



एआइ एअरपोर्ट सर्विसेज
AI AIRPORT SERVICES

AI AIRPORT SERVICES LIMITED

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Tender Document for

Surveillance System at Cargo Custodian locations of AIASL at Mumbai

Tender Document Number: 1159A dated 12/04/2022

Tender Amendment Date: 20.04.2022

Tender Due Date / Time 10/05/2022 at 1100 Hours

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1. SCHEDULE OF TENDER

TENDER NO	TENDER DOCUMENT NO. 1159A DATED 12.4.2022
TENDER NOTICE	Surveillance System at Cargo Custodian locations of AIASL at Mumbai
TENDER ISSUER	AI AIRPORT SERVICES LIMITED
DATE OF ISSUE OF TENDER DOCUMENT	12.4.2022 <i>Tender Amendment Date : 20.04.2022</i>
Pre Bid Conference	28.04.2022 @ 14.30PM at GSD 1 st floor Conference Hall, Near gate no 5 sahar, Andheri, Mumbai-99
Site Visit	Site visit on 4.5.2022 at 14.00PM @ International Cargo Complex, Sahar. Interested parties must submit details such as name, address, adhar card copy, photographs etc. 7 days before site visit to enable preparation of entry pass for airport area (Maximum 2 persons per vendor will be allowed for site visit)
LAST DATE & TIME OF SUBMISSION OF BIDS	UPTO 1100 HOURS ON 10.05.2022 OR EARLIER
ESTIMATED CONTRACT VALUE	RS. 25,00,000/-
PLACE OF SUBMISSION & OPENING OF BIDS	MMD-AIASL, GSD COMPLEX, NIPTC, NEXT TO SAHAR POLICE STATION, NEAR CSI AIRPORT GATE NO. 5, TERMINAL 2, MUMBAI – 400099, MAHARASHTRA, INDIA TEL: 022-2831 8424 / 8446
DATE OF TECHNICAL BID OPENING	WILL BE COMMUNICATED TO RESPONDING BIDDERS
DATE OF PRICE BID OPENING	WILL BE COMMUNICATED TO SUCCESSFUL TECHNICAL BIDDERS

1A. INTRODUCTION:

AI Airport Services Limited (herein after referred to as AIASL), erstwhile called as Air India Air Transport Services Limited (AIASL) has been appointed as a Custodian of Air Cargo Complex at Mumbai (Customs Cargo Service Provider), effective 16th April 2015. As a Custodian, AIASL looks after total cargo activities that is from the stage of receipt of export shipments in the warehouse till placed on the aircraft with regard to export cargo and from the stage of import shipments being received from the flight till delivery to the consignee with regard to import activities. Facilities are available for acceptance and storage of all kinds of cargo including special cargo, perishables, dangerous goods, cargo requiring cold storage, valuables, live animals, heavy odd size cargo etc. To electronically interact with its trade partners, AIASL has developed its own Cargo Custodian Website to enable Agents, Handled Airlines, Banks, Customs, Importers and Exporters to be able to interact with AIASL as a custodian.

Purpose:

As a custodian AIASL is responsible for

- i) the safety and security of imported and export goods under its custody;
- ii) be liable to pay duty on goods pilfered after entry thereof in the customs area;
- iii) be responsible for the secure transit of the goods from the said customs area to any other customs area at the same or any other customs station

The plan is to have IP Camera based Closed Circuit TV (CCTV) procured, installed, tested and maintained in the AIASL Custodian Cargo locations constituting Import Cargo & Export Cargo locations, ETV Cargo (Departure and Arrivals) location, Agricultural and Processed Food Products Export Development Authority (APEDA) Storage and the corresponding offices of AI Airport Services Limited (AIASL) personnel such as Cargo and Security. The Custodian Warehouse facilities is expected to benefit from the use of CCTV surveillance systems, especially with the location being spread out and thereby reducing the challenges to protect and secure the place on a 24/7 basis. Implementing strategically positioned security cameras should help our Cargo warehouse managers and Security Personnel monitor thereby effectively reducing the threats of crime and theft.

IP Camera based CCTV refers to the use of video cameras to enable viewing and recording areas in the Custodian and related facility, implemented for surveillance in the above stated locations. The cameras used are either placed visibly or covertly.

2.Scope of Work:

- (a) This section provides a general statement of the Scope of Work for the CCTV systems at AIASL Cargo Custodian location of the Chhatrapati Shivaji Maharaj International Airport (CSIA) at Mumbai.
- (b) The CCTV System shall comprise of:
 - i) IP-based Indoor/Outdoor **Fixed** or **Varifocal** (**Bullet** and **Dome**) cameras;
 - ii) Work stations for CCTV cameras terminals;
 - iii) Display screens;

- iv) Network Video Recorders with Internal disk backup.
 - v) Basic Video Management Software with appropriate licenses for select few users.
 - vi) All the accessories such as Racks, switches, mounting bracket and so on required to complete the CCTV Installation.
- (c) The Vendor / Contractor's scope of work is a **turnkey solution**, with responsibility for **fully provisioning the CCTV services, including surveying, detailed design, drawings, supply, installation, configuration, testing, commissioning, maintenance and provision of defects liability** for the following elements and services throughout the **Defects Liability Period** as per :
- i) The detailed final design of CCTV system including placement, Selection of the camera type, view, mounting height, mounting type, basic video management software (as per security requirement) applied as per the site conditions in approval by AIASL team, Security representatives and final CCTV system behavior and parameters based on this Technical specification and the drawings.
 - ii) Supply and installation of all cameras, including any additional to that shown on the drawings submitted, and creates additional drawings wherever drawings change to meet the requirements of the security as and when required as per site condition.
 - iii) All CCTV Software required in making the CCTV system functional including the operating system software on work station, shall be the responsibility of the Vendor / Contractor.
 - iv) All detailed engineering, manufacturing, equipment, labor, and permits required to satisfactorily complete the CCTV services installation required under the contract.
 - v) Supply, installation and integration of all necessary accessories, equipment and furnishings including CCTV cameras, NVRs, Storage devices, disk backup devices, Network switches & other active network components and display screens.
 - vi) Delivery of all equipment direct to site, including safe keeping.
 - vii) Site establishment and provision of site facilities as required like vehicle arrangement during installation. Tools, ladders any other equipment to carry out work shall be the responsibility of CCTV Vendor / Contractor.
 - viii) Installation of supplied equipment, including all supporting work (e.g. Network Rack ,brackets, poles, panels and housings) to fully install the CCTV services;
 - ix) CAT 6 / Network Armored cabling from camera end to nearby network rack Room, EJB or Termination Rack.
 - x) Low voltage power or 230 V / 50Hz power cabling for cameras, NVRs, Racks from nearby Power source or from Hub Rack to camera. Power supply units for CCTV cameras, media convertors (wherever required) shall be located in nearby Electronic Junction Box (EJB) or in Hub rack and necessary power cabling and Optical fiber cabling (if required) shall be run to the camera location through conduits. In case of any armored cabling conduit is not required.

- xi) Electrical sockets for CCTV power supply units, workstation terminals at EJBs, Control & Monitoring Rooms.
- xii) UPS power for CCTV power supplies NVRs and workstation terminals All structural supports as related to the CCTV installation; including camera housing for outdoor bullet cameras
- xiii) Coordination with AIASL personnel for associated works such as equipment grouting, fixing of inserts, closure of wall openings, chasing in walls for fixing hall fixtures, making good of all cutting and patching of walls. The vendor should ensure that there should be no damage caused to AIASL property during installations/operation.
- xiv) In addition to the details given in this document, the Vendor / Contractor's scope shall include any and all accommodations and modifications that are required for interfacing and coordinating with other related systems;
- xv) Ingress protection of equipment to appropriate IEC IP Code ratings;
- xvi) Fire rated enclosures or housing are required for outdoor cameras
- xvii) Testing and commissioning of equipment in accordance with the requirement and details given in this document, including a reliability test period for all installed equipment for up to one week from installation to demonstrate availability performance requirements;
- xviii) Operator training, including technical advice to cargo operations and ground handling staff and maintenance training for level 1 support staff; Up to three sets of training to be given at AIASL site location on the basis of "Train the Trainer" type of training.
- xix) Future training if required the same to be made available at free of cost, the same to be specified as part of proposal.
- xx) Operations and maintenance manuals including 4 sets of Hard copies and 2 nos. of soft copies shall be provided.
- xxi) Maintenance for additional **extended warranty** of two years over and above three years, including agreed provision for cost escalation,
- xxii) Scope of work is subject to successful completion of all above items.

Vendor / Contractor's Program of Work

- (a) The Vendor / Contractor shall prepare and submit a detailed contract / sub contract Program before implementation.
- (b) The contract / Subcontract Program shall show the sequence, method and timing, and dependencies of all work components of the **CCTV – IP Camera based** services, which shall be supported by additional documents.

- (c) Critical path method diagrams are to be developed in a logical format showing predecessors and successors and their relations.

Additional Compliance Requirements of AIASL

- (a) The Vendor / Contractor shall be responsible for ensuring that all documents and drawings are kept confidential and secure. A document control procedure including chain of custody forms for distribution of project related documents to Vendor / Contractor team members shall be provided in a form acceptable to the Representative.
- (b) Documentation Reference: The Vendor / Contractor shall supply a complete list and cross-reference of all supplied documents (i.e., name, brief description, and document number).
- (c) Submittals shall indicate variations from specified requirements.
- (d) The Vendor / Contractor shall not proceed with commencement of work until final endorsement of material/equipment and shop drawings and mock-up are obtained from the AIASL Representative.
- (e) All submittals shall be in English language only.
 It is the Vendor / Contractor's responsibility to coordinate and cooperate with other package Contractors with regards to any construction/schedule interface and/or workface activities. In case of any conflict, the Vendor / Contractor shall immediately inform the AIASL coordinating team.

Minimum Project Submittals

- (a) Proposed Models: The Vendor / Contractor shall also submit and approve by AIASL representative before installation, detailed coloured catalogue and cuts of proposed equipment and models considered for installation components.
- (b) Project Schedule: Vendor / Contractor shall **develop and submit a detailed project schedule for written approval within one week of the date of award**. For submittals, schedule shall take into account initial submittal, AIASL review period, Vendor / Contractor re-submission period, and AIASL 'acceptance'. **Project schedule shall include the following minimum milestones:**
- i) Award Date
 - ii) Mobilization Phase
 - iii) CCTV Systems Engineering and Approval Phase
 - iv) Type of Camera and its Placement
 - v) System Site Installation, Testing and Training Phase
 - vi) Endurance Testing and Final Acceptance and Closeout Phase
- (c) **Submit within 15 working days from the date of award**, camera placement, type of mount and finalized system configuration for review and written approval process. Finalized design shall include:

- i) CCTV Camera Schedule including camera ID, location, type, parameters, cabling, power requirements,
 - ii) Head end Components Architecture including final configuration of storage, redundancy configuration, operating system and basic Video Management software, Network switches and active interconnecting components.
 - iii) NVR storage requirements calculations and configuration for each NVR including storage allocation and channel allocation.
 - iv) Storage backup calculation for disk.
 - v) UPS calculations and run-time
 - vi) Detailed Power and BTU requirements
 - vii) Detailed Communications Infrastructure requirements
 - viii) Include network bandwidth load under worst case conditions
- (d) **Location Drawing:** - The Vendor / Contractor **shall within 15 working days from the date of CCTV system design approval** and before beginning any equipment fabrication, **submit shop drawings and required material progressively for review** by the AIASL Representative as outlined below. Submittals shall include the following: wherever the architectural drawings are available.
- i) Scaled and fully dimensioned layouts for each location CCTV sub-system.
 - ii) Technical specification data sheets of equipment and components;
 - iii) Installation diagrams for each CCTV camera mount type and configuration;
 - iv) One line diagrams of system installed configurations;
 - v) Samples as required by the AIASL team;
 - vi) Power confirmation information, including equipment rating, electrical connection interface requirements, class of insulation etc,
 - vii) Indicate access and ventilation requirements.
 - viii) Fixtures, including cuts, samples, or shop drawings as required by the AIASL.
- (e) **Test Plans:** System test plans for factory acceptance testing, performance/site testing, and endurance testing shall be submitted for review and written approval. Test result reports shall be submitted after each testing phase for review and approval.
- (f) **Warranties:** Warranties as specified in the COC shall be submitted by the Vendor / Contractor.
- (g) **Permits:** The Vendor / Contractor shall submit to AIASL on completion of the works certificates and operating permits, as evidence of inspection acceptance by statutory authorities having jurisdiction over CCTV services for their normal and unrestricted use.
- (h) **As-Built:** At completion of the Subcontract Works, the Vendor / Contractor shall submit as-built drawings and record specifications of installed CCTV services, in accordance with requirements of the Sub-contract.
- (i) **Training Plan:** Training plan, schedule, and course materials as detailed in the other section of this document.
- (j) **Maintenance Schedule:** A recommended schedule for preventative, routine, and emergency maintenance indicating frequency and response time. Preventative

maintenance services during peak activity periods shall be avoided. The Vendor / Contractor shall coordinate with the Representative to define peak activity periods. The Vendor / Contractor shall submit a finalized preventative maintenance schedule for Representative approval.

