



Request for Proposal (RFP) for Supply, Installation, Operation & Maintenance of Fully Smart Solution (RFID, FastTag, Sensors, Cameras, Boom Barriers etc.) for real time Mining Surveillance in the State of Punjab

Reference number: RFP/MG/2022/1

Department of Water Resources, Mines & Geology,
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1. Disclaimer

The information contained in this Request for Proposal Document (hereinafter known as “RFP Document”) or subsequently provided to Bidders in documentary form by or on behalf of Department of Water Resources, Mines & Geology, Government of Punjab or any of their representatives, employees or advisors (collectively referred to as “Purchaser”), is provided to Bidder(s) on the terms and conditions set out in this RFP Document and any other terms and conditions subject to which such information is provided.

This RFP Document is not an agreement and is not an offer or invitation by the Representative(s) to any party other than the entities, who are qualified to submit their Proposal (“Bid”). The purpose of this RFP Document is to provide The Successful Bidder with information to assist the formulation of their Proposal. This RFP Document does not purport to contain all the information each Bidder may require. This RFP Document may not be appropriate for all persons, and it is not possible for Purchaser to consider the investment objectives, financial situation and needs of each bidder who reads or uses this RFP Document. Each Bidder should conduct their own investigations and analysis and should check the accuracy, reliability and completeness of the information in this RFP Document and wherever necessary, obtain independent advice from appropriate sources.

The Purchaser make no representation or warranty and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of the RFP Document.

The information provided in this RFP to The Successful Bidder(s) is on a wide range of matters, some of which depends upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Purchaser accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

The Purchaser, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way in this Bid stage.

The Purchaser also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP.

The Purchaser may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

The issue of this RFP does not imply that the Purchaser is bound to select a Bidder or to appoint the Successful Bidder, as the case may be, for empanelment. Purchaser reserves the right to reject all or any of The Successful Bidders or Bids without assigning any reason whatsoever.

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

This RFP is being issued with no financial commitment and Purchaser reserves the right to withdraw the RFP and change or vary any part thereof or foreclose the same at any stage.

2. Notice Inviting e-Bids

Government of Punjab

RFP Reference Number: RFP/MG/2022/1

Department of Water Resources (Mining & Geology), Government of Punjab (Purchaser) invites bids from prospective bidders ('Bidders') of repute for Supply, Installation, Operation & Maintenance of Fully Smart Solution (RFID, Fast Tag, Sensors, Cameras, Boom Barriers etc.) for real time mining Surveillance in the State of Punjab.

Interested Bidders are requested to submit their proposals along with the necessary documents as indicated in this RFP document. This document can be downloaded from <https://minesandgeology.punjab.gov.in/> as well as the eProc portal <http://eproc.punjab.gov.in> from 01/09/2022 by 17:00 hrs onwards. .

Closing date and time to submit the bids on state e-procurement portal i.e. <https://eproc.punjab.gov.in/> is 22/09/2022 15:00 hrs.

**Director
Mining & Geology, Government of Punjab**

3. Document Control Sheet

S.N.	Particular	Details
	Document reference number	RFP/MG/2022/1
	Date & time for the start of sale of this RFP document	01/09/2022 by 17:00 hrs
	Last Date and time for submission of queries through email	07/09/2022 by 17:00 hrs
	Date and time for pre-bid meeting	08/09/2022 11:00 hrs
	Last Date and time for submission of bids	22/09/2022 15:00 hrs
	Corrigendum & Addendum	Anytime before the opening of bid
	Date and time of opening of pre-qualification bids	23/09/2022 11:00 hrs.
	Date and time of opening of Technical bids	To be intimated later
	Date and time of opening of Financial bids	To be intimated later
	Address for communication	Department of Water Resources, Mines & Geology, Hydrel Building, Sector 18, Madhya Marg, Chandigarh
	Cost of RFP document & mode of payment	Rs. 1,000/- (Rs. One Thousand Only) + processing fee as mentioned on State e-Procurement portal https://eproc.punjab.gov.in through online
	Earnest Money Deposit (EMD) through online mode	Rs. 3,000,000/- (Rs. Thirty Lakh Only) to be paid on State e-Procurement portal https://eproc.punjab.gov.in through online mode

S.N.	Particular	Details
	Contact details	Sh. Kewal Krishan Designation: Executive Engineer Contact No – 8360522148 Email - chiefmimingpb@gmail.com Sh. Jasper Jeet Singh Designation – Assistant Design Engineer Email Id – chiefminingpb@gmail.com Contact no – 98783-07001
	Website for RFP reference	https://minesandgeology.punjab.gov.in/ and https://eproc.punjab.gov.in
	Method of selection	Quality and Cost Based (QCBS) (70:30)

Note: All corrigendum / addendums / clarifications regarding this RFP shall be posted on the above mentioned websites only. No other communication or advertisement will be given.

4. Definitions

Unless the context otherwise requires, the following terms whenever used in this RFP document and contract have the following meanings:

4.1. Abbreviations

S. No	Abbreviations	Full Form
	ANPR	Automatic Number Plate Recognition
	AP	Access Point
	API	Application Programming Interface
	BOM	Bill of Material
	BOQ	Bill of Quantity
	CA	Chartered Accountant
	CC	Capital Cost
	CCTV	Closed Circuit Television
	COTS	Commercial Off-The-Shelf
	CSP	Cloud Service Provider
	DC	Data Center
	DR	Disaster Recovery
	EMD	Earnest Money Deposit
	FRS	Functional Requirement Specifications
	FY	Financial Year
	GIS	Geographical Information Systems
	GoP	Government of Punjab
	GoI	Government of India
	GPRS	General packet radio service
	GPS	Global Positioning System
	GSTN	Goods and Service Tax Number
	GUI	Graphical User Interface
	HDD	Hard Disk Drive
	Hz	Hertz

	IA	Implementing Agency
	I/O	Input/output
	ICCC	Integrated Command and Control Center
	INR	Indian National Rupees
	IOT	Internet of Things
	IP	International (or Ingress) Protection
	IPR	Intellectual Property Right
	ISO	International Organization for Standardization
	ISP	Internet Service Provider
	IST	Indian Standard Time
	JV	Joint Venture
	LAN	Local Area Network
	LED	Light-emitting diode
	LOI	Letter of Intent
	MAF	Manufacturer's Authorization Form
	Meity	Ministry of Electronics and Information Technology
	MIS	Management Information System
	MP	Mega Pixel
	MSI	Master System Integrator
	NHAI	National Highway Authority of India
	NIT	Notice Inviting Tender
	NO	Nodal Officer
	O&M	Operation and Maintenance
	OEM	Original Equipment Manufacturer
	PAN	Permanent Account Number
	PBG	Performance Bank Guarantee
	PoA	Power of Attorney
	PoC	Proof of Concept

	PoS	Point of Scale
	PQ	Pre-Qualification
	PSU	Public Sector Undertaking
	RFID	Radio Frequency Identification
	RF	Radio Frequency
	RFID	Radio-frequency identification
	RFP	Request for Proposal
	SMS	Short Message Service
	SNMP	Simple Network Management Protocol
	SLA	Service Level Agreement
	SoP	Standard Operating Procedure
	SoW	Scope of Work
	SPV	Special Purpose Vehicle
	SRS	Software Requirement Specifications
	TAT	Turn Around Time
	TP	Transit Pass
	TQ	Technical Qualification
	UAT	User Acceptance Testing

4.2. Definitions

S.No	Acronym	Definitions
	Authority	Principal Secretary, Water Resources Department, (Mines & Geology), Punjab
	A u t h o r i z e d Representative	This means any person authorized by either of the Parties i.e. Bidder and Purchaser.
	Bid	Bid means proposal submitted by bidders in response to this RFP document issued by Purchaser.

	Bidder/ Applicant	An individual/company that submits a bid while competing with others, for providing services with respect to specific requirements as defined in this RFP Document.
	Central/ State Government Organization	Centre or State Government, Centre/State run PSUs, Statutory bodies or co-operative societies.
	Committee	This means the committee constituted by Department of Water Resources, Mines & Geology, Punjab for evaluation of bids.
	Contract	Contract refers to contract entered between Department of Water Resources, Mines & Geology, Punjab and the Successful Bidder(s), together with all the documents mentioned therein including all attachments, annexures etc.
	Day	Any day including Saturday or Sunday or a public holiday (As declared by Govt. of Punjab).
	Designated Authority/ Technical Evaluation Committee	Departmental Official/ Committee who will approve all the deliverables submitted by the bidder as per the criteria defined in the document.
	Request for Proposal (RFP)	This means this complete document and its annexures and any other documents provided to assess potential bidders/ agencies who can help Purchaser with the ability, skill and knowledge in respect to the Supply, Installation, Operation & Maintenance of establishing Fully Smart Solution (RFID, FastTag, Sensors, Cameras, Boom Barriers etc.) for real time mining Surveillance in the State of Punjab.
	Parties	This means Purchaser and Bidder, collectively
	Party	This means Purchaser or Bidder individually
	Purchaser / Department	Department of Water Resources, Mines & Geology, Punjab

	Similar Work	Similar Work here means “Deployment of surveillance infrastructure and Development of IT Surveillance application/ analytics platform to manage real-time data through drones/ Cameras/ GIS data/ capacity delivering real time data driven insights
	Specification	This means the document/standard that prescribes the requirement with which service has to conform.
	Successful Project	Project for which work order and completion certificate of the work is available with the bidder
	Total Contract Value	This means maximum value payable to the Successful Bidder which is agreed between the Purchaser and the Successful Bidder for the project.
	Week	Designated time frame consisting of all seven days including any Public Holiday (as declared by Government of Punjab), Saturday and Sunday.

5. Introduction

Department of Mines and Geology, Punjab was formulated in year 2018 and thereafter vide order dated 29.07.2020 of the Government of Punjab, Mines and Geology Department has been merged with Water Resources Department Punjab. The main functions & activities of the department are survey and assessment of the mineral deposits of the State, their exploitation, administration of mines and mineral concession, checking illegal mining and enforcement of measure for curbing illegal mining and collection of mining revenue. Besides ensuring strict environmental measures are being adhered to.

With an aim to monitor and manage the mining activities along with curbing of the illegal mining, Purchaser invites bids from prospective bidders ('Bidders') of repute meeting the eligibility criteria as defined in this document for Supply, Installation, Operation & Maintenance of establishing Fully Smart Solution (RFID, Fast Tag, Sensors, Cameras, Boom Barriers etc.) for real time mining Surveillance in the State of Punjab. The Successful Bidder who will be selected shall carry out the activities defined in the scope of work section of this RFP Document.

6. Scope of Work

6.1. Description of the Project

Department of Water Resources (Mines and Geology), Government of Punjab intends to establish a monitoring system in the State for various revenue sources of the Department, which is essential for revenue augmentation, improving the service delivery, achieving the development goals of the Department and to stop the illegal mining as well as illegal transportation of minerals. This initiative supports the Department in achieving a reasonable progress in parameters such as maintaining a database pertaining to mines, registered agencies, tracking and monitoring the movement of minerals, payment processes, online challan generation, recovery procedures, and so on. Currently, the processes are handled manually. As a result, monitoring & reporting is delayed and there is no end to end IT based solution which can reduce the manual intervention and thus helps in effective monitoring system.

As a result, it becomes difficult for Department to keep track of the actual quantity of minerals transported in the State. The deliberations during various consultations with the Department personnel (several internal deliberations and consultations) led to the notion of integrated IT enabled process and technology intervention for minerals such as Sand, Gravel/Stones and Earth available in the State. The need for an integrated and sound monitoring system gains significant attention in the recent years and will be considered a necessary condition for assisting government decision makers in performing their jobs effectively, efficiently and economically. The objectives and coverage of the IT enabled system and technology interventions are enunciated in this document.

As part of this initiative, it is proposed to develop Mining Surveillance Infrastructure along with an effective ITS system. It is also envisioned that department should establish mini Integrated Control and Command System.

In order to achieve these objectives, Purchaser desires to develop a robust ICT infrastructure that supports digital applications and ensures seamless steady Mining operations, mining management, surveillance, emergency response mechanisms and real time tracking of services and vital metrics throughout the Mining sites and check points.

With the above background, Purchaser intends to appoint a Master System Integrator (MSI)/ IA to set up some of these priority initiatives as identified by the department, by following competitive bidding process to Supply, Installation, Operation & Maintenance of Fully Smart Solution (RFID, FastTag, Sensors, Cameras, Boom Barriers etc.) for real time Mining Surveillance for a period of three years after Go Live date and further extendable on year to year basis, with a maximum period of 2 years at the discretion of the competent authority.

The Implementation Agency is expected to:

1. Conduct a complete survey of the Mining sites and study the connecting Highways to curb the Illegal mining activities.
2. Design the ICT system framework of Mining system.
3. Develop and implement Mining system applications.
4. Procure, implement and maintain the ICT infrastructure under mining system of Punjab.
5. Deploy skilled personnel to effectively manage the services.
6. Maintain and operate the system.

6.2. Areas of Intervention

As the State of Punjab expands its network of available mines, it is imperative that checks and measures be put in place to ensure the mining activity is undertaken within the scope of approval of Environmental clearance and safeguard the interest of the state exchequer. Moreover, the balance of mining activity versus the natural replenishment of minerals is needed to be maintained by tracking the quantity and scale of restoration of minerals by the river. Following are the areas where Technology intervention is needed:

- 6.2.1. Check whether the contractor is adhering to the stipulations as per relevant clauses of agreement and the statutory provisions under mining Act/Rules/Notifications/Guidelines etc. or any other instruction issued by Department from time to time and to follow the instructions for using the weighbridge installed on each mining site.

- 6.2.2. An IT based solution which keeps on eye on every movement carried out at entry and exit locations of each mining sites.
- 6.2.3. Unadulterated and in-full transport of mined material from mining site to delivery point.
- 6.2.4. Monitoring of illegal transportation of minerals on prominent locations like National Highway/State Highway/District Roads and Interstate border check-points.
- 6.2.5. Monitoring of all such activities from integrated central command center which needs to be set up by the Successful Bidder along with the provision of the manpower in the Headquarters and Districts (To start with, district Pathankot and Roopnagar).
- 6.2.6. Automated penalty/challan generation software based solution with provision to pay challan through different hassle-free modes.
- 6.2.7. Sensors used to detect vehicles carrying illegal minerals throughout the State along-with overloading of vehicles.
- 6.2.8. Using IT technology, the authenticity/validity of vehicles entering from adjoining State shall be checked through online software solution.

6.3. Objectives of the department

IT solutions and Technology Interventions are aimed at supporting in addressing the following key priorities and objectives of the Department:

- 6.3.1. Better realization of revenue from available Minerals in State.
- 6.3.2. Registration and real time tracking of all the vehicles entering and exiting the Mine sites.
- 6.3.3. Collection of revenue through digital modes rather than manually.
- 6.3.4. Prevent leakage of revenue through royalty evasion attempts, pilferage or illegal sourcing of material
- 6.3.5. Registration of deeds of settlements/allotments
- 6.3.6. Generating timely, reliable and accessible revenue information
- 6.3.7. Strengthening external oversight of public expenditure linked to physical performance activities in Department
- 6.3.8. Prevent / Control Loss of revenue due to Mineral excavation without approval of Mining Plan, non/short realization of royalty from brick kiln owners, short realization of royalty, non-levy of penalty for illegal uses of minerals etc.,
- 6.3.9. Monitoring of vehicles transporting minor minerals with relevant Technology.

- 6.3.10. Monitoring of excavators deployed on mining activity.
- 6.3.11. Regular surveillance of allotted mining site and entry of only registered/ authorized vehicles in such mines.
- 6.3.12. Online registration of complaint along with the location of such illegal mining,
- 6.3.13. Night Mode Surveillance of illegal transportation of minerals and activities across the mining lease.
- 6.3.14. Integration/Digitization of new initiatives with existing portal of Dept.
- 6.3.15. Surveillance through Drones

6.4. Scope of Work and Deliverables

6.4.1. Project Study & DPR – Detailed Project Report

In this phase, the Successful Bidder is expected to prepare a DPR i.e., Detailed Project Report after doing the complete Recce of the sites mentioned in Annexure 12.1 and discussions with the Departmental Officials wherein required data and information shall be collected. Successful Bidder shall be expected to depute a dedicated team for doing this study and prepare a Detailed Project Report within a span of 3 weeks from the date of signing of the agreement. The detailed Project report shall cover all the Mining sites, highways associated with the sites, infrastructure and hardware to be deployed component-wise, software to be developed and main features along with the real-time dashboard, locations, financial models, data analytical tools etc.

The above-mentioned list is indicative in nature and Successful Bidder shall provide the complete detailed report based on the actual survey based on which final components will be decided.

6.4.1.1. Physical Site Survey, Preparation & Submission of Site Survey Report

6.4.1.1.1. Strategic identification of CheckGate location to be conducted by the system integrator (Successful Bidder) in consultation with the Governmental officials to cater to maximum traffic volume from neighboring districts and states

6.4.1.1.2. The Successful Bidder shall collect all required data (Technical & Administrative) for compiling a Site Survey Report

6.4.1.1.3. The system integrator shall depute an experienced Site Survey team especially skilled at gauging site constraints/suitability, technical/geographical/infra-structural parameters for Project Study & preparation of survey report

6.4.1.1.4. The system integrator shall gather all the inputs/ outputs and respective processes and activities being carried out.

