, Gain, Iris	
9	Analytics	Based on Artificial intelligence and machine learning such as Any object; Object in field; Line crossing; Enter / leave field; Loitering; Follow route; Counting; Occupancy; Condition change; Similarity search; Objects stopping or starting to move, Person rolling and crawling should be detected ; Filters based on Duration, Size, Aspect ratio v/h, Speed, Direction, Color, Object classes (Upright persons, Bikes, Cars, Trucks), Minimum 6 analytics should run simultaneously	
10	Machine learning capability	Train camera for non standard objects such as door open/close, boom barrier open/close, car park count, etc	
11	Memory card slot	Dual micro SDHC; Dual micro SDXC upto 2TB	
12	Lens	12 mm to 47 mm, P-iris lens motorized or better	

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Annexure-B3 Technical PQ:

CRITERIA FOR 'TECHNICAL SPECIFICATIONS OF EQUIPMENTS' OF TECHNICAL PRE-QUALIFICATION:

13	IR Range	Internal/External IR range upto 140 meters	
14	Digital Noise reduction	iDNR	
15	Alarm Inputs & Outputs	1 I/P & 1O/P	
16	Audio IN/OUT	Yes	
17	Video features	Privacy masking, pixel counter	
18	ONVIF Confirmation	ONVIF profile S, G, T, M	
19	Environment/Impact rating	IP67 and IK10	
20	Data security	Trusted platform module, PKI, AES 256 encryption	
21	Power	PoE IEEE 802.3af / 802.3at Type 1, Class 3; PoE and auxiliary power can be connected simultaneously for redundant operation	
22	Operating Temperature	-40 °C – 60 °C PoE; -50°C - +60°C 12VDC/24VAC;	
23	Defog	Yes	
24	Certification	CE, FCC, WEEE, cULus, C-Tick, VCCI	
25	MTBF	> 250000 hours with test certificate	
26	Warranty	5 year OEM warranty	
27	Approved makes	Bosch/Axis/Mobotix/Avigilon	

Sr No	Technical Specifications Indoor Dome camera	Complaince	(Yes/No)
1	Camera Type	4 MP Dome	
2	Image Sensor	1/2.7 inch CMOS	
3	Total pixels	2592 × 1944; 5MP (approx.)	
4	Frames per second	30 fps, HDR, 2592 × 1944	
5	Wide Dynamic Range	120 dB WDR	
6	Illumination	Color 0.06lx, Mono 0.0120 lx, IR lux 0 lx	
7	Video Compression	H.265; H.264; M- JPEG	
8	Shutter Speed	Automatic Electronic Shutter (AES); 1/25 min; 1/15,000 max; Default shutter	
9	Analytics	Any object; Object in field; Line crossing; Enter / leave field; Loitering; Follow route; Counting; Occupancy; Condition change; Similarity search; Objects stopping or starting to move; Filters based on Duration, Size, Aspect ratio v/h, Speed, Direction, Color, Object classes (Upright persons, Bikes, Cars, Trucks); Minimum 6 analytics should run simultaneously	
10	Memory card slot	32 GB for Micro SDHC; 2 TB for Micro SDXC	
11	Lens	4.5 mm to 8.4 mm, P-iris lens motorized or better	
12	IR Range	IR range upto 40 meters or better	
13	Digital Noise reduction	iDNR	
14	Alarm Inputs & Outputs	1 I/P & 1O/P	
15	Audio IN/OUT	Yes	
16	Video features	Privacy masking, pixel counter	
17	ONVIF Confirmation	ONVIF profile S, G, T	
	Environment/Impact rating	IP54, IK10	
18	Defog	Yes	
19	Data security	Trusted platform module, PKI, AES 256 encryption	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B3 Technical PQ:

CRITERIA FOR 'TECHNICAL SPECIFICATIONS OF EQUIPMENTS' OF TECHNICAL PRE-QUALIFICATION:

20	Power	Power consumption PoE (W) (typical – maximum) 5.20 W – 7.50 W PoE input PoE IEEE 802.3af Type 1, Class 3	
21	Operating Temperature	-20 °C – 50 °C	
22	Certification	CE, FCC, UL, WEEE, RCM, VCCI, NDAA	
23	MTBF	>250000 hours with test certificate	
24	Warranty	5 year OEM warranty	
25	Approved makes	Bosch/Axis/Mobotix/Avigilon	