- (k) **Software Backup Copy:** A backup copy of the configured system software shall be provided. All original distribution software shall be delivered with an installable backup. The backup copy shall be appropriately labelled.
- (l) **Disaster Recovery Plan:** The final documentation shall include a disaster recovery plan. The plan shall provide the step-by-step procedures for disaster recovery for key points of failure. The first steps shall be in diagnostics. The remaining steps shall provide procedure for resolution in order to bring the system back to full operational status.

Solution Approach

- (a) In implementing the system the Vendor / Contractor shall standardize hardware, operating systems, network protocols, etc. in order to facilitate long term maintenance of the systems. Items of the same classification shall be identical. This requirement includes equipment, modules, assemblies, parts, and components.
- (b) The system shall, to the greatest extent possible, use Commercial off-the-shelf systems (software and hardware components) and shall embrace systems and technologies that have been commercially developed and successfully implemented.

3. Technical Specification – Functional and Operational System Overview

General

- (a) The system provided shall be an IP-based Video Surveillance System including the associated network video recording, viewing, control, and management software along with required integration as per scope. The system shall include all required software including network video and management software, CCTV software, information security software, camera motion triggering and recording.
- (b) The CCTV System shall include:
 - i) Outdoor day (color) / night, solid-state, IP addressable cameras (fixed standard) with lenses within IP66 housing.
 - ii) Media convertors & other accessories with IP 66 box weather proof housing
 - iii) Mounts/Stand/Poles.
 - iv) Camera housings Outdoor weatherproof with dust & water resistance.
 - v) Operator workstations, monitors& wall displays
 - vi) Network video recorders
 - vii) Storage disk backup
 - viii) PoE enabled Network switches
 - ix) CCTV software similar to VMS
 - x) Power supplies and associated low voltage cables, equipment enclosures and other

attendant components and hardware

- (c) The system shall use TCP/IP Ethernet network based video and shall not utilize DVR technology. A digital recorder that requires the installation of co-axial cables from camera to recorder is not acceptable.
- (d) The system shall be based on the TCP/IP communication protocol between all IP cameras, cameras with media convertors (where the data point is exceeding the Cat 6 limit & required to be connected with fibre optic cable due to distance limitation), supervisor workstations, and the Network Video Recorders.
- (e) The system shall record all video from IP cameras to Network Video Recorder (NVRs) and associated storage for 90 days.
- (f) The system shall have the option to connect multiple monitors (min. 2 nos.) to be connected to a single workstation.

Surveillance Areas

- (a) CCTV surveillance shall occur at areas as identified in the drawings.

Open Architecture

- (a) To the extent possible, the CCTV system provided as part of the Work shall utilize an open architecture, as proprietary based systems are not allowed.
- (b) Viewing, storing and retrieving live and recorded video shall be accomplished via software that can be loaded on any authorized computer connected to the network. Sole use of dedicated Video Management System workstations will not be acceptable. The software shall run on other workstation with same specification if required
- (c) A Video Management System (VMS) shall be implemented, based on a digital, networked, computer controlled, designed for CCTV applications. All equipment and materials shall be standard components that are regularly manufactured and utilized in the manufacturer's system. The VMS shall be an enterprise level software package that offers a complete video surveillance solution scalable to an order of (low) multiple hundreds of cameras where each camera may be added on a unit-by-unit basis.
- (d) The CCTV system components may be categorised as,
 - i) Cameras - For providing video images.
 - ii) Network Cabling and Equipment including low voltage power cabling - For transmitting the images.
 - iii) Monitor Displays - For displaying the image in real time.
 - iv) Security Work stations - For operating and managing the system.
 - v) Storage-For managing and storing recorded video for future viewing.
- (e) Video stream from individual cameras shall be recorded on respective Network Video Recorder & subsequently, shall be recorded on disk. The System shall have provision to automatically over-write the new information after the period of **90** days (with 25% additional provisioning of capacity).

- (f) In order to optimise the memory, while recording, video shall be compressed using MPEG-4 or better standard and streamed over the IP network. Once on the network, video can be viewed on a Control room workstation or on big display and shall be recorded on NVR and Backup Device.
- (g) The system should also allow for back up of specific data any other device in a format which can be replayed through standard PC based software. Log of any such activity should be maintained by the system which can be audited at a later date.
- (h) The following system tasks shall be able to, but not be limited to, be performed from the **Security VMS Workstation**:
- i) View live video
 - ii) Search through the stored video clips of a camera
 - iii) An operator records an incident
 - iv) An operator records a snapshot of the current viewed video
 - v) Add a new camera to the system subject to port limitation in NVR
 - vi) Change the configuration settings for a camera
 - vii) Search for video clips from different cameras
 - viii) Create a sequence (camera tour)
 - ix) Conduct a sequence (camera tour)
 - x) Create a multiple view (4, 9, 12 or 16 camera views per screen);
 - xi) View a multiple view (4, 9, 12 or 16 camera views per screen);
 - xii) View live video from a custom schematic
 - xiii) Add live video to a custom schematic
 - xiv) Configure, schedule and tune video motion detection
 - xv) View the audit log;

Network Video Recorder (NVR)

- (a) The Network Video Recorder (NVR) shall support a large amount of disk space for online video storage and access to high capacity archiving mechanisms for the removal of stored video to off-line media.
- (b) The NVR shall:
- i) Manage live video from camera streamers
 - ii) Transmit live video to Security Workstations
 - iii) Receive camera control commands from Security Workstations and then send the commands to cameras
 - iv) Store live video to hard disk
 - v) Transmit previously stored video to Security Workstations
 - vi) Archive previously stored video to off-line storage media
 - vii) Retrieve archived video from off-line storage media
 - viii) Provide video motion detection
 - ix) Export the recordings into MPEG format so that it can be viewed using standard tools including Microsoft's Video Player.
 - x) The system shall be capable of supporting multiple Network Video Recorders,

limit to the number of Network video Recorders up-to six used in the VMS system.

- xi) Windows or Linux/Unix based operating system.
 - xii) Application software with functionality as described in this specification.
- (c) The VMS shall include the provision of network video recording that shall simultaneously store, replay and backup recorded video in NVRs. The video recording shall consist of a Recorder platform (NVR) that uses Redundant Array of Independent Disks (RAID) storage.
- (d) Recording shall be accessible from allotted authorized video workstation connected to the CCTV network. NVR units shall provide for full motion DVD quality MPEG-4 video at 15 / 25 FPS.

NVR Features

- (a) The NVR system shall have the following features:
- i) Display a replay page that provides time and date filters for selecting recordings for replay. Replay of recordings shall be controlled using simple PLAY, STOP, PAUSE, FAST FORWARD, REWIND, STEP FORWARD, and STEP REWIND buttons.
 - ii) Recordings may be saved as single image JPEG snapshots or as MPEG format video clips.
 - iii) Provide a schedule function so that recording times may be programmed for specific times of the day and week.
 - iv) Provide a Status Page that displays information regarding the current status of the NVR system, including remaining hard drive capacity and any active MPEG-4 recordings, in addition to a list of all recording tasks.
 - v) Software that provides two authorization levels:
 - vi) A Service Level that allows access to all NVR functions.
 - vii) A User Level that restricts access to the status page and allows replaying of the stored recordings.
 - viii) Provide direct access to recorded video by allowing password protected access from any location using a web browser or VMS software.
 - ix) Support all network VMS devices required herein.
 - x) Provide a network time protocol function to synchronize the video recorder
 - xi) Provide a 'Quick Search Feature' able to rapidly search for events by date, time, type of alarm, type of activity, or camera number. Thumbnail or full screen video clips can be used to quickly search for critical events. Time, date, camera number, and a user programmable 16 character titles shall be save to the hard drive along with the image.
 - xii) Capable of simultaneous recording and viewing live images
 - xiii) Capable of full, quad or multi-screen display of live video.
 - xiv) Capable of sequencing, automatic alarm display or call-up of cameras, with up to 4X zoom.
- (b) The NVR system shall automatically restore data lost on the network recorder due to network failure. Once network operation is restored, the NVR software shall retrieve video that has been stored on the local hard drives or Compact Flash memory of the video recorder and copy the data into the gaps of lost data on the network recorder. Current video shall still continue to be recorded while the NVR system is replenishing the network video recording gaps.

In case of storage device link failure with the NVR due to any reasons, after restoration of

the link NVR shall restore to the storage devices with the same settings / configurations before the failure. The same shall happen automatically without any human/manual intervention.

Storage Devices

- (a) The NVR shall have assigned internal storage through Hard Disk Drive (HDD) and provide long-term storage and retrieval of video through the use of PCs
- (b) These storage devices shall be capable of automatically increasing the frequency of images, resolution, and quality of video streams dependent upon events programmed into the system.
- (c) The system shall be capable of completely restoring recorded data in the event of network failure.
- (d) NVRs shall store MPEG-4, Part2 or 10 format compressed video from minimum 16 streams simultaneously.
- (e) The Vendor / Contractor shall demonstrate to **AIASL** dual MPEG-4 streams in various Frames per Second (FPS) at various resolution settings (from CIF to 4CIF)) with various bit rates (in Mbps) for AIASL to select separate settings for each individual camera.
- (f) The system shall allow the administrator level users to configure the same as bandwidth / storage management options.
- (g) Any camera shall be able to be recorded using any compression type on the same NVR.
- (h) As part of the bid, the Vendor / Contractor shall size the storage for **90 days** for all cameras, at max. Resolution with compression format MPEG 4 –Part 2 and/or H.264 at 15 / 25 fps with Continuous recording,
- (i) Motion detection shall be implemented during configuration of the NVR system for cameras selected by AIASL. All cameras shall be recorded on motion based. Specific camera configuration (resolution, compression, and fps) shall be developed and submitted for written approval to Representative.
- (j) NVR software shall provide access to the complete range of functions in the NVR system

4. Technical Specification – System and Performance

System requirements

Operating System

- (a) Operating System Requirement: The CCTV system shall use Windows 10 Professional or latest or a Representative approved equivalent.

System Architecture

- (a) The systems shall be capable of handling CCTV Network Software
- (b) Network communications shall utilize TCP/IP network communications protocol.
- (c) Sufficient resiliency / redundancy and logic shall be provided to assure that the availability objectives can be met without manual intervention. All major system hardware components shall be designed so that there is not any single point of failure

that can cause operations to be disrupted. Minimum level of redundancy to be maintained.

- (d) The system shall synchronize the date and time on all devices.
- (e) The systems shall use industry standard components.
- (f) Modular design and flexibility shall be provided for easy expansion of the system without degradation to the system's performance.
- (g) VMS shall be expandable and possible to securely connect future workstations to facilitate operations and tasks at any number of locations.
- (h) Security monitoring work station locations will be identified by AIASL team and communicated to the Vendor / Contractor during the detailed design process.

Availability Requirements

(a) System Availability:

- i) At any given time, the overall system shall be considered unavailable if 5 percent or more of the end devices are non-operational, not fully functional, or do not meet response time criteria.
- ii) Software and system devices shall execute, without degradation, at the scheduled periods and response times for the systems to be considered available.
- iii) The systems shall operate as specified twenty-four (24) hours per day, seven (7) days per week.
- iv) Availability of the overall system shall be at least 99.97 percent (2 hours 38 minutes maximum downtime per year).

(b) Device Availability:

- i) PC shall be considered available only if all components and software are operating and fully functional.
- ii) A peripheral device or end device shall be considered unavailable if it cannot be placed on-line and perform its intended function(s).
- iii) Besides scheduled downtime, as identified below, individual **device availability shall exceed 99.80** percent (17 hours 25 minute maximum downtime per year).

(c) Scheduled Downtime

- i) Downtime to update the computer operating system or repair a component shall be acceptable reasons for downtime,
- ii) Scheduled downtime shall be AIASL approved hours.
- iii) If the operating system of the Work station requires maintenance or updates, or if the Workstation requires system maintenance, each workstation shall be brought down individually to be updated/maintained, such that at no time is more than one workstation down at the same time.
- iv) If the operating system of the end device computer requires maintenance or updates, or if the end device computers require system maintenance, the end device that requires the maintenance shall be brought down during non-peak hours of operation.
- v) It shall be acceptable to perform maintenance/updates on an end device computer system during other than non-peak hours if the particular end device is non-functional without having the maintenance or updates performed.