6.4.1.1.5. The Successful Bidder will identify all risk, necessary amenities required and its availability for commissioning and functioning of the CheckGates.

6.4.1.1.6. Successful Bidder will also be responsible to get the Survey Report approved by the purchaser.

6.4.1.1.7. Successful Bidder will also draft a detailed technical representation for the approval of PWD or NHAI (as applicable) of the District/State to ensure all rules, regulations and safety norms are adhered to avoid any ambiguities/discrepancies during the installation phase.

Note: The CheckGates can be categorized in 3 types (One, Two and Three Lanes) as per the survey report.

6.4.2. Various Software Applications & API Integration

6.4.2.1. Web Application for DSS – Decision Support System and Check & Validate e-Notice's evidence' data.

6.4.2.1.1. Design & Development of Decision Support System (DSS) for Districts along with Monitoring System with Alert, Notification & Dashboard – Web Portal with Android Based Mobile App with the following features –

6.4.2.1.2. Decision Support System (DSS) will enable the District Administration to track activities from district level Mini Command Center based on video feeds, real time data captured from AI/IoT devices.

6.4.2.1.3. Registered vehicle management & their integration with existing Mines and Geology Department web portal.

6.4.2.1.4. Managing RFID tag installation activities to ensure mandatory compliance of RFID Tag for all mineral carrying vehicles (Punjab & Other States)

6.4.2.1.5. Monitoring of live CheckGates & their activities via live camera.

6.4.2.1.6. Monitoring of the weighbridge & transit pass related anomalies (24 x 7).

6.4.2.1.7. Monitoring on-spot verification activities by concerned officers to prevent illegal mineral transportation using Mobile App in Punjab.

6.4.2.1.8. Integration of various anomalies cases with departmental Challan system that will generate appropriate e-Challan as per government rule.

6.4.2.1.9. Collection of evidences to support e-Challan system of the department via CheckGates & Mobile App.

6.4.2.1.10. Integration of DSS with MoRTH portal for online vehicle details

6.4.2.1.11. Integration of DSS with departmental penalty payment mechanism.

- 6.4.2.1.12. Integration of various departmental services (all type of Transit Pass) with DSS to prevent issuance of various Transit Pass in case of any challan is not paid yet.
- 6.4.2.1.13. Finding out the various illegal mineral transportation cases caught by CheckGates in Punjab (24 x 7) such as –
- a. District & CheckGate Wise Mineral Vehicle Movement
 - b. No. of Weighments vs. Transit Pass Issuance Mismatch
 - c. Volume Mismatched (Weighbridge vs. Transit Pass)
 - d. Volume Mismatched (ISTP vs. Transit Pass (Other State))
 - e. Invalid Original Transit Pass No. in ISTP
 - f. Invalid Vehicle No. (ISTP vs. e-Transit Pass (Other State))
 - g. Expiry Date / Time Mismatched (ISTP vs. Transit Pass (Other State))
 - h. Transportation with Expired Transit Pass
 - i. Without any transit Pass
 - j. Having Transit Pass (Other State) but Without ISTP
 - k. Transportation on Un-Registered Vehicle
 - l. Registered Vehicle Without having RFID-Tag
 - m. Vehicle Without having RFID Tag at Checkgates
 - n. Un-Recognized Vehicle having mineral at Checkgates
 - o. Vehicle No. Mismatched (against ANPR vs. RFID Tag)
 - p. Vehicle having Non-Functional RFID Tag (Need to issue new Tag)
 - q. Vehicle No. Mismatched (against ANPR/RFID Tag vs. Transit Pass)
 - r. Vehicle having Transit Pass but Bypassed all Checkgates
 - s. Supplier (Lessee/Licensee) wise Issues Found
 - t. Multiple Round Trip with Single Transit Pass
 - u. Other Analysis (as per requirement)
- 6.4.2.1.14. Mobile App for complete onsite inspection/ audit, alerts & notification for Lessees & Transporters and 24*7 Mining CheckGates view to Mining Officers. Mobile App will perform all type of reconciliation & verification on single request like vehicle's eTP/ISTP(Transit Pass) validation, eTP expiry, RFID Tag Status etc. It will allow the user to collect all types of evidence like vehicle photo, vehicle document photo, eTP photo & driver details etc. for future reference.
- 6.4.2.1.15. Web application for all hardware/ equipment's health monitoring system. Development of software for health monitoring of its devices/ system at the Checkgates. Key Monitoring Areas:
- a) Link status

- b) Power status
 - c) ANPR last image status and counts of images
 - d) Varifocal last image status and count of images
 - e) RFID status
 - f) Hard disk space
 - g) Surveillance using Cameras
 - h) N/w Connectivity status
- i. All the above data is pinged for at regular intervals through a 24x7 server which keeps track of all CheckGates and collects data at regular intervals for easy data tabulation and analysis. IA to provide the time for data update in its DPR.
 - ii. IA has to ensure that the data should be confidential in all aspects.
- 6.4.2.1.16. Mobile App for different stakeholders to get relevant information on a single click.
- 6.4.2.1.17. An Android & iOS based Mobile App will be developed to get instant alerts, notifications & various MIS reports for different users like Lessees, Stockists, Transporters, District Administration and Mines Officer. It needs to be integrated with the existing departmental portal.
- 6.4.2.1.18. It enables the District Administration and Head Office Level to curb illegal mining practices and restrict the anomalies of mineral movement with an AI-based real-time monitoring & alert system of automated unmanned CheckGates, Mobile App & Decision Support System (DSS). The Department Administration will be able to view the updates from all the developed applications on a single dashboard.
- 6.4.2.1.19. Various API Integration with Master Data of Contractor, Stockiest & Transporters, VAHAN, Inter State Transit Pass (ISTP) and other Electronic Transit Pass (for Contractor, Stockiest) etc. AI based Edge computing software needs to be integrated with the existing software solution such that:
- a. Captured/processed Data is visible on the central monitoring panel within the stipulated time duration such that field teams can take timely action for offending vehicles.
 - b. Secondary server needs to be provisioned to provide smooth functioning of the CheckGates in the event of a server outage.

6.4.3. Setup, Installation & Commissioning of CHECKGATES at District Level

To enable an AI based solution to monitor/prevent illegal transportation of minerals @ District Level by establishing RFID based Checkgates with all other dependent components to capture, assimilate and transmit to the central data repository, such as, AI-based Software Solution, RFID Readers, AI enabled Content Identification, Vehicle classification and Automatic Number Plate recognition Cameras, installed atop

Gantries, all of which are energized with a sophisticated SNMP enabled Integrated Power Management System, IoT enabled Edge Computing systems and a Dedicated, High-availability bandwidth carrier, Infrastructural, Technical & Operational Support inclusive of Installation & Commissioning and further supported with AMC upto the contract period.

The proposed solution thrives on RFID Tags to be installed in the vehicles that are being used for transporting the minerals under Geology & Mining Department – these are scanned and its data co-related with dependent feeds by the Artificial Intelligence Program to assess the legality of the mineral transported by the Vehicle.

6.4.3.1. Preparation of NHAH NOC Documents as per the guidelines

The entire CheckGate concept hinges on the approval of MoRTH in the respective NHAH/SH offices, which actually allows installation of Gantry Structure and other infrastructure for the successful commissioning of the CheckGates.

6.4.3.1.1. An extensive project report shall be prepared and submitted to address ALL requirements/norms/clauses of Ministry of Road Transport & Highways (MoRTH) –

6.4.3.1.2. Along with the Project Report to be submitted, Successful Bidder also needs to furnish quite a few other Legal & Financial Documents to satisfy the MoRTH guidelines, such as:

- a. Legal Affidavit in compliance of MoRTH norms
- b. Legal Undertakings as per MoRTH guidelines
- c. Submission of requisite License fees with the concerned agency
- d. Tabulation of Lease amount for the tenure of project (Minimum 5years) & its submission with the concerned agency
- e. Preparation and submission of License Deed as per formats/norms of MoRTH
- f. E-submission of MoRTH proposal on Ministry's website
- g. Follow-up on approval from respective NHAH/SH offices after satisfying detailed scrutiny of submitted documents & physical site verification of the CheckGate location concerned

6.4.3.1.3. Purchaser shall be providing with the requisite support for administrative work.

6.4.3.2. Software License of AI Program on COTS model

AI-based Edge Computing software to identify Vehicle TYPE, Vehicle Number, Mineral Category, Radio Tags Identification/Reporting and & Data Packetization engine to assimilate all relevant data (Perpetual License for Single CheckGate)

6.4.3.2.1. The Software will derive feeds from all devices connected on the CheckGate (RFID Reader and Cameras)

6.4.3.2.2. System should be able to integrate with RTSP enabled Camera

6.4.3.2.3. The Bidder Software should have an integrated ANPR system either in house or by OEM with the following features:

- a. All vehicle number plate system should perform ANPR at high accuracy for all types of vehicles up to a speed of 80 KM/hr.
- b. System should classify vehicles of the following category for analysis. The Classes required are motorbike, Auto, Car, Bus, and Truck.
- c. The accuracy of the ANPR system (day & night) should adhere to the following levels:
 - i. Vehicle Detection accuracy -85% without loop or radar
 - ii. Vehicle classification accuracy – 80% for above cases
 - iii. Vehicle number plate reading accuracy – 80% during day and 70% night for reading all vehicle number plates (both reflective, non- reflective, yellow and white plates)
 - iv. The system should read the number plate data reliably without drop in accuracy for varying font size, type. The accuracy will be calculated on all non-occluded human readable English character number plate.
 - v. The system should use Artificial Intelligence (Neural Network) based Technology.
 - vi. The system should be capable to train for new number plates/ design introduced by Govt. of India
- d. The Mineral identification system should clearly identify materials being transported within the following parameters:
 - i. Should identify COVERED/NON-covered vehicles
 - ii. Should identify/report vehicles carrying various materials scheduled by the department
 - iii. Identification accuracy should be above 80% during the day hours and above 60% during the night hours
 - iv. UN-scheduled materials NOT identified by the department shall be reported as 'Others'
 - v. Identification/Inferencing accuracy shall be further improved upon such that accuracy level clearly appears on an upward trend
 - vi. The Mineral Inferencing system should NOT slow down the Edge computing device due to its design limitations
 - vii. Mineral Identification & its Inferencing shall take into account varying light conditions and inclement weather as well
 - viii. Suitable logs shall be maintained for a period NOT less than 3 months

- ix. Additional Camera shall be equipped on the Gantry Structure so as to capture and record Rear-view of trucks passing underneath the Gantry Structure in an attempt to check for cases of Overloading of vehicles manually
- e. Software should be able to integrate with any RFID Device with following technical specifications:
 - i. Low Level Reader Protocol (LLRP).
 - ii. RFID Gen 2 Standards
 - iii. Air Interface Protocol: GS1/EPC global UHF Gen 2 (ISO 18000-6C)
 - iv. The Software should be able to read RFID Tag installed by the Mining Department
- f. The Software shall be capable of assimilating all desired data such that it is easily transported to the central repository for further processing and reporting keeping the following parameters in mind:
 - i. The data packetize shall make data/images appear on the Central repository within the shortest possible time span (within ONE minute)
 - ii. The data packetize shall NOT slow down the Edge computing device due to its design limitations thereby affecting processing timelines of other processes on the Edge computing device
 - iii. Suitable logs shall be maintained for a period NOT less than 6months
- g. MEITY empaneled Cloud Hosting
The software shall keep the relevant images i.e., images captured in exception cases for a period of 3 Months on the cloud
 - i. Minimum storage of 200 GB needs to be provisioned for each CheckGate for 3-month evidence storage.
 - ii. Server vendor/specifications should be valid within the scope of the MEITY guidelines
 - iii. Server chosen should be available on a 24x7 scenario with adequate bandwidth to allow for routine data transmission & maintenance purposes.
- h. Edge Computing Device for Data capturing from various hardware (such as RFID Fixed Reader, Bullet Varifocal Camera & Camera for ANPR solution etc.)

Edge computing system to collect and process data locally that has been captured from the peripheral devices installed at the CheckGates. The system should be a semi/fully rugged machine and should be able to operate under extreme environments. The device should be able to get the data and process data from following devices –

- i. Assimilate data from all video sources, RFIDs
 - ii. Aggregate, Store, process AI and others, and transmit data for further processing
 - iii. Auto recover from abrupt shutdowns
 - iv. System should be able to capture and process data even in the event of NON-availability of Internet
- i. Hardware Supply, Support & Services for RFID Fixed Reader, IR, Bullet Varifocal Camera & Camera for ANPR Solution with complete installation & software to monitor/ control all devices with 3-Yrs Warranty.
 - j. Procurement, Supply, Installation & commissioning of RFID Fixed Reader, Camera for Content Identification & Camera Solution for ANPR, Network Switch, **Integrated Power Management System**, Internet (ILL) Connection, with complete installation and 3-yrs Warranty.
 - i. RFID Fixed Reader: RFID Fixed Reader to identify the vehicle by reading the RFID Tag (UHF) implemented by the Department. Reader will automatically capture the Tag-ID of the fast-moving vehicles that are passing through multiple lanes.
 - ii. Camera to collect evidence & mineral identification from rear & front view: Cameras installed for the purpose will capture the image of fast-moving vehicular payloads moving through multiple lanes and send the information to Edge Computing system for further Identification/classification through AI techniques.
 - iii. Camera for ANPR Solution: Camera for ANPR installed at CheckGate will capture the image of the Number plates of classified/selective category of vehicles passing through multiple lanes, 24x7 and under all weather conditions, that too at variable speeds and send the information to Edge Computing system for further processing.
 - iv. 3rd Eye Monitoring System: 24*7 3rd Eye Monitoring System (Bullet Camera 2mp*2, Network Video Recorder*1, 2TB*1 Storage-HDD, Gigabit POE Switch*1)
 - k. Supply for Installation and commissioning of Gantry Structure (MS) for RFID Fixed Reader, Cameras for Content identification and ANPR. Fabrication of Gantry Structure will include the delivery and installation at each proposed CheckGate. It will also ensure:

- i. It should cover the entire span of the Highway Lane segment in focus
 - ii. Quality of material used should be adequate to handle all mounted equipment and also the additional load of the personnel working atop the Gantry Structure (As per the MoRTH Guidelines)
 - iii. Specification of material should cater to the norms of the Authorities to handle all incidental conditions like weight, vibrations, height, span, stability
 - iv. All associated/necessary civil works for stabilizing the Gantry Structure
 - v. Fixtures for installation of devices like Edge devices, RFID, Cameras for Content identification, ANPR, etc.
 - vi. HDPE conduiting for CAT-6 and Electrical wires for all IT equipment to be mounted atop the Gantry Structure and rubberized-steel Flexi Pipe for peripheral cabling
- l. IP54 Outdoor Cabinets
- IP54 outdoor cabinet for housing the entire CheckGate monitoring system equipment with thermal/humidity control protection, cooling system, durable locks (double), double layered metal sheet for the housing, equipment trays, PDU, Cable managers and DIN rail mounts
- i. These outdoor cabinets should conform to the following specifications:
 - ii. IP54 must have enough space to store IT equipment
 - iii. Double layered metal sheet to ensure insulation (thermal and humidity)
 - iv. Power coated sheets (inside & outside) to withstand extreme weather conditions and ensure durability
 - v. Attached external housing for electricity meters/changeover/ MCBs
 - vi. Flushed lock mechanism with computerized keys to deter tampering attempts
 - vii. At least 6 sockets PDU strip
 - viii. Cable managers to ensure tidiness & clutter free access during cabling
 - ix. DIN rail mounts for MCBs
 - x. Powder coated equipment trays
 - xi. Multiple Fan panels to maintain favorable temperatures for IPMS and all other equipment

- xii. IP54 is to be installed on elevated platforms with concealed ducts to withstand flooding during monsoons

- m. Internet Lease Line Connection
 - Internet lease circuits need to be provisioned with:
 - i. High-rise Infra-structure to provision Internet feasibility
 - ii. Static IPs to cover manageability of all edge devices
 - iii. Routers provisioned should be able to handle extreme weather conditions and rural power scenarios
 - iv. Adequate bandwidth to transmit all relevant Edge processed data & high-quality AI grade images to the Central Repository
 - v. Monitoring and Troubleshooting of Connectivity issues to be handled by the Successful Bidder
 - vi. To provide seamless connectivity between the CheckGate and the Command Center provided by the Department

- n. Civil Structure for Gantry Structure IP54 cabinets
 - i. Civil works for the mounting of the gantries
 - ii. Civil works for Installation of the IP54 cabinets
 - iii. Civil works for other associated equipment mounting bases
 - iv. Material used in the works should endure weight/height/load of the superstructure

- o. Installation and Commissioning
 - i. Installation & Configuration of RFID Fixed Reader at each CheckGate
 - ii. Alignment and synchronization of the all edge capturing devices with each other and the Edge computing software
 - iii. Installation of cameras for mineral identification
 - iv. Installation of cameras for the ANPR Solution with diminished illumination detection capability
 - v. Installation and activation of Edge Computing system with all associated peripheral equipment
 - vi. Infra-structural networking & electrical works, with segregated conduits for each, for the computing devices and other peripherals that will be setup at each check gate.
 - vii. Internet (ILL- Internet Leased Line) connection to be provided at each CheckGate.
 - viii. Augmented illumination with LDR capability will be installed on the Gantry Structure of each CheckGate

- ix. Equipment mounted atop gantries need to be sheltered from the elements of the weather and also cater to the interference/ conductivity norms
 - x. All associated accessories for facilitating mounting, stability & conformity/compatibility between devices of the edge capturing system atop gantries
 - xi. Provisioning of Earthing at Input/Output and other electrical devices
 - xii. Provisioning of Lightning protection for all vulnerable devices
 - xiii. Installation of Integrated Power Management System (IPMS) at CheckGate with capability for Generator and Grid Supply sources
 - xiv. IPMS needs to be verified for earthing, grounding/isolation of DC/ AC and other sources of current leakages
- p. Integration with various Software Modules
The Bidder's scope includes Software integration of the CheckGate system with the Department's software for Decision Support system and its associated Mobile app.
- q. Training & User Manual
A thorough training session on the developed software would be given to the departmental officials.
Under this part, the major activities are:
- i. Training to Department Officials.
 - ii. Providing Training & User Manual on the functionality of developed software.

