PHILIPPINE BIDDING DOCUMENTS

Procurement of Enterprise Video Surveillance System for CEZ, BCEZ, PEZ and MEZ, PEZA Command and Data Center Components and Software Automation for Operations and Systems Integration of PEZA's Processes with the Development of the Electronic Letter of Authority (e-LOA)
(PEZA-HO-2022-01)

Government of the Republic of the Philippines

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Preface

These Philippine Bidding Documents (PBDs) for the procurement of Goods through Competitive Bidding have been prepared by the Government of the Philippines for use by any branch, constitutional commission or office, agency, department, bureau, office, or instrumentality of the Government of the Philippines, National Government Agencies, including Government-Owned and/or Controlled Corporations, Government Financing Institutions, State Universities and Colleges, and Local Government Unit. The procedures and practices presented in this document have been developed through broad experience, and are for mandatory use in projects that are financed in whole or in part by the Government of the Philippines or any foreign government/foreign or international financing institution in accordance with the provisions of the 2016 revised Implementing Rules and Regulations of Republic Act No. 9184.

The Bidding Documents shall clearly and adequately define, among others: (i) the objectives, scope, and expected outputs and/or results of the proposed contract or Framework Agreement, as the case may be; (ii) the eligibility requirements of Bidders; (iii) the expected contract or Framework Agreement duration, the estimated quantity in the case of procurement of goods, delivery schedule and/or time frame; and (iv) the obligations, duties, and/or functions of the winning bidder.

Care should be taken to check the relevance of the provisions of the PBDs against the requirements of the specific Goods to be procured. If duplication of a subject is inevitable in other sections of the document prepared by the Procuring Entity, care must be exercised to avoid contradictions between clauses dealing with the same matter.

Moreover, each section is prepared with notes intended only as information for the Procuring Entity or the person drafting the Bidding Documents. They shall not be included in the final documents. The following general directions should be observed when using the documents:

a. All the documents listed in the Table of Contents are normally required for the procurement of Goods. However, they should be adapted as necessary to the circumstances of the particular Procurement Project.

b. Specific details, such as the "*name of the Procuring Entity*" and "*address for bid submission*," should be furnished in the Instructions to Bidders, Bid Data Sheet, and Special Conditions of Contract. The final documents should contain neither blank spaces nor options.

c. This Preface and the footnotes or notes in italics included in the Invitation to Bid, Bid Data Sheet, General Conditions of Contract, Special Conditions of Contract, Schedule of Requirements, and Specifications are not part of the text of the final document, although they contain instructions that the Procuring Entity should strictly follow.

d. The cover should be modified as required to identify the Bidding Documents as to the Procurement Project, Project Identification Number, and Procuring Entity, in addition to the date of issue.

e. Modifications for specific Procurement Project details should be provided in the Special Conditions of Contract as amendments to the Conditions of Contract. For easy completion, whenever reference has to be made to specific clauses in the Bid Data Sheet or Special Conditions of Contract, these terms shall be printed in bold typeface on Sections I (Instructions to Bidders) and III (General Conditions of Contract), respectively.

f. For guidelines on the use of Bidding Forms and the procurement of ForeignAssisted Projects, these will be covered by a separate issuance of the Gvernment Procurement Policy Board.

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Glossary of Acronyms, Terms, and Abbreviations

ABC – Approved Budget for the Contract.

BAC – Bids and Awards Committee.

Bid – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender.* (2016 revised IRR, Section 5[c])

Bidder – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

Bidding Documents – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral ng Pilipinas.

Consulting Services – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

CDA - Cooperative Development Authority.

Contract – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

CIF – Cost Insurance and Freight.

CIP – Carriage and Insurance Paid.

CPI – Consumer Price Index.

DDP – Refers to the quoted price of the Goods, which means "delivered duty paid."

DTI – Department of Trade and Industry.

EXW – Ex works.

FCA – "Free Carrier" shipping point.

FOB – "Free on Board" shipping point.

Foreign-funded Procurement or Foreign-Assisted Project– Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

Framework Agreement – Refers to a written agreement between a procuring entity and a supplier or service provider that identifies the terms and conditions, under which specific purchases, otherwise known as "Call-Offs," are made for the duration of the agreement. It is in the nature of an option contract between the procuring entity and the bidder(s) granting the procuring entity the option to either place an order for any of the goods or services identified in the Framework Agreement List or not buy at all, within a minimum period of one (1) year to a maximum period of three (3) years. (GPPB Resolution No. 27-2019)

GFI – Government Financial Institution.

GOCC – Government-owned and/or –controlled corporation.

Goods – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term "related" or "analogous services" shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

GOP – Government of the Philippines.

GPPB – Government Procurement Policy Board.

INCOTERMS – International Commercial Terms.

Infrastructure Projects – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national buildings, school buildings, hospital buildings, and other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

LGUs – Local Government Units.

NFCC – Net Financial Contracting Capacity.

NGA – National Government Agency.

PhilGEPS - Philippine Government Electronic Procurement System.

Procurement Project – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

Supplier – refers to a citizen, or any corporate body or commercial company duly organized and registered under the laws where it is established, habitually established in business and engaged in the manufacture or sale of the merchandise or performance of the general services covered by his bid. (Item 3.8 of GPPB Resolution No. 13-2019, dated 23 May 2019). Supplier as used in these Bidding Documents may likewise refer to a distributor, manufacturer, contractor, or consultant.

UN – United Nations.

Section I. Invitation to Bid

PHILIPPINE ECONOMIC ZONE AUTHORITY

INVITATION TO BID FOR THE PROCUREMENT OF ENTERPRISE VIDEO SURVEILLANCE SYSTEM FOR CEZ, BCEZ, PEZ AND MEZ, PEZA COMMAND AND DATA CENTER COMPONENTS AND SOFTWARE AUTOMATION FOR OPERATIONS AND SYSTEMS INTEGRATION OF PEZA'S PROCESSES WITH THE DEVELOPMENT OF THE ELECTRONIC LETTER OF AUTHORITY (E-LOA) (PEZA-HO-2022-01)

1. The Philippine Economic Zone Authority, through the Corporate Operating Budget of CY 2022 intends to apply the sum of Three Hundred Twenty Nine Million Two Hundred Twenty-Two Thousand Five Hundred Forty-Two Pesos and 88/100 Centavos (₱329,222,542.88) being the ABC to payments under the contract for **Procurement of Enterprise Video Surveillance System for CEZ, BCEZ, PEZ and MEZ, PEZA Command and Data Center Components and Software Automation for Operations and Systems Integration of PEZA's Processes with the Development of the Electronic Letter of Authority (e-LOA) (PEZA-HO-2022-01)**. Bids received in excess of the ABC shall be automatically rejected at bid opening.

2. The Philippine Economic Zone Authority now invites bids for the above Procurement Project. Delivery of the Goods is required within One Hundred Twenty (120) Calendar Days. Bidders should have completed, within five (5) years immediately prior to from the date of submission and receipt of bids, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).

3. Bidding will be conducted through open competitive bidding procedures using a nondiscretionary "*pass/fail*" criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

   a. Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA No. 5183.

4. Prospective Bidders may obtain further information from Philippine Economic Zone Authority and inspect the Bidding Documents at the address given below during office hours between 9:00 AM to 4:00 PM Monday to Friday except during Holiday/s.

5. A complete set of Bidding Documents may be acquired by interested Bidders on 07 February 2022 from the given address and website(s) below *www.peza.gov.ph and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of* ₱50,000.00. The Procuring Entity shall allow the bidder to present its proof of payment for the fees.

6. The Philippine Economic Zone Authority will hold a Pre-Bid Conference on **11:00AM 16 February 2022** at **8th Floor, Double Dragon Center West Building, DD Meridian Park, Macapagal Avenue, Pasay City** and/or **through video conferencing or webcasting via** Microsoft Teams, which shall be open to prospective bidders.

7. Interested bidders shall inform the PEZA-BAC, through its Secretariat, by sending an email at **bacsec@peza.gov.ph**, of their intention to participate in the Pre-Bid Conference at least one (1) day prior to the date of the conference.

   The Pre-Bid Conference will be conducted online to be able to observe social distancing.

8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 14.

9. Bid opening shall be on **11AM, February 28, 2022** at the **8th Floor, Double Dragon Center West Building, DD Meridian Park, Macapagal Avenue, Pasay City** and through video conferencing or webcasting via **Microsoft Teams** to observe social distancing. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

Activity	Schedule
Posting of Invitation to Bid	07 February 2022
Issuance and Availability of Bid Documents	07 February 2022 to 28 February 2022
Pre-Bid Conference	16 February 2022, 11:00 AM
Deadline for Submission of bids	28 February 2022, 10:00 AM
Opening of Bids	28 February 2022, 11:00 AM

The **Philippine Economic Zone Authority** reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

10. For further information, please refer to:

Philippine Economic Zone Authority
Bids and Awards Committee (BAC) Secretariat
8th Floor, Double Dragon Center West Bldg., DD Meridian Park, Macapagal Avenue
Pasay City
Email: bacsec@peza.gov.ph
Telefax:85513429;Tel: 85513451 loc 200
www.peza.gov.ph

11. You may visit the following websites:
For downloading of Bidding Documents:
http://www.peza.gov.ph/index.php/bid-opportunities

07 February 2022

DDG TERESO O. PANGA
BAC Chairperson

Section II. Instructions to Bidders

1. Scope of Bid

The Procuring Entity, *Philippine Economic Zone Authority* wishes to receive Bids for the **Invitation to Bid for the Procurement of Enterprise Video Surveillance System for CEZ, BCEZ, PEZ and MEZ, PEZA Command and Data Center Components and Software Automation for Operations and Systems Integration of PEZA's Processes with the Development of the Electronic Letter of Authority (e-LOA) (PEZA-HO-2022-01).**

The Procurement Project (referred to herein as "Project") is composed of **One (1) Lot** the details of which are described in Section VII (Technical Specifications).

2. Funding Information

2.1. The GOP through the source of funding as indicated below for Corporate Budget for Year 2022 in the amount of *P* 329,222,542.88

2.2. The source of funding is:

a. GOCC and GFIs, the proposed Corporate Operating Budget.

3. Bidding Requirements

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manuals and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or **IB** by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have verified and accepted the general requirements of this Project, including other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

4. Corrupt, Fraudulent, Collusive, and Coercive Practices

The Procuring Entity, as well as the Bidders and Suppliers, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex "I" of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.

5.2. Foreign ownership limited to those allowed under the rules may participate in this Project.

5.3. Pursuant to Section 23.4.1.3 of the 2016 revised IRR of RA No.9184, the Bidder shall have an SLCC that is at least one (1) contract similar to the Project the value of which, adjusted to current prices using the PSA's CPI, must be at least equivalent to:

a. For the procurement of Non-expendable Supplies and Services: The Bidder must have completed a single contract that is similar to this Project, equivalent to at least fifty percent (50%) of the ABC.

5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.1 of the 2016 IRR of RA No. 9184.

6. Origin of Goods

There is no restriction on the origin of goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN, subject to Domestic Preference requirements under **ITB** Clause 18.

7. Subcontracts

7.1. The Bidder may subcontract portions of the Project to the extent allowed by the Procuring Entity as stated herein, but in no case more than twenty percent (20%) of the Project.

The Procuring Entity has prescribed that:

Subcontracting is allowed. The portions of Project and the maximum percentage allowed to be subcontracted are indicated in the **BDS**, which shall not exceed twenty percent (20%) of the contracted Goods.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either at its physical address 8th Floor, Double Dragon Center West Building, DD Meridian Park, Macapagal Avenue, Pasay City and/or through videoconferencing/webcasting via Microsoft Teams as indicated in paragraph 6 of the **IB.**

9. Clarification and Amendment of Bidding Documents

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and received by the Procuring Entity, either

at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

10. Documents comprising the Bid: Eligibility and Technical Components

10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.

10.2. The Bidder's SLCC as indicated in **ITB** Clause 5.3 should have been completed within *5 years* prior to the deadline for the submission and receipt of bids.

10.3. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. Similar to the required authentication above, for Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

11. Documents comprising the Bid: Financial Component

11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.

11.2. If the Bidder claims preference as a Domestic Bidder or Domestic Entity, a certification issued by DTI shall be provided by the Bidder in accordance with Section 43.1.3 of the 2016 revised IRR of RA No. 9184.

11.3. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.

11.4. For Foreign-funded Procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Bid Prices

12.1. Prices indicated on the Price Schedule shall be entered separately in the following manner:

a. For Goods offered from within the Procuring Entity's country:

i. The price of the Goods quoted EXW (ex-works, ex-factory, exwarehouse, ex-showroom, or off-the-shelf, as applicable);

ii. The cost of all customs duties and sales and other taxes already paid or payable;

iii. The cost of transportation, insurance, and other costs incidental to delivery of the Goods to their final destination; and

iv. The price of other (incidental) services, if any, listed in the **BDS.**

b. For Goods offered from abroad:

i. Unless otherwise stated in the **BDS**, the price of the Goods shall be quoted delivered duty paid (DDP) with the place of destination in the Philippines as specified in the **BDS**. In quoting the price, the Bidder shall be free to use transportation through carriers registered in any eligible country. Similarly, the Bidder may obtain insurance services from any eligible source country.

ii. The price of other (incidental) services, if any, as listed in the **BDS.**

12.2. Bid and Payment Currencies

13.1. For Goods that the Bidder will supply from outside the Philippines, the bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies, shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.