(d) Performance Requirements

- i) The system shall be capable of supporting the system within the performance requirements as outlined herein.
- ii) The performance requirements in this section are for system design and testing and not service response time.
- iii) Capacity: The system shall be designed to support the operational, functional, and performance requirements, specified herein, for a minimum of -- fixed IP cameras, recording at 15 / 25 fps, 4CIF resolution, and MPEG4 Part 2 or part 10 compression rates.
- iv) Response time criteria shall be met under maximum capacity conditions as defined above.
- v) Video Latency: Video latency shall not exceed network latency if connected to normal corporate network.

(e) System Management

- i) The CCTV Workstation connected to the network shall be SNMP manageable. A positive relationship (e.g., system heart beat) shall exist between the system devices and the Central Monitoring Work Station (s) at all times.
- ii) Managed system failures shall include, but not be limited to, PC failure.

5. Technical Specification – Hardware and Infrastructure

- (a) The Vendor / Contractor shall recommend and provide the workstation configuration that best serves the Vendor / Contractor's overall design solution. Work station shall be from a reputable manufacturer capable of a high level of maintenance and service. The various system requirements stated herein are not intended to limit the system. The Vendor / Contractor may submit alternative solutions to any of the system configuration requirements. An explanation of equivalency or benefits shall accompany alternative solutions.
- (b) The implemented configuration shall allow any device to be powered down and replaced without disruption to the network or applications. Power fluctuations should be protected by Power backup system.
- (c) Workstation shall be capable of upgrading the number of processor units by simply adding another processor or processor card.
- (d) All CCTV components out to the field device shall be provided with backup power. All components in the CCTV rack will be on UPS with emergency power feed.

Network Video Recorder (NVR)

NVR Requirements

- (a) The NVR's HDD shall be configured in an N+1 redundant configuration where N is not greater than 7. In case of a primary NVR disk failure, the backup NVR disk shall take up load and no live video service interruption shall be experienced.
- (b) Each NVR Hardware and Software shall support a maximum of 32 fixed IP cameras at 15 / 25 FPS at 4CIF resolution for 90 days recording at any of the following three compression methods (MPEG4 Part 2, MJPG, and MPEG 4 Part 10 (H.264)).
- (c) The NVR shall be able to operate with no performance degradation. Provide all components and software necessary for a fully functional system that meets the

operational, performance, and redundancy requirements specified herein. As a minimum provide the hardware for the Security Work Station configuration below.

- (d) i5 / i7 with Intel with 4MB cache
- (e) 8 GB RAM. Sufficient memory shall be provided to meet the maximum transaction load and ensure the memory is never a restriction on system performance
- (f) 1 GB SVGA Video Card supporting resolution up to 3840 x 2400 pixels
- (g) Dual Network Interface Card (NIC) 10/100/1000/10000 for LAN connection
- (h) Multiple USB 2.1+ ports
- (i) Multiple hot-pluggable redundant power supplies
- (j) Standard windows keyboard and USB 2-button scroll mouse

Equipment Racks

- (a) All Switches should be placed in 2U rack
- (b) All NVRs shall be placed in 9U rack
- (c) Appropriate Security Locks shall be provided for all CCTV Racks. Keys shall be available with the appropriate security personnel.

The equipment racks shall accommodate system components as specified, together with twenty five percent (25%) spare capacity.

6. Closed Circuit Television Cameras Systems and Configurations

Cameras

All cameras shall be CE listed.

- (a) All Fixed IP cameras shall support PoE (Power over Ethernet) 12vdc, max 3.6W.
- (b) For remote cameras that are located at distant area beyond the data point availability, fibre optic cable with media convertor at nearby Hub room shall be considered.
- (c) Each camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP).
- (d) Image Sensor – 1/ 3” or 1/ 4” Progressive scan / interlace CCD sensor.
- (e) Resolution - 4 CIF (720 x 576 PAL) 25 fps or better; shall be variable and programmable for different resolutions.
- (f) Video compression shall be MPEG 4 Part-2 or part 10 (H.264)
- (g) Frame rate shall be up to 15/25 fps at all resolution.
- (h) Multi streaming – Simultaneous dual MPEG - 4 and Motion JPEG controllable frame rate and bandwidth.

Dome type cameras shall have the following characteristics:

- i) 5 MP IP Dome Camera**
- ii) Accommodate any of pendant, wall, surface or pole mounting as per site requirement
- iii) Mounting shall be combined with a back box, mount and all required accessories to complete the system.
- iv) Available in tinted, clear with UV blocking or smoked finishes. An optional covert inner liner shall also be available.
- v) Be rugged, hardened, scratch-resistant polycarbonate.
- vi) Be tamper, impact and vandal resistant casing.

- vii) Maximum base dimensions: for Fixed camera - 6.5 inches (165 mm)
- viii) 1/2.8" or 1/2.7" 5mp PS CMOS Image Sensor Max 25fps@1080P DWDR, Day/Night(ICR), Auto Iris, 3DNR, AWB, AGC, BLC Max 25fps@1080P Resolution 3.6 mm fixed lens(2.8 mm, 4, 6 mm optional)
- ix) IR Range of 30 Metres, IP67/66, Poe CMS Software: KVMS Pro,
- x) VOptimus Pro H.264 and
- xi) MJPEG dual-stream encoding Mobile Software: iCMOB, gCMOB, wCMOB H.264 MJPEG dual-stream encoding
- xii) Smart phone support-iPhone/Android/ iPad/Optional Windows,
- xiii) RJ45 LAN port

Outdoor Camera Requirements

- (a) Outdoor Cameras shall meet the following criteria as a minimum:
 - i) **5 MP IP Bullet Camera**
 - ii) Be of Day/Night type, operating in color mode normally and automatically switching to B&W in the event of low light
 - iii) Camera and control equipment shall be suitable for operation from minus 10 deg C to 50 deg C to with relative humidity of 90% non-condensing. This temperature range may be achieved with or without heater.
 - iv) Housings shall be related to IP66.
 - v) 1/2.8 or 1/2.7" 5mp PS CMOS Image Sensor Max 25fps@1080P DWDR, Day/Night(ICR), Auto Iris, 3DNR, AWB, AGC, BLC Max 25fps@1080P Resolution 3.6mm fixed lens(6 mm optional)
 - vi) IR Range of 30 Mtrs, IP67/66, Poe CMS Software: KVMS Pro,
 - vii) V Optimus Pro H.264 and
 - viii) MJPEG dual-stream encoding Mobile Software: iCMOB, gCMOB, wCMOB H.264 MJPEG dual-stream encoding with POE,
 - ix) smart phone support: Android.
 - x) RJ45 LAN port,

Media Convertor

- (a) Media convertors shall only be considered in locations where it is not possible to lay CAT-6 UTP cable due to distance limitation & where in fiber is required to lay for camera specially for outdoor conditions.
- (b) The media convertor shall be based around a solid state microprocessor, operating on non windows based platform support IP network connectivity including LAN/WAN/VPN etc.
- (c) The unit shall deliver high speed high quality video using MPEG-4 (part 2 & 10) or better compression.

Data Transmission and Cabling

General:

- (a) All wiring shall be installed in accordance with national and local codes. All cables shall be installed in conduit of the type required elsewhere in the Specifications and Bill of Quantity.
- (b) The Vendor / Contractor shall supply and lay the CAT-6 /Power cables from Camera end to the nearby EJB/TC room and terminate the same.

- (c) The Vendor / Contractor shall furnish and install all CCTV hardware and materials.

Home run Connections:

- (a) Camera cables shall be homerun back to nearest EJB or specified Hub rack and properly terminated. Splices shall not be allowed in video transmission cabling.
- (b) Cameras shall be cabled over CAT6 cabling to nearest EJB shall not exceed 90-m from data outlet to EJB. If the actual cable length exceeds 90-m, after receiving written authorization from Representative, Fibre with Transceiver can be installed.
- (c) Core equipment network connection shall be coordinated with Communications Vendor / Contractor and Representative, and shall perform the actual patch cable installation under Representative supervision.
- (d) Leave up-to a 3-meter service loop at each camera outlet where distances permit for ease of relocation of data outlet.

Spare Capacity

- (a) **Vendor / Contractor shall clearly state the limitations of the base system proposed in terms of adding additional NVRs and end devices in a written submittal.** Particular attention should be given to the number of additional end devices that can be added without requiring additional processing power, memory, and/or disk storage.
- (b) At the time of final system acceptance, all hardware shall have a minimum of 20 percent reserve capacity, with the capability to reach 100% capacity with no change to the system design. Hard disk shall be based on formatted capacity. System reserve capacity shall be based on the peak continual working load.
- (c) The Vendor / Contractor shall provide a recommended spare parts inventory. The Vendor / Contractor shall furnish an inventory of spare parts (type, model number, and quantity) to be required during the warranty period.
- (d) The Vendor / Contractor shall also furnish a bill of materials, catalogue numbers, unit prices, and a list of local distribution sources for replacement parts. Required spares shall be on-site at the time of final system acceptance. The parts are to be inventoried at the beginning of the project and accounted for at the end of the warranty and service period. Any spare parts unused at the end of the warranty and service period shall become the property of AIASL.
- (e) As a minimum the following spare parts shall be provided:
 - i) **Two percent (2%)** spares inventory shall be maintained for end devices (cameras) made available onsite.

Software Video Management System (VMS) Functionality

General Functionality

- (a) The VMS shall search and locate all NVRs and recording devices installed in the CCTV internal networks, including their IP addresses and additional properties, in a window tree display and then allow a system administrator to construct a functional graphical user interface (GUI) via the software.
- (b) Video from any of the installed devices shall be displayable by dragging the device

- symbol into a workspace software monitor window. Video may be displayed in full screen mode or 2x2, 3x3, or 4x4 multi-screen formats.
- (c) The software shall functionally operate as a virtual network video system capable of switching video to software monitors within the VMS window on the workstation and/or displaying the pictures on analogue CCTV monitors when compatible manufacturer recommended decoders are installed on the network. The software shall support MPEG-4 Part 2, MJPG, and MPEG-4 Part 10 based hardware products as well as network video recording.
 - (d) The system shall display several simultaneous live picture connections from cameras in the network.
 - (e) The system shall be provide with a full configured tool that has a site map with camera locations and monitor placement, and allows interactive operation,
 - (f) Retrieve and play back the archived video from remote hard drives, Compact Flash memory of compatible devices or from Network Video Recorders.
 - (g) It shall be able to take back-up in latest USB drives.
 - (h) Be capable of displaying MPEG-4 video streams in real-time at bandwidths ranging from 10 Kbits/sec to 40 Mbits/sec, ranging from 1 FPS to 25 FPS with resolution ranging from QCIF to 4CIF.
 - (i) The VMS shall have the facility to create no. of users – single VMS License for 3nos. with different access level privilege for monitoring & control from remote locations. The administrator level user shall be able to create the users at site level.
 - (j) Require a user name and password that determines the level of authorization as being a user or administrator of the VMS.
 - (k) Allow remote video recorder to be controllable from VMS workstations.
 - (l) Instant replay function that allows video recorded on network devices equipped with local disk storage to be reviewed and, if desired, backed up to network video Recorders (NVRs). The instant replay function shall be controlled via a slider bar and “VCR like” buttons.
 - (m) **Advanced search functions**, including:
 - i) Date/time;
 - ii) Camera;
 - iii) Recording type;
 - iv) Storage location;
 - (n) Provide a function that **automatically creates a logbook during every session in which all events and actions are recorded**. The logbook may be viewed, searched using various filters, and the results saved as a text file;
 - (o) Provide previews of available cameras in the system that may be dragged into a workspace software monitor;
 - (p) In case of crisis situation, (Security) shall be able to blank out cameras to all other users for security surveillance and after the pre determined configurable time, the camera view may be released.
 - (q) Allow programming of camera sequences where pictures will be displayed one after the other on the display monitor. Salvo sequences may also be programmed where cameras are switched on selected monitors as a synchronized group;
 - (r) Existing drawings may also be imported into the software as bitmaps and then the icons added to the imported drawing. Graphic files with formats of .pang, .bmp, .bum, .spam, .pnm, .jpeg, and .jpg may be imported into the system for use as site maps.
 - (s) Save snapshots as .jpg format images to the hard drive of a computer running a

Windows-based operating system with the appropriate application software to view and print .jpg format files. These .jpg images may then be printed, converted to another format or placed into a word processing document.

- (t) Provide a Central Monitoring feature of connected equipment, including but not limited to: workstations, Network Video Recorders, cameras.

VMS Workstation Functionality

- (a) Workstations shall be provided, to facilitate:
- i) Administration;
 - ii) day-to-day operations and
- (b) The Security Control Centre (SCC) shall be provided with single Workstation position for monitoring and operation of the CCTV system.
- (c) VMS workstation shall provide any or all required facilities based on secure, user-by-user access permissions.

Operator view shall be provided using one or more Security Workstation machines as described in this specification. These are connected via a TCP/IP network to the Security Video Management System. They are capable of viewing live video and recorded video from the Network Video Recorders.