6.4.4. Setup, Installations & Commissioning of Mini Command Center @ District Level

A Mini Command Center will be setup at the District Level for continuous monitoring of the surveillance stations and CheckGate feeds received from all sites equipped with IP Cameras. The Mini Command Center serves the function of coordinating directly with Mobile Squads with effective information (data and pictures) sharing from all data points of dependent hardware/software – This purpose is achieved via state-of-the-art IP surveillance hardware (Smart TV, computers, UPS, etc.) backed with a robust power backup unit and available bandwidth – Scope includes Installation, Commissioning, Infra-structural/technical support for with an AMC till the contract period.

6.4.4.1. Software/Hardware Details:

6.4.4.1.1. SMART TV

SMART TV (55") with wall-mount installation enables display with camera Stream on the screen which allows users to view live videos.

6.4.4.1.2. Computer Machine (Laptop/Desktop)

To enable the viewer to:

- i. Interact with camera Stream via software login on the internet
- ii. Monitoring of CheckGate/surveillance activities
- iii. Reporting of anomalies as manifested in the CheckGate/Surveillance monitoring

6.4.4.1.3. Online UPS

2-4 Hours of uninterrupted power backup at Mini Command Center for TV, Desktop Computer/ Laptop.

6.4.4.1.4. Installation & Commissioning

Installation & Commissioning of TV, Desktop, Laptop & UPS along with configuration/assimilation of all feeds from the CheckGate/surveillance towers.

6.4.5. Setup, Installations & Commissioning of Command & Control Center (Mining State Command Center) @ Head Office

A Command & Control Center will be setup developed at Head Office for continuous monitoring of the IP Cameras (CheckGates/surveillance included) installed in the district. All the live feeds of Camera & CheckGates will be viewed at Command & Control Center.

6.4.5.1. Big size (55") LED TV with controller including wall mount:

LED TV (55") with wall-mount installation enables display with camera Stream on the screen which allows users to view live videos.

6.4.5.2. SAN Storage Server (Rack server or Blade server) with Rack and networking equipment's:

To access the data SAN Storage Server will be setup and for keeping all the networking equipment's safe, the equipment's will be kept in rack.

6.4.5.3. Firewall & Router

Firewall will monitor the network traffic and the routers will perform the traffic directing functions over the internet.

6.4.5.4. Online UPS with minimum 2 hour's power backup

An uninterrupted power backup of 2 Hour will be setup at Command & Control Center.

6.4.5.5. 100 Mbps dedicated Internet Leased Line (ILL)

Internet lease line with static IP to provide seamless connectivity between the CheckGates and Data Center.

6.4.5.6. Video Management System Software (Live monitoring of the CheckGates)

A video management system Software and integration of IP cameras installed in the district at critical points to get real-time monitoring at the district.

6.4.5.7. Laying of trunk wires:

(Cat6/Electric) with conduits & its termination via PoE/Switch, Patch chords, extension board, RJ45 connectors and Rubberized Flexi pipe for peripheral cabling.

6.4.6. RFID Tags with Installation, Mobile App (for Mapping & Installation) and e-commerce portal to sell RFID Tags online (like FASTag)

6.4.6.1. Radio-Frequency Identification Tag

In an effort to transparency and convenience, The RFID Tag will contain a Unique Tag ID Number.

The RFID Tag installed on the vehicle will be mapped with the vehicle master database through our Android based mobile application. When the vehicle with installed tag passes through the Check Gate. The Tag will encounter with the RFID Reader and the following vehicle information can be retrieved via Tag ID.

- a. Vehicle number
- b. Owner name
- c. Owner number
- d. Type of Vehicle
- e. Owner address
- f. Loading capacity
- g. Number of wheels

RFID (Radio frequency Identification) Technology to recognize the Tag that has been installed on the Windscreen of the Mineral Vehicles. These data i.e., Tag-ID will be transmitted through radio waves from Tag to the Reader.

6.4.6.2. Tags Installation on mineral carrying vehicles using Mobile App (with the help of department)

RFID Tag will be installed on all the vehicles registered with the department. The process of installation can be defined in two phases:

- a. First Time Fresh Installation
- b. Renew/Replace/ Onboarding new vehicle

RFID Tag will be installed at field location and details of installation will be captured by the mobile application. The RFID Tag will be issued from back office and an agent can only install the tag issued to him/her.

6.4.6.3. Mobile App & Mapping and e-commerce platform for online sell

Mobile App will be developed with various logins for Mapping of RFID Tags. A Web-based portal will also be developed for online sell of RFID Tag. The Mapping of Tag along with the status of RFID Tag can also be checked from the portal.

6.4.6.4. RFID Tag Helpdesk support

A Technical support will be deputed at the Command & Control Center to resolve the technical queries related to the RFID Tag.

6.4.7. RFID Hand-held reader with required Mobile Apps

Handheld devices will capture the relevant information at site, to be co-related with the information provided by the Unified Command Centre. Mobile squads need to be trained on the usage of the handheld devices in terms of the hardware itself and the various applications developed/uploaded by the Department.

The device will be used during inspection to verify all type of Transit Pass, Volumetric Analysis, E-Challan and other initiatives taken by Department from time to time with all required Software & Hardware such as Various Mobile Apps (Android based) for real time all type of Transit Pass Verification, RFID Tag Check & Verification, Checkgates Alerts & Notifications, RFID Handheld Reader with an additional Successful BidderM (to be provisioned by the department), Installation & Commissioning with AMC upto the contract period.

6.4.7.1. Mobile App

(Android based) for all type of Transit Pass Verification, RFID Tag Check & Verification, CheckGate Alerts & Notifications.

6.4.7.2. RFID Handheld Reader:

RFID-UHF Reader, GPS, QR Code Reader, Wi-Fi, Camera, AC Adaptor, Type C- USB Cable.

6.4.7.3. Implementation & Training

A thorough training session on the Hand-held reader will be given to the departmental officials.

6.4.8. Bluetooth Printer & Paper Rolls with Mobile App integration for On-Site eNotices generation

6.4.8.1. Bluetooth printer with 5 hours battery backup & Adapter

2-inch Thermal Line printing, Android Support, power backup of minimum 6-Hrs, with Charger, 1-Ppaer Roll, Pouch Bag and 3 Year Warranty).

6.4.8.2. Consumable (2" Paper Roll)

Paper roll of 2 inch will regularly use in printing of Notices & hand overing to the defaulters or the vehicle found with offences.

6.4.8.3. Mobile App integration

The hand-held reader will be integrated with the developed Mobile app for On-spot inspection of Transit Passes.

6.4.9. Setup, Installations & Commissioning of IT Infrastructure @ Lease (Mining Area)

A vehicle carrying overloaded minerals results in loss of royalty and is against the law as well. Hence, the need for a weighbridge through which the weight of suspicious vehicles can be measured will be setup. Whereas the PTZ camera will let to keep a vigil on the activities occurring at Lease area.

6.4.9.1. Weighbridge

- 6.4.9.1.1. RFID Fixed Reader with Adapter: RFID Fixed Reader to identify the vehicle by reading the RFID Tag (UHF) implemented by the Department. Reader will automatically capture the Tag-ID of the fast-moving vehicles that are passing through multiple lanes.
- 6.4.9.1.2. Bullet Camera, NVR with 25 days Storage and Rack: Bullet Camera will be installed at the weighbridge to capture the picture of the loaded mineral of the Vehicle passing through the Weighbridge.
- 6.4.9.1.3. GI/MS Pole for Camera: GI/MS Pole will be fabricated & installed at the weighbridge for mounting the RFID Fixed Reader & Bullet Varifocal Camera.
- 6.4.9.1.4. Boom Barrier: Boom Barriers, an automatic boom barrier offers security at the exit and the entry points of the weighbridge. It can be used to successfully control the vehicle movement queuing, are being weigh for gross & tare weight on the weighbridge.
- 6.4.9.1.5. Network Controller
- 6.4.9.1.6. Traffic Signal Light: Traffic light should manage and controls the traffic at the weighbridge for safe operation
- 6.4.9.1.7. LED Display: LED Digital Display should be of microprocessor based & display tare & net Weight of the vehicle.
- 6.4.9.1.8. Software for weighbridge and its Integration with ICC: A user-friendly software should be designed and developed for getting the date wise and vehicle wise Weighment etc. It will automatically capture the measured weigh from the Digitizer. So that the data cannot be manipulated or changed.
- 6.4.9.1.9. Laying of trunk wires (Cat6/Electric) with HDPE conduits & its termination via PoE, Patch chords, extension board, RJ45 connectors and Rubberized Flexi pipe for peripheral cabling

- 6.4.9.1.10. 10 Mbps dedicated Internet lease line (ILL): A 10 Mbps with dedicated lease line will be required at the weighbridge.
- 6.4.9.1.11. Integration with Command & Control Center: The developed software for weighbridge will be integrated with the Command & Control Center.
- 6.4.9.1.12. Installation & Commissioning: All hardware equipment's like RFID Fixed Reader & Bullet Varifocal Camera will be installed & commissioned.

6.4.9.2. Lessee Surveillance

- 6.4.9.2.1. PTZ Camera: Pan-Tilt-Zoom (PTZ) cameras will allow to get wide-area coverage and zoom in for further detail of events happening at the Lease area. It will enable to view from any angle, for any detail, at any moment.
- 6.4.9.2.2. Network Video Recorder with 25 days Storage- HDD: Network Video Recorder to store the camera feed for 25 days
- 6.4.9.2.3. IP54 Rack with Pole Mount
- 6.4.9.2.4. 4G Router with 4G Sim with One Year Activated Pack for backup: Data pack for 12 months with 4G Sim will be required.
- 6.4.9.2.5. Access Point Sender & Receiver with controller for maximum range of 2 Km
- 6.4.9.2.6. Video Management System (VMS) License for 1 Unit: A video management system Software and integration of IP cameras installed in the Lease area to get real-time monitoring.
- 6.4.9.2.7. High Mass Pole/Tower: High Mass Pole/Tower will be fabricated & installed at the Lease area for mounting of PTZ Camera.
- 6.4.9.2.8. Civil Work for Pole/Tower: All associated/necessary civil works for stabilizing the Pole/Tower will be done.
- 6.4.9.2.9. Laying of trunk wires (Cat6/Electric) with HDPE conduits & its termination via PoE, Patch chords, extension board, RJ45 connectors and Rubberized Flexi pipe for peripheral cabling
- 6.4.9.2.10. Installation & Commissioning: All hardware equipment's like PTZ Camera & Networking will be installed & commissioned.

6.4.9.2.11. Integration with Command & Control Center: All software will be integrated with the Command & Control Center.

6.4.10.PMU setup for system accountability, transparency & overall monitoring.

Project Management Unit (PMU) is proposed to be setup at the Head Office level with the objective to coordinate all the activities provided under IMSS and its continuous and real-time monitoring of the services. PMU will consist of qualified professionals including Project Coordinators, Software Engineer, Technical Support Executive and Drone Pilots. PMU will be a well-experienced team with domain expertise exposure on the mining projects.

S.No.	Location	Resources to be deployed		
		Shift 1	Shift 2	Shift 3
	Headquarter	• Project Coordinator - 1		
		• Technical Support Executive - 1		
		• Software Developers - 2		
	Pathankot	• Technical Support Executive – 1		
		• Drone Pilot - 1		
	Ropar	• Technical Support Executive - 1		
		• Drone Pilot - 1		

Note: Drone Pilots shall be called on real time basis and there is no need for the full time shift. The above mentioned resources are tentative in nature and can be increased or decreased based on the requirements of the Purchaser. Successful Bidder shall ensure that the Technical Support Executive should have the knowledge of Networks also so that they shall be able to help with the local networks and troubleshoot the problem as in where in basis.

6.4.10.1. The Roles of the Individuals of the Project Management Unit are the followings:

Roles & Responsibilities of Project Coordinator

- a. Coordination with Department Officials & PMU Team
- b. MIS of various key activities of PMU
- c. Coordination with District Officials for penalty recovery

- d. Inspection of the evidence collection process for vehicles whose notices are issued
- e. Technical Support to Departmental Officials
- f. Resolving the queries/grievances
- g. Generation of MIS Report
- h. Any other role assigned by the Purchaser

6.4.10.1.1. Roles & Responsibilities of Software Engineer

- a. Review and maintain existing Code and database (Present application developed in PHP, DB- MySQL and hosted in State Data Center)
- b. Execute full software development life cycle
- c. Develop Add-on features in the Software
- d. Any other task assigned by the Purchaser

6.4.10.1.2. Roles & Responsibilities of Technical Support Executive

- a. Review of the Check-Gate cases
- b. Review of weighbridge notices
- c. Random inspection of ignored/confirmed cases
- d. Generation of eNotices
- e. Real-time monitoring to reduce the gap between the penalty generated and the actual amount received
- f. Maintenance of the equipment installed at weighbridge
- g. Ensure smooth operation of the equipment's
- h. Identify and diagnose issues and problems
- i. Categorize and record reported queries and provide solutions
- j. Advise users on the appropriate course of action
- k. Generation of MIS Report
- l. Monitoring of the mining activities through PTZ camera
- m. Any other role assigned by the Purchaser

6.4.10.1.3. Roles & Responsibilities of Drone Pilot for Drone Management

- a. Conducting drone based aerial surveys
- b. Capturing high-resolution pictures or videos of the mining location
- c. Monitoring of Mining Activities via Drone
- d. Identifying area and volume based on certain interval
- e. Preparation of Monthly MIS Report
- f. Any other role assigned by the Purchaser

6.4.10.2. Setup of IT Equipment for the Project Management Unit

6.4.10.2.1. Laptop specifications: i5 with latest gen, 8GB Ram, 1 TB HDD/ 512 GB SSD, 14" Screen, Preloaded Windows and Preloaded Antivirus, Laptop Bag, 3-Year OEM Warranty.

6.4.10.2.2. Android Mobile/ Telephone Instrument with 4G Sim for One Year Activated Pack

6.4.10.2.3. Responsibility of Project Management Unit (PMU) at Head Office are as follows:

- a. Analyzing and continuous monitoring to prevent various illegal activities related to mining, weighing, illegal transportation of minerals in the state.
- b. Reviewing the tampering of Weighment and passing vehicles without having Transit Pass cases at lease area and sending the notices electronically and through letters to the concerned lessees.
- c. Reviewing the list of illegal transportation cases on the DSS portal and sending the notices electronically and through letters to the concerned vehicle owner.
- d. Monitoring of on-site illegal transportation inspection activities by enforcement team using RFID Handheld Machine with m-Check App.
- e. Reviewing the cases belonging to cancellation of notices by the enforcement officers or the cases ignored by the CheckGate review team.
- f. Reviewing the bad practices of RFID Tag installation and stopping such vehicles immediately from the issuance of any type of transit pass.
- g. Reviewing the vehicle breakdown information sent by mineral carrying vehicle drivers and take appropriate action in case of interruption of the journey reason found reasonable.
- h. Reviewing the evidence presented by the lessees, transporters against the notices issued by the PMU team and solving their problems through the nodal officer.
- i. Preparation of a list of useful suggestions received from various users from time to time and sending it to concerned software/mobile app development team through nodal for inclusion in existing applications.
- j. Providing the time to time online/offline training to the different types of users due to the modification/upgradation in any software/mobile application.

- k. Analyzing the various data received from different components of the Integrated Surveillance System and focusing on the key lacking areas and providing the possible suggestions to the department. By doing this, we can make the integrated surveillance system more effective, practical, useful, transparent and efficient.

6.4.11. Setup of Drone Surveillance System

The Drone expert team having advance drones with Day, night Image and video capturing facility shall be made available at each district on monthly basis. These team can be directed by the department to capture the high-resolution images or videos of the mining area so that the regular surveillance of the mining activities can be done. The successful bidder has to ensure that at the time of drone surveillance, if any illegal mining image gets captured, there should be a provision to send sms/email alert to the concerned nodal officer as well as district and State ICCC center.