Sr No	Technical Specifications 15 W SIP Horn loudspeaker, long throw		(Yes/No)
1	A Wall Mount long throw SIP based IP horn loudspeaker designed for excellent speech		
2	The speaker shall have built-in class D amplifier and Digital Signal Processing (DSP) to		
3	The IP horn speaker shall be used to deter unwanted events by live speech using a SIP		
4	• The IP horn loudspeaker shall support PoE IEEE 802.3af Class 3 and PoE+ IEEE 802.3at		
5	• The built-in amplifier shall be a class D delivering up to 15 watts.		
6	• The IP horn speaker shall have a line-level audio input and output.		
7	• The IP horn speaker shall have one GPI and one GPO for generic interfacing to other		
8	• The working condition of the SIP speaker can be tested remotely via audio closed loop		
9	• It shall offer a web-GUI interface for configuration, uploading messages and		
10	• It shall have built-in Digital Signal Processor (DSP) for adjusting volume level,		
11	•User shall be able to create their own recorded message and store them in the		
12	• Pre-recorded message can be virtually triggered based on alarm condition, ambient		
13	• The speaker shall be able to automatically adjust the output volume level based on		
14	Speaker should support remote health/self-test.		
15	• The IP horn loudspeaker shall be made from Acrylonitrile Styrene Acrylate (ASA)		
16	**Technical Specifications are as follows:**		
	Rated power	8 W with PoE & 15 W with PoE+	
	Maximum sound pressure level	119 dB with PoE	
	(500 Hz — 8 kHz, 1 m)	122 dB with PoE+	
	Effective frequency range (-10 dB)	380 Hz — 11 kHz	
	Coverage angle HxV (-6 dB, 1 kHz)	101°x134°	
	Network Ethernet	100BASE-TX, 1000BASE-T	
	Protocols Supported	IPv4, SIP, NTP, TCP, UDP, HTTP, HTTPS. ONVIF (Discovery)	
	SIP audio codecs	G.711 (u-law and a-law), G.722,	
		Opus	
	Analog audio input/output	1 line-level input, 1 line-level output; unbalanced	
	Sampling rates:	44.1 kHz, 48 kHz	
	Operating temperature (°C)	-40 °C — 55 °C	
	Ingress Protection (IP)	IP66	
	Integration	IP horn speaker should have capability to get audio trigger commands directly from camera	
	Approved makes	Same as camera OEM	

Sr No.	Recording Server Cum Storage box Main & Failover	Complaince	Yes/No
1	Processor	Intel Hexa core Processor ® E-2226GE	
2	Cache	12 MB Intel Smart Cache	
3	Memory	16GB DDR4-2666 2Rx8 ECC	
		UDIMM	

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Annexure-B3 Technical PQ:

CRITERIA FOR 'TECHNICAL SPECIFICATIONS OF EQUIPMENTS' OF TECHNICAL PRE-QUALIFICATION:

4	HDD slots	16 slots, 3.5 in. SATA storage trays	
5	Max HDD capacity	Up to 18 TB/slot, up to 288 TB	
6	SSD for OS	2 x 240 GB SSD drives in RAID-1 configuration	
7	OS	Microsoft Windows Server IoT 2019	
		for Storage Standard	
8	RAID support	RAID-5 / 6	
9	Protocol	iSCSI	
10	B/W capacity	550 Mbit/s	
11	Network	2 RJ45 Gigabit Ethernet LAN ports	
		(teamed)	
12	Hot swappable HDDs	Yes	
13	Hot swappable power supply, fans	Yes	
14	Power Consumption	440.3 W	
15	Power Input	240VAC	
16	Form Factor	3U Rack Mount	
17	USB Ports	Front: 2 USB 2.0 ports	
		Rear: 3 USB 3.1 ports and 1 USB-C	
		port	
18	Quality	This product shall be manufactured by a firm whose quality system is in compliance with the I.S. /ISO 9001/EN 29001, QUALITY SYSTEM.	
19	SNMP	Simple Network Management Protocol is a component of the Internet Protocol Suite as defined by the Internet Engineering Task Force (IETF). SNMP is used in network management systems to monitor network-attached devices for conditions that warrant administrative attention.	
20	Approved Make	Camera OEM, Netapp , BCD , Husky	

Sr. No.	Workstation Specifications : Complaince	Yes/No
1	Workstation capable to display maximum 36 cameras @H.264 @ 1080P @25FPS with	
2	Processor – Intel Core i7-10700K or latest CPU (Intel Quick Sync Supported)	
3	Memory – Minimum 32 GB	
4	Hard disks – 500GB SSD Disk	
5	OS- Windows 10 Pro, 64bit	
6	Network Card – 1Gbit/s network card	
7	GPU - NVIDIA GTX 1080p Series or Quadro P4000 Graphic card WHQL Certified or better	
8	Approved make: HP, DELL, BCD, Netapp	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B4 Technical PQ:

CRITERIA FOR 'TECHNICAL SPECIFICATIONS OF NETWORK EQUIPMENTS' OF TECHNICAL PRE-QUALIFICATION:

4.1 Outdoor Access Switch : Industrial Grade 8 Ports Fully Managed Layer 2 PoE+ Switches

Sr. Nos	Description	Compliance Yes/No	Remarks
1	Industrial Grade Layer 2 Fully Managed Switch with 8 Ports 10/100/1000Mbps PoE+ and 4 SFP Slots		
2	2 SFP Slots loaded with 1 Gbps Single Mode SFP Modules		
3	Dual DC input with POE budget of minimum 240 watts. SI should provide the relevant AC to DC converters alongwith the Switch		
4	Support Rapid Ring protection / Resiliency technology equivalent		
5	Operating temperature : 0° to 70°C,		
6	Full features IPv4 & IPv6		
7	UL, cUL, TUV & ROHS compatibility		
8	Make - CISCO, HP, Allied telesis		