Video Views

- (a) The live output from cameras shall be viewed through a series of displays, which shall support but not be limited to the following functionality:
- i) Single camera view.
 - ii) Quad view of up to four cameras.
 - iii) Sequence view of camera preset positions.
 - iv) Modifying settings for a camera.
 - v) Modify recording settings for a camera.
 - vi) Adding and deleting cameras.
 - vii) Creating schedules for recordings and video motion detection
 - viii) Modifying Video Motion Detection settings and tuning.
- (b) From single camera display, the user shall be able to;
- i) View the live output from the selected camera.
- (c) The following methods of recording live video shall be supported:
- i) User activated.
 - ii) Video motion detection.
 - iii) Snapshot.
- (d) The VMS system must be able to activate recordings automatically when motion is detected on any cameras that have video motion detection enabled. The enabling of video motion detection shall be either:
- i) On a continuous basis.
 - ii) Scheduled for particular times, dates, days, months.
- (e) Video stream from individual cameras shall be recorded on respective Network Video

Recorder. The System shall have provision to automatically over-write the new information after the period of 90 days (with 20% additional provisioning of capacity) and necessary script/algorithm must be available in the Application.

- (f) In order to optimise the memory, while recording, video shall be compressed using MPEG-4 or better standard and streamed over the IP network. Once on the network, video can be viewed on a Control room workstation or on analogue monitor using a hardware decoder (MPEG4/compatible standard Receiver) and shall be recorded on NVR
- (g) The system should also allow for back up of specific data on any drives including CD/DVD/ USB or any other device in a format which can be replayed through standard PC based software. Log of any such activity should be maintained by the system which can be audited at a later date.

Network Video Recorder (NVR)

- (a) The NVR shall:
 - i) Manage live video from camera streamers
 - ii) Transmit live video to Security Workstations
 - iii) Receive camera control commands from Security Workstations and then send the commands to cameras
 - iv) Store live video to hard disk
 - v) Transmit previously stored video to Security Workstations
 - vi) Archive previously stored video to off-line storage media
 - vii) Retrieve archived video from off-line storage media
 - viii) Provide video motion detection
 - ix) Export the recordings into MPEG format so that it can be viewed using standard tools including Microsoft's Video Player.
 - x) The system shall be capable of supporting multiple Network Video Recorders (NVRs) used in the VMS system
 - xi) Windows or Linux/Unix based operating system.
 - xii) Application software with functionality as described in this specification.
- (b) The VMS shall include the provision of network video recording that shall simultaneously store, replay and backup recorded video.
- (c) All necessary management software shall be provided as part of the system. Recording shall be accessible from the authorized video workstation connected to the network. NVR units shall provide for full motion DVD quality MPEG-4 video at 15 / 25 FPS.

NVR Features

- (a) The NVR system shall have the following features:
 - i) 32- Channel Network Video Recorder (NVR)
 - ii) Display a replay page that provides time and date filters for selecting recordings for replay. Replay of recordings shall be controlled using simple PLAY, STOP, PAUSE, FAST FORWARD, REWIND, STEP FORWARD, and STEP REWIND buttons.
 - iii) Recordings may be saved as single image JPEG snapshots or as MPEG format video clips.

- iv) Provide a schedule function so that recording times may be programmed for specific times of the day and week.
 - v) Provide a Status Page that displays information regarding the current status of the NVR system, including remaining hard drive capacity and any active MPEG-4 recordings, in addition to a list of all recording tasks.
 - vi) Software that provides two authorization levels:
 - vii) A Service Level that allows access to all NVR functions.
 - viii) A User Level that restricts access to the status page and allows replaying of the stored recordings.
 - ix) Provide direct access to recorded video by allowing password protected access from any location using a web browser or VMS software.
 - x) Support all network VMS devices required herein.
 - xi) Provide a network time protocol function to synchronize the video recorders
 - xii) Provide Digital Signature for authentication of recorded video footage to be used as legal evidence.
 - xiii) Provide a 'Quick Search Feature' able to rapidly search for events by date, time, type of alarm, type of activity, or camera number. Thumbnail or full screen video clips can be used to quickly search for critical events. Time, date, camera number, and a user programmable 16 character titles shall be save to the hard drive along with the image.
 - xiv) Capable of simultaneous recording and viewing live images
 - xv) Capable of full, quad or multi-screen display of live video.
 - xvi) Capable of sequencing, automatic alarm display or call-up of cameras, with up to 4X zoom.
- (b) The NVR system shall automatically restore data lost on the network recorder due to network failure. Once network operation is restored, the NVR software shall retrieve video that has been stored on the local hard drives or Compact Flash memory of the video Recorders and copy the data into the gaps of lost data on the network recorder. Current video shall still continue to be recorded while the NVR system is replenishing the network video recording gaps.
- In case of storage device link failure with the NVR due to any reasons, after restoration of the link NVR shall restore to the storage devices with the same settings / configurations before the failure. The same shall happen automatically without any human/manual intervention.
- (c) 32 Channel IP with 1080p, CE marking Real-time Live View H.264/ MJPEG dual codec decoding Up to 5Mp resolution preview & playback Max
 - (d) 160Mbps incoming bandwidth
 - (e) **Support 2 SATA HDD up to 4TB,**
 - (f) 1 nos of USB2.0 & 1 nos of USB 3.0,
 - (g) Support for HDMI / VGA simultaneous video output
 - (h) Support Multi-brand network cameras ONVIF Version 2.3 conformance
 - (i) Mobile Software: iCMOB, gCMOB, wCMOB
 - (j) CMS Software: KVMS, KVMS Pro.
 - (k) NVR should be rack mountable.
 - (l) Smart Phone support-Android
 - (m) RJ45 LAN port-10/100/1000 MBPS

Hard DISK Drive (HDD)

- (a) 4 TB HDD - 4 TB NV SATA Hard disk for Network Video internal storage use with CE marking

POE switch

- (a) Power on Ethernet(POE) LAN 10/100 MBPS switch

9U Rack

- (a) Including Power strip, Ventilation Fan, Cable Manager

2U Rack

- (a) Including Power strip, Cable Manager

UPS

- (a) 1KVA with external Battery sets to give 20-30 min Backup

Monitor

- (a) 32 inch LCD/LED monitor with CE marking and full HD resolution,
- (b) 1920 x 1080 resolution,
- (c) Brightness/Luminance-Min 250 cd/m³,
- (d) Response time-Below 8 milli seconds,
- (e) HDMI/VGA port with back stand and accessories

7. Particular Execution Phase Requirements**General**

- (a) This part of the specification sets out the requirements for the installation, testing, commissioning and maintenance of the CCTV and the training to be provided by the Vendor / Contractor as part of the Subcontract Works.
- (b) The Vendor / Contractor shall carry out all the installation, testing & commissioning works without damaging the existing structures.
- (c) Adequate measures / co-ordination shall be taken to ensure no other operational services, systems gets interrupted or damaged.
- (d) Vendor / Contractor shall be responsible for the supply and installation of all material, equipment and fixings and all necessary cable conduits, control and power cabling to ensure the full operation and control of the CCTV and components as specified.
- (e) The Vendor / Contractor shall carry out all the handling, unloading and installation of the CCTV services and equipment, testing and commissioning thereof.
- (f) The Vendor / Contractor shall ensure that adequate corrosion protection is provided for all components.
- (g) The CCTV services **shall be installed** to operate satisfactorily in the environment and conditions indicated in the specifications and to the satisfaction of the AIASL Representative.
- (h) The Vendor / Contractor shall submit the installation work plan to the AIASL for review without objection, in accordance with the Schedule.

Climatic Conditions

- (a) All electrical equipment, apparatus, materials, and accessories shall be designed, specified and de-rated by the Vendor / Contractor for a continuous and trouble free operation in the ambient conditions of Mumbai, which are as follows:
- i) Altitude 11 m above mean sea level
 - ii) Summer ambient temperature 35 deg C DB/ 28.3 deg WB
 - iii) Monsoon ambient temperature 29.4 deg C DB/27.8 deg WB
 - iv) Winter ambient temperature 18.3 deg C DB/ 14.4 deg WB
 - v) Maximum, relative humidity 88 percent
- (b) Equipment, apparatus material and accessories shall be corrosion proof. All equipment shall have ratings suitable for 40 deg C indoor ambient and solid state equipment shall withstand at least 50 deg C.

Quality Assurance

- (a) Installer qualifications: The Vendor / Contractor shall engage experienced installers who have completed CCTV services installations similar in material, design, and extent to that required for this project and with a record of successful in service performance.
- (b) Submittals shall be preceded by a written approval of the AIASL team on such. However, AIASL reserves the right to accept or reject such proposal.

Project Control

- (a) The Vendor / Contractor shall be fully responsible and it's on site project manager shall continue to be involved in process control throughout the subcontract period.
- (b) The project control scope shall include without limitation to the following:
- i) Verification that all of the project control documentation provided by the Vendor / Contractor shall adequately define the quality standards to be met;
 - ii) Verification that the construction and installation of the CCTV services meets the performance specifications;
 - iii) Conducting regular and random inspections of the work at the factory and at the site.
 - iv) Update on Project with weekly progress report for project progress status & manpower, material, and documentation to the Representative.
 - v) Ensuring that interfaces between the Subcontract Works and other package and building works and services meet the requirements of the AIASL team.

Built - in Items and Setting – Out

- (a) The Vendor / Contractor shall arrange for the timely conduct of essential activities and delivery of built-in items at the interfaces with other packages and building civil works including, but not limited to:
- i) Site surveys measurements to verify and confirm the setting out of the built-in items of the Subcontract Works, including the physical interfaces;
 - ii) Setting out details for openings, penetrations, in-screed conduits, layouts, etc.
 - iii) Supplying cast - in – place for insert plates, conduits, floor boxes, etc.

Delivery, Storage & Handling

- (a) Packing and Shipping: The CCTV Vendor / Contractor shall deliver materials, components and equipment in original packaging with labels intact and legible. Prior

to shipment, the Vendor / Contractor shall prepare and submit to the AIASL team for review without objection, a preparation for shipping report.

- (b) **Delivery on Site:** The Vendor / Contractor shall not deliver materials, components and equipment on site until adequate protected storage facilities are available or for direct installation. All plant and machinery required for safe unloading and transit movement of the materials shall be mobilized by the Vendor / Contractor. The Vendor / Contractor shall provide a logistics plan for delivery and storage of materials on site.
- (c) **Storage:** The Vendor / Contractor shall arrange and provide to store materials, components and equipment above ground, under cover and in a well ventilated protected area. The Vendor / Contractor shall bear all costs for storage of materials on site.
- (d) **Protection:** The Vendor / Contractor shall protect equipment and exposed finishes from damage, theft and stains during transportation, storage, erection and construction till the hand over to the AIASL team.
- (e) The Vendor / Contractor shall comply with manufacturer's recommendations concerning temperature and relative humidity limitations during storage.
- (f) The manufacture and delivery of the CCTV services and major components shall be staged in accordance with the master works programme so as to avoid undue period of storage on site prior to installation.

Site Condition Inspection

- (a) Prior to beginning installation of equipment, the CCTV Vendor / Contractor shall examine the CCTV services work areas to verify that no irregularities exist, which affect execution of work specified.
- (b) The CCTV Vendor / Contractor shall not proceed with installation until work in place conforms to project requirements.

8. Installation Work Plan

- (a) The Vendor / Contractor shall prepare an installation work plan for each stage of the Subcontract Works detailing as a minimum the following:
 - i) Shop drawings, samples;
 - ii) Cable **rough-in and equipment set-outs**;
 - iii) Equipment procurement schedule;
 - iv) Camera installation;
 - v) Camera field of view and parameter for AIASL evaluation (each camera's exact placement, field of view, resolution, set points, fps, and other parameters must be demonstrated and approved on a camera by camera basis by the AIASL's Representative)
 - vi) NVR and storage and Workstation and related software installation;
 - vii) Integration
 - viii) **Testing plan and inspection plan** along with punch list (snag list) resolution process

Access

- (a) The Vendor / Contractor shall ensure that any construction plant is intrinsically safe.
- (b) The Vendor / Contractor **shall co-ordinate with** the Representative and the local authorities for shared access to the work area at each stage of the Subcontract Works.
- (c) The Vendor / Contractor shall liaise with the AIASL team, other Vendor / Contractors and the Safety Officer to obtain approval and escort prior to moving construction plant

- or transporting CCTV services and components through any restricted areas.
- (d) The transportation of plant, CCTV- IP Camera services and their components, shall be conducted in strict accordance **with the established work method statements and Method of Working Plan (MOWP) to be submitted** by the Vendor / Contractor.
 - (e) No Vendor / Contractor's personnel may move, and no construction plant may be moved, outside the assigned work area without the permission of the **Works Safety Officer**.
 - (f) The Vendor / Contractor shall ascertain the route(s) and address any constraints on the route(s) for the delivery, lifting and manoeuvring of each CCTV – IP Camera(s) component to final positions for installation.
 - (g) Unless an alternate route has been reviewed without objection by the Vendor / Contractor, the delivery route for the equipment shall not deviate from the route previously reviewed without objection by the AIASL team.