13.2. Payment of the contract price shall be made in:

a. Philippine Pesos.

13. Bid Security

14.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.

14.2. The Bid and bid security shall be valid until **120 Days.** Any Bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

14. Sealing and Marking of Bids

Each Bidder shall submit one copy of the first and second components of its Bid.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

If the Procuring Entity allows the submission of bids through online submission or any other electronic means, the Bidder shall submit an electronic copy of its Bid, which must be digitally

signed. An electronic copy that cannot be opened or is corrupted shall be considered non-responsive and, thus, automatically disqualified.

15. Deadline for Submission of Bids

16.1. The Bidders shall submit on the specified date and time and either at its physical address or through online submission as indicated in paragraph 7 of the **IB.**

16. Opening and Preliminary Examination of Bids

17.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

17.2. The preliminary examination of bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

17. Domestic Preference

18.1. The Procuring Entity will grant a margin of preference for the purpose of comparison of Bids in accordance with Section 43.1.2 of the 2016 revised IRR of RA No. 9184.

18. Detailed Evaluation and Comparison of Bids

19.1. The Procuring Entity's BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*," using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of the 2016 revised IRR of RA No. 9184.

19.2. If the Project allows partial bids, bidders may submit a proposal on any of the lots or items, and evaluation will be undertaken on a per lot or item basis, as the case maybe. In this case, the Bid Security as required by **ITB** Clause 14 shall be submitted for each lot or item separately.

19.3. The descriptions of the lots or items shall be indicated in **Section VII (Technical Specifications)**, although the ABCs of these lots or items are indicated in the **BDS** for purposes of the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR

of RA No. 9184. The NFCC must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder.

19.4. The Project shall be awarded as follows:

One Project having several items that shall be awarded as one contract.

19.5. Except for bidders submitting a committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation, all Bids must include the NFCC computation pursuant to Section 23.4.1.4 of the 2016 revised IRR of RA No. 9184, which must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder. For bidders submitting the committed Line of Credit, it must be at least equal to ten percent (10%) of the ABCs for all the lots or items participated in by the prospective Bidder.

19. Post-Qualification

20.2. Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid, the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS) and other appropriate licenses and permits required by law and stated in the **BDS**.

20. Signing of the Contract

21.1. The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

Section III. Bid Data Sheet

Bid Data Sheet

ITB Clause	
5.3	For this purpose, contracts similar to the Project shall be: a. Supply, Delivery, Installation and Commissioning of Enterprise Video Surveillance Hardware and Software showing integration to Central Command Center via Network of at least 10,000 cameras and 20,000 alarm for multi-site locations in the country b. completed within **5 years** prior to the deadline for the submission and receipt of bids.
7.1	*Subcontracting is not allowed.*
12	The price of the Goods shall be quoted DDP ***8*th Floor, Double Dragon Center West Building, DD Meridian Park, Macapagal Avenue, Pasay City** or the applicable International Commercial Terms (INCOTERMS) for this Project.
14.1	The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts: a. The amount of not less than (2% of ABC) or **₱6,584,450.86** if bid security is in cash, cashier's/manager's check, bank draft/guarantee or irrevocable letter of credit; or b. The amount of not less than (5% of ABC) or **₱16,461,127.14** if bid security is in Surety Bond.
19.3	*Not applicable*
20.2	*[List here any licenses and permits relevant to the Project and the corresponding law requiring it.]*

21.2	*[List here any additional contract documents relevant to the Project that may be required by existing laws and/or the Procuring Entity.]* Latest income and business tax returns [BIR Form 1701Q & 1701; BIR Form 2550M & 2550Q within the last six months preceding the date of bid submission] filed through eFPS A duly notarized affidavit attesting that supplier shall have at least Twenty (20) years' experience in the supply of goods and services in similar/related projects. At least two (2) satisfactory certification from current or previous clients for satisfactory delivery of goods/services.

Section IV. General Conditions of Contract

1. Scope of Contract

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

Additional requirements for the completion of this Contract shall be provided in the **Special Conditions of Contract** (**SCC).**

2. Advance Payment and Terms of Payment

2.1. Advance payment of the contract amount is provided under Annex "D" of the revised 2016 IRR of RA No. 9184.

2.2. The Procuring Entity is allowed to determine the terms of payment on the partial or staggered delivery of the Goods procured, provided such partial payment shall correspond to the value of the goods delivered and accepted in accordance with prevailing accounting and auditing rules and regulations. The terms of payment are indicated in the **SCC**.

3. Performance Security

Within ten (10) calendar days from receipt of the Notice of Award by the Bidder from the Procuring Entity but in no case later than the signing of the Contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR of RA No. 9184

4. Inspection and Tests

The Procuring Entity or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Project specifications at no extra cost to the Procuring Entity in accordance with the Generic Procurement Manual. In addition to tests in the **SCC**, **Section VII (Technical Specifications)** shall specify what inspections and/or tests the Procuring Entity requires, and where they are to be conducted. The Procuring Entity shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.

All reasonable facilities and assistance for the inspection and testing of Goods, including access to drawings and production data, shall be provided by the Supplier to the authorized inspectors at no charge to the Procuring Entity.

5. Warranty

5.1 In order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.

5.2 The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall, repair or replace the defective Goods or parts thereof without cost to the Procuring Entity, pursuant to the Generic Procurement Manual.

6. Liability of the Supplier

The Supplier's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Supplier is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

Section V. Special Conditions of Contract

Special Conditions of Contract

GCC Clause	
1	*[List here any additional requirements for the completion of this Contract. The following requirements and the corresponding provisions may be deleted, amended, or retained depending on its applicability to this Contract:]* **Delivery and Documents –** For purposes of the Contract, "EXW," "FOB," "FCA," "CIF," "CIP," "DDP" and other trade terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of INCOTERMS published by the International Chamber of Commerce, Paris. The Delivery terms of this Contract shall be as follows: *[For Goods supplied from abroad, state:]* "The delivery terms applicable to the Contract are DDP delivered [*indicate place of destination*]. In accordance with INCOTERMS." *[For Goods supplied from within the Philippines, state:*] "The delivery terms applicable to this Contract are delivered *8th Floor, Double Dragon Center West Building, DD Meridian Park, Macapagal Avenue, Pasay City* , Risk and title will pass from the Supplier to the Procuring Entity upon receipt and final acceptance of the Goods at their final destination." Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in Section VI (Schedule of Requirements). For purposes of this Clause the Procuring Entity's Representative at the Project Site is Atty. Mark Rubio. **Incidental Services –** The Supplier is required to provide all of the following services, including additional services, if any, specified in Section VI. Schedule of Requirements: *Select appropriate requirements and delete the rest.* a. performance or supervision of on-site assembly and/or start-up of the supplied Goods; b. furnishing of tools required for assembly and/or maintenance of the supplied Goods; c. furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods; and, d. performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract.

	The Contract price for the Goods shall include the prices charged by the Supplier for incidental services and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services. **Spare Parts –** The Supplier is required to provide all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier: *Select appropriate requirements and delete the rest.* 1. such spare parts as the Procuring Entity may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under this Contract; and 2. in the event of termination of production of the spare parts: i. advance notification to the Procuring Entity of the pending termination, in sufficient time to permit the Procuring Entity to procure needed requirements; and ii. following such termination, furnishing at no cost to the Procuring Entity, the blueprints, drawings, and specifications of the spare parts, if requested. The spare parts and other components required are listed in **Section VI (Schedule of Requirements)** and the costs thereof are included in the contract price. The Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spare parts or components for the Goods for a period of [*indicate here the time period specified. If not used indicate a time period of three times the warranty period*]. Spare parts or components shall be supplied as promptly as possible, but in any case, within [*insert appropriate time period*] months of placing the order.

	Packaging – The Supplier shall provide such packaging of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in this Contract. The packaging shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packaging case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit. The packaging, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified below, and in any subsequent instructions ordered by the Procuring Entity. The outer packaging must be clearly marked on at least four (4) sides as follows: Name of the Procuring Entity Name of the Supplier Contract Description Final Destination Gross weight Any special lifting instructions Any special handling instructions Any relevant HAZCHEM classifications
	A packaging list identifying the contents and quantities of the package is to be placed on an accessible point of the outer packaging if practical. If not practical the packaging list is to be placed inside the outer packaging but outside the secondary packaging. **Transportation –** Where the Supplier is required under Contract to deliver the Goods CIF, CIP, or DDP, transport of the Goods to the port of destination or such other named place of destination in the Philippines, as shall be specified in this Contract, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price. Where the Supplier is required under this Contract to transport the Goods to a specified place of destination within the Philippines, defined as the Project Site, transport to such place of destination in the Philippines, including insurance and storage, as shall be specified in this Contract, shall be arranged by the Supplier, and related costs shall be included in the contract price.

<table>
<tr><td></td><td>Where the Supplier is required under Contract to deliver the Goods CIF, CIP or DDP, Goods are to be transported on carriers of Philippine registry. In the event that no carrier of Philippine registry is available, Goods may be shipped by a carrier which is not of Philippine registry provided that the Supplier obtains and presents to the Procuring Entity certification to this effect from the nearest Philippine consulate to the port of dispatch. In the event that carriers of Philippine registry are available but their schedule delays the Supplier in its performance of this Contract the period from when the Goods were first ready for shipment and the actual date of shipment the period of delay will be considered force majeure.

The Procuring Entity accepts no liability for the damage of Goods during transit other than those prescribed by INCOTERMS for DDP deliveries. In the case of Goods supplied from within the Philippines or supplied by domestic Suppliers risk and title will not be deemed to have passed to the Procuring Entity until their receipt and final acceptance at the final destination.

Intellectual Property Rights –

The Supplier shall indemnify the Procuring Entity against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof.</td></tr>
<tr><td>2.2</td><td>The terms of payment shall be as follows:

<table><tr><th>Payment Schedule</th><th>Percentage</th><th>Timeline</th></tr><tr><td>Mobilization Fee</td><td>15%</td><td>Upon the acceptance of Notice to Proceed</td></tr><tr><td>Remaining</td><td>85%</td><td>After Project Completion</td></tr></table>
1. Advance payment shall be made only after a formal letter of request addressed to PEZA with approval from the Office of the President accompanying bond for the mobilization in the form of surety or bank guarantee. Advance payment shall not exceed fifteen percent (15%) of the Contract amount as provided for in Section 4, Annex “D” of the latest 2016 Implementing Rules and Guidelines (IRR) of RA 9184.
2. The remaining payment will be release after the completion of the project.</td></tr>
<tr><td>4</td><td>The inspections and tests that will be conducted are: [Indicate the applicable inspections and tests]</td></tr>
</table>

Section VI. Schedule of Requirements

Item Number	Description	Quantity	Total	Delivered, Weeks/Months
1	Procurement of Enterprise Video Surveillance System for CEZ, BCEZ, PEZ and MEZ, PEZA Command and Data Center Components and Software Automation for Operations and Systems Integration of PEZA's Processes with the Development of the Electronic Letter of Authority	1	1	120 Days upon receipt of NTP

Section VII. Technical Specifications

Revised Technical Specifications

Item	Specification	Statement of Compliance
	I. Project Cost The Approved Budget for the Contract (ABC) of the project is **₱329,222,542.88** (Three Hundred Twenty Nine Million Two Hundred Twenty Two Thousand Five Hundred Forty Two Pesos and Eighty Eight centavos) inclusive of VAT. All other incidental works that might arise during the implementation of the project will be shouldered by the winning contractor. **II. Project Duration** The whole project for Both Scope of Works shall be delivered in One Hundred Twenty (120) Calendars Days. **III. Detailed Technical Specifications** Please see Technical Specification and BOM *Please see Technical Specifications and Annex A – Floor Plans* **IV. Payment Schedule** Upon the acceptance of Notice to Proceed (NTP) a 15% mobilization fee shall be provided and the remaining payment will be release after the completion of the project. **1.** Advance payment shall be made only after a formal letter of request addressed to PEZA with approval from the Office of the President and accompanying bond for the mobilization in the form of surety or bank guarantee. Advance payment shall not exceed fifteen percent (15%) of the Contract amount as provided for in the latest 2016 implementing rules and guidelines (IRR) of RA 9184. **2.** The remaining payment will be release after the completion of the project. **Bidders Qualification Requirements** **1.** The following shall be eligible to participate in the bidding: **a.** Duly licensed Filipino	*[Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered.* *Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and crossreferenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances. Please indicate the paragraph/section and page number in which the evidence is stated in the submitted literature or product data sheet.]*

	citizens/sole proprietorships; **b.** If a partnership, duly organized under the laws of the Philippines and of which at least sixty percent (60%) of the interest belongs to citizens of the Philippines; **c.** If a corporation, duly organized under the laws of the Philippines, and of which at least sixty percent (60%) of the outstanding capital stock belongs to citizens of the Philippines;	
	2. Statement of all its Ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; and	
	3. Statement of the Bidder's Single Largest Completed Project (SLCC) similar to the contract to be bid that is fifty percent (50%) of the ABC. For this purpose, similar contract is referred as Supply, Delivery, Installation and Commissioning of Enterprise Video Surveillance Hardware and Software showing integration to Central Command Center via Network of at least 10,000 cameras and 20,000 alarm for multi - site locations in the country.	
	4. A duly notarized affidavit attesting that supplier shall have at least Ten (10) years experience in the supply of goods and services in similar / related projects.	
	5. At least two (2) satisfactory certification from current or previous clients for satisfactory delivery of goods/services.	