4.2 Core Switches : Enterprise Grade 24 SFP Ports Layer 3 Stackable Switches

Sr. Nos	Description	Compliance Yes/No	Remarks
1	Layer 3 Stackable Switch with 24 SFP Slots and 2 SFP+ Slots in HA load sharing mode		
2	Each Switch should have minimum 12 slots loaded with 1Gbps UTP SFP Modules and 12 slots loaded with 1Gbps Single Mode SFP Modules		
3	In-built dual redundant AC power supply		
4	Support Rapid Ring protection / Resiliency technology equivalent		
5	Upgradeable to Advance Layer 3 protocols such as OSPF, PIMv4-SM, DM and SSM,RIPng, PIMv6-SM		
6	Operating temperature : 0° to 40°C		
7	Full features IPv4 & IPv6		
8	UL, cUL, TUV & ROHS compatibility		
9	Make - CISCO, HP, Allied telesis		

4.3 Workstation Switches : Enterprise Grade 24 Ports Layer 2 Fully Managed Switches

Sr. Nos	Description	Compliance Yes/No	Remarks
1	Layer 2 Fully Managed Switch with 24 Ports 10/100/1000Mbps and 4 SFP Slots		
2	2 SFP Slots loaded with 1 Gbps Single Mode SFP Modules		
3	Minimum 1 in-built AC power supply		
4	Support Rapid Ring protection / Resiliency technology equivalent		
5	Operating temperature : 0° to 40°C		
6	Full features IPv4 & IPv6		
7	UL, cUL, TUV & ROHS compatibility		
8	Make - CISCO, HP, Allied telesis		

4.4 Indoor Access Switches : Enterprise Grade 24 Ports Fully Managed Layer 2 PoE+ Switches

Sr. Nos	Description	Compliance Yes/No	Remarks
1	Layer 2 Fully Managed Switch with 24 Ports 10/100/1000Mbps PoE+ and 4 SFP Slots		
2	2 SFP Slots loaded with 1 Gbps Single Mode SFP Modules		

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B4 Technical PQ:

CRITERIA FOR 'TECHNICAL SPECIFICATIONS OF NETWORK EQUIPMENTS' OF TECHNICAL PRE-QUALIFICATION:

3	Minimum 1 in-built AC power supply with POE budget of minimum 370 watts		
4	Support Rapid Ring protection / Resiliency technology equivalent		
5	Operating temperature : 0° to 40°C		
6	Full features IPv4 & IPv6		
7	UL, cUL, TUV & ROHS compatibility		
8	Make - CISCO, HP, Allied telesis		

4.5 Indoor Access Switches : Enterprise Grade 16 Ports Fully Managed Layer 2 PoE+ Switches

Sr. Nos	Description	Compliance Yes/No	Remarks
1	Layer 2 Fully Managed Switch with 16 Ports 10/100/1000Mbps PoE+ and 2 SFP Slots		
2	2 SFP Slots loaded with 1 Gbps Single Mode SFP Modules		
3	Minimum 1 in-built AC power supply with POE budget of minimum 240 watts		
4	Support Rapid Ring protection / Resiliency technology equivalent		
5	Operating temperature : 0° to 40°C		
6	Full features IPv4 & IPv6		
7	UL, cUL, TUV & ROHS compatibility		
8	Make - CISCO, HP, Allied telesis		

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure- B5 Technical PQ:
CRITERIA FOR 'PROOF OF CONCEPT (POC)' OF TECHNICAL PRE-QUALIFICATION:

Proof of Concept (POC) Scope cum General Guideline

The PoC by bidders will be conducted based on the POC parameters provided in this document. Qualification will be

General Guidelines: POC site

1	PoC site will be allotted to the bidder by IIT Mumbai POC Committee and should be visited and surveyed.
2	The model of Camera, Video management software and Network Switch should be same as submitted in bid.
3	Any Labelled or Third Party Manufactured Products will be disqualified it should be manufactured by the same
4	Server & storage required to setup in PoC for management, Recording, Analytics and failover need to be arranged by
5	Other hardware, Software, License, Display, Cable, Connector, Tools, etc required to demonstrate the functionality

System Setup

1	Cameras must be placed on Poles/ cantilever. Cameras must be tested for all lighting conditions.
2	VMS Software must be preconfigured as per tender requirement. If any customization or integration require to
3	Bidder has to ensure enough capacity for 1 days continuous recording in server/storage for 2 cameras at full
4	Bidder has to install memory card in cameras to check ANR feature

To execute the POC, site should meet following benchmarks:

1	Cameras are installed at respective location at site
2	VMS server including failover and client are installed at the site.
3	Cameras are added and configured in VMS.