Installation

The CCTV Vendor / Contractor **shall carry out the following:**

- (a) Install all equipment in accordance with CCTV manufacturer's instructions and recommendations for installation work, referenced Codes, specification and approved submittals.
- (b) Set CCTV are true to line and level, properly supported, and anchored to building structure. Use established benchmarks, lines, and levels to ensure dimensional coordination of the Work.
- (c) Repair damaged finishes so that no evidence remains of correction work. Return items that cannot be refinished in the field back to the workshop, make required repairs and refinish entire unit, or provide new units as required.
- (d) Assembly: Equipment, is as far as possible, to be factory assembled, wired and tested. Site work is to be limited to installation and assembly of parts dismantled at factory for transportation, or otherwise to work not possible at factory.
- (e) Workmanship: Carry out work in a neat, workmanlike and efficient manner in accordance with the specified requirements. Installation shall be performed by skilled personnel, specialized in CCTV installation, who are in the permanent employment of the Vendor / Contractor
- (f) The CCTV Vendor / Contractor **shall supply** installation and dismantling of all the necessary scaffoldings, ladder, platforms, safety barricades & all related items for the installation works shall be approved by appropriate authority of Representative before using them at work.
- (g) Install all equipment so it may be easily removed for maintenance and repair.
- (h) Install all equipment for ease of maintenance.
- (i) Install all equipment to afford maximum accessibility, safety, and continuity of operation.
- (j) Coordination: coordinate equipment installations with the building construction to prevent alteration to structure and cutting of holes and chases after equipment installation has started.
- (k) Fire Protection: Coordinate installations with other electro mechanical works, for provision of fire/smoke detection and fire fighting systems. Moreover, ensure all penetrations are fire stopped, in accordance with national and international fire standard norms.
- (l) Carry out all builders' work necessarily required in connection with installation of CCTV services, including but not limited to forming or cutting chases, rebates, fixing

of insert plate and lifting hooks, grouting, supports, steelwork, scaffolding etc. Provide convenience power, lighting and other services required from assigned terminal points to carry out construction work.

Field Quality Control

- (a) Work at jobsite will be checked by the AIASL Representative during the course of installation. Full cooperation with reviewing personnel is mandatory. Accomplish corrective work as advised by the Representative required prior to performing further installation.
- (b) The location of the camera that would be shown on the drawing being indicative, the Vendor / Contractor shall verify the same at each location as at site, exact and the final location shall be co-ordinated with the Representative to its satisfaction.
- (c) Installation shall be carried out only after getting the final approval from Representative.
- (d) Acceptance inspection to be performed by Representative, with any corrective works to be completed by Vendor / Contractor.

Clean up

- (a) Keep work areas orderly and free from debris during progress of project, and remove packaging materials from site on a daily basis to the satisfaction of the Vendor / Contractor.
Remove all loose materials and filings resulting from work.

9. Particular Testing and Commissioning Requirements

- (a) The Vendor / Contractor shall comply with the following particular testing & commissioning requirements.
- (b) The Vendor / Contractor shall be responsible for obtaining all permits, approvals licenses and liaison required, for the completion of whole of the Subcontract Works.
- (c) The Vendor / Contractor shall perform all tests required by all regulatory and statutory Authorities and ensure compliance to Codes through testing.
- (d) The Vendor / Contractor shall mobilize all required resources, such as manpower and machinery, for all testing and acceptance by the Vendor / Contractor and endorsement by the AIASL's Representative, as per the contract.
- (e) The Vendor / Contractor shall ensure that all tools used are properly calibrated in accordance with applicable standards and to the satisfaction of the Vendor / Contractor.
- (f) The **testing and commissioning** shall include the following:
 - i) End-to-end continuity;
 - ii) Latency;**
 - iii) Camera field of views;
 - iv) Camera auto-iris operation;**
 - v) Footage storage and retrieval;
 - vi) Automated functions;
 - vii) Integration.

Testing & Commissioning

- (a) The Vendor / Contractor shall carry out necessary testing and commissioning to demonstrate the conformity and the proper performance of the equipment as specified in the Specifications and with the detailed test plans and procedures described herein.
- (b) All tests shall be conducted within the technical and operational environment as it will exist after the installation of the equipment at Cargo Custodian Location environment. Mumbai International Airport environment.
- (c) The test specification shall include, but is not limited to the following items:
- i) a detailed description of the tests to be performed;
 - ii) a detailed description of the conditions under which the test shall be conducted and accepted;
 - iii) a schedule of actions to be taken in the testing of the various parts of the equipment;
 - iv) The forms of documentation of the test results.
- (d) Test specification shall be submitted for review and approval and shall be updated as requested to include all test requirements directed by Representative.
- (e) The purpose of the tests shall be to demonstrate compliance with all of the performance and technical specifications set out in the Specifications and with the requirements **set out in the COC**.
- (f) Testing shall be carried out in a number of phases, including, but not limited, to (each phase cannot commence without written notice from the Representative of successful completion of prior phase and approval to proceed):
- i) Tests during manufacture and Project site Tests
 - ii) Pre-Commissioning
 - iii) Commissioning
 - iv) Performance Tests
- (g) For each of the above testing phases, the Vendor / Contractor shall provide the following details:
- i) Item to be tested;
 - ii) Test to be performed; and
 - iii) The proposed date and location of the test.
- (h) All tests shall be conducted within the technical and operational environment as it will exist after the installation of the equipment at the project site.
- (i) The Vendor / Contractor shall reserve the right to be present at any or all the tests for the purposes of observation, result verification, obtaining technical information or operator training.
- (j) Test result reports shall be provided **within seven (7) days** of any test being conducted.
- (k) The Quality Plan shall be developed to include the testing and commissioning specified herein.
- (l) Every step in the overall test plan and test methodology constitutes a hold point under the Quality Plan.
- (m) The Vendor/ Contractor shall supply all necessary labour, material, testing instruments and tools required for each individual test.
- (n) The Vendor / Contractor shall be responsible for ensuring that all necessary safety precautions are taken prior to and during each test.
- (o) The Vendor / Contractor shall set up all necessary test apparatus and dismantle the same on completion of the tests.

Special Tools

- (a) The Vendor / Contractor shall supply two (2) complete set of tools, including any

special tools, required to maintain the equipment provided under the Subcontract.

- (b) The Vendor / Contractor, shall, as far as is practicably possible, eliminate the need to use “special” tools in order to conduct maintenance of the CCTV services.

Inspection and Testing Breakdown Structure (ITBS)

- (a) The Vendor / Contractor **shall prepare and submit details of ITBS.**
- (b) The ITBS shall break down the CCTV services into sub-systems and components within each sub-system. For each system component, a list of the tests to be carried out shall be listed. Each sub-system, component and test shall be individually identified numerically in a hierarchical format (e.g. test 5 of component 3 of sub-system 7 to be numbered 7.3.5)

Commissioning

- (a) Commissioning testing shall include the running of the CCTV services and all of its ancillary equipment, carrying out all necessary adjustments and tuning until the CCTV services and all of its ancillary equipment is ready and suitable for normal starting and operating under in-service conditions
- (b) Commissioning shall only commence **after Pre-Commissioning has been successfully completed to the satisfaction of the AIASL representative.**
- (c) The Vendor / Contractor shall simulate all conditions necessary for the proper and representative testing of the equipment.

Performance Tests

- (a) The Vendor / Contractor shall carry out performance tests as per terms and conditions respectively.
- (b) Performance Tests shall be a step in the commissioning handover process for the CCTV services. This stage of the tests shall establish the fact that the CCTV services have been designed, developed, installed and set to work in accordance with all of the specified requirements, and that the CCTV services is ready in all respects to commence Operational Readiness and Acceptance Trials, and thus after which operational duties.

Integration Tests

- (a) The Vendor / Contractor shall carry out integration tests as per terms and conditions respectively.

Operational Readiness and Acceptance Trials

- (a) Once Performance and Integration tests have been successfully completed for each of the CCTV services, the Vendor / Contractor shall commence Terminal operation Trials for all the CCTV services as per terms and condition. Trial period shall be a minimum of 10 days without system or major component failure. The testing of the backup for the required period would be after 30 days period to ensure sufficient period of back up is present.
- (b) The operational performance testing shall prove the CCTV services compliance with the ‘performance guarantee’ for CCTV
- (c) The operational and performance testing program shall include as a minimum:
- i) Testing of all CCTV services operating modes and controls;
 - ii) Should a CCTV services operation be interrupted by a failure, the Vendor /

Contractor shall direct the re-start of the trial period.

- iii) The Vendor / Contractor shall provide sufficient and competent personnel to be on site within 48 hour recall to carry out immediate diagnosis, adjustments and repairs of CCTV services faults during the operation Trial.

10. Particular Operations and Maintenance Requirements

Project Documentation

- (a) The Vendor / Contractor **shall comply** with the **following particular Operations and Maintenance (O&M) documentation** requirements.
- (b) The Sub Contractor shall submit the following information to **the Vendor / Contractor** for approval:
- i) **Project Management Procedures**, in accordance with the Vendor / Contractor's "Interface Management Procedures" and "Quality Assurance Plan";
 - ii) Operation and maintenance instructions;
 - iii) Parts listings with sources indicated;
 - iv) Recommended parts inventory listing;
 - v) Emergency instruction;
 - vi) All diagnostic and repair information;
 - vii) **Life Cycle Costs**;
 - viii) Warranty Conditions; and
 - ix) **Maintenance Options**.

Handover Documentation

- (a) The Vendor / Contractor shall prior to Handover provide comprehensive Operating and Maintenance Manuals including As Built drawings, in English.
- (b) "As Built and Installed" drawings shall be fully dimensioned drawings true to scale and correctly brought up to date to present a true and accurate representation of the actual CCTV services build and installation.
- (c) The drawings shall give a full and complete picture of the installation as it has been built.
- (d) The "As Built and Installed" drawings shall, **as a minimum**, include the following:
- i) A complete BLOCK diagram of the CCTV system with brief descriptions.
 - ii) Manual of Installation Standards, Installation procedures, tolerances etc.,
 - iii) Final Test reports.
 - iv) Power requirements / Consumption particulars.
 - v) The O & M manuals shall include the following Chapters..
 - vi) Chapter 1 Introduction
 - vii) Chapter 2 Operations – System Description.
 - viii) Chapter 3 Operations – Procedures
 - ix) Chapter 4 Maintenance – List of Equipment
 - x) Chapter 5 Maintenance – Technical Specifications
 - xi) Chapter 6 Maintenance – Corrective Procedures
 - xii) Chapter 7 Maintenance – Preventative Plan

- xiii) Chapter 8 **Maintenance – Manufacturer’s Test Certificates**
 - xiv) Chapter 9 Maintenance – Equipment Guarantee & Warranty Certificates
 - xv) Chapter 10 Maintenance – As-Built Drawings
 - xvi) Chapter 11 **Training limited up to L1**
 - xvii) Chapter 12 **Site Tests & Commissioning Reports/Quality Records**
 - xviii) All features operation functions and their testing procedures.
 - xix) **Preventive Maintenance procedures** ,including schedules and check lists
 - xx) **Breakdown Maintenance procedures**, including the relevant manuals, drawings, data / parameters, special tools / instruments.
 - xxi) **Parts catalogue for all replaceable parts** including ordering forms and instructions.
 - xxii) **Two sets of Applicable keys for all switches** and control features properly tagged and marked as not reproducible
 - xxiii) Identification of each and every item of equipment;
 - xxiv) Complete and up to date set of approved shop drawings that have been submitted;
 - xxv) Complete electrical, CAT-6, Fiber, IT etc wiring schematics/ drawing (both external and internal) clearly showing terminal numbering systems;
 - xxvi) Complete schematic and control diagrams of all systems incorporated in the installation;
 - xxvii) As required, the drawings shall also include the settings and differential bands of all controls, cut-outs and other variable or adjustable items; and all items shall be clearly identified by type and function.
- (e) Specific information shall be supplied on the software such that a third party could maintain the code and functionality.
 - (f) It shall include the test certificates for the CCTV services
 - (g) **Items of equipment with details and dates of their warranties shall be listed.**
 - (h) **After review and acceptance of the USB Pen Drive and hard copies, four (2) copies of each shall be provided, with all parts of the hard copies laminated.** The USB Pen Drive shall include video instruction if required.

Warranty, Defects Liability Period, Endemic Failures & Latent Defects Period

- (a) The Vendor / Contractor shall comply with all the above obligations as per the terms and conditions of the COC.
- (b) The Vendor / Contractor shall ensure that all material and workmanship of installation for CCTV services shall comply in every respect with this document. The Vendor / Contractor shall provide a written manufacturer’s warranty signed by CCTV services manufacturer agreeing to repair, restore, or replace defective material or workmanship of the CCTV services work during the specified warranty period.
- (c) The warranty includes for the free supply of the engineering manpower, maintenance labour, all materials including the spare parts required for the total maintenance.
- (d) During the Defects Liability Period, the Vendor / Contractor shall perform maintenance in accordance with requirements indicated in the maintenance Chapter of this document.