	6. Copies of the following documents of the supplier shall need to be completely submitted along with the bid proposal	

	a. PhilGEPS Certificate of Registration and shall form part of the bidder's eligibility documents including Annex "A" of the Certificate of PhilGEPS Registration & Platinum Membership with updated;	
	b. Registration Certificate from Securities and Exchange Commission (SEC) or Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives; **c.** Certificate of Incorporation or Article of Incorporation or Amended Articles of Incorporation shall be accepted in lieu of the SEC Registration Certificate.	
	d. Mayor's/Business Permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas;	
	e. Tax Clearance per E.O 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR);	
	f. Audited Financial Statements stamped "received" by the Bureau of Internal Revenue (BIR) or its duly accredited and authorized institutions, for the preceding calendar year, which should not be earlier than two (2) years from the date of bid submissions;	

	g. The Latest Financial Statement with the Income and Business Tax Return filed within the last six (6) month period;	
	h. Duly Notarized Special Power of Attorney, Board Resolution or Secretary's Certificate for the duly authorized representative and signatory of all bid documents in behalf of the supplier;	
	i. Bid Security in the form stated in the Instructions to Bidders;	
	j. Omnibus Sworn Statement with accompanying Authority of the Signatory.	
	7. Other Eligibility Requirements that must form part of the technical documents: **a.** Bidder must have the ability to deploy nationwide sales and maintenance support and must have at least one (1) key office each in Luzon and Visayas Complete address, valid business permits and pictures must be submitted.	
	b. Bidder must show a valid PO in the last 5 years showing current experience in the field enterprise-wide automation development or online application system for any Government Agency or LGU in the Philippines	

	c. Supplier must be at least 15 years in the security surveillance or ICT business as stated in the SEC registration. **d.** The assigned Project Manager for the Enterprise Video Surveillance System for this project have a Project Management Certification and	

	shall be at least a Professional Electronics Communication Engineer or Professional Electrical Engineer.	
	e. The assigned Project Manager for the Software Automation and Data Management Platform should have a minimum ten (10) years' experience in the implementation of enterprise-wide automation development projects.	
	f. Bidder must be an authorized partner of the Video Management System being offered. A manufacturer letter of support must be submitted	
	g. Bidder must be an authorize partner of the COVID Solution System being offered.	
	h. Bidder must be an authorized partner of the manufacturer for the servers and storage solution. A notarized certification or letter of support must be submitted as proof	

	i. Bidder must have a valid VAS certification issued by the National Telecommunications Commission as proof of eligibility in providing PEZA the required Leased Line Connectivity	
	j. Must have a Valid PCAB Registration with a minimum ARCC of at least Medium B specializing in Communication Facilities as a requirement for the Enterprise Video Management Solution Scope.	

	k. Bidder must be certified by National Privacy Commission as Data Privacy Act Compliant. Proof of certification is presented.	
	l. Bidder has been registered with the National Privacy Commission, with a nominated Data Protection Officer, and has an Operational Data Privacy Manual.	
	m. Bidder must submit a certificate of site ocular inspection issued by PEZA Zones representatives to validate the full requirement of PEZA Zones Enterprise Surveillance System.	

A	Enterprise Video Surveillance Integrated to the Command Center for 4 Public Zones		
No.	**Description**	**Specifications**	**Statement of Compliance**
Video Management System, Server, and Licenses			
	Overview of Deliverables		
	Inception Report	The Contract shall deliver an Inception Report within three (3) weeks from issuance of the Notice to Proceed (NTP). The Inception Report shall, at the minimum, consist of the work plan, project approach, impact analysis, and assessment methodology.	
	List of Deliverables	1. Supply Delivery and Installation, Commissioning and Services of a 40MB dedicated Internet for each Public Zone and 200MB Leased line Connectivity for Head Office that would allow for the Centralization and Integration of all PEZA Sites to the Command Center located at PEZA Head Office in Manila for twenty four (24) months.	
		2. Supply Delivery, Installation, Commissioning and Training of ENTERPRISE VIDEO MANAGEMENT SOLUTION for the Command Center and PEZA sites that provides the following basic functionalities:	
		2.a. Shall provide a video review interface for display of live and recorded video from connected Video Management Systems from all PEZA Sites with overlay of Video Analytics. The interface shall be unified and consistent regardless of the underlying video system and be capable of displaying video from different types of systems at the same time. It shall provide functionality for viewing live video, recorded video, saving snapshots, viewing video in full screen, pan-tilt-zoom control and preset functions.	
		2.b. Shall contain a dedicated feature for exporting video. The feature shall allow the capture of all related video for an incident regardless of sub-system type or combination of sub-systems providing the video for the location where the incident occurred. The exported video shall be stored on a configured network share and it shall be possible to generate a report describing what video has been exported.	
		2.c. The solution shall have the ability to use reporting tools such as Microsoft SQL Server Reporting Services to generate reports on data collected and generated by the VMS solution	

		2.d. Should integrate with the existing visualization platform and for Video Analytics and COVID Solution that is currently existing at the PEZA Command Center.	
		2.e. Should provide for a licensed Automatic Number Plate Recognition and Face Recognition Analytics with complete workflow and required database that allows of multitude of functionalities as detailed in the Technical Specifications	
		2.f. Allow for granular permissions control for users and user groups and include permission inheritance. Areas that it shall be possible to restrict through permission configuration shall include: Alarm visibility, access to physical locations, and visibility of CCTV assets, video playback control, and Pan-Tilt-Zoom (PTZ) priority.	
		2.g. Shall include an easy-to-use administration interface containing functionality for managing users and groups, viewing device states, managing locations and asset locations on maps.	
		2.h. Shall include video wall tools that turn any screen into a dynamic video wall	
		2.i. Shall include a Workflow Engine, which when using the response plan editor, creating custom logic and workflows based around the customers' business process without changing the core build.	
		2.j. Shall be able to integrate any Third Party System (existing CCTV) that are related to the security operations and not just those that are listed above.	
		2.k. Shall record all alarms with the response and the video index for quick retrieval at any time.	
		2.l. Should have the ability to show all cameras and internal circulation cameras in one screen on single visual interface.	
		3. Supply, Delivery and Installation and Commissioning of reputable enterprise IP CCTV Cameras that is devoid of any issues related to Information Security.	
		4. Supply Delivery and Installation and Commissioning of Fiber Network Backbone for Surveillance Systems at all PEZA Sites (CEZ, MEZ, BCEZ and PEZ)	
		5. Supply Delivery and Installation and Commissioning of IP Video Wall System including Customized Framing and Workstation Consoles for PEZA Sites' Command Center.	
		6. Supply Delivery and Installation and Commissioning of Data Center Solution that includes Smart Rack, Servers, PCs, UPS, Cooling and Fire Suppression for Four (4) PEZA Sites.	

		7. Supply Delivery and Installation, Commissioning and Services of a total 200MB(Head Office) and 40(each Public Zones) Leased line Connectivity including Firewall and Information Security Solution that would allow for the Centralization and Integration of all PEZA Sites to the Command Center located at PEZA Head Office in Manila.	
		8. Supply, Delivery and Installation of all Materials, Additional Posts and other Peripherals necessary to complete the activation of the Surveillance systems including liaison to Power utility providers if need be in behalf of PEZA.	
		9. Face Recognition Video Analytics The Facial Recognition person-centric video analytics shall be an AI (artificial intelligence) layer on top of the video management system that matches faces appearing in live video feeds against watchlist images more effectively, and with less bias, than humans – helping security personnel prioritize feeds that require review and providing them the information they need to respond to persons of interest more quickly.	
		10. Automatic Number Plate Recognition (ANPR) The Automatic Number Plate Recognition video analytics shall be an AI (artificial intelligence) layer on top of the video management system that recognizes vehicle number plates appearing in live video feeds. If the license plate is recognized, the corresponding metadata is linked to the image material and recorded.	
		11. PTZ Pole and Wall Mounting Environmental PTZ dome HD cameras shall be mounted on poles and shall utilize suitable pole mounting assemblies with stainless steel straps. For outdoor cameras requiring pole installation, pole mounts shall be utilized. The mount shall include marine-grade (SS316L) stainless steel straps and shall be adjustable to accommodate different pole diameters.	
		12. Video Wall Management System	

		12.1. Controller A Command and Control Center is the critical information infrastructure that integrates video, maps and other critical systems information. By integrating various systems and creating a collaborative command platform, efficiency is increased, decision-making is instant leading to a rapid response. The Video Wall Controller provides a visual user interface that allows the operators and decision-makers to preview all systems data source and video content to ensure the correct source is switched to the required videowall intuitively.	
		12.2. Video Wall Display The video wall displays shall be 55-inch screens rated for 24 x 7 continuous use, shall have a narrow bezel and slender in design with wide angle view providing clear details and vivid colors regardless of angle.	
		12.3. Biometric Terminal The biometric terminal shall support multi-technology including face recognition, card and temperature (fever) scanning to provide access authorization to a secure door (monitoring room or command center).	
		12.4. Temperature Scanning System A stand-alone temperature scanning fever detection system with video recording shall be utilized at the PEZA site Administration Building entrances to swiftly scan the temperature readings of all incoming personnel.	
		12.5. Deep Learning AI Network Video Recorder The Deep Learning Network Video Recorder with AI (artificial intelligence) shall have deep learning analysis for the recognition of human body targets in behavior detection for reliable thermal screening application and capability to filter false alarms. The network video recorder shall work in conjunction with the thermographic temperature-screening camera.	
		13. Network Switches	
		13.1. Fiber Aggregate/Core Switch The fiber aggregate switch at the PEZA local monitoring centers shall be utilized for the video uplink of the industrial access switches from the cameras at the gates and street intersections. The fiber aggregate switch shall be Layer 3 stackable managed gigabit switches that support the following functionalities:	

		13.2. Distribution Switch The distribution switch shall be utilized at the PEZA local monitoring centers and Data centers to support real-time video data transmission to video walls and enterprise storage, analytics and management servers. The distribution switch shall be a Layer 3 Stackable Managed Gigabit Switch that provides high-density performance, Layer 3 static routing, RIP (Routing Information Protocol) and OSPF (Open Shortest Path First). With 10Gbps uplink interfaces and switch stacking capability, the switch can handle extremely large amounts of data in a secure topology linking to an enterprise backbone and high- capacity servers.	
		13.3. Industrial Managed Access Fiber/POE Switch The cameras at the gates and intersections shall utilize an industrial managed POE switch with fiber uplink ports and shall operate reliably at temperature range from -40 to 75 degrees Celsius.	
		14. Smart Cabinet Server Rack Solution with Fire Suppression For the server rack requirements for the PEZA monitoring centers, a self-contained server rack solution that incorporates, UPS power and precision cooling in a rack that supports remote management and monitoring from a central.	
		15. Civil, Wiring, Roughing–Ins Works	
		15.1. Where wiring must be between buildings, or outside anywhere, it shall be underground and shall be designed and installed to be weather proof. Underground conduit must be 61 centimeters deep (where the conduit crosses a road, driveway, parking lot, or any paved surface it must be at least 81 centimeters deep) and be encased in concrete at least ten centimeters (10cm) thick. All underground works shall be restored with proper compaction, and proper materials (sand, gravel, etc.)	

		15.2. All underground works that crosses pavement shall also be restored with a minimum of 20.32 cm. of concrete on the surface, and a larger if used by heavy vehicles. All conduits that are on the outside walls of any and all buildings shall be properly installed and secured. Stainless steel pull boxes shall be installed in appropriate places. All conduits that are located on the outside walls, windows ledges, or any other place outside shall be fully encased in concrete at least 7.62 cm. thick on all sides. The concrete encasement shall be properly finished and painted (minimum of 2 coats) to match the color and type of building. No conduit or cable shall be installed on the roof of any building. Inside buildings, where possible, conduits shall go in ceilings and walls. Where not possible or too costly, they may go on walls or ceilings.	
		15.3. Conduits shall be installed to make the joints entirely watertight and pest (termite) proof (including pull box connections). All exposed conduits must be covered with wood false beams using marine plywood. These false beams and any other civil works accomplished must be painted (2 coats minimum) to match the color of the walls and/or ceiling.	
		15.4. The supplier is responsible for any damage done to the building(s) during installation. The Supplier must restore/repair any damage to the buildings. Cabling coming from the ceiling conduits going to the outlets (nodes) on the wall maybe installed with molding strip that properly protect the cables. The molding strips must have covers that properly secure the cable and shall fully encase the cable and the molding strip must be installed to a pull box in the ceiling connecting to the conduit. There shall be no gaps anywhere and flexible insulation to protect the cable in lieu of the molding the strip is not allowed. Tape shall not be used to fill gaps. All cabling shall be in molding strips or conduits with no exposed cabling whatsoever. Pull boxes must be installed at all reasonable and logical place in the conduit. Pull boxes must be GI steel were they are exposed or outside of a building (including outside building walls). The size of the pull boxes is dependent on the number of cables in the conduit, but as minimum must be 75 mm by 75 mm.	