If the site is meeting the above criteria, POC may be conducted as per the procedure described below:

VMS Software:

S. No.	Specification	Testing process	Test Results & Remarks
1	Management software shall - discover, add, remove cameras and Configuration of camera live video, recording properties	Bidder shall demonstrate by adding & configuring each type of quoted cameras in VMS	
2	Web client support, Mobile application (IOS, Android smart phone) support	Bidder shall demonstrate web client & mobile client as per tender specification	
3	The software shall support offline and online for maps such as bing map	Bidder shall demonstrate	
4	Searching the recorded video using timestamp and events	Bidder shall demonstrate.	
5	FIPS 140-2 Encryption	1. Ensure that FIPS is disabled on the Windows servers designated for VMS deployment	
		2. Complete the VMS installation	
		3. Enable FIPS on all VMS servers using Local Security Policy	
		4. Open Local Security Policy: Press Win + R, type secpol.msc, and navigate to Local Policies -> Security Options.	
		Enable FIPS-Compliant Algorithms: Double-click on "System cryptography: Use FIPS compliant algorithms for encryption, hashing, and signing," select "Enabled," and click "Apply" then "OK."	
		System Reboot:	
		Reboot the machine after applying the FIPS settings	
		5. Configure encryption settings to safeguard cameras, recorded footage, and ensure compliance.	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure- B5 Technical PQ:

CRITERIA FOR 'PROOF OF CONCEPT (POC)' OF TECHNICAL PRE-QUALIFICATION:

		6. After reboot, all camera passwords and recorded footage are now encrypted using FIPS-compliant algorithms, ensuring robust security measures in place.	
6	Provision for Secure communication of cameras (HTTPS)	Bidder shall demonstrate	
7	Provision for Digital Signature support for the recorded video	Bidder shall demonstrate	
8	Provision to encrypt recorded video on AES256	Bidder shall demonstrate	
9	System should Support to export video of multiple cameras on multiple timelines	Bidder shall demonstrate	
10	Bookmarking support for the selected video portion	Bidder shall demonstrate	
11	Provision to synchronize multiple cameras playback	Bidder shall demonstrate	
12	Provision to group and save the multiple cameras, and able to select the group name for display of group cameras.	Bidder shall demonstrate	
13	Interfaces to export archived video for single camera or multiple selected cameras. Provision to select the time stamp for exported video.	Bidder shall demonstrate	
14	The software should have .exe installer version and same should be provided at the time of POC	Bidder shall demonstrate	
15	The client viewer shall support GPU based video decoding to improve video rendering performance and up to 75% reduction in CPU load of the workstation running Client software. The use of GPU based video rendering shall also make client ready for 4K/UHD camera technology	Bidder shall demonstrate	
16	The recording server` shall support GPU based video hardware acceleration decoding to improve CPU load of the workstation running recording server.	Bidder shall provide the document for the same	
17	The VMS software should be GDPR compliant	Bidder shall provide the documents for the same	
18	VMS manufacturer shall provide their SDK (or any other integration means) libraries and documentation) to ensure a seamless integration with any other system	Bidder shall provide the documents for the same	
19	VMS should consist of only Base license and Channel Licenses. VMS should be provided with unlimited number of Failover Servers and Failover Camera Licenses.	Bidder shall provide the documents for the same	
20	The Video Management System shall include support for Active Directory to allow users to be added to the system. Use of Active Directory requires that a server running Active Directory, acting as a domain controller, to be available on the network.	Bidder shall demonstrate.	
21	The Video Management System shall include support ONVIF full member	Bidder shall show documents	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure- B5 Technical PQ:

CRITERIA FOR 'PROOF OF CONCEPT (POC)' OF TECHNICAL PRE-QUALIFICATION:

22	Administrators shall be able to select a storage container for each device and move a device from one storage container to another, or move all recordings inclusive archives to the new storage container, or delete them all.	Bidder shall demonstrate	
23	Administrators shall be provided with an overview of the defined storage containers, their archives with path, and free and used space on the drives for each device, including the used storage space in the recording database, and in archives.	Bidder shall demonstrate	
24	The system shall support automatic failover for recording servers. This functionality must be accomplished by a failover server that shall work as a standby unit, which takes over in the event that one of a group of designated recording servers fails. Recordings shall be synchronized back to the original recording server once it is back online.	Bidder shall demonstrate	
25	The system shall support parallel recording of a camera at two different recording servers	Bidder shall demonstrate	
26	The Video Management System shall support a versatile rule system including scheduled or event-driven actions with numerous options including support to time profiles	Bidder shall demonstrate	
27	The system should also support data grooming functionality. It should be able to groom the video data from higher FPS to lower FPS in separate storage	Bidder shall demonstrate	
28	The client viewer shall support auto switching from high resolution to low resolution and vice a versa as per the camera display tile size	Bidder shall demonstrate	
29	The system shall support device password management of CCTV cameras directly from Video Management Software	Bidder shall demonstrate	
30	The system shall support Video Push from Mobile phone with GIS location using android/Iphone mobile application which should be developed by VMS software provider	Bidder shall demonstrate	
31	The VMS software should show Motion based recording	Bidder shall demonstrate	
32	VMS should Support Case management: Organize all video assets of an investigation in a single container, bookmark objects of interest, and summarize case findings (including all relevant exhibits) in an exportable report, while dynamically collaborating on cases with other users.	Bidder shall demonstrate	
33	VMS should support advanced multi-camera search capabilities.	Bidder shall demonstrate	
34	Camera should have dual power supply feature. In case of LAN Power failure, the camera should get power from alternate source and recording to be done in Micro sd card of minimum 1 TB. Post LAN connectivity the recording should be fetched by VMS into storage to show continous recording	Bidder shall demonstrate	