Maintenance

- (a) Maintenance during the Defects Liability Period:
 - i) The Vendor / Contractor shall, during the Defect Liability Period, provide full maintenance service by skilled competent employees of the Vendor / Contractor.

Include monthly preventive maintenance, repair or replacement of faulty or defective components as required for proper CCTV services operation.

- ii) Provide only parts and supplies as used in the manufacture and installation of original equipment.
- iii) Provide maintenance in strict accordance with the maintenance specifications included in this document. Maintenance schedules shall be established by the Vendor / Contractor and submitted for review.
- iv) Spare parts required under this Subcontract shall be included as part of this requirement.
- v) Include 24 hour per day, 7 day per week emergency call-back service.
- vi) Response time: Adequate maintenance personnel for each shift shall be available on site to attend emergency call backs. To attend, rectify this fault and put in operation within (24 hours)

Maintenance Tools

- (a) The Vendor / Contractor shall provide two (2) of each of any specialized maintenance tools which will be required for on-going maintenance during the operational service life of the CCTV services.

Replacement Parts

- (a) The Vendor / Contractor shall provide a Schedule of Rates for supply of spare parts required for replacement due to wear and tear, **as part of the 2 year Preventative Maintenance Contract.**
- (b) The Vendor / Contractor shall provide a guarantee in an accepted format that all parts required for maintenance of the CCTV services will be available for 2 years from date of commissioning.
- (c) Parts required to be provided by the Vendor / Contractor for rectification of defects liability items are not included in this provision.

11 Training

- (a) Engage a factory authorized service representative to train the AIASL's maintenance personnel on procedures and schedules for maintaining, operating, adjusting, trouble shooting, and servicing CCTV services.
- (b) Make a final check of the CCTV services operation with the AIASL's maintenance personnel present, just prior to substantial completion. Determine that control systems and components and devices are functioning properly.
- (c) The Vendor / Contractor is required to train the Operating and Maintenance staff prior to Handover of any of the works for "Beneficial Use". This shall be conducted on site over a period of two (2) weeks.
- (d) Training is **required at two (2) levels**–
 - i) **Senior Staff**- A minimum of two persons shall receive an advanced "Train the Trainer" level course, **with certification of competency on successful completion.**
 - ii) **Operations & Maintenance Personnel**- Appropriate training in accordance with best industry practice, **with certification of competency on successful completion.**
- (e) The Vendor / Contractor shall prepare a plan for this work.
- (f) The Vendor / Contractor shall conduct at least three training courses, all concerned nominated by the Vendor / Contractor and the AIASL.

- (g) The Training courses shall be attended by a combination of the AIASL's staff and stakeholder staff nominated by the AIASL.
- (h) The training courses shall include without limitation all aspects of operation, preventative and corrective maintenance, including servicing, trouble shooting and fault finding.
- (i) The training courses shall be developed, documented and delivered in accordance with the general specifications as described elsewhere in the specifications.
- (j) The training courses shall be scheduled in accordance with the overall project schedule.

Trial and Testing

- (a) Following Handover of the installation the Vendor / Contractor **shall undertake a 14-day trial and testing period.** During this period, the Vendor / Contractor shall be on site to assist the operational staff in the operation to achieve the availability performance required.

If the required level is not obtained the Vendor / Contractor shall prepare a plan to enable the operation to achieve the desired level of performance.

While configuring and preparing a CCTV detailed control design, the Vendor / Contractor collaborates with AIASL's Security representative on the following specific issues:

- placement of cameras
- monitoring requirements and locations
- frames rates, resolution, and compression for video storage
- data storage requirements
- low-lighting areas and poor outside visibility during Monsoon season
- CCTV system operation and maintenance expectations

12. Norms to be observed by the Bidder

- a. The specifications and all material and information provided by AIASL will be regarded as confidential information. Likewise, all documents and information contained within the Bidder's proposal, as well as the materials and the information distributed during the Bidder presentations will be treated as confidential information.
- b. Upon award of contract, the selected Bidder will enter into an appropriate Non-Disclosure Agreement with AIASL.
- c. Bidder's proposal will confine its submission to matters necessary to define its proposal, and to provide an adequate basis for AIASL's evaluation of the Bidder proposal, but should avoid unnecessary details.

13. Clarifications

Amendments and clarifications, if any, to this tender will be hosted on the website of AIASL will not be intimated to the tenderers individually of the same. The tenderers are, therefore, advised to visit the AIASL website regularly till the date of closing of the tender. The last amendment, if any, will be hosted a minimum of seven days before the closing date of the tender.

AI Airport Services Limited (AIASL)	TENDER DOC.NO: 1159A dated 12/04/2022 Amendment Date : 20.04.2022
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14. Details of the Contact Persons for Tender related Clarifications

Department	Name	Contact	Email
Cargo Location (Queries related to user section)	Mr. Mahesh Kamble	022 – 2831 8053	maresh.kamble@aiasl.in
Cargo Custodian Location (Queries related to user section))	Mr. Kamlesh Sawant	022 – 2831 8184	bom.cgoepxmgr@aiasl.in
DIT (Queries related to IT issues)	Mr. Ashok. N. Harinarayan	022 – 2831 8419	ashok.harinarayan@aiasl.in
Finance (Queries related to Finance)	Mr Vishwesh Bhat	022 – 2831 8544	mgrfinbom@aiasl.in
MMD (Queries related to Buyer)	Mr. M.N. Sankhe	022 – 2831 8424	wr.mmd@aiasl.in

15. Intention to Quote

You are requested to confirm your intention to Quote/Regret by email to wr.mmd@aiasl.in

16. Bidder Single Point of Contact

Bidder should provide his / her single point contact along with email ID and telephone number of the contact person for clarification

17. General Terms & Conditions of the Tender

17.1 Submission of bids

The quotes should be submitted as per following Annexure:

- Declarations - Annexure 1 A & Annexure 1 B, Annexure 2 & Annexure 3
- Technical Bid -
 - ❖ Vendor Qualifications - **Annexure 5** and Pre Qualification Criteria **Annexure 5A**
 - ❖ Technical Specifications – **Serial Number 2 through Serial Number 12**
- Financial Bid / Price Bid - **Annexure 7**
- EMD Payment Receipt/Draft

Reference: Tender No. 1159A dated 12th April 2022

Sealed tenders are to be submitted in a two– bid system (Technical Bid and the Financial / Price Bid separately) as per the following details:

1. Technical Bid(COVER – I)

To be super scribed with “**Technical Bid** “for the Tender Reference:

“Tender No. 1159A dated 12/04/2022 due on 10/05/2022” and must contain the following:

- Vendors’ response for Declaration as per Annexure 1A, 1B, 2 & 3
- Vendors’ response to tender Terms& Conditions, Annexure-4 (**Time Table**) and Annexure 5 **and 5A** (Vendor Qualification and Pre Qualification Criteria).
- EMD Draft / EMD paid receipt for amount specified as per Point 18.1.

2. Price Bid / Financial Bid (COVER –II)

To be super scribed prominently with “**Financial /Price Bid**” for **Tender Reference**:

“Tender No. 1159A dated 12/04/2022 due on 10/05/2022” and must contain the following:

Vendor should submit the quote as per mentioned format in (Price Bid / Financial Bid) Annexure – 7 with the complete details of applicable GST rates& GST Registration No.

17.2 TENDER SUBMISSION

- i. The two sealed envelopes i.e. one Technical Bid (Cover I) and one Price Bid (Cover II) should be further placed in a Master Envelope super scribed with “Tender Reference: “Tender No. 1159A dated 12-04-2022 due on 10-05-2022 for Surveillance System at Cargo Custodian locations of AIASL at Mumbai. The above should be submitted at the following address by 1100 hours on or before 10/05/2022.

C E O -AIASL, GSD COMPLEX, NIPTC, NEXT TO SAHAR POLICE STATION, NEAR
 CSI AIRPORT GATE NO. 5, TERMINAL2, MUMBAI – 400099, MAHARASHTRA,
 INDIA, TEL: 022-28318424.

- ii. Tenders received late, delivered at different address other than as specified in the tender/or lost in transit will not be accepted irrespective of whether the delay has arisen on account of the delivery system i.e. postal, courier etc.
- iii. Tenders received through fax and/or e-mail will not be considered.
- iv. Tenders that are incomplete or those which are not in the prescribed format will be rejected.
- v. **The Technical Bid should not contain any indication of the price. In case the price quoted is indicated in the Technical Bid, the Bid will be rejected, without any reference to the tenderer. No correspondence will be entertained in this regard.**
- vi. The Tenders should be neatly filled/typed, duly numbered and signed and stamped by an authorized signatory of your company. Unsigned Bids will be rejected.
- vii. The submission of a tender implies that the tenderer has read Notice and Conditions of the Tender and is fully aware of the Scope of work, Specifications and Project execution and Solution implementation requirements.
- viii. All information related to the price to be quoted by the tenderer should be given **ONLY** in the Price Bid (Financial Bid) format as provided in **Annexure 7** of the tender document.

ix. The Tenderer shall bear all costs associated with the preparation and submission of the Bids, including cost of presentation, attending pre-bid conference, demonstrations for the purposes of clarification/evaluation of the bids and negotiations with the successful tenderer, etc. AIASL will not be responsible or liable for any such costs, regardless of the conduct or outcome of the bidding process.

17.2.1. Conditional discounts, if any, shall not be given any consideration in the evaluation.

17.2.2 AIASL reserves the right to accept or reject, in whole or in part, any of the Bids, without assigning any reason whatsoever at any stage.

17.2.3 The Bids must be valid for acceptance by AIASL for a minimum period of 120 days from the date of opening of the Technical Bid.

17.2.4 The tenderer shall not be at liberty to withdraw or modify the Bids or any terms and conditions. Tenderers are required to promptly respond to requests for any clarifications from AIASL. Any withdrawal or unilateral modification of the Bids shall constitute a breach of the terms of the tender and the Bids shall be liable for rejection as a consequence thereof. In addition, EMD will be forfeited.

17.2.5 The price submitted in the Financial / Price Bid shall be final. Requests, if any, for revision of the price after the closing date of the tender shall not be entertained.

17.2.6 The prices quoted shall remain firm/fixed for the entire term of the agreement.

17.2.7 A Purchase Order which would contain all the principal terms and conditions of the tender will be released on the successful tenderer whose bid is determined to be L1 in terms of the evaluation parameters as defined in the tender. The successful bidder must confirm in writing that they have accepted the Purchase Order and the job must commence as soon as possible but definitely within 1 month.

17.2.8 The Price Bid must be comprehensive and inclusive of all costs of the work scope as detailed in tender, including all out of pocket expenses, such as the travel costs, per day expenses, hotel accommodation, etc for the tenderer's personnel.

It is to be noted that an increase in the price, beyond that quoted in the Price Bid would not be accepted after the closing date of the tender for any reason whatsoever.

17.3 DEFINITIONS

In this tender, the following terms shall be interpreted as indicated:

- a. "Contract" means the agreement entered into between the Purchaser and the Contractor, as recorded in the contract form signed by the parties including all annexure thereto and appendices therein.

- b. "Goods" or "Items" shall mean all of the materials including their accessories and / or other materials, which the Vendors is required to supply to the Purchaser under the contract.
- c. "Purchaser" or "Buyer" or "Owner" means Air India Air Transport Services Limited (AIASL).
- d. "Tenderer" or "Seller" or "Bidder" or "Vendor" means the individual or firm or company, who are manufacturers and suppliers or dealers, or service providers on whom the order for work is placed and shall be deemed to include their approved successors, heirs, executors and administrators, holding company /Group /Group Companies, Conglomerate as the case may be.
- e. "AIASL representative" mean the authorized representatives of the Purchaser.
- f. "Manufacturer" means original material manufacturer (OEM). "Vendor" means tenderer / contractor/supplier/ distributor / bidder/ service provider / Solution Implementer etc.

18. COMMERCIAL TERMS

18.1. Earnest Money Deposit (EMD): Non Compliance on EMD terms will lead to disqualification.

Earnest Money Deposit (EMD)

- (a) An Earnest Money Deposit of INR 50,000.00 (Rupees Fifty Thousand only) must be submitted by means of a Bank Draft or Banker's Cheque or ECS in favor of AI Airport Services Limited (AIASL), payable at Mumbai, and should be submitted along with the technical bid. EMD can also be submitted through wire transfer to AIASL's account in Mumbai. In the case of remittance of EMD through wire transfer, proof of remittance is to be submitted along with the Technical Bid. No other mode of payment is acceptable.