		15.5. For underground wiring (communications, electrical, or any type) handholds are required. Hand holes shall be box-shaped, using reinforced concrete (reinforce bars must be a minimum of .12 mm thick, larger preferred, and at least every 10.16 cm). They shall have a concrete slopped floor with drain, with gravel underneath for proper draining. All concrete walls and floors shall be a minimum of 10.16 cm. thick. These should be placed whenever possible in non-vehicular areas. Hand holes must be at a minimum .61m x .91m x .91m (inside dimensions).	
		15.6. The hand-hole covers must be reinforced concrete or steel plate (12 mm thick minimum) that are sealed, and support the weight of a vehicle. The covers must be designed in a manner that provides weatherproofing. The grounding and bonding must follow the 15.6. Philippine Electrical Code, hand holes are required at service entrance, service exits, branches in conduits, a bend of 90 degrees or more, and straight runs every 30 meters.	
		16. Physical Cable Installation	
		16.1. Pathways shall be designed and installed to meet applicable local and national building and electrical codes or regulations.	
		16.2. Grounding / Earthing and bonding of pathways shall comply with applicable codes and regulations.	
		16.3. Pathways shall not have exposed sharp edges that may come into contact with telecommunications cables.	
		16.4. The number of cables placed in a pathway shall not exceed manufacture specifications, nor, will the geometric shape of a cable be affected.	
		16.5. Pathways shall not be located in elevator shaft.	
		16.6. All horizontal cables, regardless of media type, shall not exceed 90 m (295 ft.) from the telecommunications outlets in the work area to the horizontal cross connect.	
		16.7. The combined length of jumpers, or patch cords and equipment cables in the telecommunications room and the work area should not exceed 10 m (33 ft.) unless used in conjunction with a multi-user telecommunications outlet.	
		16.8. Horizontal pathways shall be installed or selected such that the minimum bend radius of horizontal cables is kept within manufacturer specifications both during and after installation.	

		16.9. In open ceiling cabling, cable supports shall be provided by means that is structurally independent of the suspended ceiling, its framework, or supports. These supports shall be spaced no more than 1.5 m (5 ft.) apart.	
		16.10.Telecommunications pathways, spaces and metallic cables, which run parallel with electric power or lighting, which is less than or equal to 480 Vrms, shall be installed with a minimum clearance of 50 mm (2 in.).	
		16.11. The installation of telecommunications cabling shall maintain a minimum clearance of 3 m (10 ft.) from power cables in excess of 480 Vrms.	
		16.12. No telecommunications cross-connects shall be physically located within 6 m (20 ft.) of electrical distribution panels, step down devices, or transformers, which carry voltages in excess of 480 Vrms.	
		16.13. 4-pair UTP cables shall be run from the telecommunications room serving that floor to every individual information outlet. The customer prior to installation of cabling shall approve all cable routes.	
		16.14. The contractor shall observe the bending radius and pulling strength requirements of the 4-pair UTP and fiber optic cable during handling and installation.	
		16.15. Each run of UTP cable between horizontal portions of the cross-connect in the telecommunication room and the information outlet shall not contain splices.	
		16.16. In the telecommunications room where cable trays or cable racking are used, the contractor shall provide appropriate means of cable management such as reusable color-coded hook and loop cable managers (ties) to create a neat appearance and practical installation. In a false ceiling environment, a minimum of 3 inches (75 mm) shall be observed between the cables supports and the false ceiling.	
		16.17. Continuous conduit runs installed by the contractor should not exceed 30.5 m (100 ft.) or contain more than two (2) 90 degree bends without utilizing appropriately sized pull boxes.	
		16.18. All horizontal pathways shall be designed, installed and grounded to meet applicable local and national building and electrical codes.	
		16.19. the number of horizontal cables placed in a cable support or pathway shall be limited to a number of cables that will not cause a geometric shape of the cables.	

		16.20. Maximum conduit pathway capacity shall not exceed a 40% fill. However, Perimeter and Furniture fill is limited to 60% fill for move and changes.	
		16.21. Horizontal distribution cables shall not be exposed in the work area or other locations with public access.	
		16.22. Cables routed in a suspended ceiling shall not be draped across the ceiling tiles. Cable supports shall be mounted a minimum of 75 mm (3 in.) above the ceiling grid supporting the tiles.	
		17. Work area termination	
		17.1. All UTP cables wired to the telecommunications outlet/connector shall have 4- pairs terminated in eight-position modular outlets in the work area. All pairs shall be terminated.	
		17.2. The telecommunications outlet/connector shall be securely mounted at planned locations.	
		17.3. The height of the telecommunications faceplates shall be to applicable codes and regulations.	
		18. Pulling tension • The maximum cable pulling tension shall not exceed manufacturer's specifications.	
		19. Bend radius	
		19.1. The maximum cable bend radii shall not exceed manufacturer's specifications.	
		19.2. In space with UTP cable terminations, the maximum bend radius for 4-pair cables shall not exceed four times the outside diameter of the cable and ten times for multi-pair cable. This shall be done unless this violates manufacturer's specifications.	
		19.3. During the actual installation, bend radius on 4-pair cable shall not exceed eight times the outside diameter of the cable and ten times for multi-pair cable. This shall be done unless this violates manufacturer's specifications.	
		19.4. In the work area, a minimum of 300 mm (12 in.) should be left for UTP, while 1 m (3 ft.) be left for fiber cables to the fiber loop holder	
		19.5. In telecommunications room a minimum of 3 m (10 ft.) of slack should be left for all cable types. This slack must be neatly managed on trays or other support types.	

		20. Cable tie wraps Tie wraps shall be used at appropriate intervals to secure cable and to provide strain relief at termination points. These wraps shall not be over tightened to the point of deforming or crimping the cable sheath.	
		21. Grounding All grounding / earthing and bonding shall be done to applicable codes and regulations	
		22. Workmanship All work shall be done of the highest standards in the telecommunications industry. All equipment and materials are to be installed in a neat and secure manner, while cables are to be properly dressed. Workers must clean any debris and trash at the close of each workday.	
		23. Electrical Installation The CCTV System must run in a complete independent electrical circuit. It cannot use the same circuit breaker used by the PEZA. The independent electrical connection must tap directly from the main commercial feeder line and distributed to the command center up to the individual CCTV cameras.	
		24. Panel boards The Supplier shall furnish and install the necessary panel boards of multi-breaker type including the breakers. Circuit breakers shall be tropicalized and shall be of the magnetic thermal type with ratings and number of poles as indicated in the plans. Panel boards to be used shall be flush-mounted and shall be set plumb in symmetry with the surrounding objects. Panel boards shall be installed in a perfectly fit cabinet of appropriate size provided with stop-in-door trim and good quality cylinder locks. The box enclosure shall be made from 2.0mm thick B.I.	

		25. Conduit Works Electrical Metallic Tubing (EMT) system is required for this project except where flexible conduit necessary for connections to equipment in the cabinets. Standard conduits shall be used and shall be sheradized or zinc coated galvanized rigid steel conduit pipes. Conduit runs shall be concealed in drop ceilings and/or embedded in concrete structures where concealment is not possible. No conduit of less than 15 mm nominal diameter shall be installed in lieu of a larger size. Conduit runs shall be continuous from outlet to outlet and no running thread shall be used in any conduit runs. Conduit shall be saved and properly reamed and threaded. All joints shall be screwed tight and butted in couplings. Conduit shall enter knockouts of conduit boxes and cabinet squarely. Locknuts shall be screwed tight to insure electrical continuity or raceway grounding. Bends and offset shall be made with approved hickey or conduit bending apparatus. The use of pipe tee or vise for bending conduit shall not be permitted. Conduits which have been deformed or crushed in any manner, shall not be installed. The supplier shall cap or plug effectively in accordance with approved methods the ends of all conduits, which are to be left empty within the cabinet and conduit boxes so as to prevent the entrance of white ants and dirt within the conduit system. The cap shall be so placed that it can be easily removed when so desired.	

		26. Wires and Wiring Methods All conductors shall be soft drawn copper conductors having conductivity of not less than 98% of that of pure copper. They shall be products of BPS-approved manufacturer such as Phelps Dodge, American, and Columbia and approved any equivalents. Wiring for all systems shall be in G.I. rigid steel conduits or EMT using type “THW”/ “THHN” conductors. Conduit shall be embedded in columns, walls, and toppings of floor slabs to allow flush mounting of various electrical devices. Conduit to be used for lighting system may be concealed inside the ceilings. Proper fittings shall be provided to ends of the conduit or EMT. Wiring installation through wooden double-walled partition will use galvanized RS conduits. In all cases, the wiring installations shall be concealed from vise. All conduits and conduit fittings shall be galvanized or sheradized and shall conform to BPS/UL standards. Minimum size of conduits to be used shall be 15mm nominal diameters or shall be as indicated on the plans. The smallest size of the conductor to be used shall be 2.0 sq.mm, THW. Larger size than 2.0 sq.mm shall be indicated on the plans. Circuit homeruns for power shall be 3.5 sq.mm or as indicated in the plans. All splices, taps and joints for all systems using conductors up to 14 sq.mm shall be electrically and mechanically secured before wrapping them in insulating tape up to a thickness equal to that of the insulation of the conductor. For conductors larger than 14 sq.mm, proper type solderless connectors shall be used and shall be properly protected with both plastic and friction tapes to provide proper insulation.	

		27. Grounding Installation The supplier shall furnish and install all ground cables, connection ground rods and all other materials required for a permanent and effective grounding system for the project. Grounding, in general, shall conform to the provisions of the Philippine Electrical Code and as recommended by the equipment manufacturer. All enclosures for electrical equipment regardless of voltage shall be grounded. Each shall be grounded in a common grounding system. Grounding rods shall be copper clad steel with minimum diameter of 20mm and minimum length of 3000mm. Ground clamps shall be of high compression, solderless cast design frame of higher copper alloy bronze with minimum thickness of 4.7 mm and hardware made from silicon bronze. The clamps shall be of shape and size to fit the point of application and type of connection to be made from cable to rod, pipe and curved or flat surfaces. Connections shall be such that the clamps and connections can be inspected and checked for maintenance purposes.	
		28. Cabling Specification This project requires 48-core fiber optic cable. The design must include a Main Distribution Frame (MDF) and Intermediate Distribution Frames (IDF) distributed the identified location of the Zone. IDF must conform to the Ingress Protection Rating required for outdoor equipment. Backbone pathways from IDF to MDF should be designed to allow the cable to be placed without damage. All cabling procedures and components must meet the existing Premises Distribution System or (Cabling System) specifications set forth by the manufacturer of the components being used so that it can be certified by the manufacturer's extend application and product warranty of at least 25 years.	
		29. Cabling – UTP, Fiber Backbone Network and other outdoor components	
		29. 1. The proposed cabling solution for copper and fiber and connecting hardware shall be sourced from one manufacturer only.	
		29.2. All cabling System products shall be UL listed and verified as well RoHS compliant. Must submit proof/certification of UL and RoHS compliance	

		29.3. All cabling not concealed in walls or above finished ceiling should be in conduit, metal wire trough or wire mold. This includes cabling to panels and field devices as well as any cabling between panels	
		29.4. Cable trays shall be installed in Command Center area to route and manage both copper and fiber optics cables.	
		29.5. All cabling and termination points shall be 100% tested, verified and certified to allow for manufacturer's warranty of the cabling system	
		29.6. Bidder must ensure that there are NO SPLICES for any cable involved in transmitting data	
		29.7. Submit Original Letter of Warranty Support from the Cabling System Manufacturer stating that the cabling Installation of the bidder shall be supported by at least 25-year Manufacturer's Warranty	
		29.8. All fiber and copper horizontal and copper horizontal/vertical cabling shall be terminated to an unloaded patch panel	
		29.9. All patch panels used are to be unloaded and able to use both Ethernet keystone jacks for compatibility and consolidation purposes.	
		29.10. All outlets, boxes and fittings for all system shall be consulted with the PEZA Engineering before installing this outlet.	
		29.11. The CAT-6 UTP cable, Information Outlet, Patch Cords must conform to the category 6 component specification	
		29.12. The CAT-6 UTP cable, Information Outlet, Patch Cords performance guaranteed to meet or exceed Category 6 /Class E Channel Specification to 250 Mhz to support high bandwidth data applications.	
		29.13. All Cabling components shall be completely labelled in accordance with the Philippine Electronic Code.	
		30. CODES AND STANDARDS	
		30.1. Work shall be installed according to the latest Philippine Electronics Code and Philippine Electrical Code.	
		30.2. Minimum technical standards covering the CCTV system shall adhere to, but are not limited to the following standards:	