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Annexure- B5 Technical PQ:

CRITERIA FOR 'PROOF OF CONCEPT (POC)' OF TECHNICAL PRE-QUALIFICATION:

35	VMS should be able to fetch the recording of camera and run analytics on recorded video to get clips of incident selected. The same should be demostrated	Bidder shall demonstrate	
36	Dashboard capabilities with dynamic Widgets for different alerts & customization as per user in VMS	Bidder shall demonstrate	
	Camera POC		
37	POC to be done with Bullet camera. In the POC, analytics such as Object in field, Perimeter intrusion, Loitering, Counter, Occupancy of person, car should be demonstrated at distance of 80 meters in day and night time with 90% accuracy. Alerts should be triggered in VMS	Bidder shall demonstrate	
38	Object classification such as person, bike, car and truck, should be demonstrated at 80 meters in day time and night time and the result should be seen in VMS client	Bidder shall demonstrate	
39	Minimum 6 video analytics should run simultaneously per camera.	Bidder shall demonstrate	

Name of work: SITC of centralized server based CCTV System - PH II, IITB

Annexure-B6 C-AMC Rate

(To be submitted in separate sealed envelope)

Sr.No.	Descriptions	Basic tender value (Without Taxes) in Rupees.	% of CAMC over the Basic tendered values	
			In %(percentage)	In Rupees
1	C-AMC rate for 1st year (After 3years DLP Period)			
2	C-AMC rate for 2nd year (After 3years DLP Period+ 1st year CAMC period)			

15/04/24

Signature of the tenderer and full address with stamp

15/4/24

PART-1

ARTICLES OF AGREEMENT

Contract Agreement for the work of " ....."

Articles of agreement made at IIT Bombay this..... ..... day of .....20.... , between Indian Institute of Technology, Bombay under Institute of Technology Act 1961,and having its administrative Office in Main building 1st floor , Powai, Mumbai- 400 076 , (herein after called Indian Institute of Technology Bombay) of the one part and M/S. ....., whose office is situated at ..... - hereinafter called " the Contractor") of the other part.

WHEREAS
The IIT Bombay being desirous of having provided and executed certain works mentioned enumerated or referred to in the work order no: ..... dated ..... for works mentioned , drawings and other correspondences constituting the quotation and acceptance thereof, copy to be annexed all of which are designed to form part of this contract and are included in the term "CONTRACT" herein used.

AND WHEREAS

The IIT Bombay accepted the tender of the contractor for the provisions and the execution of the said work at the rate stated in the work order of description of works (Herein after called "Schedule Rates') upon the terms and subject to the conditions of contract.

NOW THIS AGREEMENT WITNESS AND IT IS HEREBY AGREED BY AND BETWEEN THE PARTIES AND AS FOLLOWS:

1). The documents which form part of the contract will be the Work order no. .....description of work, specifications, drawings and other documents , constituting the quotation and acceptance thereof, it is further agreed that the above work order shall constitute the contract between the parties.

2). The owner will pay the Contractor the sum of Rs..... /-(Rupees .....only) (hereinafter referred to as "the contract Sum") of such other sum as shall become payable hereunder at the times and in the manner specified in the said conditions .

3) In consideration of the payments to be made to the contractor for the works to be executed by him, the contractor shall and will duly provide, execute and complete the work ..... per the time limit mentioned in the correspondences and shall maintain the same at his own cost for the defect liability period thereafter , perform all such acts and things in the contract mentioned or described or which are to be implied there from or may be reasonably necessary for the completion of the said work and at the times and the manner and subject to the terms and conditions or stipulations mentioned in the contract.

4). In consideration of the due provision, execution and completion of the said work, the IIT Bombay does hereby agree with the contractor that the IIT Bombay will pay to the contractor in the respective amount for the work actually done by him at the rate quoted and accepted by IIT Bombay such other sums may become payable to the contractor under the provisions of the contract, such payment to be made at such time and in such manner as provided for in the agreement.

Contd....