6.4.12. Additional Points

- a) Purchaser reserves the right to increase or decrease the manpower, IT equipment, Hardware/ Software requirements, number of sites etc. for execution of the work.
- b) The Successful Bidder is expected to apply for the electricity connection for Checkgates or any other location on behalf of the department and shall pay for the same. The bill received shall be reimburse as per actuals.

7. Eligibility Criteria

7.1. Eligibility / Pre-Qualification criteria

The evaluation of The Successful Bidders shall be carried out by the Committee as per the pre-qualification / eligibility criteria defined in this document. Bids of the Successful Bidders, who don't meet the required pre-qualification/eligibility criteria mentioned in this RFP shall be treated as non-responsive and shall not be considered further. The eligibility criteria are given as below:-

SN	Eligibility Criteria	Supporting documents
	<p>Bidder should be either:</p> <ul style="list-style-type: none"> • A company registered under the Indian Companies Act, 2013 / 1956 OR • A partnership firm registered under the Limited Liability Partnerships (LLP) Act, 2008 OR • A partnership firm registered under the Indian Partnership Act, 1932 OR • A sole proprietorship firm • Joint Venture governed by India Partnership Act 1932 (Joint Venture with maximum of 2 partners is allowed). <p>Note: Shall be applicable for all members of the Consortium/Joint Venture in case of Consortium/Joint Venture</p>	<p>Any relevant document to prove that the Bidder is a legal entity like Certificate of Incorporation, Certificate of Registration, Partnership deed, etc.</p> <p>Note: In case of a Joint Venture, a copy of Memorandum of Understanding (MoU) executed by the Consortium/JV members along with the complete details of the members of the Consortium/JV firm, roles and responsibilities, financial division, contractual obligations, their technical expertise etc.</p>
	<p>The bidder should have successfully completed at least one Project of "Similar Works" of an amount of Rs. 6 Crore</p> <p>Or</p> <p>The bidder should have successfully completed two Projects of "Similar Works" each of an amount of Rs. 4.5 Crore</p> <p>Or</p> <p>The bidder should have successfully completed Three projects of "Similar Works" each of an amount of Rs. 3 Crore in the last 7 financial year's i.e. 2015-16, 2016-17, 2017-18, 2018-19, 2019-20, 2020-21 and 2021-22 with Center/ State Government Organization.</p>	<p>Work orders/ Agreement along with the completion certificate or CA Certificate confirming receipt of at least one payment for the submitted project. Submitted documents should clearly mention the year of work order/agreement and cost of the project.</p> <p>Note: In case of Joint Venture/ Consortium, cumulative experience of all the partners will be considered.</p>

SN	Eligibility Criteria	Supporting documents
	<p>The Bidder should have atleast 100 employees on company payroll.</p> <p>Note: Shall be applicable for any of the member of the Consortium/Joint Venture in case of Consortium/Joint Venture</p>	<p>Self-Certification letter signed and stamp by the Authorized signatory and counter signed by the HR of the company. Format attached at Annexure 12.2</p>
	<p>The Bidder should have a local office located in Chandigarh or Punjab.</p>	<p>Authorization letter with office address or a declaration by Authorized Signatory to open Local office within 30 days of issuance of LoI.</p>
	<p>Bidder should have minimum annual average turnover of Rs. 3 crore (Three Crore only) for last 3 Financial Years i.e. 2018-19, 2019-20 and 2020-21 for which Bidder's accounts have been audited.</p> <p>Note: Shall be applicable for Lead Consortium/Joint Venture Member in case of Consortium/Joint Venture</p>	<ul style="list-style-type: none"> • Audited Financial Statements OR • Certificate from statutory auditors clearly certifying the turnover requirements AND • UDIN
	<p>The Bidder should have positive net worth and should be a profit making company for each of the last three audited financial years for which average annual turnover shall be evaluated.</p> <p>Note: Shall be applicable for all members of the Consortium/Joint Venture in case of Consortium/Joint Venture</p>	<p>Certificate duly signed by statutory auditor of the Bidder confirming the net-worth</p>

SN	Eligibility Criteria	Supporting documents
	<p>The Bidder shall submit the undertaking that the Bidder :-</p> <ol style="list-style-type: none"> a. Has not been ever under a declaration of ineligibility for corrupt or fraudulent practices and should not be blacklisted by any State Govt./Central Govt./Board, Corporations and Government Societies / PSU for any reason. b. Has not been ever insolvent, in receivership, bankrupt or being wound up, not have its affairs administered by court or judicial officer, not have its business activities suspended and must not be the subject of legal proceedings for any of the foregoing reasons. c. And their directors, partners and officers not have been convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications within a period of three years as on date of submission of bid or not have been otherwise disqualified pursuant to debarment proceedings. <p>Note: Shall be applicable for all members of the Consortium/Joint Venture in case of</p>	<p>Self-Certified letter</p> <p>Format attached at Annexure 12.3</p>
	<p>The Bidder should have valid GST registration certificate and PAN in the name of Bidder.</p>	<p>Self-certified copy of relevant valid certificates</p>
	<p>The Bidder must ensure to deposit the RFP document fees and EMD</p>	<p>Any relevant proof</p>
	<p>The signatory signing the bid on behalf of the Bidder should be duly authorized by the Board of Directors / Partners of the Bidder to sign the bid on their behalf.</p>	<p>Authorization letter</p> <p>Format attached at Annexure 12.4</p>

SN	Eligibility Criteria	Supporting documents
	Scanned copy of this RFP document, corrigendum (if any), clarification issued by Purchaser, duly signed and stamp on each page by the authorized signatory of the Bidder as a mark of acceptance of all conditions of this	Signed and stamped copy of the RFP by the authorized signatory.

Note:

1. **All the above-mentioned documents have to be scanned and uploaded on the State eproc portal only.**
2. **Bidders registered as a startup with Department of Industries & Commerce, Government of Punjab as per chapter 16.1 of Detailed Scheme & Operational Guidelines, 2018 for availing Fiscal Incentives under Industrial and Business Development Policy 2017, issued by Department of Industries & Commerce, Government of Punjab, shall be exempted from eligibility criteria mentioned at Sr. No. 1, 2 and 5 in the above table. Registered startups are required to submit the self attested copy of the registration in order to avail the relaxations.**

7.2. Technical Evaluation

The second stage shall be the Technical bid wherein evaluation will be done for Bidders who have been found eligible as per the Pre-Qualification Criteria defined in section 7.1.

Technical Evaluation shall be done on following basis:

Technical Evaluation Criteria			
	Organizational Financial Strength	Maximum Marks	Supporting Document Required

	<p>Average Annual Turnover (AAT) of Bidder in the last 3 (three) financial years i.e. 2018-19, 2019-20 and 2020-21 for which Bidder's accounts have been audited.</p> <ul style="list-style-type: none"> ● Rs. 20 Crore and above: 20 Marks ● Rs. 15 Crore to Rs. 20 Crore: 18 Marks ● Rs. 10 Crore to Rs. 15 Crore: 15 Marks <p>Note: Shall be applicable for Lead Consortium/Joint Venture</p>	20	<p>Certificate from the Statutory Auditor/ Company Secretary/ Chartered Accountant of the Bidder clearly specifying the Annual Turnover of the Audited Financial Years.</p>
	Drone Survey Experience	Maximum Marks	Supporting Document Required
	<p>Bidders has experience of capturing and processing of Aerial images with valid completion certifications.</p> <ul style="list-style-type: none"> • 1 Project - 5 Marks • 2 Projects - 7 Marks 	10	<p>Work order to submit as a proof of providing similar work OR any other relevant proof</p>
	Experience in Mining Project	Maximum Marks	Supporting Document Required
	<p>Bidders has experience of executing a project in Consulting / Data capturing & Analysis / Aerial Topographical Survey Project / Land use/Land cover Project / Volumetric Analysis Project in Mining sector with valid completion certifications.</p>	5	<p>Work order to submit as a proof of providing similar work OR any other relevant proof</p>
	Past Experience	Maximum Marks	Supporting Document Required

<p>The bidder should have successfully completed at least one Project of “Similar Works” of an amount of Rs. 6 Crore Or The bidder should have successfully completed two Projects of “Similar Works” each of an amount of Rs. 4.5 Crore Or The bidder should have successfully completed Three projects of “Similar Works” each of an amount of Rs. 3 Crore</p> <p>in the last 7 financial year’s i.e. 2015-16, 2016-17, 2017-18, 2018-19, 2019-20, 2020-21 and 2021-22 with Center/ State Government Organization.</p> <ul style="list-style-type: none"> • The Bidder has completed one Project of “Similar Works” of an amount of Rs. 6 Crore or two Projects of “Similar Works” each of an amount of Rs. 4.5 Crore or three projects of “Similar Works” each of an amount of Rs. 3 Crore : 10 Marks • The Bidder has completed one Project of “Similar Works” of an amount of Rs. 6 Crore or two Projects of “Similar Works” each of an amount of Rs. 4.5 Crore or three projects of “Similar Works” each of an amount of Rs. 3 Crore: 15 Marks <p>Note: Shall be applicable for any of the member of the Consortium/</p>	<p>15</p>	<ul style="list-style-type: none"> • Work orders along with the completion certificate/ satisfactory client certificate confirming year, cost and area of activity.
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	Manpower	Maximum Marks	Supporting Document Required
	<ul style="list-style-type: none"> ● Above 250: 20 Marks ● Between 150 to 250: 18 Marks ● Minimum 100 to 150: 15 Marks <p>Note: Shall be applicable for any of the member of the Consortium/ Joint Venture in case of</p>	20	<ul style="list-style-type: none"> ● Self-Certification by the Bidder with Challan copies <p>Note: Authority reserves the right to do the background verification of the resource.</p>
	Technical Presentation	Maximum Marks	Supporting Document Required
	<ul style="list-style-type: none"> ● Company Profile – 3 Marks ● Understanding of the work domain – 7 Marks ● Approach and Methodology for implementation of the project – 7 Marks ● Monitoring and Execution Plan – 10 Marks ● Anything additional beyond proposed requirements – 3 Marks 	30	Technical Presentation on parameters to be evaluated.

Note: Only those Bidders whose absolute technical score is 65 or more and who scores atleast 15 marks in the technical presentation shall be considered by Purchaser for further evaluation i.e. Financial bid Evaluation. In addition, Evaluations will be based on documentary evidence submitted by the Bidders and Presentation before the Purchaser.

8. Bid Evaluation Criteria

8.1. Preparation of bid

8.1.1. The Bidder is expected & deemed to have carefully examined all the instructions, guidelines, forms, requirements, appendices and other information along with all terms and conditions and other formats of the bid. Failure to furnish all the necessary information as required by the bid or submission of a proposal not substantially responsive to all the requirements of the bid shall be at Bidder's own risk and may be liable for rejection.

8.1.2. Once the bid is submitted, it will be presumed that the Bidder has seen and understood the quantum of work to be done.

8.1.3. The bid shall be uploaded on the <https://eproc.punjab.gov.in> website by the Bidder or duly authorized person(s) to bind the Bidder to the contract.

8.1.4. The Bidder shall be responsible for all costs incurred in connection with participation in the bid process.

8.1.5. The bids submitted by fax/ e-mail/ envelope etc. shall not be accepted. No correspondence will be entertained on this matter.

8.1.6. All correspondences between the Bidders and Purchaser shall be written in the English language.

8.1.7. All information supplied by Bidders shall be treated as contractually binding on the Bidders on successful award of the assignment by Purchaser on the basis of this RFP document.

8.1.8. Failure to comply with the below requirements shall lead to the bid rejection:

8.1.8.1. Comply with all requirements as set out within this RFP document.

8.1.8.2. Submission of the forms and other particulars as specified in this document and respond to each element in the order as set out in this RFP document.

8.1.8.3. Submission of all supporting documentations specified in this RFP document, corrigendum or any addendum issued.

8.2. Validity of bids

8.2.1. Bids shall remain valid till 90 (ninety) days from the date of submission of bids. Purchaser reserves the right to reject a proposal valid for a shorter period.

8.2.2. If required, Purchaser may solicit the Bidder's consent to extend the period of validity. The request and the response thereto shall be made in writing. Extension of validity period by the Bidder should be unconditional. A Bidder may refuse the request without forfeiting the Earnest Money Deposit. A Bidder granting the request will not be permitted to modify its bid.

8.2.3. Purchaser reserves the right to annul the selection process, or to accept or reject any or all the bids in whole or part at any time without assigning any reasons and without incurring any liability to the affected Bidder(s) or any obligation to inform the affected Bidder(s) of the grounds for such decision.

8.2.4. Purchaser may, at its own discretion, extend the date for submission of proposals.

8.3. Earnest Money Deposit (EMD)

8.3.1. The Bidder shall furnish EMD through online mode, as part of the Eligibility Criteria as per details provided in the Document Control sheet of this RFP.

8.3.2. EMD of the all the Bidders shall be released once the tendering process is over. For Successful Bidder, EMD shall be refunded once the bidder submit Performance Security in the form of PBG as mentioned in this document.

8.3.3. EMD of all Bidders shall be refunded by the Purchaser as promptly as possible after signing of the agreement with the Successful Bidder.

8.3.4. The EMD submitted shall be interest free and shall be refundable to the Bidders without any accrued interest on it.

8.3.5. The EMD will be forfeited on account of one or more of the following reasons:-

8.3.5.1. Bidder withdraws its bid during the validity period as specified in this RFP document.

8.3.5.2. Bidder fails to provide required information during the evaluation process.

8.3.5.3. In case of a successful selection, the said Bidder fails to sign the Agreement/furnish PBG as per the maximum time defined in the SLA section of this RFP.

8.3.5.4. If a Bidder makes misleading or false representations in the forms, statements and attachments submitted in the bid documents.

8.4. Deviations

Bids submitted with any deviations to the contents of the RFP document will be considered as non-responsive. No deviation(s)/assumption(s)/recommendation(s) shall be allowed with the bid. Bidders must ensure that pre-bid meeting is attended by their concerned senior people so that all clarifications and assumptions are resolved before bid submission.

8.5. Amendment to the RFP document

8.5.1. Amendments/ corrigendums/ addendums/ clarifications necessitated due to any reasons, shall be made available on website only as provided in the Document Control Sheet. No separate communication either in writing or through email will be made to any interested/ participating Bidders. It shall be the responsibility of the Bidders to keep on visiting the website to amend their bids incorporating the amendments so communicated through the website.

8.5.2. In order to provide prospective Bidders reasonable time for taking the corrigendum(s) or addendum(s) into account, Purchaser, at its discretion, may extend the last date for the receipt of bids.

8.6. Clarification on RFP document

The Bidders requiring any clarification on the RFP document may submit its queries by the due date and time as mentioned in the Document Control Sheet in the following format in a MS Excel file:

SN	RFP Clause No.	Page No.	RFP Clause detail	Amendment Sought / Suggestion	Justification

8.7. Bid Evaluation Process

8.7.1. The bid evaluation will be carried out in 3 stages.

- a) Stage 1: Evaluation as per the Pre-Qualification/Eligibility Criteria (as per Clause 7.1 of this document).
- b) Stage 2: Technical Evaluation (as per Clause 7.2 of this document)
- c) Stage 3: Financial Bids evaluation

8.7.2. During process of evaluation of the bids, Purchaser may, at its discretion, ask Bidders for clarifications on their bids. The Bidders are required to respond within the prescribed time frame given for submission of such clarification otherwise Committee shall make its own reasonable assumptions at the total risk and cost of the Bidder and the bid may lead to rejection.

8.8. Bid opening

8.8.1. Purchaser will constitute a Committee to evaluate the bids submitted by Bidders. No correspondence will be entertained outside the process of evaluation with the Committee.

8.8.2. The bids submitted will be opened at time & date as specified in the document control sheet of this RFP by the Committee or any other officer authorized by Committee, in the presence of Bidders or their representatives who may wish to be present at the time of bid opening.

8.8.3. Those Bidders whose bids are found to be responsive as per the Pre-qualification/Eligibility Criteria, shall further be eligible for Technical Qualification evaluation followed by Financial Bid evaluation.

8.9. Financial Bids

8.9.1. The third stage will be the Financial Bid wherein evaluation will be done for bidders whose bid have been found responsive as per the Pre-Qualification/ Eligibility Criteria (as defined in section 7.1) followed by Technical Evaluation (as defined in section 7.2) .

8.9.2. The Bidder as part of its Financial Bid shall submit their financial bids for the items mentioned in the Financial Bid in this document.

8.9.3. The Financial Proposal shall exclude all the GST/Service Tax, other Taxes, Duties, Cess etc.

8.9.4. The prices/rates quoted by the Bidder shall remain firm (fixed) during the entire Contract Period and shall not be subject to any variation on any account. A Bid submitted with variable price quotation will be treated as non-responsive and hence shall be liable to be rejected.

8.9.5. Financial e-Bid shall be submitted on the State e-Procurement portal i.e. eproc.punjab.gov.in as per the format attached at **Annexure 12.5**.

8.10. Selection of Bidders

8.10.1. The bids will be evaluated on Quality and Cost Based Selection method (QCBS) basis with 70% weightage on technical score and 30% weightage on financial score. Calculation shall be done as follows:

8.10.2. Financial score shall be calculated as:

Financial score = $100 * (\text{financial proposal of lowest bidder} / \text{financial proposal of bidder under consideration})$

8.10.3. Composite score shall be calculated as:

Composite score = $(\text{Technical score} \times 0.70) + (\text{Financial score} \times 0.30)$

Note: Technical score is the technical marks scored by the bidder in the technical bid.