		30.2.1.Cabling and Components • ANSI/TIA/EIA-568, Generic Telecommunications Cabling for Customer Premises • ANSI/TIA/EIA-568, Commercial Building Telecommunications Cabling Standard • Philippine Electronics Code Book # 1 – Telecommunications Facilities Distribution System • TIA - 758, Customer Owned Outside Plant Telecommunications Standard	
		30.2.2. Telecommunication Pathways • Philippine Electronics Code or ANSI/TIA/EIA-568	
		30.2.3. Grounding and Bonding • Philippine Electronics Code or ANSI/TIA/EIA-607 and Philippine Electrical Code	
		30.2.4. Administration and Labeling • Philippine Electronics Code or ANSI/TIA/EIA-606A	
		31. Optical Fiber Standards In the case of single-mode optical fibers the more common names are those used by another international organization, the ITU (International Telecommunication Union), specifically by the department dedicated to standardizing telecommunications solutions (ITU-T). ITU-T recommendations are widely known and used. "Transmission media and optical systems characteristics" are covered by G.600-G.699 series, optical fibers are described in the G.650-G659 range. Each recommendation is for a specific type of fiber.	
		32. Selected standards and recommendations	
		32.1. ISO/IEC standards: • IEC 60793 parameters of optical fibers and and cables: o IEC 60793-2-50 - applicable to single-mode 9/125 optical fiber types B1.1, B1.2, B1.3, B2, B4, B5 • IEC 60794-2 - requirements for indoor cables • IEC 60794-3 - requirements for outdoor cables • ISO/IEC 11801 - specifies general-purpose telecommunication cabling systems (structured cabling), including several classes of optical fiber interconnections (OM1 - OM4, with specified minimum modal bandwidth at 850 nm, and OS1, with attenuation max 1 dB/km)	

		32.2. ITU-T recommendations: • ITU-T G.650.1 and G.650.2 - definitions and test methods for linear, deterministic attributes of single-mode fibers and cables, • ITU-T G.652 - characteristics of a single-mode optical fiber and cable (9/125 μm, four versions: A, B, C, D), • ITU-T G.653 - characteristics of a dispersion-shifted single-mode optical fiber and cable (DS-SMF), • ITU-T G.654 - characteristics of cut-off shifted single-mode optical fiber and cable (CS-SMF), • ITU-T G.655 - characteristics of non-zero dispersion-shifted single-mode optical fiber and cable (NZDS-SMF), • ITU-T G.656 - characteristics of a fiber and cable with Non-Zero Dispersion for Wideband Optical Transport, • ITU-T G.657 - characteristics of a bending loss insensitive single mode optical fiber and cable for the access network.	
	Training and Documentation	1. Bidder must provide technical training to the assigned PEZA personnel and operators	
		2. Must provide manuals and technical documents of the entire system	
		3. Must provide as-built plans. Training materials. Data sheets, system manuals, configuration documentation, and equipment inventory in two (2) hard copies and soft copies in PDF format as appropriate.	
	Warranty and Maintenance	1. Warranty period for the project must be one (1) year on workmanship and three (3) years on equipment or specified in the Technical Specification warranty clause (Annex A and B). This must include a quarterly preventive maintenance service for the duration of warranty period	
		2. Bidder must include 24 x 7 technical support with a twenty-four (24) hour response time upon receipt of call, for troubleshooting purposes.	
		3. Resolution can be delivered in the form of telephone, electronic and/or on-site resolution. It shall refer to a condition wherein the reported problem is resolved by the Contractor to the satisfaction of PEZA	
		4. Bidder must have a help desk system in place to accommodate support requests and issue service tickets that can be referenced to obtain status updates and reports until resolution of the issue	
		5. Bidder must provide on-site support at no charge should an issue not to be remotely resolvable	

		6. Bidder must issue a warranty certificate deemed to commence after the date of issuance of Certificate of Completion and Acceptance, per site.	
	< detailed equipment and system specifications can be found below >		
1	**Video Management System With NVR**		
	Basic Functions	MS SQL Server Standard with 5 CALs	
		The Video Management Software shall be compatible with 64-bit Windows operating systems 8.1, 10 and Server 2016 Essentials or later.	
		The VMS shall run unrestrictedly in virtual environments and use a Software Asset Manager (SAM).	
		The manufacturer shall have an exact specification of the hardware requirements for the operation of the software in all expansion stages.	
		The VMS shall include multi-channel CCTV management and provide the power of real time recording all connected channels onto internal and/or external hard drives or RAID arrays.	
		The software shall work as a client-server system for efficient distribution of the service programs in the network.	
		The VMS shall offer one or more Ethernet Network connections on TCP/IP with a minimum bandwidth of 1 GBit/second.	
		The software shall be scalable and expandable so that it can be adapted to future changing requirements and expanded to a complete system of any size.	
		It shall be possible to use any number of instances in virtual environments.	
		A central user administration shall manage all user rights and accesses to the entire system.	
		The VMS shall contain 10 client accesses to live streams or the media database of the respective VMS instance.	
		The setup shall be possible quickly and easily via configuration wizards.	
		The menu languages shall be adjustable: EN, DE, FR, ES, IT, RU, NL, PL, HU, TR, AR to allow for a multi culture work environment.	
		Each VMS instance shall be able to manage up to 128 camera channels.	

		The VMS shall also be capable of independently processing 2 streams per IP camera to clearly distinguish between recording and live streams.	
		Video Server Software shall have full 64-Bit implementation and GPU acceleration for image processing and viewing functions.	
		The VMS shall provide encrypted data transmission from camera to server and from server to review station.	
		The VMS shall be ONVIF compliant and additionally support all common digital signal sources of IP cameras and encoders of different manufacturers.	
		The VMS shall offer advanced per channel selectable compression technology to cover numerous IP cameras or camera servers from different manufacturers, with a choice between MJPEG and H.264, H.265.	
		The Software shall allow on the fly transcoding of IP camera signals into CCTV optimized codecs such as H.264CCTV for frame accurate stream control.	
		Each designated live video stream shall be independent from and not interfere with recording.	
		Utilizing a virtual matrix switch functionality, the system will have the ability to direct the video from any camera to any network video client in the system.	
		The VMS shall ensure a jerk-free display of the video streams even with reverse and forward windings.	
		The software shall have an extremely fast metadata search due to the SQL database (Dual Database)	
		Any live video display with audio shall allow lip synchronous synchronization.	
		The VMS shall include encryption or other verification methods to guarantee the authenticity of recorded images so that they are admissible as evidence in a Court of Law.	
		In addition to or instead of dedicated remote viewing client software, live and/or recorded images shall also be accessible from standard WEB-browsers via HTLM5 without the use of plugins.	
		The VMS shall have a multi-level password protection scheme including the definition of single users and user groups with individual access rights as well as a 4-eye-password-option (Two Man Rule).	

		These access rights shall enable the differentiation between administrative activities (access to the setup software) and viewing activities (access to DVR/NVR units, live/recorded pictures, defined cameras or camera groups, defined actions in the viewing process including backup, print or export of images or sequences).	
		The VMS shall include a log-function to document any system or user activity including events, alarms, successful and denied logon/logoff actions, setup changes, changes of system time and date. Each action shall be documented with date, time, computer identification and user identification.	
		A Software Development Kit (SDK) shall allow software developers to mainly achieve bidirectional event data communication, but also realize in depth integrations with even live and recorded video being embedded into 3rd party GUI's	
		The software shall monitor the contrast level of each analog video input in real time to immediately detect deterioration of the camera picture through tampering or lighting failure.	
		As an option, the manufacturer shall be able to supply powerful monitoring software that automatically performs permanent monitoring of all system components.	
		The VMS must be capable of allowing directories, recordings, and virtual matrices to failover to another server in the event of an error.	
		Additional software options shall simply be activated via license keys.	
		The VMS shall have a setup migration that makes it easy to transfer setup settings from one hardware platform to another.	
		The VMS shall contain an easily understandable online help in selectable system languages.	
	Video Recording	The installed video recording engine shall use dual database architecture for fast data access, with separate databases for image and process data, whereas process data shall be written into a standardized SQL database.	
		A VMS instance shall be able to manage up to 450 terabytes or more for the database.	
		There shall be the possibility to expand recording capacity to external drives, as for example to external iSCSI RAID's, SAN, or JBOD's.	

		Storage of up to 50 fields/s (analogue cameras) or 25/30 full frames/s per channel in a CCTV optimized H264CCTV differential image format shall be possible.	
		The VMS shall use an optimized H.264 version as basic image compression method which displays all single images (not only keyframes) smoothly and consistently during forward and backward playback.	
		The VMS shall support the compression methods M-JPEG, H.264, H.264CCTV, H.265.	
		Recording shall comply with any picture format and quality provided by each individual camera model, including Full HD, Megapixel and even UHD (4K). For analog cameras, if adequate, the selectable formats shall be QCIF, CIF, 2CIF or 4CIF (D1).	
		The following shall be selectable per camera in different conditions, i.e. permanent recording, prealarm and alarm recording per alarm type, also depending on time range: o The image resolution; The recording picture rate (images per second); Video quality settings (compression factor)	
		The setting of the recording parameters shall be independent of the live stream display.	
		Images and data shall be stored in a FIFO (First-in-first-out) principal to guarantee overwriting of old images or data.	
		The recording shall be organized in different ring buffers (min. 16) so that different cameras or event types can have different storage strategies with regard to the archive duration. Several of these rings must be available and several priority levels must provide for the establishment of individual user-specific overwrite strategies.	
		For adaptation to network bandwidths and storage solutions at all resolutions (max. 4K) and 50 fields/s per channel, Dual Channel Streaming (DCS) shall be used to completely separate the live and storage channels.	
		Professional fine tunings per camera shall be possible to shape highly customizable video streams, with individual adjustments for GOP (Group of Pictures) or key frame frequency in order to match individual scene characteristics and accurately define bit stream rate parameters and selecting between VBR (Variable Bit Rate) or CBR (Constant Bit Rate).	

		The distance between two I-frames shall be changeable (variable GOP-Size).	
		For the automatic adaptation of image rate and quality to the scene (motion and sound), an intelligent compression dynamic (ICD) shall be available which enables real-time, dynamic and latency-free staggered permanent recording levels without permanent storage of redundant still images.	
		The database shall be able to be expanded dynamically at any time without image loss (Dynamic Storage Expansion -DSX).	
		To progressively reduce the frame rate of recordings as the retention period increases, the software shall have a fading long-term memory (FLTM) method that minimizes the amount of unnecessary recordings in the storage space.	
		The VMS shall offer advanced automatic backup options for storage redundancy or long-term archiving.	
		The backup process can be time as well as event controlled, whereby the target storage medium is freely selectable, HD, CD, DVD, USB drive, etc.	
		Switching off the power of the hardware platform shall not result in any database inconsistencies.	
		Software updates, setup changes or extension of storage capacity shall not alter images or data already stored. These images and data shall remain accessible.	
		The system shall be able to use multiple databases, whereby databases can be added at any time.	
	Live Streaming	Each designated live video stream shall be independent from and not interfere with recording.	
		At least 10 client accesses to live streams or the media database of the respective VMS instance shall be supported in the standard package.	
		The live stream picture resolution and quality shall be selectable independently per camera and per video stream to various picture formats with scalable compression factors. It shall allow any picture format and quality provided by each individual camera model, including Full HD, Megapixel and even UHD (4K). For analog cameras, if adequate, the selectable formats shall be QCIF, CIF, 2CIF or 4CIF (D1).	

		The VMS shall be equipped with Dynamic Live Streaming (DLS), which adapts the resolution of the live channel per camera channel to the resolution of the respective viewing window of a camera in the user interface of the playback computer when transmitting in the network.	
		The system shall be capable to automatically adjust the parameters of any video stream (ASM) depending on time ranges (of day, week, month, year etc.) or event triggered by video analytics or other actions. Such stream adjustments shall include picture resolution as well as compression factor and frame rate (# of images per second). Any stream quality switching shall occur in real time with no latency when using CCTV optimized codecs.	
		The image compression, quality and frame rate shall be adjustable for each video input for live image transmission alternately and independently of each other (ICD).	
		Latency of live video transmission shall be below 150ms (at D1 resolution) to allow smooth manual control of PTZ units. Tenderers' shall be able to prove latency figures by providing measured results.	
		The VMS shall allow the display of camera metadata including time/date/event or alarm in predefined positions, below, above, next to or superimposed to the camera picture. The position, size, color, background and font of this information shall be user-definable.	
		Any live video display with audio shall allow lip synchronous synchronization.	
		Lip sync shall be automatically disabled when a PTZ camera (equipped with audio) is moved.	
	Camera Integration	The VMS shall support the ONVIF-S and ONVIF-T standards.	
		The VMS shall be able to configure and retrieve multiple video streams from IP cameras or other IP devices.	
		The VMS shall be able to receive and process metadata from an IP camera or other IP device: Alarm messages, fault messages or video analysis messages.	
		The VMS shall be able to control the event handling functions of IP cameras or other IP devices.	