- (b) If the bidders submit EMD by ECS, following particulars are to be noted:

- 1) NAME OF THE BENEFICIARY : AI AIRPORT SERVICES LTD.
- 2) NAME OF THE BANK : HDFC
- 3) BRANCH NAME : FORT – NANIK MOTWANI MARG
- 4) BRANCH ADDRESS : MANECKJI WADIA BLDG,GROUND FLOOR,
NANIK MOTWANI MARG, FORT, MUMBAI
- 5) TYPE OF A/C (SB/CURRENT) : CURRENT
- 6) BANK ACCOUNT NUMBER : 00600310003602
- 7) TELEPHONE NO. OF BANK : 022-61606161
- 8) MICR CODE NO. : 400240015
- 9) SWIFT CODE. : HDFCINBBXXX
- 10) IFS CODE : HDFC0000060
- 11) PAN NUMBER (AIASL) : AAECA6186G
- 12) AIASL GST NO. FOR MAHARASHTRA: 27AAECA 6186G1ZJ

In case of any query relating to wire transfer / ECS of the EMD, the bidders may contact at the following address of AIASL:

Finance Department, AIASL

GSD Complex, Near Gate No.5, Sahar, Andheri (East), Mumbai 400 099.

Tel no: 091-22-2831 8544

E-mail: fin@aiasl.in

- (c) EMD will not carry any interest.
- (d) EMD in respect of the successful bidders will be refunded after receipt of Security Deposit.
- (e) EMD of unsuccessful bidders will be refunded after opening of Price Bids.
- (f) EMD will be forfeited in the event of a bidder withdrawing or modifying his bid after opening of the tenders and till completion of the tender process, i.e. till award of the contract, and / or in the event of the bidder, who has been awarded the contract, declining to honor the same.
- (g) EMD will be accepted only in Indian Rupees. EMD in any other currency will not be accepted.
- (h) SSI / MSME units registered with the NSIC under its Single Point Registration Scheme / Public Sector Units / Central / State Government undertakings / A-I widows Associations / A-I Co-Operative Society / Handicraft Boards, Khadi Village and Cottage Industries / Social Welfare Organizations / Handicapped and Blind Associations will be exempted from submission of EMD.

18.1.2 Security Deposit (SD) / Performance Bank Guarantee (PBG): Non Compliance on SD / PBG terms, as below will lead to disqualification:

The bidder who qualifies for award of PO will have to deposit with AIASL 5% of the total Contract value in the Purchase Order towards interest free Security Deposit, within 2 weeks of the receipt of the Purchase Order. The Bank Guarantee should be valid for 90 days after the end of contract period. Applicable Security Deposit / Performance Bank Guarantee will be in the form of Bank Guarantee/Demand Draft or Bankers Cheque in favour of 'AI AIRPORT SERVICES LIMITED', payable at MUMBAI.

In case of submission of Security Deposit / Performance Guarantee by means of Bank Guarantee / Demand Draft or Bankers Cheque, it may be noted that the original BG has to be forwarded by the Bank directly to AI Airport Services Ltd through registered AD. The expenses incurred towards submission of Security Deposit / Performance Bank Guarantee will have to be borne by the successful bidder.

Bank Guarantee or Demand Draft or Pay order will be refunded after 60 days of expiry of the warranty period and completion of all obligations under the all contract of delivery of entire quantity, submission of quality assurance certificate and completion of all obligations under the Purchase Order. In case of Bank Guarantee, same should be issued through Indian Bank as per guidelines by RBI.

SSI / MSME units registered with the NSIC under its Single Point Registration Scheme A-I widows Associations / A-I Co-Operative Society / Handicraft Boards, Khadi

Village and Cottage Industries / Social Welfare Organizations / Handicapped and Blind Associations will be exempted from submission of Security Deposit.

18.1.3 Price Negotiation: As our company policy does not permit post-tender negotiations, you are requested to submit your best quote at this stage itself. Post-tender negotiations will be in exceptional cases with the L1 bidder only.

18.1.4 Fall in Price: Price should remain firm till the completion of the contract period. During the contract period, if for any reason there is a downward revision in prices, the successful bidder will be responsible for passing on the benefits to AIASL.

18.1.5 Exit/Termination: The contract may be terminated under the following circumstances:

In the event of unsatisfactory performance or breach of any of the clause of the contract during the contract period, contract shall be terminated with one month's advance notice. If there is change in requirement of AIASL, PO shall be cancelled with three months advance notice. Similarly, party shall also be at the liberty to terminate the contract by providing to AIASL 3 months written notice. In case the party serves termination notice before exhaustion of 40% of the contract value, they will be debarred from participating in immediate next tender for that particular item / contract.

18.1.6 For any quality assurance certificate or any related issue, the Tenderer should respond within 48 Hours. Any un-attended complaint beyond 10 days, in a half year due to Bidders late response shall attract a penalty of 0.5% per week and the same will be recovered from the pending invoices or from SD/PBG. Depleted amount with regard to SD/PBG need to be topped up within fifteen days by the tenderer.

18.1.7 Firm Price: Price should remain firm till the fulfillment of PO liabilities.

18.1.8 Arbitration: Any dispute arising between the parties of the construction, interpretation, application, meaning, operation or effect of this document or the validity or breach thereof, shall first be settled by mutual consultation. If dispute remains unresolved after period of 30 days from the date the mutual consultation has started, the matter shall be referred for settlement to 'SCOPE FORUM OF CONCILIATION AND ARBITRATION', Govt. Of India, and the award in pursuance there of shall be binding on the parties.

18.1.9 Jurisdiction: Any dispute whatsoever shall be subject to the jurisdiction of the courts of Mumbai & /or Delhi.

18.3 Billing and Payment terms: (Non acceptance by the Bidder on Payment terms will lead to disqualification):-

18.3.1 The Application Service Provider (ASP) shall raise invoices on completion of installation and User Acceptance Testing (UAT) Report.

18.3.2 Payments will be effected by AIASL Finance within 60 days (45 days for MSME) from the date of receipt of the invoice.

18.3.3 All payment will be effected by AIASL-Finance through Cheque or ECS transfers.

18.4 Taxes, Duties, Levies

All Government taxes such as GST imposed under Indian Law, upon the services provided by the ASP to AIASL are applicable.

All taxes, present or future, shall be borne by ASP.

All payment to be made by AIASL to the Service Provider shall be subject to deduction of Tax at Sources (TDS), such as Withholding Tax, as applicable under the Indian Law from time to time. It is clarified that the liability on account of such deductions will rest with the Service Provider.

18.5 Enforceability

If for any reason, any one or more of the foregoing conditions are partially / wholly invalid or unenforceable; the other conditions shall still remain in full force and effect.

18.6 Infringement

All products delivered by the Service Provider must be free from any claim by way of infringement of copy right, trade mark, patents, IPR, etc.

18.7 Settlement of disputes:

By receiving or responding to this tender, the vendor agrees that it shall first attempt to amicably resolve all disputes arising out of or in relation to this tender and the contract, if awarded, by negotiations and consultations.

Should the above method of amicable negotiation fail, such disputes shall be referred to Arbitration in accordance with the rules of Arbitration of the Scope Forum of conciliation and Arbitration India (SFCA.)" and the award made pursuant thereto shall be binding upon the parties. Details of the Scope Forum of conciliation and Arbitration India (SFCA.)" may be obtained from their website.

It is agreed by the vendor and AIASL that for disputes concerning both the tender and the contract, the governing law shall be Indian law and any remedies (except where Arbitration is the course to be followed) shall be restricted to the courts at Mumbai, India.

18.9 Evaluation of Technical Bids:

18.9.1 Compliance with Basic Eligibility Criteria will be determined on the basis of the responses of the respective vendor as per Technical Evaluation Criteria of the tender.

18.9.2 Only those bidders who satisfy the Pre-Qualification Criteria and the Vendor Eligibility Criteria only for those their Technical Bid would be further evaluated.

18.10 Evaluation criteria for Commercial (Financial or Price) Bids:

- 18.10.1 The Financial or Price Bid (Commercial Bid) of only those vendors who have qualified in Technical evaluation will be opened for evaluation. The evaluation of Commercial Bids will be based on the following criteria:
- 18.10.2 Determination of the L1 bidder will be based on the **commercial** evaluation as per the format given in the Price (Financial/Commercial) Bid as per **Annexure 7**
- 18.10.3 Unconditional discounts / concessional offers, if any, indicated by the vendor, would be considered in the commercial evaluation. Conditional discounts, if any, will not be considered.
- 18.10.4 **AWARD DECISION FOR L1**
The Bidder whose net price (on common platform such as landed cost) works out to be the lowest will be determined as L1 for the tender and order will be placed on lowest quote basis. However, AIASL reserves the rights to carry out the work in two phases as per the rate quoted L1 rates. This means in exceptional circumstances AIASL may release PO for part quantity of total cameras.
- 18.10.5 **Delivery Schedule:** The successful bidder should complete all the formalities such as entry passes etc for their workers and commence the job within 30 calendar days from the date of receipt of PO. The job should be completed within 60 days from the date of PO.
- 18.10.6 **General Warranty Terms:** In addition to warranty terms specified in Poi 2C XIX, 18.10.7. & terms on page 30 and various other pages in this tender, the service provider shall give product warranty of 3 years and service warranty of 1 years for the products/material used and workmanship. In case of defect noticed during this period, it shall be responsibility of the service provider to carry such rectification/repairs on FOC basis.
- 18.10.7 **Extended Warranty:** Successful bidder should provide extended warranty of 2 years from the initial warranty period of 1 year. He should specify the items covered in extended warranty. The rates for extended warranty should be specified in the price bid.
- 18.10.8 **Penalty Clause:** (Non Compliance on Penalty clause terms will lead to disqualification): For the delayed deliveries a penalty of 0.5% per week or part thereof of the value of the undelivered portion of the goods on ex works price or undelivered contract value, subject to a maximum of 10% of the value of the undelivered part, will be recovered from security deposit or from amount due to Tenderer after due notification to Tenderer.

4.2.3. Security Deposit (SD) / Performance Bank Guarantee (PBG): Non Compliance on SD / PBG terms, as below will lead to disqualification:

The bidder who qualifies for award of PO will have to deposit with AIASL **5%** of the total value on basic price in the Purchase Order towards interest free Security Deposit, within 2 weeks of the receipt of the Purchase Order. Applicable Security Deposit / Performance Bank Guarantee will be in the form of Bank Guarantee/Demand Draft or Bankers Cheque in favor of 'AI AIRPORT SERVICES LIMITED', payable at MUMBAI.

In case of submission of Security Deposit / Performance Guarantee by means of Bank Guarantee / Demand Draft or Bankers Cheque, it may be noted that the original BG has to be forwarded by the Bank directly to AI Airport Services Ltd. through registered AD. The expense incurred towards submission of Security Deposit / Performance Bank Guarantee will have to be borne by the successful bidder.

Bank Guarantee or Demand Draft or Pay order will be refunded after 60 days of scheduled completion of entire job as per contract, submission of quality assurance certificate and completion of all obligations under the Purchase Order. In case of Bank Guarantee, same should be issued through any Indian Bank as per guidelines by RBI.

SSI units registered with the NSIC under its Single Point Registration Scheme / A-I widows Associations / A-I Co-Operative Society / Handicraft Boards, Khadi Village and Cottage Industries / Social Welfare Organizations / Handicapped and Blind Associations will be exempted from submission of Security Deposit.

AI Airport Services Limited (AIASL)	TENDER DOC.NO: 1159A dated 12/04/2022 Amendment Date : 20.04.2022
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Annexure 1A

DECLARATION
 (To be given on Company's Letter Head)

Date.....

To
 C E O
 AIASL
 GSD Complex –NIPTC
 Next to Sahar Police Station
 Near CSI Airport Gate No. 5
 Near Indian Oil Depot
 Terminal 2, Sahar, Andheri (West)
 Mumbai – 400099,
 Maharashtra, India

Dear Sir,

Ref: Tender No: 1159A dated 12/04/2022

I/We,..... hereby confirm that our Firm/Company /Group/Group Company has not been black listed / debarred by AIASL or any of the State or Central Government of India or Organization of State or Central Government of India.

Place:

Signature of Tenderer.....

Name.....

Designation.....

Seal/Stamp

Annexure 1B

Date.....

DECLARATION FOR PRICE BID

To
 C E O
 AIASL
 GSD Complex –NIPTC
 Next to Sahar Police Station
 Near CSI Airport Gate No. 5
 Terminal 2, Sahar, Andheri (West)
 Mumbai – 400099,
 Maharashtra, India

Sir,

Ref: Tender No: 1159A dated 12/04/2022

Having examined the bidding documents, I/we undersigned, offer to deliver (description of services) in conformity with the said bidding documents as per the prices given in the price bid. We undertake, if our bid is accepted, to commence and provide service in specified delivery period as mentioned in the Tender from the date of receipt of PO.