8.10.4. The bidder whose Composite score is highest shall be considered as L1 bidder for signing of contract. The Bidder with the second highest composite score shall be considered as L2 bidder and so on. In case L1 refuses to sign the contract, L2 shall be asked to match the rates of L1 and sign the contract and so on.

8.10.5. In case of tie between 2 bidders, the bidder with higher technical marks shall be selected as L1.

8.11. Issue of Letter of Intent (LoI)

Purchaser will enter into a contract with the Successful Bidder and will issue a Letter of Intent in writing. The LoI will constitute the formation of the contract post submission of PBG to the Purchaser as performance security by the Successful Bidder as mentioned in this RFP document.

8.12. Signing of contract

The Successful Bidder shall sign the contract with the Purchaser within 10 days of the submission of Performance Bank Guarantee. After signing of the contract, no variation or modification in the term of contract shall be made except by mutual written amendment signed by both the Parties.

8.13. Performance Bank Guarantee

- 8.13.1. As soon as possible, but not more than 10 days following receipt of Letter of Intent, the Successful Bidder shall furnish Performance Security to the Purchaser of an amount equal 5% of the TCV as Performance Security. This Performance Security shall be in the form of PBG only.
- 8.13.2. PBG against the work order issued thereby shall remain valid for a period of 60 (Sixty) days beyond the expiry of the contract. Whenever the contract is extended, the Successful Bidder will have to extend the validity of PBG proportionately.
- 8.13.3. In case the Successful Bidder fails to submit Performance Security within the time stipulated, Purchaser at its discretion may cancel the award of contract to the Successful Bidder without giving any notice and the EMD of the Successful Bidder will be forfeited.
- 8.13.4. The Successful Bidder will not be entitled for any interest on the Performance Security submitted.
- 8.13.5. Purchaser shall forfeit the Performance Security in full or in part in the following cases:
 - 8.13.5.1. When the terms and conditions of contract are breached/ infringed.
 - 8.13.5.2. When contract is being terminated due to non-performance of the Successful Bidder.
 - 8.13.5.3. The Purchaser incur any loss due to Successful Bidder's negligence in carrying out the project implementation as per the agreed terms & conditions.

8.14. Fraud and corrupt / malpractices

8.14.1. All the Bidders must observe the highest standards of ethics during the process of selection of Successful Bidder and during the performance and execution of contract.

8.14.2. For this purpose, definitions of the terms are set forth as follows:

8.14.2.1. "Corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of the Purchaser or its personnel in contract executions.

8.14.2.2. "Fraudulent practice" means a misrepresentation of facts, in order to influence a selection process or the execution of a contract, and includes collusive practice among Bidders (prior to or after Proposal submission) designed to establish Proposal prices at artificially high or non-competitive levels and to deprive the Purchaser of the benefits of free and open competition.

8.14.2.3. "Unfair trade practice" means supply of services different from what is ordered, or change in the Scope of Work.

8.14.2.4. "Coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the selection process or execution of contract.

8.14.3. Purchaser will reject a proposal for award, if it determines that the Bidder recommended for award, has been determined to having been engaged in corrupt, fraudulent or unfair trade practices.

8.14.4. Purchaser will declare a Bidder ineligible, either indefinitely or for a stated period of time, for award of contract, if Bidder is found to be engaged in corrupt, fraudulent and unfair trade practice in competing for, or in executing, the contract at any point of time.

8.15. Disqualifications

Purchaser may at its sole discretion and at any time during the evaluation of bids, disqualify/blacklist any Bidder, if the Bidder has:

8.15.1. Made misleading or false representations in the forms, statements and attachments submitted in bid documents. The EMD of the Bidder will be forfeited in such cases.

8.15.2. Exhibited a record of poor performance such as abandoning works, not properly completing the contractual obligations, inordinately delaying completion or financial failures, etc. in any project in the preceding three years.

8.15.3. Failed to provide clarifications related thereto, when sought;

- 8.15.4. Submitted more than one bid (directly / indirectly);
- 8.15.5. Declared ineligible by the Government of India / State / UT Government / PSU's / any Government Society/Board/Corporation for corrupt and fraudulent practices or blacklisted.
- 8.15.6. Submitted a bid with price adjustment/variation provision.
- 8.15.7. Documents are not submitted as specified in this RFP document.
- 8.15.8. Suppressed any details related to bid.
- 8.15.9. Submitted incomplete information, subjective, conditional offers and partial offers submitted.
- 8.15.10. Not submitted documents as requested in the checklist.
- 8.15.11. Submitted bid with lesser validity period.
- 8.15.12. Any non-adherence/non-compliance to applicable RFP document content.

Note: Only and only Authority reserves the right to relax any of the condition(s) mentioned in the RFP document for the Bidders.

8.16. Joint Venture/ Consortium

8.16.1. In case the Bidder is a JV/Consortium, the members thereof should furnish a Power of Attorney in favour of any member, which member shall thereafter be identified as the Lead Member, in the Joint Venture Agreement signed by the members of the JV.

8.16.2. Where the Bidder is a JV/Consortium entity, it shall be required to comply with the following additional requirements:

8.16.2.1. Separate identity/ name shall be given to a Joint Venture Firm.

8.16.2.2. Number of members in a JV/ Consortium shall not be more than 2 (Two).

8.16.2.3. A member of JV/ Consortium firm shall not be permitted to participate either in individual capacity or as a member of another JV/ Consortium firm in the same tender.

8.16.2.4. The tender form shall be purchased and submitted only in the name of JV/ Consortium firm and not in the name of any constituent member.

8.16.2.5.The Bid should contain the information required for each member of the JV/ Consortium;

8.16.2.6.Joint Venture/ Consortium is allowed with the condition that the equity of lead partner shall be at least 76%

8.16.2.7.Equity for non-lead members shall not be Less than 20% and not more than 24%

8.16.2.8.Once the tender is submitted, the MOU shall not be modified/ altered/terminated during the validity of the tender. In case the bidder fails to observe/comply with this stipulation, the full Earnest Money Deposit(EMD) shall be liable to be forfeited.

8.16.2.9.The Bid should include a detailed description of the roles and responsibilities of individual members, particularly with reference to financial, technical and/or other obligations;

8.16.2.10.Members of the JV/ Consortium shall enter into a binding Joint Bidding Agreement, for the purpose of submitting a Bid. The Joint Bidding Agreement, to be submitted shall, inter alia:

8.16.2.10.1.Convey the intent for the purpose of domiciling the Project and no other purpose, with shareholding/ commitments in accordance with this tender, which would enter into the Agreement and subsequently perform all the obligations in terms of the Agreement, in case the Project is awarded to the JV.

8.16.2.10.2.Clearly outline the proposed roles and responsibilities, if any, of each member;

8.16.2.10.3.Subject to approval from the Lenders and the Authority, after the trial run period has finished, non-lead Member of the JV/ Consortium can exit the JV, subject to the approval of the Lead Members.

8.16.2.10.4.Include a statement to the effect that all members of the JV/ Consortium shall be liable jointly and severally for all obligations of the RFP in relation to the Project until the Financial Closure of the Project is achieved in accordance with the agreement; and

8.16.2.10.5.Except as provided under this document and the Bidding Documents, there shall not be any amendment to the Joint Bidding Agreement without the prior written consent of the Authority

8.16.2.10.6.any entity which has been barred by the Central/State Government, or any entity controlled by it, from participating in

any project, and the bar subsists as on the date of the Bid, would not be eligible to submit a Bid either individually or a member of a JV/ Consortium.

8.16.2.10.7.A Bidder including any JV Member or Associate should, in the last 5 (five) years, have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Bidder, JV Member or Associate, as the case may be, nor has been expelled from any project or contract by any public entity nor have had any contract terminated any public entity for breach by such Bidder, JV/ Consortium or Associate.

8.16.2.10.8.The Financial capability of Lead member (76% shareholding) will be considered for Turnover/ Net worth in the Pre-Qualification/Technical Evaluation.

9. General Contract Conditions

9.1. Standards of performance

The Successful Bidder shall deliver the services and carry out its obligations under the contract with due diligence and efficiency in accordance with generally accepted professional standards and practices. The Successful Bidder shall always act in respect of any matter relating to this contract as faithful Successful Bidder to the Purchaser. The Successful Bidder shall always support and safeguard the legitimate interests of the Purchaser, in any dealings with a third party or beneficiaries. The Successful Bidder shall conform to the standards laid down in the RFP document in totality.

9.2. Confidentiality

9.2.1. Confidential information shall mean and include any and all confidential or proprietary information furnished, in whatever form or medium, or disclosed verbally or otherwise by the Successful Bidder and/ or the Purchaser to each other including, but not limited to, the services, plans, financial data and personnel statistics, whether or not marked as confidential or proprietary by the parties.

9.2.2. The Successful Bidder shall ensure that while providing services, all the details and information exchanged is kept confidential.

9.2.3. During the execution of the project except with the prior written consent of the Purchaser, the Successful Bidder or its personnel shall not at any time communicate to any person or entity any confidential information acquired in the course of the contract.

9.2.4. The Successful Bidder will be required to take appropriate actions with respect to its personnel to ensure that the obligations of non-use & non-

disclosure of confidential information are fully satisfied. In case of failure, the Purchaser has right to take legal action against the Successful Bidder.

9.3. Termination of Contract for default

9.3.1. The Purchaser without prejudice to any other remedy for breach of Contract, by a written notice of not less than 30 (Thirty) days sent to the Successful Bidder may terminate the Contract/ blacklist in whole or in part for any of the following reasons:

9.3.1.1. If the Successful Bidder fails to deliver and perform any or all the Services within the period(s) specified in the Contract, or within any extension thereof granted by the Purchaser; or

9.3.1.2. If the Successful Bidder fails to bid or respond for three consecutive bids given by the purchaser without assigning any satisfactory reason to purchaser in writing or on email; or

9.3.1.3. If the Successful Bidder fails to perform any other obligation(s) under the contract; or

9.3.1.4. Laxity in adherence to standards laid down by the Purchaser; or

9.3.1.5. Discrepancies/deviations in the agreed processes and/or Services; or

9.3.1.6. Violations of terms and conditions stipulated in this RFP.

9.3.2. In the event the Purchaser terminates the Contract in whole or in part for the breaches attributable to the Successful Bidder, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Services similar to those undelivered, and the respective Successful Bidder shall be liable to the Purchaser for any increase in cost for such similar services. However, the Successful Bidder shall continue performance of the Contract to the extent not terminated.

9.3.3. The Purchaser right to terminate the Contract will be in addition to the penalties/ liquidated damages and other actions as deemed fit.

9.3.4. In the event of failure of the Successful Bidder to render the Services or in the event of termination of agreement or expiry of term or otherwise, without prejudice to any other right, the Purchaser at its sole discretion may make alternate arrangement for getting the services contracted with another Successful Bidder. In such case, the Purchaser shall give prior notice to the existing Successful Bidder. The existing Successful Bidder shall continue to provide services as per the terms of contract until a 'New Service Provider'/ Successful Bidder completely takes over the work. During the transition phase, the existing Successful Bidder shall render

all reasonable assistance to the new Successful Bidder within such period prescribed by the Purchaser, at no extra cost, for ensuring smooth switch over and continuity of services. If existing Successful Bidder is in breach of this obligation, they shall be liable for paying a penalty as provided in Penalty Section of this document, which may be settled from the payment of invoices or PBG for the contracted period or by invocation of Performance Bank Guarantee.

9.4. Termination of contract for Convenience

The Purchaser may at any time terminate the Contract for any reason by giving 1 month written notice to the Successful Bidder, a notice of termination that refers to this clause.

Upon receipt of the notice of termination under this clause, the Successful Bidder shall either as soon as reasonably practical or upon the date specified in the notice of termination cease all further work, except for such work as the Purchaser may specify in the notice of termination for the sole purpose of protecting that part of the services already executed, or any work required to leave the site in a clean and safe condition. In such case provisions under Exit Management clause of this RFP shall apply.

9.5. Termination of contract for Insolvency, Dissolution, etc.

Purchaser may at any time terminate the Contract by giving written notice of 30 days to the Successful Bidder; if the concerned "Successful Bidder" becomes bankrupt or otherwise insolvent or in case of dissolution of firm/company or winding up of firm/company. In this event, termination will be without compensation to the "Successful Bidder" provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to purchaser. In such case provisions under Exit Management clause of this RFP shall apply.

9.6. Force Majeure

9.6.1. The PBG of the Successful Bidder shall not be forfeited or the contract shall not be terminated for default if and to the extent that delays in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

9.6.2. For purposes of this clause, "Force Majeure" means an event beyond the control of the Successful Bidder and not involving the Successful Bidder's fault or negligence, and not foreseeable. Such events may include, but are not restricted to, wars or revolutions, riot or commotion, earthquake, fires due to natural calamity, floods, pandemic, endemic, epidemics and quarantine restrictions.

9.6.3. If a Force Majeure situation arises, the Successful Bidder shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by Purchaser in writing, the Successful Bidder shall continue to perform

its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

9.7. Resolution of disputes

If any dispute arises between parties, then these would be resolved in following ways:

9.7.1. Amicable Settlement: Either party of the contract may send a written notice of dispute to the other party. The party receiving the notice of dispute will consider the Notice and respond to it in writing within 30 days after receipt. If that party fails to respond within 30 days, or the dispute cannot be amicably settled within 60 days following the response of that party, then the second Sub-clause of resolution of disputes shall become applicable.

9.7.2. Arbitration: In case dispute arising between the Purchaser and the Successful Bidder, which has not been settled amicably, the Successful Bidder can request the Purchaser to refer the dispute for Arbitration under Arbitration and Conciliation Act, 1996 and amendments thereof. Such disputes shall be referred to the Arbitrator which shall be "Authority". The Indian Arbitration and Conciliation Act, 1996 and any statutory modification or re-enactment thereof, shall apply to these arbitration proceedings. The decision of the arbitrator shall be final and binding upon both the parties. All arbitration awards shall be in writing and shall state the reasons for the award. The expenses of the arbitration as determined by the arbitrator shall be borne equally by the Purchaser and the Successful Bidder. However, the expenses incurred by each party in connection with the preparation, presentation and litigation shall be borne by the party itself.

9.8. Legal Jurisdiction

All legal disputes between the parties shall be subject to the jurisdiction of the Courts situated in Chandigarh only.

9.9. Amendment to the contract

The contract signed thereof can be amended by mutual consent of both the parties, provided such amendment is made in writing and signed by both the parties.

9.10. Contract period

This selection of Successful Bidder shall be valid for a period of 3 years initially from the date of signing of contract. If the services of the Successful Bidder are found satisfactory, contract may be extended by the Purchaser for an additional period of maximum 2 years (1 year at a time) by mutual consent on the same terms & conditions.

9.11. Exit Management

9.11.1. Transfer of Assets

This clause is valid till the State Wide Roll out is formally done after which the assets have to be transferred to the Purchaser.

9.11.1.1. The selected Bidder shall be entitled to use the Assets for the duration of the exit management period which shall be six months from the date of expiry or notice of termination of the Agreement.

9.11.1.2. Purchaser during the Project Implementation Phase and Operation and Management Phase is entitled to serve notice in writing on the selected Bidder at any time during the exit management period as detailed hereinabove requiring the selected Bidder to provide the Purchaser or its nominated agencies with a complete and up to date list of the Assets within 30 days of such notice. Upon service of a notice as mentioned in point above, the following provisions shall apply:

9.11.1.2.1. All risk in and title to the Assets to be transferred to Purchaser on the last day of the exit management period.

9.11.1.2.2. That on the expiry of this clause, the selected Bidder and any individual assigned for the performance of the services under this clause must handover or cause to be handed over all Confidential Information and all other related materials in its possession, including all the hardware supplied by selected Bidder under this clause to the Purchaser.

9.11.1.2.3. That the products and technology delivered to the Purchaser during the contract term or on expiry of the contract duration must not be sold or re-used or copied or transferred by selected Bidder to other locations apart from the locations mentioned in the RFP without prior written notice and approval of the Purchaser. All hardware supplied on upfront payment basis, software & documents etc. used by selected Bidder for the Purchaser shall be the legal properties of the Purchaser.

9.11.2. Cooperation and Provision of Information

9.11.2.1. During the exit management period:

9.11.2.1.1. The selected Bidder will allow Purchaser or its nominated agencies access to information reasonably required to define the then current mode of operation associated with the provision of the services to enable it to assess the existing services being delivered;

9.11.2.1.2. Promptly on reasonable request by the Purchaser or its nominated agencies, the selected Bidder shall provide access to and copies of all information held or controlled by it which it have prepared or maintained in accordance with the contract , the Project Implementation, the Operation and Management SLA and SOWs (Scope of Work) relating to any material aspect of the services (whether provided by the selected Bidder). Purchaser or its nominated agencies shall be entitled to copy all such information. Such information shall include details pertaining to the services rendered and other performance data. The selected Bidder shall permit the Purchaser or its nominated agencies and/or any replacement agency to have reasonable access to its employees and facilities as reasonably required to understand the methods of delivery of the services employed by the selected Bidder and to assist appropriate knowledge transfer.