		The VMS shall have an RTSP server (Real Time Streaming Protocol) which converts live streams (Motion JPEG, MPEG-2, H.264) into RTSP standard compliant streams for e.g. the VLC media player or modern monitor walls.	
		The VMS shall support multiple RTSP clients, even if they request the same channel, and allow access to multiple RTSP servers.	
		The VMS shall optionally support an **Edge Recording** function for ONVIF compatible IP cameras in order to be able to store and retrieve image material decentrally on a camera-internal SD card.	
		The VMS shall optionally provide a secondary channel function for parallel use of multiple streams per IP camera with different, adjustable resolutions.	
	Alarm and Event Management Specifications:	Alarm and event management shall allow flexible adaptation of the system's reactions to alarms or other events according to user requirements.	
		It shall be possible to set up event reactions using logical combinations to generate complex reaction sequences.	
		Times for pre- and post-alarm recording shall be adjustable for each event.	
		Recording parameters for simultaneous recording of several cameras with different quality and speed shall be adjustable.	
		The event-controlled, simultaneous display (live stream) of several cameras with different quality and speed in different viewers shall be parameterizable.	
		The automatic alarm image display with live and/or replay viewers (e.g. with automatic alarm video loops) even at different, predefined user workstations shall be adjustable.	
		Alarms or events of any kind shall be able to control several output contacts automatically.	
		It shall be possible to automatically send alarm or event information to users of connected third party systems.	
		Alarm and event messages shall automatically control one or more PTZ cameras, • e.g. to move to preset fixed positions or start a tour.	
		Alarm and event messages shall be able to control the automatic backup of predefined video sequences.	

		E-mail messages shall be event-controlled and sent to predefined recipients with alarm images attached.	
		Each system state shall be able to trigger predefined follow-up actions.	
		All logic operations can be time-controlled, delayed or edge-triggered.	
		Alarms shall be able to be assigned different priority levels, highest priority, medium priority, low priority, each with different display scenarios (image switching, acknowledgement dialog, playback of a WAV file) per user.	
		Generating alarms shall be possible via internal video analytics, but also via external alarm inputs or via interfaces to other equipment (serial or TCP/IP link), or any other internal system event.	
		A Time scheduler shall allow completely unattended operation to activate/deactivate different profiles for recording and analytics during user defined time windows. This shall include daily, weekly monthly or yearly schedules and allow the importation of national holiday calendars.	
		In case of using the VMS as satellite to networked CCTV-Systems, any system event shall also be transmittable via IP-network to the other video servers, and to a Central Action Manager containing programmable logics with timings. Those functions shall be standard without the need of customized adaptations.	
	Video Analysis	The system shall integrate different options to analyze images automatically and in real time.	
		Every video content analysis shall be available through activation with a license key.	
		All types of video analysis shall be capable of processing images in real time on the video inputs and shall not reduce the capacity of the recording or live stream or affect other functions of the Software in terms of computational speed and performance	
		At runtime, any of the analytics methods shall be capable to push relevant live and/or recorded images to networked users along with event metadata.	
		The software shall have a central VCA setup editor with its help each camera channel different types of video analysis can be clearly assigned.	

		The installation shall be possible both locally and on a remote computer.	
	Camera Signal Monitoring	The VMS shall automatically detect the failure of video synchronization signals from any cameras in real time to ensure immediate detection of an error.	
		It shall also monitor the contrast level of each video input in real time to immediately detect deterioration of the camera picture through tampering or lighting failure.	
		The VMS shall offer the possibility to monitor the field of view of each camera to detect tampering with cameras through change in position.	
		To monitor the field of view of a camera, the system shall be able to create a reference image (comparison image) as a background model autonomously.	
		To monitor the field of view of a camera, it shall also be possible to assign a reference image (comparison image) manually.	
		The measurement cycle of the image comparison (live / reference image) shall be adjustable.	
		It shall be possible to define a pre-alarm threshold, how often a deviation is detected until an alarm is triggered.	
		A contrast monitor shall display the current contrast of the camera image in comparison to the set threshold value, which must not be fallen below.	
	User Interface (Viewing Software)	The viewing/reviewing software (with audio function) shall run on a standard Windows PC and natively support the 64-bit computer architecture and fully utilize the Intel GPU acceleration.	
		The viewing/reviewing software is supplied with the VMS and is free of charge.	
		Using user profiles, it shall be possible to define own viewer arrangements deviating from the standard view.	
		The system shall have a profile manager that can be used to create templates containing not only the number, position and size of viewers, but also scenes with predefined camera connections.	
		It shall be possible to "jump" from one template / scene to another simply by clicking into a viewer (Template walker).	

		The software shall allow the administrator to create options profiles that can be allocated to users or user groups. Each options profile includes all GUI-settings such as sizes and positions of viewing windows, as well as fonts, colors, network connections, alarm reactions, user buttons and more.	
		The viewing/reviewing software shall support multiple monitors (4 or more) and enable its video viewers being positioned onto any of the monitors.	
		A viewer shall be adjustable to the size of the Windows window (stretch mode).	
		It shall be possible to display camera images in the Viewer in the correct aspect ratio (letterbox).	
		The system shall allow different start-up scenarios depending on user login. Such scenarios shall include the connection to predefined DVR/NVRs as well as the automatic display of live/recorded video streams within predefined viewers.	
		Several user workstations shall be able to connect to the same DVR/NVR unit via network without functional limitation.	
		The viewer operation shall include the following functions: o Fast rewind database (speed adjustment by slider); o Rewind; o Rewind image by image; o Stop; o Forward image by image; o Forward; o Fast forward database (speed adjustment by slider); o Live streaming.	
		The viewer operation shall have a timeline in which a time frame from 1 min. to 24 h can be set. It shall be possible to move this time frame over the entire recording area in order to be able to quickly select images from the recording history.	
		For direct switching between event recordings, buttons with the following functions shall be used: o Begin of database; o Next event; o Previous event; o End of database.	
		The viewing/reviewing software shall provide a Motion Search (MOS) function to search for motion in recorded images in a marked area of the image.	
		It shall simply be possible to draw a search area as a rectangle in the video image using the mouse in playback mode.	

		For direct switching between detected movements in recordings, buttons with the following functions shall be used: o Begin of database; o MOS backwards; o MOS forwards; o End of database	
		The software shall include a background motion search. This function searches for movements either in a marked area or in the entire image. All recordings found are automatically transferred to a cut list, limited by date, time range, camera channel and sensitivity, with adjustable pre- and post-run times.	
		All control functions shall additionally be accessible via a self-explanatory context menu.	
		On the Clients side, a snow filter shall be available which eliminates disturbances caused by heavy snowfall, rain showers or strong image noise in moving images without affecting the images stored in the database.	
		A selected image in a viewer shall be printable. It shall be possible to add the following text insertions (font, size, colour, orientation can be changed) to the image beforehand: o Date/time o Channel description o Alarm text o Event name o Event description o Event parameter o Export information	
		The additional function ExportPrivacy allows the user to mask areas in the image in black before printing.	
		A selected image in a viewer can be exported as BMP, JPEG (low, medium or high quality) or RAW file. It shall be possible to add the following text insertions (font, size, color, orientation can be changed) to the image beforehand: o Date/time o Channel description o Alarm text o Event name o Event description o Event parameter o Export information.	
		The additional function **Export Privacy** allows the user to mask areas in the image in black prior to export.	
		Access to local DVD / CD burners for exporting images shall be blocked for certain clients	

		Alarm views shall be freely adjustable by defining the number, position and size of the viewers as well as the automatic connection of camera channels.	
		When alarms are generated, the corresponding sound (audio channel), if available, must be played automatically.	
		The software shall be able to display several alarms simultaneously in different viewers.	
		Alarms shall be forwarded to other clients via an alarm push function. dd. As viewer scenes the following viewer arrangements must be adjustable: o 16:9 Matrix 1 x 1 o Matrix 1_12 o Matrix 1_16 o 16:9 Matrix 2 x 2 o Matrix 1 x 1 full o Matrix 2 x 2 full o Matrix 3 x 3 full o Matrix 4 x 4 full o Matrix 1_5 o Matrix 1_7	
		If no display scene has been defined for the display of an alarm, a suitable viewer arrangement is automatically displayed.	
		Any user workstation shall be able to connect to several DVR/NVR units at the same time without functional limitation.	
		The user interface shall allow cameras from different DVR/NVRs being displayed simultaneously on the same screen live and/or replay. This is independently from the video source, whether analog or IP.	
		The user interface shall enable the parallel display of live and recorded pictures of the same camera or different cameras in multiple viewers.	
		It shall be possible to create customized buttons in the VMS to play scenarios and send commands (infrared on/off, manual transition mode for day and night, etc.) to the cameras.	
		In the viewing/reviewing software, it shall be possible to control PTZ (pan-tilt-zoom) cameras via a virtual joystick, mouse or direct click into the image and recall fixed positions via buttons.	
		A professional hardware unit with joystick for camera selection and PTZ shall also be supported.	

		The software shall allow the administrator to create rights profiles that can be allocated to users or user groups. Those rights profiles shall grant not only access to DVR/NVRs, but to individual cameras or camera groups and to functions per camera, such as access to live video and/or replay and/or access to remote control for PTZ cameras. Rights for exporting footage or printing images shall also be included.	
		The number, size and arrangement of the viewers shall be freely editable for each client and saved as one of the views.	
		The software shall contain a screen splitter function to display the streams of two cameras side by side with a fixed image section each (static zoom) as one image in a viewer.	
		All viewers shall have digital zoom	
		The system shall enable time-synchronous playback of the stored video recordings of the cameras as parallel playback in several viewers.	
		A set of tools for the enhancing of the picture display including brightness, contrast, color rendering and zoom shall be available. These changes in display shall not affect recorded data.	
		Options for alarm display shall include alarm pop-ups with automatic alarm viewer scenarios displaying live images as well as automatic post-alarm and pre-alarm footage in predefined loops for single or multiple cameras.	
		For each camera channel, each event / alarm and each action it shall be possible to assign a text insert.	
		The following search filters must be available: • Search by time / date, • after event / alarms, • for actions, • according to transaction data, • after number plates, • and barcode data.	
		Via one or more camera channels, forward or backward with **"Jump by time"** function.	
		A data string coming from a connected barcode reader (or other interfaced device) shall also be usable as direct search criteria to directly find footage that has been recorded with the same string (bar code or others).	

		The viewing software shall allow various replay filters, for example filtering a viewer to show special event footage only, while discarding everything that was recorded outside such events.	
		The viewing software shall allow the easy creation of automated multi camera video cut-lists (for example concentrating to moments found with motion search – or other criteria).	
		Cut-list fine tuning shall allow adjusting start-stop times of each cut as well as the adding of cameras.	
		Such cut lists shall ease the viewing efficiency thru numerous events, but also allow its export to removable media.	
		Alarms/event data shall be accessible via event lists. Such lists shall be available per camera, but also globally for all cameras. Selecting event list entries shall provide direct access to the event images.	
		The picture search on a group of cameras shall be synchronized to display all images responding to the search criteria from different cameras in different viewer windows - regardless of the number of DVR/NVR units to which the cameras of the group are connected.	
		The user shall be enabled to mark and quickly retrace once found pictures via bookmark lists.	
		The bookmark list shall contain preview icons and indicate whether a bookmark has been set in the recorded material or the livestream.	
		Single frame forward/back must include all frames, jumping to key frames only will not be accepted.	
		Fast forward/rewind shall be smooth and consistent. Supported speeds should include x1, x2, x4 and x8.	
		There shall be the option of “intelligent video walker” image view organizing. In this mode the selection of one camera shall automatically position viewers with neighboring cameras next to it.	
		The viewing software shall allow all connected DVR/NVRs to appear as one logical device so that cameras can be selected by camera number or name only, without forcing the operator to first select the DVR/NVR.	

		A **“directory tree structure**” shall be preferred for all cameras and logical groups of cameras (and DVR/NVRs if adequate) with the ability of selecting different text colors. PTZ cameras shall be marked as such in the tree view with an appropriate symbol.	
		The video management system shall have adjustable alarm dialogs in which it is defined how the system presents an alarm or follow-up alarms, how the user has to handle alarms and which automatic actions are to be started by them.	
	Connections to further Manufacturer's own System Components and Integration to 3rd Party Systems	The VMS shall include a system connection to the manufacturer's own, higher-level Security Information Management Software, with the help of which any number of Video Management Systems at distributed locations can be managed as a networked overall system and operated from different workstations with overlapping rights.	
		The VMS shall have a connection to a manufacturer's own integration server which, as a communication platform (translator), interfaces various specialized third-party systems with different data protocols with the VMS.	
		The manufacturer of the VMS shall also be able to supply a monitoring software which permanently monitors all operating states of the system and recognizes critical states, such as a camera failure, database errors or operating temperature changes, and forwards them as an alarm via system message or e-mail. The software can be used for remote maintenance of the system or for planning a maintenance assignment, whereby all system parameters system states can be viewed and evaluated remotely.	
		The VMS shall include a licensable interface for the mutual exchange of alarm messages and control commands with various Access Control systems (ACS) including but not limited to SPG, Gallagher, LENEL, Inner Range, Protégé .Be bi- directional of alarm events and ability to display video images in the ACS system.	
		The VMS shall include a licensable interface to connect the parking management system of the manufacturer Skidata. Event information controls video recording.	