PART-1

5). In consideration of the due provision, execution and completion of the said work and contractor does hereby agree to pay to the IIT Bombay the sum as may be due to the IIT Bombay for the services if any rendered by the IIT Bombay to the contractor and such other sum or sums as may become payable to the IIT Bombay towards loss, damage to the IIT Bombay's equipment, material, plant and machinery including those hired to the contractor if any as set forth in the said conditions of contract, such payment to be made at such time and in such manner as provided in the contract .

6).Any dispute/difference on agreement of this contract Arbitration valuable provisions of the arbitration & Act 1996. The venue of arbitration shall be Mumbai . The language of Arbitration shall be English .

7). All disputes arising out of or any in connection with this agreement or concerning thereto shall be deemed to have arisen in Mumbai and the same will be referred to the sole arbitration of Deputy Director, IIT Bombay for his decision and his decision will be final and binding.

IN WITNESS WHEREAS THE PARTIES HAVE ACCEPTED THESE PRESENT IN DUPLICATE THE DAY AND THE YEAR FIRST MENTIONED ABOVE.

SIGNED AND DELIVERED FOR AND ON BEHALF OF THE INDIAN INSTITUTE OF TECHNOLOGY BOMBAY.

SIGNATURE.....

DESIGNATION : Executive Engineer(Electrical)
IIT Bombay, Powai, Mumbai – 400 076.

In the presence of witness

1)..... 2). .....

Address: Address:

SIGNED AND DELIVERED FOR AND ON BEHALF OF THE CONTRACTOR

SIGNATURE.....

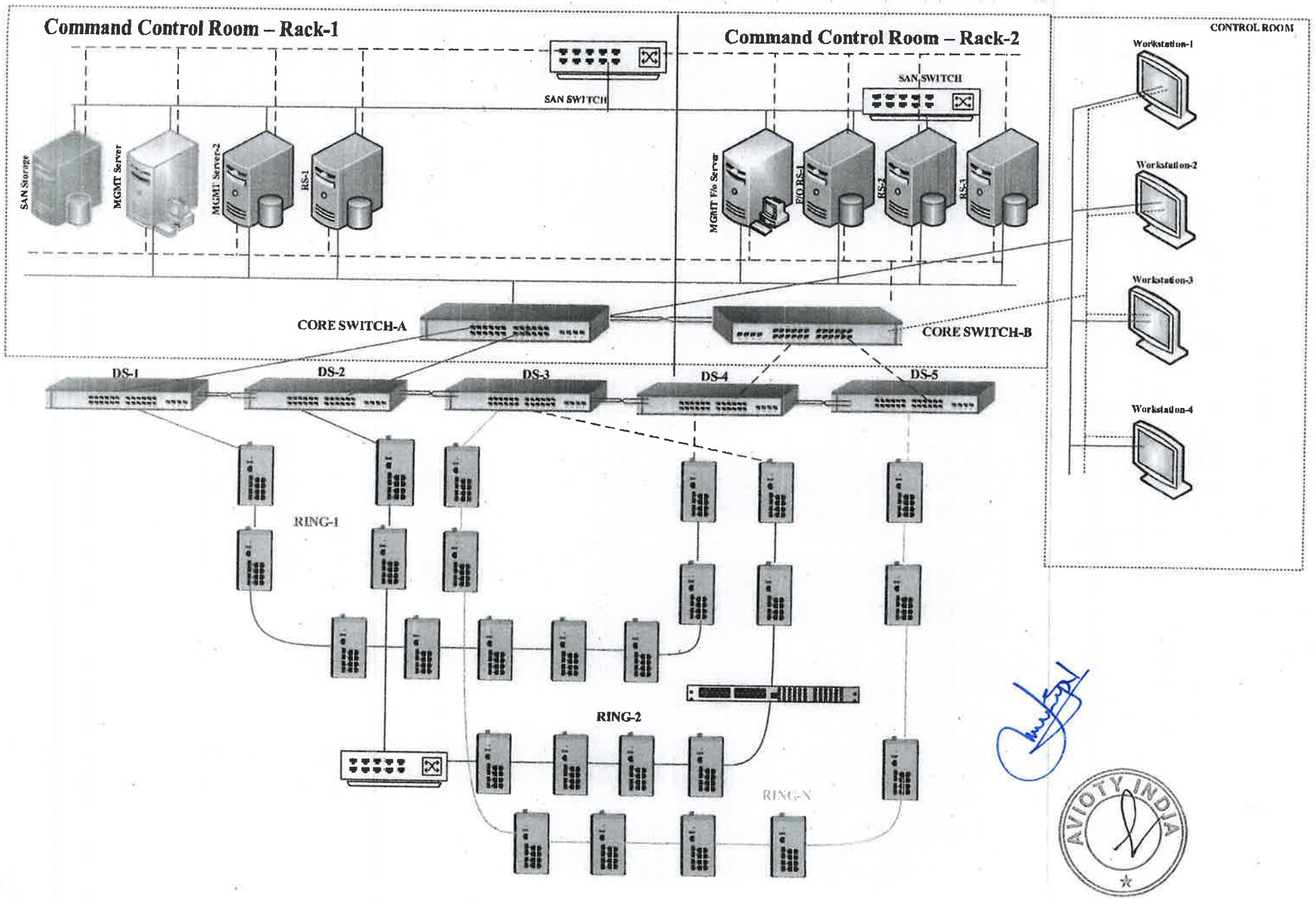
DESIGNATION.....