9.11.3. Confidential Information, Security and Data

9.11.3.1. The selected Bidder will promptly on the commencement of the exit management period supply to the Purchaser or its nominated agencies the following:

- 9.11.3.1.1. Information relating to the current services rendered and customer satisfaction surveys and performance data relating to the performance in relation to the services; and
- 9.11.3.1.2. Documentation relating to Intellectual Property Rights; and
- 9.11.3.1.3. Purchaser data and confidential information; and
- 9.11.3.1.4. All current and updated Purchaser's data as is reasonably required for purposes of the Client or its nominated agencies transitioning the services to its replacement agency in a readily available format; and
- 9.11.3.1.5. All other information (including but not limited to documents, records and agreements) relating to the services reasonably necessary to enable Purchaser or its nominated agencies, or its replacement agency to carry out due diligence in order to transition the provision of the Services to the Client or its nominated agencies, or its replacement agency (as the case may be).

9.11.3.2. Before the expiry of the exit management period, the selected Bidder shall deliver to the Purchaser or its nominated agencies all new or up-dated materials from the categories set out in point (a) above and shall

not retain any copies thereof, except that the selected Bidder shall be permitted to retain one copy of such materials for archival purposes only.

9.11.3.3. Before the expiry of the exit management period, unless otherwise provided under the contract, Purchaser or its nominated agencies shall deliver to the selected Bidder all forms of selected Bidder’s confidential information which is in the possession or control of Purchaser or its nominated agencies or its users.

10. SLA and Penalties

S.N.	Activity	Target / Service Level	Penalty for delays beyond target level
	Submission of PBG	Within 2 weeks of the release of work order	Rs. 1,000/- per day with a maximum capping of Rs. 20,000/- In case Penalty reaches the maximum capping, EMD amount
	Signing of contract	10 days from submission of PBG	Rs. 1,000/- per day with a maximum capping of Rs.

S.N.	Activity	Target / Service Level	Penalty for delays beyond target level
	<p>Delay in delivery of the services/ Survey/ providing hardware</p>	<p>If the Successful Bidder fails to deliver the services within the delivery period and any extension thereof, unless such failure is due to force majeure situation or due to Purchaser default, liquidated damages (LD) shall be imposed by Purchaser on the successful Bidder. However, imposition of LD shall be without prejudice to the other remedies available to Purchaser under the terms of the Service Order / Agreement.</p>	<p>.5% (Half per cent) of the value of the Contract value (excluding taxes and duties) in respect of which the delay in delivery has occurred for each month or part thereof of delay, subject to a maximum value of 10% of the value of the Contract value (excluding taxes and duties). GST on Penalty amount shall be recovered in addition to the LD amount.</p> <p>Note: The delivery period shall start from the date of acceptance of the Letter of Intent or seven days from the date of issue of Agreement ,</p>

S.N.	Activity	Target / Service Level	Penalty for delays beyond target level
	Delay in deployment of manpower	The Successful Bidder shall ensure to deploy the manpower as per the timelines defined in the Scope of Work section of this RFP.	<p>Rs. 1,000/- per day with a maximum capping of Rs. 30,000/- in first instance after which Penalty shall be doubled and be calculated at Rs. 3,000/- per day with a maximum capping of Rs. 1,00,000/- .</p> <p>In case manpower is still not deployed as defined in the scope of work, Authority reserves the right to take disciplinary action/ increase the penalty or forfeit the</p>
	Replacement of Manpower without serving the Notice Period	The Successful Bidder shall ensure that the manpower deployed shall only be replaced after the respective manpower serves a proper notice period as defined in the Scope of Work section of this RFP; failure to which	Rs. 10,000/- per Instance per manpower
	Absence of Manpower during currency of the contract without prior approval from the Purchaser	The Successful Bidder shall ensure that the manpower deployed is present all the time as per the terms and conditions of the RFP. In case of any leave, it should be properly informed and approved by the respective Nodal officer of that District.	Rs. 5,000/- per instance per day

Note: The maximum penalty applicable on the Successful Bidder shall not exceed 10% of the total contract value. In case if the total penalty applicable on the Successful Bidder exceeds 10% of the Total Contract Value, the Purchaser reserves the right to terminate the Contract with Successful Bidder.

11. Project timelines and Payment terms

11.1. Timelines

Sl. No.	Project Activity	Deliverables	Timelines
	Site Surveys and submission of DPR	DPR	T+21 days T is the date of signing of the contract
	Receiving of the material at all the sites	As per material approved by the Purchaser based on the DPR	T + 3 months (T1)
	Deployment of the Resources at District and HQ Level as per the Scope of the work	As per Scope of Work and as approved by Purchaser based on the DPR	T1 + 7 days
	Training of Officials	Training of all identified	Within 15 days of deployment of system
	Operation, Maintenance & Warranty support	As per Scope of Work	For 36 Months (3 years) starting from date of installation & commissioning report

***T: Date of signing of contract**

11.2. Payment terms

Sl. No.	Project Activity	Deliverables	Timelines	Amount Payable
	Site Survey and preparation of the DPR	Detailed Project Report	T + 21 days	One time
	Setup, Installation and commissioning of the Infrastructure at the sites finalized/ approved by the Purchaser based on the DPR submission	Complete Infrastructure	T + 3 Months (T1)	80% of the total cost of the components

	Manpower Deployment	As per Scope of Work	T1 + 7 days	Monthly Invoice
	Software and mobile application development	As per Scope of Work	T + 3 Months	80% of the Total Cost quoted for the software and the mobile development
	Training of Officials	Training of all identified officials	Within 15 days of deployment	Nil
	Operation, Maintenance & Warranty support	As per Scope of Work	For 36 Months (3 year) starting from sign off date of installation & commissioning report	Invoicing will be on a monthly basis Note: Pending payment shall be divided into 3 years on Pro rata

Note: All the payments shall be released post approval from the Competent Authority of the Department.

11.2.1. Payments to the Successful Bidder shall be released against submission of following documents;

11.2.1.1. The Successful Bidder shall be required to furnish any other document required as may be required by Purchaser towards the processing of the payment.

11.2.1.2. Payments of the Successful Bidder shall be subject to the application of liquidated damages and/or SLA penalties (if any applicable) as per the RFP document for that month.

11.2.1.3. All payments shall be made through NEFT/ RTGS only, subject to Monthly inspection by the Purchaser as per the guidelines set out in this RFP

11.2.2. Purchaser may withhold the payment to be done to the Successful Bidder due to non-performance/non-delivery of the service as mentioned in this RFP. Decision of Authority in this regard shall be final.

11.2.3. Payments shall be subjected to deductions of any amount for which the Successful Bidder is liable under the contract. Further, all payments shall be made subject to deduction of TDS (Tax Deduction at Source) at the rate applicable from time to time as per the Income-Tax Act, 1961 and any other applicable deductions/ taxes.

11.2.4. The decision of the Purchaser pertaining to the quality and quantity of works / services performed by the Successful Bidder shall be final and acceptable to the Successful Bidder besides being binding. It shall be the responsibility of the Successful Bidder to rectify the deficiencies so pointed out without any extra payment. In the event of default by Successful Bidder, the Purchaser reserves the right to get the concerned work / services fixed at its own level at the cost, risk and responsibility of the Successful Bidder after giving a notice in regard thereto in writing and expenditure so incurred by the Purchaser will be recovered from the invoices of the Successful Bidder or from PBG, as it may deem fit.

11.2.5. All taxes, duties and any statutory levies etc. payable by the Successful Bidder during the contract tenure shall be the sole responsibility of the Successful Bidder.

12. Annexures

12.1.List of Identified Sites

List of identified sites for Road Sensors		
S.No	District	Locations
1	Pathankot	Dalhousie-Pathankot road (Haryial zone)
2		Madhopur-Pathankot Highway (Sujanpur T-Point)
3		Pathankot-Amritsar Highway (Taragarh Maur)
4		Pathankot-Amritsar Highway (Beant college of Engineering)
5		Pathankot-Amritsar Highway (Dinanagar bypass near Gharota maur)
6		Pathankot-Amritsar Highway (Batala bypass)
7		Pathankot-Jalandhar Highway (Chakki river Bank)
1	Ropar	Ropar-Morinda Road
2		Ropar-Chamkaur Sahib road (near toll plaza)
3		Chamkaur sahib to Morinda road
4		Ropar to Noorpur bedi road upto Jhaz chownk
5		Ropar to Anandpur Nangal road
6		Anandpur sahib to Jhaz Chownk
7		Jhaz chownl to Khanpur khui
8		Ropar to Chandigarh highway
9		Bhadal college road to binrakh parkhali road

12.2. Format for Manpower on payroll

On company Letter head

Date: XX/XX/XXXX

To,

Chief Engineer,
Department of Water Resources, Mines & Geology,
Hydel Building, Sector 18, Madhya Marg
Chandigarh

Subject: Declaration for staff on company payroll

Dear Sir/Madam,

I/We hereby declare that as on date, (Name of the firm/company) consists of <number> employees on company payroll for last 6 months. Month wise Summary Details for the same is attached.

Sincerely Yours,

(Signature of Authorized Signatory)

Name:

Title:

12.3. Self-Declaration

(On company letter head)

Date: XX/XX/XXXX

To,

Chief Engineer,
Department of Water Resources, Mines & Geology,
Hydel Building, Sector 18, Madhya Marg
Chandigarh

Subject: Self Declaration

Dear Sir,

I/We hereby declare that as of date, (Name of the firm/company)

1. Has not been ever under a declaration of ineligibility for corrupt or fraudulent practices and should not be blacklisted by any State Govt. / Central Govt./ Board/ Corporations and Government Societies / PSU for any reason.
2. Has not been ever insolvent, in receivership, bankrupt or being wound up, not have its affairs administered by court or judicial officer, not have its business activities suspended and must not be the subject of legal proceedings for any of the foregoing reasons.
3. And our directors, partners and officers not have been convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications within a period of three years as on date of submission of bid or not have been otherwise disqualified pursuant to debarment proceedings.

Sincerely Yours,

(Signature of Authorized Signatory)

Name:

Title:

12.4. Letter of Authorization
(On the letterhead of the entity)

To,

Chief Engineer,
Department of Water Resources, Mines & Geology,
Hydel Building, Sector 18, Madhya Marg
Chandigarh

Dear Ma'am/ Sir,

Sub: Letter of Authorization

<Name> _____ <Designation> _____ is hereby authorized to sign & stamped relevant documents on behalf of the <Company> in dealing with this RFP Document published vide No. _____ dated _____. He is also authorized to attend meetings and submit Technical and Commercial information as may be required by you in the course of processing above said tender.

Thanking you,

Authorized Signatory (s) of the Company <Name> <Designation> <Seal>	Signature of the person authorized by The Successful Bidder <Name> <Designation> <Seal>
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12.5. Financial Bids Format

Name of Work: Supply, Installation, Operation & Maintenance of Fully Smart Solution (RFID, FastTag, Sensors, Cameras, Boom Barriers etc.) for real time Mining Surveillance

Contract No:

Dated:

**Name of the Bidder/
Bidding Firm /
Company :**

- 1.
- 2.
- 3.
- 4.

Financial Bid					
S.No	Description	No of Unit	Unit Price	Taxes	Total Price including Taxes
1	Supply, installation and commissioning of Gantry structure (MS) as per MORTH guidelines including civil work for gantry structure, IP54 cabinets and associated equipment mounting bases	1			
2	ANPR Camera	1			
3	RFID reader	1			
4	RFID TAG	1			
5	Varifocal IP Camera	1			
6	Boom Barrier	1			
7	GI pole for PTZ camera 6m height	1			
8	PTZ Camera with IT illuminator	1			
9	Keyboard joystick to control PTZ camera	1			
10	Bullet Camera (3rd eye camera)	1			
11	GI pole for bullet camera 15m height	1			
12	Lightening and eartheining search protection	1			
13	UPS 2 KVA with battery backup 2-4 hrs	1			
14	LED TV 55"	1			
15	Video Management Software	1			
16	Workstation Desktop	1			
17	Laptop	1			
18	Portable USB Hardisk 10 TB	1			
19	Internet Lease Line (yearly)	1			
20	Project Coordinator cost	1			
21	Technical Support Executive	1			
22	Software Engineer	1			
23	Drone pilot	1			
24	RFID handheld machines	1			
25	Software (web) and Mobile application for complete project	1			
26	Hosting ChargesMEITY empanlled cloud server (per month)	1			
27	Cabling and wiring CAP6 and other with conduits and trunk wires (per meter)	1			

28	Bluetooth printer with paper roll with Mobile application integration for onsite e notice generation	1			
29	Heavy Conduiting 1"	1			
30	Heavy Conduiting 2"	1			
31	Bend for conduiting 1"	1			
32	Bend for conduiting 2"	1			
33	Purchase of Drone device with software for monitoring and surveillance	1			
34	Purchase of Drone device with software for monitoring and surveillance and volumetric analysis	1			
35	Drone Mapping survey including manpower, analysis, report generation and MIS reporting (per km)	1			
36	Drone Mapping survey including manpower, analysis, report generation and MIS reporting (per hour)	1			
	Total				

1	Project Operational & Annual Maintenance Support from 2nd Year Onwards	Cost (In Rs. Incl. taxes)
1.1	Project Annual Maintenance Support for 2nd Year (One Year)	1
1.2	Project Annual Maintenance Support for 3rd Year (One Year)	1
1.3	Project Annual Maintenance Support for 4th Year (One Year)	1
1.4	Project Annual Maintenance Support for 5th Year (One Year)	1

The price quoted above is exclusive of GST/Service Tax and all other applicable taxes and charges. The taxes shall be paid as per actuals by the Purchaser.

I/We hereby agree to abide by all the terms and conditions laid down in the tender documents.

Place

Date

Signature of the applicant

Name

Designation

Address

Phone

Email

12.6. Format for Performance Bank Guarantee

On company Letter head

Date: XX/XX/XXXX

To,

Chief Engineer,
Department of Water Resources, Mines & Geology,
Hydel Building, Sector 18, Madhya Marg
Chandigarh

Subject: Performance Bank Guarantee

Whereas, <> (hereinafter called “the Bidder”) has undertaken, in pursuance of contract no. dated. to provide Implementation services for <> to Purchaser (hereinafter called “the Purchaser”)

And whereas it has been stipulated by in the said contract that the Bidder shall furnish you with a bank guarantee by a recognized bank for the sum specified therein as security for compliance with its obligations in accordance with the contract;

And whereas we, a banking company incorporated and having its head /registered office at <Address of the Registered Office> and having one of its office at <Address of the local Office> have agreed to give the Purchaser such a bank guarantee.

Now, therefore, we hereby affirm that we are guarantors and responsible to you, on behalf of the Bidder, up to a total of Rs. (Rupees only) and we undertake to pay you, upon your first written demand declaring the Bidder to be in default under the contract and without cavil or argument, any sum or sums within the limits of Rs. (Rupees only) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Bidder before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the Bidder shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This Guarantee shall be valid until <>)

Notwithstanding anything contained herein:

- I. Our liability under this bank guarantee shall not exceed Rs. (Rupees only).
- II. This bank guarantee shall be valid up to)
- III. It is condition of our liability for payment of the guaranteed amount or any part thereof arising under this bank guarantee that we receive a valid written claim or demand for payment under this bank guarantee on or before) failing which our liability under the guarantee will automatically cease.