		The VMS shall have a licensable interface to the Network Communication System of the manufacturer Jacques by using a manufacturer's own integration server.	
		On the basis of its own integration server, the manufacturer of the VMS shall be able to develop custom interfaces to third-party systems and standardize them for multiple use.	
	Logistics Analytics (Ready)	The VMS shall include an image export tool that provides a simple, image-based interface to other systems (management systems or web services) for automated event-driven or action-driven export of single images.	
		This export tool shall be a stand-alone service that can run on any computer in the network and is connected to the VMS via TCP/IP.	
		The export of single images (jpg or bmp) shall be adjustable by the following parameters:	
		Export only after event stopped.	
		Export/Trigger at: event start time, retrigger time, event stop time with a delay time of (delay by XXXX milliseconds).	
		Periodic export (including export interval, distance between two exported images in milliseconds).	
		The automatic structure of the file names of the images to be exported shall be possible by means of adjustable templates. Data such as event name, event ID, event type, action data or process data as well as time and date can be used for these templates.	
		The destination drive for storing the exported images shall be freely selectable in the network, whereby a possibly required user name and password must be stored in the export service.	
		It should also be possible to manage the storage space in order to be able to define: • How much storage space may be used on the target drive; • How much memory space is to be kept free for new images before the oldest images are deleted; • Which images older than the specified time should be deleted automatically;	
		The service shall be able to report capacity alerts when the free space on the target drive falls below a specified value (in GB).	

		Besides the normal export of single images from a livestream that has not yet been opened, it shall be possible to select a fast mode that keeps a livestream open for each media channel while the service is running.	
		The VMS shall have a plug-in which can be used to integrate barcode scanners.	
		The plug-in shall be able to manage up to 255 serial barcode scanners as well as an adjustable number of external barcode clients (IP), whose parameter settings can be exported or imported as CSV file.	
		It shall be possible to assign each scanner to one of a freely definable list of locations in order to manage the assignment to camera locations.	
		Dynamic assignment shall be possible with a registration scan.	
		The plug-in shall contain an integrated TACI interface (Telnet Action Command Interface) which can receive, filter and forward barcode data (Barcode, Log Barcode Data, Log Barcode ID) to the VMS to control further system actions.	
		As further options, it shall be possible to set which parts of the barcode are to be forwarded and whether an action is to be forwarded if a logon or logoff scan has been done.	
		It shall be possible to define further output profiles for the adaptation of different barcodes from different scanners.	
		The image search using barcodes shall be possible via the command line.	
2	**Video Management System Server Specs**		
	Processor	2 x Xeon Silver 4210 2.4G, 10 Cores	
	Memory	2 x 8GB RDIMM, 3200MT/s, Single Rank	
	Drive bays	600GB 10K RPM SAS 12Gbps 512n; 2.5in Hot-plug Hard Drive 2.5 Chassis with up to 16 Hard Drives, 2x SSD, and 3PCIe slots; DVD +/-RW, SATA, Internal	
	RAID/Internal Storage Controllers	PERC H730	
	Fans	Included	
	Power supply	Dual, Hot Plug, Redundant Power Supply (1+1), 550W	
	Network	Dual Port 1GbE BASE-T	
		UEFI BIOS Boot Mode with GPT Partition	

	Advanced System Configurations	Energy Star	
	Warranty	Basic Next Business Day 36 Months, 36 Months	
		ProSupport and Next Business Day Onsite Service, 36 Month	
		Must have the Manufacturer's warranty certificate on the day of delivery	
	Deployment Services	Basic Deployment (on-site hardware deployment)	
	ISO Certification	Manufactured by an ISO 9001 or ISO 9002 certified Enterprise Storage manufacturing company. (supported by certified true copy of ISO certification)	
	Quality Assurance	All components must be of the same brand and should be factory installed with corresponding part numbers and description that can be viewed and verified via web.	
		Must have a real-time, web-based warranty information on all parts.	
3	System Health Monitoring Server		
	Basic Functions	Runs as a service on each Storage server/NVR	
		Loads health plug-ins which provide specific monitoring capabilities	
		Registers with a health monitoring server	
		Periodically updates the server with monitoring statistics, or immediately in the case of a problem	
		Monitors hardware associated with each DVR/NVR	
	Monitors the Following	Server Errors	
		Temperature Alarms	
		Drive Warning	
		Drive Error	
		Drive OK	
		Array Warning	
		Array Error	
		Array OK	
	Reports the following	Software Version	
		Video Signal Errors	
		Database Size	
		Licenses	
		Database Errors	
		Recording Throughput	
		System Configuration	
		Avg. CPU Utilization	
		Fan Alarms	

		Avg. Memory Utilization	
		Current CPU Temperature	
	Processor	2 x Xeon Silver 4210 2.4G, 10 Cores)	
	Memory	2 x 8GB RDIMM, 3200MT/s, Single Rank	
	Storage	1.2TB 10K RPM SAS 12Gbps 512n 2.5in Hot-plug Hard Drive	
	Drive bays	600GB 10K RPM SAS 12Gbps 512n; 2.5in Hot-plug Hard Drive 2.5 Chassis with up to 8 Hard Drives and 3PCIe slots; DVD +/-RW, SATA, Internal	
	RAID/Internal Storage Controllers	PERC H730	
	Fans	Included	
	Power supply	Dual, Hot Plug, Redundant Power Supply (1+1), 550W	
	Network	Dual Port 1GbE BASE-T	
	Advanced System Configurations	UEFI BIOS Boot Mode with GPT Partition	
		Energy Star	
	Warranty	Basic Next Business Day 36 Months, 36 Months	
		ProSupport and Next Business Day Onsite Service, 36 Month	
		Must have the Manufacturer's warranty certificate on the day of delivery	
	Deployment Services	Basic Deployment (on-site hardware deployment)	
	ISO Certification	Manufactured by an ISO 9001 or ISO 9002 certified Enterprise Storage manufacturing company. (supported by certified true copy of ISO certification)	
	Quality Assurance	All components must be of the same brand and should be factory installed with corresponding part numbers and description that can be viewed and verified via web.	
		Must have a real-time, web-based warranty information on all parts.	
4	Video Security Monitoring Licenses with Dongle and Server		
	Processor	Intel Xeon E-2224 3.4GHz, 8M cache, 4C/4T, turbo (71W)	
	Memory	16GB 2666MT/s DDR4 ECC UDIMM (4 DIMM Slots)	
	Network	On-Board Broadcom 5720 Dual Port 1Gb LOM	
	Storage	1TB 7.2K RPM SATA 6Gbps 512n 3.5in Hot-plug Hard Drive	
	Drive bays	3.5" Chassis with up to 4 Hot Plug Hard Drives	
	Network	480GB SSD SATA Mixed Use 6Gbps 512e 2.5in Hot Plug, 3.5in HYB CARR Drive, S4610, CK	
	Optical Drive	DVD +/-RW, SATA, Internal for Hot Plug Chassis	
	Power supply	Single Hot Plug Power Supply 350W	

	ISO Certification	Manufactured by an ISO 9001 or ISO 9002 certified Enterprise Storage manufacturing company. (supported by certified true copy of ISO certification)	
	Quality Assurance	All components must be of the same brand and should be factory installed with corresponding part numbers and description that can be viewed and verified via web.	
		Must have a real-time, web-based warranty information on all parts.	
5	Fail-Over Network Video Recorder		
	Basic Function	The purpose of this solution is when every server has a “shadow” NVR to which it fails over	
	Recording Specifications	Each unit shall provide internal hard drive recording capacity of 16 S-ATA/SAS drives within front drawers for ease of access.	
		Each unit shall include a RAID controller for various RAID configurations, mainly RAID level 5 or 6 using 1 or 2 of the hard drives as hot spare.	
		Independently and in addition to the recording hard drives, the system shall include at least one SSD-drive that is dedicated to the system’s operating and video management software.	
		A second Channel redundancy for individual channels of a server is mapped to different target servers. These target servers could be “live”, and only keep a few channels open for fail-over.	
		Software updates, setup changes or extension of storage capacity shall not alter images or data already stored. These images and data shall remain accessible.	
	Software Functions	Intuitive Operation	
		Customizable Reporting	
		Achieve Server fail-over time of less than a second (N+1)	
		Fail-over for NVRs, channels, and cameras	
		Granular user control and restrictions for all menus	
		Central administration & distributed use (Windows and Active Directory Integration)	
		Video Wall Management and Remote Monitor control using Remote consoles	
		Extreme scalability to manage a minimum of 5500 cameras	

		Powerful Dynamic map engine	
		Alarm & health monitoring	
		Alarm handling procedures	
		Full audit trail with dynamic events	
		Multi-lingual, including RTL (Right To Left) language support	
		Easy integration to 3rd party data providers	
Face Recognition System			
	Functions	Live Video Overlays & Match Event Details- Event details, including live video overlays and side-by-side display of face recognition events, Display critical information directly on the operator's screen.	
		Automatic Enrollment - Easily and efficiently enroll individuals appearing on the VMS directly into the Face Recognition database.	
		Events - Trigger an event on the VMS based on Face Recognition event details such as name, age, gender, and other parameters to provide searchable metadata that allows for more efficient post-event investigation.	
		Alarms and Notifications - Support for custom alarms to instantly notify security personnel when persons of interest approach a monitored area, or when strangers appear in restricted spaces. The Face Recognition analytics application shall be easily-configurable to support a variety of automated responses to detection and recognition events.	
		Performance - Support up to 99.87% face recognition accuracy and face matching speed of under 100 milliseconds.	
6	4-Channel Face Recognition Server		
	Processor	**2** x Intel Xeon Silver 4210 2.2G, 10C/20T, 9.6GT/s, 13.75M Cache, Turbo, HT (85W) DDR4-2400	
	Memory	**2 x** 16GB RDIMM, 3200MT/s, Dual Rank	
	Storage	1.2TB 10K RPM SAS 12Gbps 512n 2.5in Hot-plug Hard Drive	
	RAID/Internal Storage Controllers	PERC H730P RAID Controller, 2GB NV Cache, Minicard	
	Network Daughter Card	Broadcom 5720 Quad Port 1GbE BASE-T, rNDC	
	Internal Optical Drive	Optional	
	Power Supply	Dual, Hot-plug, Redundant Power Supply (1+1), 750W	
	Warranty	Basic Next Business Day 36 Months, 36 Months	

		ProSupport and Next Business Day Onsite Service, 36 Month	
		Must have the Manufacturer's warranty certificate on the day of delivery	
	Deployment Services	Basic Deployment (on-site hardware deployment)	
	Form factor	Rack (1U)	
	ISO Certification	Manufactured by an ISO 9001 or ISO 9002 certified Enterprise Storage manufacturing company. (supported by certified true copy of ISO certification)	
	Quality Assurance	All components must be of the same brand and should be factory installed with corresponding part numbers and description that can be viewed and verified via web.	
		Must have a real-time, web-based warranty information on all parts.	
7	2-Channel Face Recognition Server		
	Processor	1 x Xeon Silver 4210 2.2G, 10Cores	
	Memory	2 x 16GB RDIMM, 3200MT/s, Dual Rank	
	Storage	1.2TB 10K RPM SAS 12Gbps 512n 2.5in Hot-plug Hard Drive	
	RAID/Internal Storage Controllers	PERC H730P RAID Controller, 2GB NV Cache, Minicard	
	Network Daughter Card	Broadcom 5720 Quad Port 1GbE BASE-T, rNDC	
	Drive bays	256GB SSD; 1TB 2.5in Hard Drive; 2.5 Chassis with up to 8 Hard Drives and 3PCIe slots;	
		DVD +/-RW, SATA, Internal	
	Power supply	Dual, Hot-plug, Redundant Power Supply (1+1), 750W	
	Form Factor	Rack (1U)	
	Warranty	Basic Next Business Day 36 Months, 36 Months	
		ProSupport and Next Business Day Onsite Service, 36 Month	
		Must have the Manufacturer's warranty certificate on the day of delivery	
	Deployment Services	Basic Deployment (on-site hardware deployment)	
	ISO Certification	Manufactured by an ISO 9001 or ISO 9002 certified Enterprise Storage manufacturing company. (supported by certified true copy of ISO certification)	
	Quality Assurance	All components must be of the same brand and should be factory installed with corresponding part numbers and description that can be viewed and verified via web.	