We also undertake to provide future training if required the same to be made available at free of cost.

I/We agree to abide by this bid for a period of 120 days from the date fixed from bid opening in instructions to bidders and it shall remain binding upon us and may be accepted at any time before the expiration of that period. Until a formal purchase order is prepared and executed, this bid, together with your written acceptance thereof, shall constitute a binding contract between us.

Date:
 Place:

Signature of the Bidder

Name:
 Designation:
 Seal

Annexure 2

DECLARATION
(To be given on Company's Letter Head)

Date.....

To
C E O
AIASL
GSD Complex –NIPTC
Next to Sahar Police Station
Near CSI Airport Gate No. 5
Near Indian Oil Depot
Terminal 2, Sahar, Andheri (West)
Mumbai – 400099,
Maharashtra, India

Dear Sir,

Ref: Technical Bid as per TenderNo.1159A dated 12/04/2022

With reference to Tender No. 1159A **dated 12/04/2022** for Surveillance System at Cargo Custodian locations of AIASL at Mumbai, where by submit our Technical Bid as per the Technical Specifications Requirements as mentioned in **Point 2 through Point 12** also the requirements and documents as required in the Annexure 5 and Annexure 5A as given in the tender.

All specifications, terms and conditions of the tender have been received, seen, understood and here by agreed.

Thanking you,

Place:

Signature of Tenderer.....

Name.....

Designation.....

Seal/Stamp

Annexure 3

Date.....

DECLARATION
(To be given on Company's Letter Head)

To
C E O
AIASL
GSD Complex –NIPTC
Next to Sahar Police Station
Near CSI Airport Gate No. 5
Near Indian Oil Depot
Terminal 2, Sahar, Andheri (West)
Mumbai – 400099,
Maharashtra, India

Dear Sir,

Ref: Price Bid as per Tender No. 1159A Dated 12/04/2022

With reference to Tender No.1159A dated 12/04/2022 for Surveillance System at Cargo Custodian locations of AIASL at Mumbai, where by submit our best offer in the Financial Bid (Price Bid) format enclosed in the tender.

All specifications, terms and conditions of the tender have been received, seen, read, understood and here by agreed. Further, it is certified that, over and above the prices in the Financial Bid / Price Bid, there are no additional / hidden costs to AIASL.

Thanking you,

Place:

Signature of Tenderer.....

Name.....

Designation.....

Seal/Stamp

AI Airport Services Limited (AIASL)	TENDER DOC.NO: 1159A dated 12/04/2022 Amendment Date : 20.04.2022
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Annexure 4

Vendor Eligibility Criteria

CHECK SHEET: Following Documents must be attached with Technical Bid:

SN	Details	Yes	No	Page No
1	The bidder should have an average annual turnover of at least INR 10 Lakhs each year for previous 2 financial years (FY 2019-20 and FY2020-21) Copies of Certified Financial Statement& IT Returns for above mentioned period to be submitted. Proforma statement is not acceptable.			
2	EMD 50,000/- (DD/ Banker's cheque/ Pay order) of Nationalized bank / Scheduled bank to be submitted			
3	Bidder should meet with following criteria: (Attested copies to be attached for following):			
	A Bidder should be registered as Public / Pvt. Ltd. Company or Partnership Firm or Proprietary Firm for minimum 3 Years: Company Incorporation Certificate, partnership Registration Certificate or shop& establishment certificate to be attached, to prove that the firm is in existence for minimum period of 3 years.			
	B Bidder should possess existing Valid Contract Labour license – (Copy of One Valid License Only) (with up to date renewal)			
	C Bidder should possess PAN/GIR No: (Copy to be attached)			
	D Bidder should possess GST Registration No: (Copy to be attached along with latest GST returns).			
	E Authorization certificate of Signatories to be attached			
4	Company/Partnership Firm/Proprietary Firm Profile to be submitted			
5	Tender document should be submitted with page numbering, duly signed, stamped and completed in all aspects.			
6	As on date of submission of the tender, the tenderer or its parent company or subsidiary, or a group company should not have been black listed / debarred by AIASL or any of the State or Central Government of India or Organization of State or Central Government of India. Declaration as per Annexure 1A to be attached			
7	Declaration for Price Bid as per Annexure 7 to be attached			
8	Declaration for technical specifications as per Serial Number 3, 4 and 5 of table of content to be attached so also Scope of Work mentioned in Serial Number 2 of Table of Contents.			
9	Declaration for Specifications, Terms & Conditions (T & C) as per Annexure 3 to be attached			
10	Declaration that the bidder has accepted all the terms & conditions of the Tender			

Date:

Signature of the Bidder

Place:

Name:

Designation:

Seal

Annexure 5**Pre – Qualification Criteria**

Bidders who satisfy the following Pre Qualification Criteria Requirements are eligible to submit their Bids and only their Technical Bid would be considered for further processing. Also should have provided all the supporting documents. If the Bid is not accompanied by all the required documents supporting Pre Qualification Criteria, the Bid would be rejected.

SN	Pre Qualification (PQ) Criterion	Documents to be submitted	Submitted (Yes/No)
1	<p>Bidder Organisation should be a registered company in India under Companies Act 1956/2013</p> <p>a. Bidder Organization should have been in the business of CCTV, IP Camera of procurement, installation and maintenance for reputed organisation, preferably Ware House locations for atleast three years as on 11th April 2022.</p> <p>b. Should have a tangible positive net worth of minimum Rs.10 Lakhs as per the Audited Financial Statements of 2020 – 21 or six month audited result of 2021 – 2022 or turnover for company should be 75 lakhs for the previous financial year . timely audited statement should be submitted i.e 2021- 2022</p>	<p>Copy of the Certificate of Incorporation Certificate of Commencement of Business.</p> <p>Audited Financial statements (Along with duly signed auditor's report) for the previous three years to be submittedi.e. 2018-19,2019-20 and 2020-21.</p> <p>A certificate from the Chartered Accountant (CA) specifying that tangible positive net worth is due to CCTV / IP-Camera Business and does not include other business.</p>	
	<p>The applicant should be providing CCTV / IP Camera procurement , installation & maintenance to deter theft or pilferage in an organisation preferably a warehouse location for a minimum of 1 (one) site each of at least 2 (two) reputed organizations preferably Government departments or Public</p>	<p>Letter from these reputed Organisation (clients) confirming successful implementation of CCTV / IP Camera procurement, installation and</p>	

AI Airport Services Limited (AIASL)	TENDER DOC.NO: 1159A dated 12/04/2022 Amendment Date : 20.04.2022
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SN	Pre Qualification (PQ) Criterion	Documents to be submitted	Submitted (Yes/No)
	<p>Sector Units or large Warehousing Companies in India as on 31/03/2022</p> <p>At least one of the Client location should be within Mumbai , Navi Mumbai, Thane location</p> <p>(AIASL team reserves the right to correspond and inspect such customer installations while evaluating Pre Qualification (PQ) Criterion or during Technical Bid and in case of any negative feedback from the clients, AIASL reserves the right to disqualify the Bidder).</p>	<p>maintenance system with them,in the last two years, as on 31/03/2022 to be submitted with following details:-</p> <ul style="list-style-type: none"> ➤ Name of the client ➤ Number of sites ➤ Person who can be referred to from Clients side where work was completed satisfactorily , with ➤ Name, ➤ Designation, ➤ Business email-id, ➤ Postal Address, ➤ Mobile Number, ➤ Landline Phone and ➤ Fax numbers ➤ Attach copies of Purchase Order (PO) and satisfactory completion certificate signed by Senior Management personnel of the organization 	
3.	<p>Bidder should not have been black listed at any time by the Central Government /any of the State Governments in India or PSUs or any Warehousing Organisation in India in previous three years as on 31st March 2022</p>	<p>An undertaking to this effect must be submitted in Rs 100/- stamp paper duly notarised</p>	

Documentary evidence must be furnished against each of the above criteria along with an index. All documents must be signed by the authorized signatory of the bidder. Relevant portions, in the documents submitted in pursuance of **Pre Qualification Criteria**, should be highlighted.

Signature Seal of Company (**Signature and seal of company to be put on all pages of Annexure**)

Annexure 6**25. Floor Plan Diagrams**

Prospective Bidders who attend the Pre Bid conference would be provided an opportunity for site visit for enabling their respective team to gauge for themselves the extent of the coverage of CCTV IP Cameras for the required location. The floor plan for the same is being enclosed herewith for improved understanding of the prospective bidder teams.

(a)

Drawing:-

AIASL_Cargo_Import_Export_APEDA_ETV_07Oct15.pdf

(b)

Drawing:-

AIASL Cargo Import Ground Floor Module II and III.pdf

(c)

Drawing:-

AIASL Cargo Export Ground Floor.pdf

(d)

Drawing:-

AIASL Cargo ETV Ground Floor.pdf

Drawings to be made available to prospective bidders during Pre-Bid Conference or after site visit.

Annexure 7**26. Financial Bid (Price Bid or Commercial Bid) Format:**

The Bill of Quantity is included in the Financial Bid (Price Bid) format and has include the count of Spare Capacity (five percent only Cameras) that need to be kept with AIASL Cargo Custodian Location team.

CCTV IP Camera Procurement, Installation, Testing and Maintenance at Cargo Custodian locations of AIASL at Mumbai.

Particulars		Details & Proofs Provided
1	Name of the Company / Establishment	
2	Registered office address / principle place of business	
3	Telephone No.	Mobile No.
4	Fax No.	
5	Name of the Contact Person	
6	E-mail ID	

AIASL Cargo Custodian Location at Mumbai (ETV Cargo, Export, Import and APEDA Cargo location)								
Financial Bid Format_IP Camera based CCTV implementation - Procurement, Installation, Testing, Commissioning and Maintenance for total of five years								
Sr no	Major Items Required	AIASL Proposed Quantity (A)	Bidder's proposed Quantity	Rate Each (B)	Amount C=(A x B)	GST @ % (D)	GST amount E=(C x D)/100	Total Amount Including GST F=(C+E)
1	Hikvision or equivalent 5 MP IP Cameras, Bullet Type , 40M with housing and accessories as mention in RFQ Document	30						
2	Hikvision or equivalent 5 MP IP Cameras, Bullet Type , 60M with housing and accessories as mention in RFQ Document	30						
3	Hikvision or equivalent 5 MP IP Cameras, Dome Type, 20M with	30						

	accessories							
4	Hikvision or equivalent 5 MP IP Cameras, Dome Type, 30M with accessories	30						
5	32 Channel NVR H.265/H.264 codec decoding, Max 200 Mbps Incoming Bandwidth Up to 5 MP Resolution for Preview and Playback, with all accessories	4						
6	CCTV 8 Port POE Switch with cables and connectors	20						
7	2u Network Rack with Accessories	20						
8	9u Network Rack extended with Accessories	5						
9	4 TB capacity servillance Hard Disk Drive (HDD) with suitable R/W speed for Recorders	28						
10	CCTV 8 Port Network Switch for location connectivity minimum of 5 nos Giga speed ports	4						
11	CAT 6 Armored Cable and 4 core power cable as per power requiremnts of cctv network (Length to be determined by Vendor during Site Visit)	As per requirement						
12	Power Cable for cctv site interlink (Length to be	As per requirement						

	determined by Vendor during Site Visit)							
13	UPS Requirement to be determined based on Product Offering	As per requirement						
14	CAT 5A/6 & FOC cable for CCTV network Interlink with all required converter and accessories	As per requirement						
15	4 Port CCTV Network Switch	10						
16	Basic Video Management centralised Software with cctv camera remote view (Three to maximum eight Users)	4 User Licenses						
17	32 Inch HD LED Color Monitor	4						
18	Intel i 5 Processor based Network Station, with Video Card	1 Unit						
19	Three Year Product Warranty and On Site Service	As per product OEM						
20	One Time Installation charges to enable implementation as per Requirement	As per Vendor Charge						
21	Additional Two Years On Site Service	As per Bidder Charge						
22	Charges for Extended Warranty (per year)	2 Years						
Total Amount (Including GST) in INR								
AI Airport Services Ltd GST No. 27AAECA6186G1ZJ								
Vendor GST No.								
Signature and seal of Vendor								

B) Price/Financial Bid Terms and Conditions: Price/Financial bid shall be evaluated on the basis of overall lowest party (LL) calculated by the rates quoted as above.

1. Royalty etc (if any) will be reimbursed on proof of payment.
2. Any overwriting must be signed.

C) Undertaking:

1. I have carefully gone through and have understood the General Terms and Conditions, Scope of Work, of the tender.
2. The Price/Financial bid shall be valid for 120 days from the last date of opening of Technical Bid.
3. I hereby confirm that I am authorized to sign the tender document.
4. All the pages of the Price/Financial bid are signed and also over writings are signed.

Date: _____

Signature _____

Place: _____

Name: _____

Designation: _____

Company/Partnership Firm/Sole Proprietorship Firm Name & Seal: _____