(Authorized Signatory of the Bank)

Seal:

Date

12.7. Hardware and Manpower Specifications

12.7.1. Specifications of the 4 MP PTZ Camera :

S. No	Parameter / requireme	Minimum Specifications/requirements	Compliance (Yes / No)
1.	I m a g e Sensor	1/3.0" Progressive Scan CMOS or better	
2.	Lens	Auto-focus, 4.4–120mm (corresponding to 25x) or better	
3.	Operating Frequency	Min 50 Hz	
4.	Day/ Night Operation	Automatic with IR Cut Filter	
5.	Minimum Illumination	Colour: 0.05 Lux B/W": 0.01 Lux or better	
6.	high-speed pan - tilt functionalit	360° endless pan range and a 180° tilt range	
7.	O p t i c a l Zoom	30x Minimum & 12x Digital Zoom, Total 360x Zoom or better	
8.	Lens	4.5-129 mm or better	
9.	I m a g e Resolution	2592 x 1520 or better	
10.	Compressio n	H.265 Baseline, Main and High Profiles, Motion JPEG	
11.	Frame Rate and Bit Rate	25 FPS at all resolutions with Controllable Bit Rate/ Bandwidth and Frame Rate. In CBR Priority to be defined for Video quality or frame rate and the bandwidth upper limit shall not exceed the defined limit	
12.	GOP/ GOV	Ability to change the GOP/GOV / I-frame Length to optimize t the GOP/ GOV bandwidth and storage	
13.	V i d e o Streams	Minimum 3 Streams @ 1920x1080, H265, 25 fps	

14	M o t i o n Detection	Yes, built in with multiple configurable areas in the video stream	
15	Electronic Shutter	1/10000 s to 1 s or better	
16	Electronic Exposure & Control	Automatic/ Manual	
17	W i d e D y n a m i c Range	90 dB or Better	
18	B a c k l i g h t C o m p e n s a t i o n	Required	
19	E l e c t r o n i c I m a g e S t a b i l i z a t i o n	Required	
20	P r i v a c y M a s k s	Minimum 8 configurable 3D zones or better	
21	P r e - s e t P o s i t i o n s	Minimum 256 or better	
22	Image Flip	Yes Automatic	
23	Guard Tour	Minimum 2 Nos	
24	B u i l t I n H e a t e r & F A N	Required	
25	T e m p e r a t u r e C o n t r o l	Required	
26	Alarm	Min. 2 Alarm Input / Output ports or better	
27	O n - s c r e e n d i r e c t i o n a l i n d i c a t o r	Required	

28	Compression	The camera shall for its H.265 implementation support scene adaptive bitrate control, in order to lowering bandwidth and storage requirements. The camera shall support automatic dynamic GOP for optimal bitrate utilization. The camera shall support automatic dynamic ROI to reduce bitrate in un-prioritized	
29	Event Triggers	The camera shall be able to send and received trigger directly from any other camera without interface of VMS. Motion Detection, Audio Detection, Network, Temperature, Manual Trigger, Virtual Inputs, Alarm Inputs, PTZ: Error, Moving, Pre-set Reached, Ready, Storage Disruption, Storage Recording, System Ready, User schedule	
30	Event Actions	File upload via FTP, SFTP, HTTP and email Notification via email, HTTP and TCP Pre- and post-alarm video buffering, External output activation, PTZ pre-set, guard tour, Video recording to edge storage, Day/ night mode, Overlay text	
31	Edge Storage	Built in SD card slot with support up to 128 GB with Class 10 speed	
32	Storage	The Cameras shall have the feature to directly record the videos/ images onto NAS	
33	Protocols	At least IP, HTTP,HTTPS, SSL/TLS, TCP, ICMP, SNMPv1/v2c/v3, RTSP, RTP, UDP, IGMP, RTCP, SMTP, FTP, DHCP, UPnP, ARP, DNS, DynDNS, NTP. IPv4 & IPv6	
34	Text Overlay	Date & time, and a customer-specific text, camera name, graphical image etc.	
35	Security	Password protection, HTTPS encryption, IEEE 802.1Xa network access control, Digest / user	

36	Firmware Upgrade	The firmware upgrade shall be done through web interface, The firmware shall be available free of cost	
37	Logs	The camera shall provide Minimum 200 logs of latest connections, access attempts, users connected, changes in the cameras etc.	
38	Interface	RJ 45, 100 Base TX	
39	Enclosure	Die Cast Aluminium, IP66 rated	
40	Mount	Wall / Pole Mount	
41	Power requirements	PE IEEE 802.3af / POE + IEEE 802.3at compliant	
42	Operating Temperature	-10 °C to 55 °C or better	
43	Operating Humidity	20-85% RH or better	
44	Certification	UL, CE, FCC	
45	Application Programmers Interface	The interface shall be available for integration with 3rd party analytics	
46	Onvif	S & G required	
47	Warranty	Min 3 Years OEM warranty	
48	Defog	Camera should support Optical Defogging & Image Stabilizing	

12.7.2. Specifications for Pole 6 Meter GI Pole for mounting of camera

S.No	Feature	Technical Specifications	Compliance (Yes/No)
1.	Specifications	Pole 6 Meter 3 LEG fabricated using GI Pipe, GI Bolt for the tower as well GI Bolt to be grout in foundation. Base 2 section should be fabricated using 2” GI ISI Pipe and leg to leg distance of 3 feet and TMT of 16MM. Top 3 section should be fabricated using 1.5” GI Pipe and TMT of 12 MM. Mast should be heavy duty as camera, solar panels, batteries and other accessories to be mounted on same tower.	

12.7.3. Specifications for MS Gantry structure for mounting cameras, RFID (CheckGates)

S.No	Feature	Technical Specifications	Compliance (Yes/No)
1.	Specifications	<p>A. Mounting structure shall use minimum 6 Mtrs. high MS Gantry or suitable structure with 5.5 mtr. Minimum vertical clearance under the VaMS sign from the Road surface. MSI shall be responsible to carry out the site survey to assess site requirement including pole height/suitable structure for VaMS installation at various places in the city.</p> <p>B. The mounting shall be capable of withstanding roadside vibrations at site of installation.</p> <p>C. It shall be provided with suitable walkway for maintenance access.</p> <p>D. The sides interior and rear of enclosures shall be provided in maintenance free natural aluminium finish. All enclosure shall be flat and wipe clean.</p> <p>E. Rugged locking mechanism should be provided for the onsite enclosures and cabinets F. For Structural safety, the successful bidder has to provide structural safety certificate from qualified structural engineers approved/ certified by Govt. Agency.</p>	

12.7.4. Specifications of Lightning protection and Earthing

S.No	Feature	Technical Specifications	Compliance (Yes / No)
1.	Specification s	ESD Type	
2.		High quality atleast 50 sqmm copper cable	
3.		Lighting protector: as per IEEE specification with amendments	
4.		ESE Lighting Arrester : Suitable for 100 meter Radius Protection on ground to be mounted on the top of the mast	
5.		3 feet Chemical Earthing with Required Earthing Pit covering	
6.	C o p p e r Cable	50 SQMM Copper Cable to be used with suitable Pipe for connecting ESD to Earthing.	

12.7.5. Specifications for UPS :

Sr. No	Feature	Specification	Compliance (Yes/No)
1	Certifications	ISO 9001 Certified	
2		ISO 14001 Certified	
3	Technology	IGBT Based PWM Technology Microprocessor controlled Digital Design Double Conversion True on line UPS with inbuilt Isolation Transformer	
4	Overall Efficiency	>=93%	
5	Input Voltage & Range	230Vac (1Ph+ N) Range 160V-280V AC (1-Phase) @ 100% load	
6	Input Frequency Range	45-55 Hz	
7	Input Phase	Single Phase	
8	Input power factor	0.99 @100% load. ,	
9	Output voltage	220VAC	
10	Voltage Regulation	+/-1%	
11	Frequency	50Hz +/-0.1 Hz	
12	Harmonic Distortion (THD)	<=2%THD (linear load)	
13	Output Waveform	Pure Sinewave	
14	Crest Factor	3:1(max.)	
15	Output Power factor	0.8	

16	B a t t e r y	Min 02 hour battery backup	
17	B a c k u p B a t t e r y Type	Sealed Lead Maintenance Free VRLA type or better	
18	DC Bus Voltage	192V	
19	Charging Current	8Amp Minimum	
20	Battery Capacity(VAH)	Min. 12480VAH	
21	Transfer time	AC mode to battery & Inverter to bypass=0	
22	B a t t e r y Enclosure	Skeleton Rack Suitable to Mount 16nos 65ah Batteries with Battery Interlinks.	
23	Battery Brands	Reputed & Reliable brands like Exide/ Rocket/Quanta	
24	G e n e r a l O p e r a t i n g temperature	0 to 95%RH @ 0.50 degree C(non- condensing)	
25	Noise Level	<55 db@ 1 meter	
26	Alarms & Indications	All Necessary Alarms & Indications essentials for performance monitoring of UPS like mains fail, low battery, overload & fault detection etc.	
27	Compatibility	UPS to be compatible with DG Set supply	
28	Communication interface	RS 232/USB port for software interface, SNMP interface Support	
29	Certification	For Safety & EMC as per international standard i.e. EMC Standard- EN50091-2, !MC, CE, ROHS, BIS	
30	Transients	All Critical source and sensitive :loads should have protection from Transients	

31	Earthing	Separate Chemical earthing to be done by bidder	
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12.7.6. Specifications of LED TV with controller:

Sr.No	Features	Minimum Technical Specifications	Compliance (Yes/ No)
1	Screen Size	55" LED TV panel with suitable HDMI Cable	
2	Panel Technology	IPS	
3	Back Light Type	Direct	
4	Aspect Ratio	16:09	
5	Native Resolution	1,920 X 1,080 (FHD)	
6	Brightness	500nit or Higher	
7	Dynamic Contrast Ratio	500000:1	
8	Viewing Angle(H x V)	178 X 178	
9	R e s p o n s e Time	8 ms (G to G) or lesser	
10	Life time(Typ.)	50,000 Hrs	
11	Operation Hours	24 x 7 Hrs	
12	Orientation	Portrait & Landscape	
13	Inputs ports	HDMI (2), DP-1,DVI-D-1, USB 2.0 Type A, Audio	
14	Output ports	RJ45 (LAN), IR In, RS232C In/Out	
15	Power Supply	100-240V~, 50/60Hz	
16	Power Consumption	160/180 Watt	
17	Certification	Safety-CB/NRTL, EMC-FCC Class A	

18	Video Decoding	H.265+/ H.265/ H.264/ MPEG4/ MPEG2/ MJPEG video decoding	
19		Ultra-high decoding ability, up to 32 Megapixels	
20		2ch HDMI and 2ch DVI-I input, supports 4K collection	
21		Supports 1/4/6/8/9/16/25/36 and free split	
22		Supports alarm, RS232, RS485	
23		Communication interface: 2 RJ45 Network Port	
24		USB: 3 (2 USB3.0, 1 USB2.0)	
25		Video Output: 18 Ch HDMI	
26		Video input: 2 HDMI, 2DVI	
27		Decoding Resolution: 32MP/12MP/8MP/6MP/5MP/4MP/3MP/1080P/720P/960H/ D1/HD1/2CIF/CIF/QCIF	

12.7.7. Specifications for Video Management Software

S.No.	M a i n Features	Parameters	Compliance (Yes / No)
1	E a s y Expansion	Easy performance upgrade through distributed hardware extension.	
		Easy multi-site management through cascading	
		Easy functionality upgrade via add-ons.	
2	H i g h Flexibility and Stability	Backup and restore database.	
		Supports hot standby for master server	
3	H i g h Compatibility	Network camera, network speed dome, Decoder, NVR, DVR, ANPR, Access Control Device, VDP, Alarm Controller etc.	
		Connects to third-party devices via standard ONVIF protocol.	
		SDK for third-party platform or mobile development	
4	M a i n Functions	Supports hot standby for master server	
		Supports Distributed Deployment	
		Supports LAN and WAN Deployment	
		Backup the Video from the edge storage like EVS,NVR,DVR etc by schedule	
		Backup the video from MDVR Wi-fi	
		Disk Quota : Group the Disk and cameras can be allocated to different disk groups	

5	Map	Google online map, Google offline map, raster map	
		Up to 8-level submap.	
		Configure the hot spots (camera, alarm input access control channel) and sub maps on the map.	
6	Video Wall/ LED	Display/hide the screen ID.	
		Supports screens combination. Bind the decoding channel with the corresponding screen.	
7	Face Database	Face Library management	
		Add Face one by one	
		Import face in batches	
		Set person type	
8	Vehicle Blacklist	Vehicle Blacklist management	
		Vehicle blacklist arming and disarming	
		Set start Time and end time for the Vehicle blacklist	
		Import and export vehicle blacklist	
9	Average Speed	Location configuration	
		Region configuration(Start location , end location,length ,minimum speed, max speed)	
10	Store Management	Import store layout picture,support multi- floor layout configuration	
		Configure people counting camera and people counting zone.	
		Configure the store location to get weather information	

11	V i d e o Intercom	Residence configuration : Set whether to enable Building No. and Unit no.	
		View, delete and freeze users of EVMS mobile for VDP.	
	B u s i n e s s Configuration		
	Organization Management	Achieve device group management via organization	
12	D e v i c e Management	Add devices via auto search, IP, Domain, IP Segment, auto register(for 3G, 4G, DHCP device). Manage devices such as network camera, network speed dome, NVR, DVR, access Control, Video Intercom, alarm Controller etc.	
		ONVIF protocol to add third-party devices to manage.	
		Change IP address of device.	
		Modify the added device password.	
13	R o l e and User Management	Manage the user Permissions by role(device permissions,role permissions)	
		User can be assigned with the roles to obtain the corresponding permissions.	
		User can be restricted by the MAC and expiry data.	
		Setting PTZ permissions for user	
		User can be locked.	
		Supports import domain user and assign roles to the user.	

14	Event Management	Alarm type: Device ,Video channel, audio detection, alarm input, IVS alarm, thermal ,vehicle blacklist, traffic violation, access control, face arming, emergency, entrance alarm, radar detection.	
		Alarm Scheme: All day template, Weekday template, Weekend template and custom template.	
		Alarm Priority: Low, Medium, High.	
		Linkage: record, snapshot, live video, alarm output, PTZ, video wall, E-mail, door, user.	
15	Storage	Supports edge storage and central storage	
		Central storage: Extend storage via iSCSI.	
		Server disk configuration for picture storage involving face detection and recognition, alarms and target detection. Create record plan by time template: All day template, weekday template and custom template.	
	System Maintenance		
16	Backup and Restore	Backup system data automatically (daily, week, month).	
		Backup system data manually.	
		Restore system database from server or local file.	
17	Log	System, admin, client log.	
		Search and export log.	
		Overview and detail system information.	

18	S y s t e m Dashboard	Running status: CPU, Storage, and bandwidth.	
		Service, device and user online information, device health report.	
		Event Information Statistics: total events and processed.	
		Source Information: Video Channel, alarm channel.	
19	S y s t e m configuration	Configuring the data storage duration of logs, alarms, POS, heatmap, face recognition, vehicle records and people counting data.	
		Time synchronization: Timed synchronization and device connection synchronization.	
		Email Server configuration.	
		Active directory configuration.	
		Support importing HTTPS certificate.	
20	S e r v i c e Management	Delete the slave server.	
		Enable and disable slave server. Manually or Automatically assign devices to different servers to balance the server load.	
21	C a s c a d i n g Management	Add subordinate site for cascading	
		Superior level can view the live video and video record of subordinate site.	
	S o f t w a r e Control Client		
		Displays device tree. Show/hide offline device.	
		Displays the device IP address or device name on the device tree	
		View real-time video.	

22	Live View	Common layout and custom layout	
		PTZ control, Electric focus, snapshot, Instant playback, Digital Zoom, Fisheye Dewarping.	
		Fisheye and speed dome smart tracking.	
		Smart tracking for panoramic camera.	
		Bullet camera and speed dome smart tracking.	
		Audio talk, Set alarm window.	
		Turn on/off the audio in live view	
		Turn on/off the IVS display in live view	
		Region of Interest: Divide one window into 4 or 6 parts, one shows whole image, others show the detail.	
		Display map in live View.	
		Save the current live view as a view.	
		Supports 4 Live View tabs.	
		Supports adding channel to favorite	
		Video tour according to device, org, favorite or view. Quickly switch to playback.	
		Adjust the display mode (full Screen and original)	
		Live Video quick positioning on Map.	
Basic Device Setting : Camera properties, video, audio.			
	Replay from the edge devices or central storage.		

23	Playback	Video filter: normal, motion, alarm, video loss, tampering video	
		Sync play, Digital zoom, Snapshot, Support smart search, support thumbnail search.	
		Reverse playback of central record.	
		Slow and fast forward(upto 64x and 1/64x)	
		Playback frame-by-frame	
		Lock or mark the important record for central storage.	
		Download the Video, support AVI, DAV, MP4, ASF format.	
		Decode the video to video wall.	
		Turn on/off the IVS display in playback.	
		Adjust the video image, Fisheye dewarping, Quickly switch to live view.	
		C o m m o n layout(1/4/6/8/9/13/16/20/25/36) and custom layout	
24	Download Center	Download record from central storage or device, supports avi, dav, mp4, asf.	
		Download record by timeline, files or tags.	
		Supports multi-task download.	
25	Event	Real-time and history alarm info. Alarm details: Live video, record and pictures from related camera, alarm source location on the map.	
		Acknowledge the alarm.	
		Arming control for alarm source.	