In the presence of witness:

Name: 1). ..... 2). .....

Address: ....

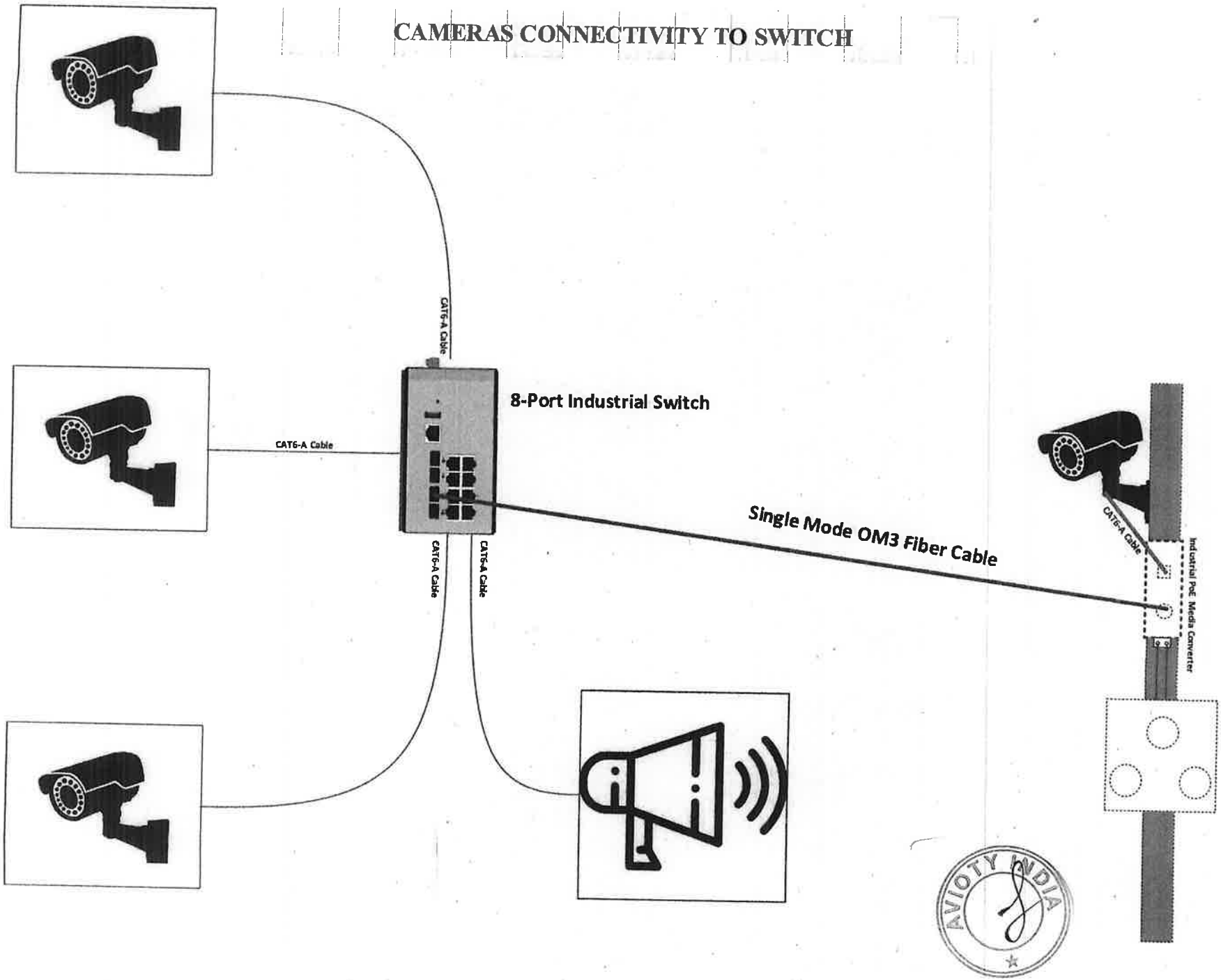
CCTV SNETWORK ARCHITECTURE DIAGRAM



AVIOTY INDIA

(47)