		Forward the alarm to relevant person.	
		Manual Send alarm e-mail to relevant person.	
		Handle Alarms and fill out the handling comments.	
		Search alarm by alarm source, alarm time, status, handle user, priority.	
		Search alarm and export the alarm list.	
26	Video Wall/ LED	Create different video wall tasks.	
		View the real-time video.	
		Decode the real-time video to wall	
		Manually/automatically decode to wall.	
		Manage the video wall split	
		Change the stream type of video channel.	
		Turning on/off Video.	
		Adding box, on/off screen and getting the video stream to control client.	
		Tour the video channel in one screen.	
		Schedule plan: Set the running task on timeline.	
		Tour plan: Loop different task, each task has duration time.	
		Supports Network keyboard to control video wall.	
27	Map	View the live video and playback on the map	
		· Zoom in and zoom out the map	

		<ul style="list-style-type: none"> · Decode the video to video wall quickly 	
		<ul style="list-style-type: none"> · Supports the area or length calculating for GIS map 	
		<ul style="list-style-type: none"> · Supports visible range and initial angle. 	
		Channel flash on map when alarm is occurring.	
28	Smart track	<ul style="list-style-type: none"> · Fisheye and speed dome 	
29	P e o p l e Counting	<ul style="list-style-type: none"> · People counting and heat map 	
		<ul style="list-style-type: none"> · Statistic the count of enter and exit 	
		<ul style="list-style-type: none"> · Search the people counting data via time 	
		<ul style="list-style-type: none"> · Generate the daily, weekly, monthly report. 	
		<ul style="list-style-type: none"> · Search the heat map 	
		<ul style="list-style-type: none"> · Export the people counting and heatmap data. 	
30	F a c e Recognition	<ul style="list-style-type: none"> · Automatically captures faces in the camera field of view 	
		<ul style="list-style-type: none"> · Real-time capture of the faces and display recognition details 	
		<ul style="list-style-type: none"> · Quick registration of unfamiliar faces into the database 	
		<ul style="list-style-type: none"> · Similar Face Search 	
		<ul style="list-style-type: none"> · Text Search 	
		<ul style="list-style-type: none"> · Arm Records 	
		<ul style="list-style-type: none"> · Trail Search: Generate trail based on the artificial screening of the captured faces 	
		<ul style="list-style-type: none"> · Traffic video and real-time license plate recognition 	

31	ANPR	· Search history license plate recognition result	
		· Search history vehicle track	

		<ul style="list-style-type: none"> Trail Search: Generate trail based on license plate and time info. 	
		<ul style="list-style-type: none"> Arm Records 	
32	Violation	<ul style="list-style-type: none"> Search vehicle violation information 	
		<ul style="list-style-type: none"> Play violation video 	
33	Radar Smart Track	<ul style="list-style-type: none"> Bind radar and speed dome 	
		<ul style="list-style-type: none"> When radar detects the object, SD turn to the position. 	
34	Business Analysis	<ul style="list-style-type: none"> Overview: orders, sales, footfall, per custom transaction, 	
		<ul style="list-style-type: none"> KPI, sales and orders, entering rate, top 10 list. 	
		<ul style="list-style-type: none"> People Count: entrance people count, entering rate, district customer. 	
		<ul style="list-style-type: none"> Transaction Statistics: commodity price, sales growth, sales, orders. 	
		<ul style="list-style-type: none"> Sales Statistics: sales, sales year on year. 	
		<ul style="list-style-type: none"> Order Statistics: orders, orders year on year. 	
	Software Mobile Client		
35	Login	<ul style="list-style-type: none"> Login APP for the first time, need to fill in user name, password, IP address and Port number 	
36	History Record	<ul style="list-style-type: none"> Show recently viewed channels, you can open live video or playback via history records. 	
		<ul style="list-style-type: none"> Up to 20 history records, then replace the oldest operation record. 	

37	Live View	· Open more than one channel at same time, up to 16 channels	
		· Three stream type: HD, SD, smooth	
		· Supports PTZ control	
		· Supports horizontal screen play	
		· One-key switch to playback	
38	Playback	· Snapshot, local record	
		· Supports searching device recording and center recording	
		· The calendar shows whether there is a video on that day	
		· Supports Snapshot	
		· Supports Local Record	
39	Alarm Centre	· Supports 1X, 2X, 3X, 4X, 1/2X, 1/4X, 1/8X playback	
		· Different video type with different color.	
		· Displays total alarm record and untreated alarm records, total alarm records up to 200.	
		· Alarm processing: solved, Ignore.	
40	Map	· Enable/disable refresh alarm	
		· Alarm video and alarm picture	
		· Supports Google map	
41	F i l e s Management	· Displays the video channel on the map	
		· View video and do playback.	
		· Displays the recording and snapshot by time.	
		· Single/Batch export	
		· Single/Batch deletion	
		· Display the user name	

42	Local Config	· Check for new version	
		· Setup PTZ step length	
		· User Manual	
		· APP Version	
	Performance Specification		
43	Device and Channel	Org, User and Role Organization: 10 hierarchies, 999 organizations per hierarchy	
		Role(User Permission): 100	
		User: 200 online users and unlimited users	
		Total device and channel: 500 devices, 2000 channels	
		Device: 500 Devices, 2000 channels	
		ANPR device: 200 devices (15 pic per second)	
		Auto-Register: 200 devices, 500 video channels	
		ONVIF: 200 devices 800 channels	
44	Media Transmission Server	Video input per server: 600 Mbps	
		Video output per server: 600 Mbps	
45	Playback, Storage and Download	Playback bandwidth per server: 100 Mbps	
		Video storage bandwidth per server: 600 Mbps	
		Maximum capacity per storage server: 200TB	
		Maximum storage device number per server: 5	

		Download task: UP to 5 per client	
46	Alarm	Number of alarm reception without pic:200 per second	
		Number of alarm reception without pic(Peak): 300 per second	
		Number of alarm reception with pic: 5 per second	
47	Map	Hierarchy of raster map: 8 Hierarchies	
		Submap of raster map: 32 per hierarchy	
		Map size of raster map: Up to 15MB	
		Channel number: Up to 200(GIS and Raster)	
	Distributed System		
48	Device and Channel	Server Number Number of slave server: Up to 20	
		Total device and video channel for distribution: 5000 devices 2000 channels	
		Device: 5000 devices 20000 channels	
		ANPR device: 800 devices	
		Auto-Register: 4000devices, 10000 channels	
		ONVIF: 500 devices 2000channels	
		POS: 2000 devices	

12.7.8. Specifications of the Workstation

Sr. No	Description	Specification/Minimum Requirement	Compliance (Yes / No)
1	Processor	12th Generation Intel Core i5-12500 (6 Cores/18MB/12T/3.0GHz to 4.6GHz/65W)	
2	Chipset Series	Intel Q 670	
3	Graphics	AMD Radeon RX 640, 4 GB GDDR5, full height, 2 mDP, DP	
4	Operating System	Windows 10 Professional, factory pre-loaded or better	
5	Recovery Image Media	CD from the OEM / Stored in partition of the Hard Disk / USB drive from the OEM / Online / Cloud	
6	Memory	(16 GB, 2 x 8 GB, DDR4, 3200MHz)	
7	DIMM Slots	4 DIMM slots	
8	RAM Expandability using spare DIMM Slots	upto 128 GB	
9	Storage	SSD 1TB	
10	Display	21 inches or above, 1920x1080 pixels x 2 displays	
11	Connectivity	1 Ethernet port, Bluetooth connectivity (version 4.2)	
12	Ports	4 USB 2.0, 6 USB 3.2 including 1 USB 3.2 Gen 2 Type C; 2 DP port default and 1 HDMI	
13	Generic	Optical drive not required. Audio-in, audio-out, headphone-out, microphone-in	
14	Power	Min 240 W internal power supply unit (PSU), 85% Efficient, 80 Plus Bronze	

15	Certification	BIS registration, ROHS compliance, BEE / Energy star, CE, FCC	
16	Input Devices	Wired keyboard and mouse connectivity, optical scroll	
17	Operating Conditions	Minimum 5 degree Celsius and maximum 35 degree Celsius; minimum operating humidity (%RH) ~ 20 and maximum operating	

12.7.9. Specifications for Internet Connection

S.No	Feature	Technical Specifications	Compliance (Yes/No)
1.	Specifications	Internet connection/Lease Line having sufficient speed to stream live video of the camera. Internet connection includes all necessary equipment and accessory which required to establish the internet connectivity on the site. (With Router, Outdoor Box, SIM Etc.) with 3G/4G Speed and adequate data. charges to be consider for 1 year.	

12.7.10. Specifications for Cabling, connections and Labelling.

S.No	Feature	Technical Specifications	Compliance (Yes/No)
1.	Specifications	<p>A. All cable conductors shall be of ISI marked for quality and safety. It shall be of copper insulated, securely fastened, grouped, wherever possible, using tie warps approximately every 10-20 cms or cable trays.</p> <p>B. All connections shall be vibration-proof quick release connections except for power cables terminating in terminal blocks, which shall be screwed down.</p> <p>C. All terminal block shall be made from self-extinguishing materials. Terminations shall be logically grouped by function and terminals carrying power shall be segregated from control signal terminals.</p> <p>D. All cables shall be clearly labeled with indelible indication that can clearly be identified by maintenance personnel using "As built drawings".</p> <p>E. Lightning arrester shall be installed for safety on each VMS.</p> <p>The successful bidder has to provide safety certificate from qualified Electrical engineers approved/certified by Govt. Agency</p> <p>F. All cables used for internet as well as for cameras purpose should be ISI marked and CAT6 cables.</p>	

12.7.11.Specifications for Varifocal Camera and 3rd Eye Camera/Bullet Camera

S.No	Camera Type	Technical Specifications	Compliance (Yes/No)
1	Varifocal Camera	Camera to collect evidence & mineral identification from rear & front view, including all related accessories: Outdoor 4MP Camera: 1/3-inch or higher Progressive CMOS equivalent, H.264/ H.265, Protocols: TCP/IP, HTTP, HTTPS, Protection Level- IP67, with augmented illumination including LDR (Automatic Day/Night On/Off Functionality), 3-Year OEM Warranty.	
3	Bullet Camera	24*7 3rd Eye Monitoring System (Bullet Camera 2mp*2, Network Video Recorder*1, 2TB*1 Storage-HDD, Gigabit POE Switch*1), 3-Year OEM Warranty.	

12.7.12.Specifications for ANPR Camera

S. No.	Parameter / requirement	Minimum Specifications/ requirements	Compliance (Yes / No)
1.	General Requirements	The camera should be commercial / industrial grade designed for 24 x 365 use.	
2.	Image Sensor with WDR	1/2.8" or better with WDR, progressive CMOS Sensor or better	
3.	Lens Specs	Compatible to image sensor, Full HD (1080P), P IRIS / DC IRIS / Auto IRIS, Corrected IR, C / CS Mount with IR cut filter	
4.	Focal length	5x lens (Lower limit as 10mm or less, and Upper limit as 50mm or greater) or better	
5.	Resolution	Active Pixels 1920 x 1080 (2 MP)	
6.	Minimum illumination	Colour: 0.3 lux or better, B/W: 0.05 lux or better (at 30 IRE)	
7.	Video Compression	H.265, Motion JPEG	
8.	Frame Rate	Minimum 60 FPS or higher for all resolutions	
9.	Local Storage	SD Card Slot with minimum 64 GB Class 10 SD card and expansion 128 GB	
10.	Ethernet	10/100/ Base-T ports	
11.	Protocols	Minimum of the following protocols to be supported RTSP, RTP/TCP, RTP/UDP, HTTP, HTTPS, DHCP, 802.11x	
12.	Industry Standards	ONVIF Compliant	

13 .	Power Supply	POE IEE 802.3af/ at compliant	
14 .	Operating Temperature	0° C to 50° C or better	
15 .	Operating Humidity	20% to 90% for cameras	
16 .	Enclosure / Casing	IP 66 with Cast iron or aluminum alloy casing	
17 .	Certifications	UL, CE, FCC	
18 .	Streaming	The camera shall be able to setup and stream out minimum three (3) stream profiles. Each stream profile shall have its own compression, resolution, frame rate and quality independently. All the 3 streams should be individually configurable and compatible with H.264 with smart codec / H.265.	
19 .	White Balance	Auto / Manual	
20 .	Back Light Compensation	Auto	
21 .	Security	Security Password protection	
22 .	Security	Vandal and impact resistant housing, IK 10, IP66 / NEMA	

12.7.13.Specification for Automatic Boom Barrier :

S.No	Description	Technical Specifications	Compliance (Yes/No)
1	Automatic Boom Barrier	Technical Specification i. Running Speed: 3s – 6s ii. Boom Type: Swing / Fixed aluminum Arm (auto cut with loop detect) iii. Maximum Boom Length: 6m iv. Housing Dimension: 362*325*1030mmS v. Input Voltage: AC220V +-10%, AC110V +-10% vi. Motor Frequency: 50/60 Hz vii. Motor Voltage: DC24V viii. Enclosure Rating: IP54 ix. Working Temperature: -350 C - +850 C x. MTBF: 3.5 Million cycles xi. Traffic flow application: 3000 Times / 24 Hours xii. Max motor power: 150W xiii. Max motor speed: 24r/min	

12.7.14.Specification for Drone/UAV Monitoring :

S.No	Description	Technical Specifications	Compliance (Yes/No)
1	Technical specs Endurance	40 minutes @ MSL Range (LoS): 2 – 4 km Weight: < 2 kg Wind Resistance: 25 km/h Max Operating Altitude: Up to 400 m AGL Max Launch Altitude: 2500 m AMSL Vehicle Size: < 1 m x 1 m Should be available to capture images at night also.	
2	Payload	24 MP still image camera and High Resolution RGB camera	

12.7.15.Specification for RFID Reader :

S.No	Description	Technical Specifications	Compliance (Yes/No)
1	P h y s i c a l Parameters	Dimensions: 445mm X 445mm X 55mm ii. Weight: 2.35 Kg iii. Power Supply: 100-240V, DC+9V (Power Adapter) iv. Power Consumption: 10W v. Interfaces: Rs232, RS485, 26/34 (TCP/IP & Wi-Fi Optional) vi. Indicators: Buzzer vii. Software Support: SDK Provided	
2	ENVIRONMENTAL SPECIFICATION	Temperature: 25 C to +60 C (Operating), -25 C to +80 C (Storage) ii. Humidity: 5% RH - 95% RH non condensing iii. Protection Class: IP 67 iv. Work Frequency: Standard ISM 865-867 MHz (IND),865-868 MHz (EU), 902- 928 MHz (US) v. Air Interface Protocol: ISO18000-6B, EPC Class 1 Gen2 (ISO18000-6C) vi. Read Range: 0 – 15 m vii. Write Range: 0 – 6 m viii. Antenna: Built-in 12dBi linear/circular polarized antenna ix. Operating Mode: Answer, Active, Trigger x. SDP: Provided DLL and Demonstration Software Source code to Facilitate Further Development xi. Reading Rate: Software Programmable xii. RF Power Output: 0 – 30 dBm (Adjustable)	

12.7.16.Specification for IOT Controller :

S.No	Description	Technical Specifications	Compliance (Yes/No)
1	T e c h n i c a l Specification	<p>Processor: Broadcom BCM2387 chipset, 1.2 GHZ Quad core ARM Cortex-A53</p> <p>ii. GPU: Dual Core video Core IV multimedia Co-Processor. Provides Open GL ES 2.0, hardware-accelerated Open VG, and 1080p30 H.264 high-profile decode. Capable of 1Gpixel/s, 1.5 Gtexel/s or 24GFLOPS with texture filtering and DMA infrastructure.</p> <p>iii. Memory: 4GB LPDDR2</p> <p>iv. Operating System: Boots from Micro SD card, running a version of the Linux operating system or windows 10 IoT</p> <p>v. D i m e n s i o n s : 245(L)MMX265(W)MMX78(H)MM</p> <p>vi. C o n t r o l l e r D i m e n s i o n s : 100mmx160mm</p> <p>vii. Power: Micro USB socket 12V 5A</p> <p>viii. Ethernet: 10/100 BaseT Ethernet socket</p> <p>ix. Video Output: HDMI (rev 1.3 & 1.4 composite RCA (PAL and NTSC))</p> <p>x. Audio output: 3.5mm jack, HDMI, USB 4Xusb 2.0 Connector</p> <p>xi. Camera Connector: 15-pin MIPI Camera Serial Interface (CSI-2)</p> <p>xii. Display Connector: Display Serial Interface (DSI) 15-way flat flex cable connector with two data, Lanes and a clock lane</p> <p>xiii. No. of relay: 6</p>	

2	Hardware Specification	<ul style="list-style-type: none"> i. Quad core 64-bit ARM-Cortex A72 running at 1.5GHz ii. 1, 2 and 4 Gigabyte LPDDR4 RAM options iii. H.265 (HEVC) hardware decode (up to 4Kp60) iv. H.264 hardware decode (up to 1080p60) v. Video Core VI 3D Graphics vi. Supports dual HDMI display output up to 4Kp60 	
3	Interfaces	<ul style="list-style-type: none"> i. 802.11 b/g/n/ac Wireless LAN ii. Bluetooth 5.0 with BLE iii. 1x SD Card iv. 2x micro-HDMI ports supporting dual displays up to 4Kp60 resolution v. 2x USB2 ports vi. 2x USB3 ports vii. 1x Gigabit Ethernet port 	
4	GPIO	<ul style="list-style-type: none"> i. 10 GPIO Ports & Fully programmable dedicated for Sensor, Light and Buzzer ii. 8 optically-isolated digital inputs where 4 are general-purpose & fully programmable, 2 dedicated for door sensor inputs, and 2 dedicated for egress switch inputs. iii. Housed in a powder-coated MS cabinet, with rugged 12v 5Amp power 	

12.7.17. Qualification for Manpower

S.No	Description	Technical Specifications	Compliance (Yes/No)
	Technical Support Executive	<ul style="list-style-type: none"> ● Minimum qualification BCA/ BSc(IT)/B.Tech or higher ● Should possess knowledge of MS office and computer applications. 	
	Project Coordinator	<ul style="list-style-type: none"> ● Minimum Qualification: B.Tech/ MBA/MSc(IT)/MCA or higher ● Minimum 7 years of experience 	
	Software Engineer	<ul style="list-style-type: none"> ● Minimum Qualification: B.E/B.Tech/ MSc(IT)/MCA or higher ● Minimum 3 years of experience 	
	Drone Pilot	<ul style="list-style-type: none"> ● Graduate in any discipline ● Relevant Training Certificate 	