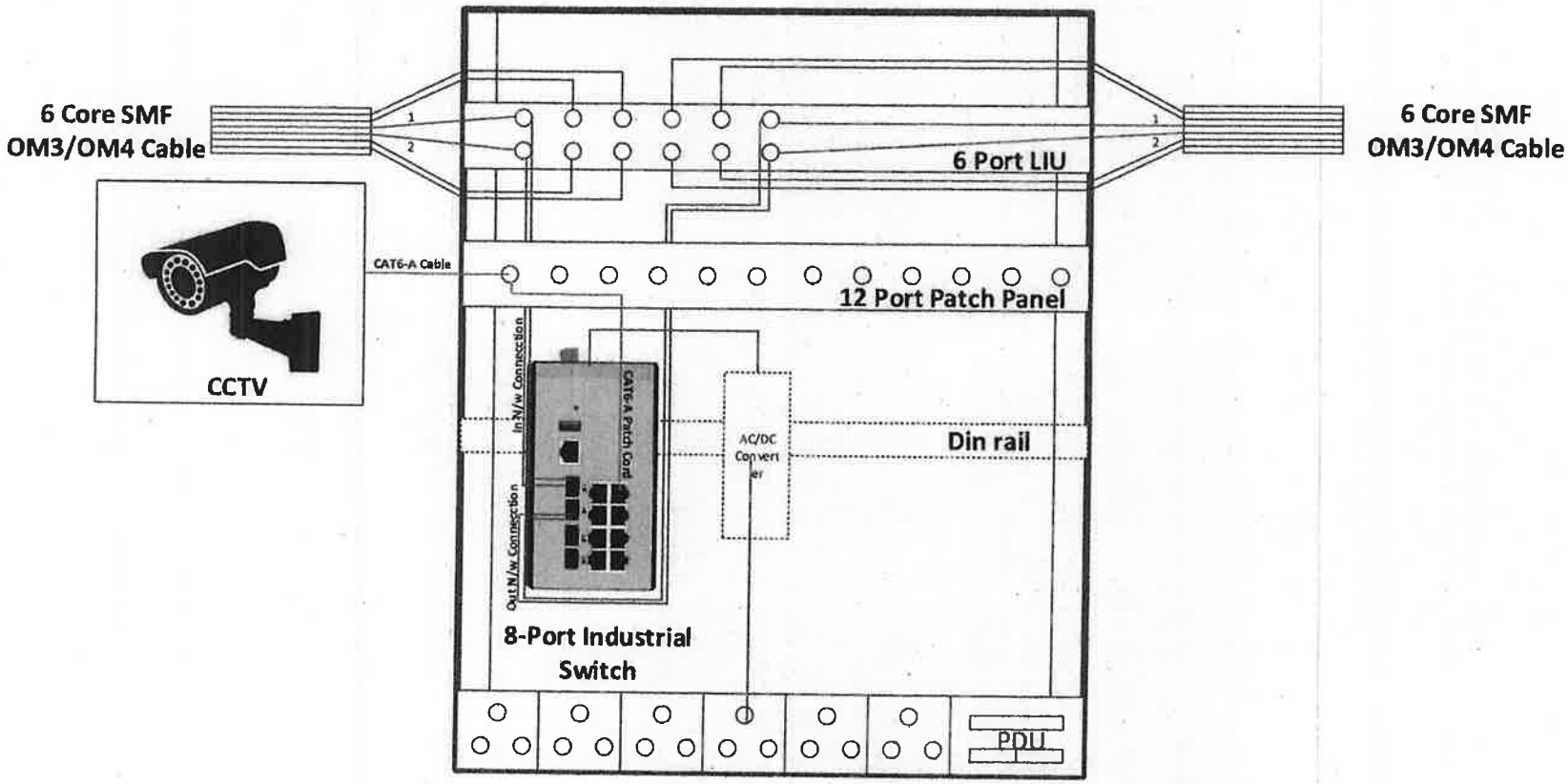
CAMERAS CONNECTIVITY TO SWITCH



AVIOTY INDIA

(75)

RACK ELEVATION & CABLE CONNECTIVITY DIAGRAM



AVIOTY INDIA

Annexure- A

Performa for Declaration towards EMD

(To be submitted in original on the letter head of the Company by the authorized officer having power of attorney)

Whereas, I/we ---------- (name of agency) has submitted bid for ---------- ---------- (name of work) and whereas the Earnest Money Deposit is being exempted in the aforesaid tender to give relief to the bidders as per Govt. of India Guidelines due to severe financial crunch on account of slowdown in economy due to the pandemic,

I/we hereby submit the following declaration in lieu of submitting Earnest Money:-

(1) If after the opening of tender, I/we withdraw or modify my/our bid during the period of validity of tender (including extended validity of tender) specified in the tender documents;

Or

(2) If, after the award of work, I/we fail to accept LoA/LoI, or to sign the contract, or to submit performance Guarantee, or fail to commence the work within the stipulated time period prescribed in the Tender documents;

Or

(3) If, I/we furnish any incorrect or false statement /information/document;

Or

(4) If, I/we hide any relevant information or do not disclose any material fact in the tender;

Or

(5) If, I/we commit any breach of integrity pact,

I/ we may be put under Black-List for a period of two years and shall not be eligible to bid for IIT Bombay tenders from the date of issue of such order.

Stamp & Signature of the Contractor(s)

Note: To be submit along with MSME/NSIC Certificate.