		Must have a real-time, web-based warranty information on all parts.	
Automatic Plate Number Recognition			
8	Automatic Plate Number Recognition System		
	Functions	The system shall offer the possibility of recognizing and reading number plates on moving and stationary vehicles at a maximum distance of 20 m.	
		Recognized number plates shall allow any real time system reaction as well as being used as search criteria for recorded footage.	
		The Automatic Number Plate Recognition (ANPR) shall be able to recognize and read local vehicle number plates from all territories.	
		The typical recognition rate of the system shall be > 96%.	
		The system shall contain a Number Plate Configurator in which country codes can be activated or deactivated.	
		The expected size of a number plate (min. / max.) in the video image as well as the expected speed (slow, normal, fast) shall be adjustable.	
		Optionally, the flow direction from which the vehicles come shall be adjustable.	
		Known number plates shall be assigned to certain groups (e.g. company vehicle, staff, etc.) in a category list.	
		In the category list, the individual number plates shall be marked as "black" or "white" in order to be able to define access authorizations.	
		Vehicle access software shall also allow entering additional data, such as driver licenses information.	
		The system shall have output contacts or integrated interfaces to barrier systems to control automatic barrier systems.	
		The feature shall support more than one camera per entrance/exit to ideally get one camera concentrating on number plates only, and one overview camera to show vehicle and/or driver.	
		Recognized license plate data with video shall be accessible on the local DVR/NVR, but also remotely.	
		The automatic Number Plate Recognition shall be able to control additional freely selectable actions (image switching, recording, switching contacts, etc.) via the VMS.	

		The search for relevant image data depending on number plate data and vehicle metadata shall be realized via a special ANPR search dialog or the central search mask.	
		The system must support a wildcard search (*) and a placeholder (?) search.	
		The system shall be able to generate filterable reports of all operations and vehicle data and export them as CSV files.	
		As soon as a vehicle number plate is recognized in the video image, the system shall display the corresponding video images including the corresponding metadata without delay.	
		The system shall optionally have a multiplex mode to cyclically scan up to four lanes.	
		The software shall feature a Vehicle Access Manager (VAM) to integrate cameras located at several access points (entrances – exits), even when being connected to several DVR/NVRs.	
		The Vehicle Access Manager shall display a separate user interface in which live images, stored video sequences and lists of all operations can be displayed and operated.	
		The user interface shall display in tabular form which vehicle, at what time, e.g. on a logistics company site, whether it is currently present and how long it has been on the site when leaving.	
		The system shall include filter options for all captured different metadata to sort the list of current activities.	
		It shall be possible to generate printable reports and daily closing documents for specific time periods.	
		The manufacturer shall be able to supply a hardware complete set for reliable day and night number plate recognition, including camera, lens, weatherproof housing and double IR headlights	
		Simultaneous recognition of the license plates of up to 4 vehicles visible in the image side by side.	
		Display of the active detection area in the live image.	
		Display of the expected license plate size in the live image.	
		Evaluation in real time.	
		Comparison with Black/White-List.	
		Comparison with category assignment.	

		Maintenance of the black/white list with up to 1,000 entries.	
		Optimization of the analysis by adjusting the values for contrast, brightness and color saturation.	
9	Automatic Plate Number Recognition System Server		
	Processor	Xeon Silver 4210 2.2G, 10Cores	
	Memory	16 GB RDIMM, 3200MT/s	
	Drive bays	600GB 10K RPM SAS 12Gbps Hot-plug Hard Drive; 2.5 Chassis with up to 8 Hard Drives and 3PCIe slots; DVD +/-RW, SATA, Internal	
	Power supply	Single, Hot-plug Power Supply (1+0), 750W	
	Form factor	1U RackMount (1U)	
	Network	Quad Port 1GbE BASE-T	
	ISO Certification	Manufactured by an ISO 9001 or ISO 9002 certified Enterprise Storage manufacturing company. (supported by certified true copy of ISO certification)	
	Quality Assurance	All components must be of the same brand and should be factory installed with corresponding part numbers and description that can be viewed and verified via web.	
		Must have a real-time, web-based warranty information on all parts.	
Thermal Scanning System			
10	Temperature Screening Camera		
	Basic Functions	A temperature-screening thermographic camera shall be utilized to detect elevated skin-surface temperature with high accuracy in real time to enable fast fever-scanning of all incoming personnel in the current pandemic.	
		The camera shall be dome type mounted on a tripod with a PC workstation and 23” screen for highly visible temperature information and video.	
		The assembly shall work in conjunction with a guard monitoring pedestal equipped with a POE switch, 2-KVA UPS and an intelligent network video recorder with a minimum of 90 days recorded video retention.	
		Temperature reading accuracy of ±0.5 °C	
		Dual camera function: thermal and optical	
		Audio feedback for normal and abnormal temperature reading	
11	Deep Learning AI Network Video Recorder		
	IP video input	8-ch, up to 12mp	
	Two-way audio	1-ch, RCA (2.0 Vp-p, 1 k Ω)	

	Recording resolution	12 MP/8 MP/6 MP/5 MP/4 MP/3MP/1080p/UXGA/720p/VGA	
	HDMI output resolution	4K (3840 × 2160)/60 Hz, 2K (1920 × 1080p/60 Hz), 1600 × 1200/60 Hz, 1280 × 1024/60 Hz, 1280 × 720/60Hz	
	Behavior detection analysis	False alarm filtering and picture re-recognition for up to 8-ch behavior (line crossing and intrusion) detection	
	Human body detection	False alarm filtering and picture re-recognition for human body detection	
	Network protocols	TCP/IP, DHCP, Hik-Connect, DNS, DDNS, NTP, SADP, SMTP, NFS, iSCSI, UPnPTM, HTTPS	
	SATA	4 SATA interfaces for 4HDDs	
	Capacity	Up to 6TB capacity for each HDD	
	Network interface	1, RJ-45 10/100/1000 Mbps self-adaptive Ethernet interface	
	Working temperature	*-10 to +55o C	
	Humidity	10 to 90%	
Access Control System			
12	**Access Control**		
	General	A biometric access control system shall be utilized for the local monitoring centers for the PEZA sites of Cavite, Pampanga, Baguio and Mactan monitored, controlled and managed centrally at the PEZA Headquarters in Pasay	
	Software features	Capable of running standalone in a server and in the cloud	
		Capable of running on Linux and Microsoft operating systems	
		Supports Microsoft SQL and MySQL database technologies	
		Supports mobile applications for remote access control and arming/disarming	
		Supports video integration	
		Capable of viewing video on the mobile phone application	
		Supports integration to Biometric reader technology	
		Capable of receiving alarm notifications on the mobile phone application	
	Hardware features	· Supports LAN/WAN network encryption with SSL TLS1.2 or TLS1.3	
		· Capable of working offline to the software and store up to 1,000 offline transactions	

		· All configuration and user data are stored on non-volatile memory that does not rely on a battery	
		· Supports access control, Intruder alarm and BMS function in the one panel.	
		· Supports encrypted OSDP card readers	
		· Supports BMS sensor monitoring for power, temperature, humidity, light and movement	
	Database	Card/user capacity: 1000 default (500,000 with SD Card	
		Transaction storage: 1000 default (65,000 with SD Card)	
		Holidays: 100 dates, 5 holiday types	
		Time Zones: 150	
	Alarm	Inputs: 255 max	
		Outputs: 192 max	
		Intrusion Areas: 8 max	
		Alarm keypads: 8 max	
		Devices: 32 max (Le. 16 per bus)	
		Tamper Input (top and bottom)	
	Access Control	Card formats: Up to 128-bit cards	
		Readers: 32	
		Doors: 16	
		Max No. of Access Roles: 200	
		Maxi No. of Time Schedules: 150	
		Maximum Number of Holidays: 100	
	Processor	ARM-7 3- bit @ 200MHz	
	Firmware	Dual Flash Memory - allows two (2) versions of firmware to be stored and enables remote upgrades to be performed without any downtime.	
	SD Card Slot	Micro SD Slot used to increase number of users and transactions	
	Bluetooth	BLE 4.2	
	On-board I/O	Inputs – 8 multi “End of Line” monitored inputs or analogue 0-10VDc inputs	
		Outputs – 2 Relay NO/NC dry contact output, 3 O/C 120mA	
	Power Supply and battery	Battery voltage, current and temperature monitoring On-board battery charger up to 1A supports SLA or Li-ion batteries	
		Auxiliary output supply 1A @ 10-16VDc	

	Certifications	Compliance: RoHS compliant, CE Safety EMC: C-Tick, FCC Part 15 EN50131 Security Compliance EN 50131-10:2014 Environmental Class II EN 50131-1:2006 A1:2009 EN 50136-1:2012 EN 50131-3:2009 ATS4 & ATS5 EN 50131-6:2017 ATS Category: DP4 SPG ARCO Power Supply Type A EN 60839-11-1:2013, Grade 3 Security Grade 4 IP Rating: IP40, IK Rating: IK04	
	Cybersecurity	wolfSSL Certificate-Based Authentication Secure Web API Access Token Validation (Java web token) Secure Authorization Message authentication	
Cameras			
13	Bullet Camera		
	General Description	The 8-megapixel resolution outdoor bullet network camera shall be outdoor- ready with a wide temperature range, optimized IR illumination with capability of capturing forensic details even in challenging light conditions including low light and strong backlight, including remote zoom and focus for fine tuning of the picture.	
	Image sensor	1/2.5” progressive scan RGB CMOS	
	Lens	2.8–9.8 mm, F1.6; Horizontal field of view 109˚–37˚; Vertical field of view 57˚–21˚; Varifocal, Remote focus and zoom, P-Iris control, IR corrected	
	Minimum illumination Color	0.18 lux, at 50 IRE F1.6; B/W: 0.04 lux, at 50 IRE F1.6; 0 lux with IR illumination on	
	Shutter speed	1/62500 s to 2 s	
	Video compression	H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles Motion JPEG	
	Resolution	3840x2160 to 160x90	
	Video streaming	Multiple, individually configurable streams in H.264 and Motion JPEG; Zipstream technology in H.264; Controllable frame rate and bandwidth VBR/ABR/MBR H.264 Multi-view	
	Multi-view streaming	Up to 8 individually cropped out view areas	

	Image settings	Saturation, contrast, brightness, sharpness, Forensic WDR: Up to 120 dB depending on scene, white balance, day/night threshold, exposure mode, exposure zones, compression, orientation: auto, 0°, 90°, 180°, 270° including Corridor Format, mirroring of images, dynamic text and image overlay, privacy masks	
	Network security	Password protection, IP address filtering, HTTPSa encryption, IEEE 802.1X (EAP-TLS)a network access control, digest authentication, user access log, centralized certificate management, brute force delay protection, signed firmware	
	Supported protocols	IPv4, IPv6 USGv6, HTTP, HTTPSa, HTTP/2, SSL/TLSa, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, Bonjour, UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, SRTP, TCP, UDP, IGMPv1/v2/v3, RTCP, ICMP, DHCPv4/v6, ARP, SOCKS, SSH, LLDP, MQTT v3.1.1, Syslog	
	Application Programming Interface	Open API for software integration, One-Click Connection One-click cloud connection ONVIF Profile G, ONVIF Profile S and ONVIF Profile T	
	Event Conditions Analytics Detectors	live stream accessed, video motion detection, audio detection, day/night mode, shock detection, tampering	
		Hardware: network, temperature	
		Input Signal: digital input port, manual trigger, virtual inputs	
		Storage: disruption, recording	
		System: system ready	
		Time: recurrence, use schedule	
	Event actions	Record video: SD card and network share	
		Upload of images or video clips: FTP, SFTP, HTTP, HTTPS, network share and email	
		Pre- and post-alarm video or image buffering for recording or upload	
		Notification: email, HTTP, HTTPS, TCP and SNMP trap	
		PTZ: PTZ preset, start/stop guard tour	
	Built-in installation aids	Pixel counter, remote zoom (3.5x optical), remote focus, auto rotation	
	Analytics Application	Motion Guard, Fence Guard, Loitering Guard, Video Motion Detection	
	Supported	Digital Autotracking, Perimeter Defender, Cross Line Detection	
	Casing	IP66/IP67-, NEMA 4X-, and IK10-rated casing Polycarbonate blend and aluminum, with weather shield	
	Memory	1024 MB RAM, 512 MB Flash	

	Power	Power over Ethernet IEEE 802.3af/802.3at Type 1 Class 3 Typical: 7.1 W, max 12.95 W	
	Connectors	Shielded RJ45 10BASE-T/100BASE-TX PoE 3.5 mm mic/line in I/O: 4-pin terminal block for 1 alarm input and 1 output	
	IR illumination	Optimized IR with power-efficient, long-life 850 nm IR LEDs Range of reach 25 m (82 ft) or more depending on the scene	
	Storage	Support for microSD/microSDHC/microSDXC card Support for SD card encryption (AES-XTS-Plain64 256bit) Recording to network-attached storage (NAS)	
	Approvals	EMC: EN 55032 Class A, EN 50121-4, IEC 62236-4, EN 55024, EN 61000-6-1, EN 61000-6-2, FCC Part 15 Subpart B Class A, ICES-003 Class A, VCCI Class A, RCM AS/NZS CISPR 32 Class A, KCC KN32 Class A, KN35	
		Safety: IEC/EN/UL 62368-1, IEC/EN/UL 60950-22, IS 13252, IEC 62471	
		Environment IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-78, IEC/EN 60529 IP66/IP67, IEC/EN 62262 IK10, NEMA 250 Type 4X, NEMA TS 2 (2.2.7-2.2.9) Network NIST SP500-267	
	Languages	English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Traditional Chinese	
	Warranty	5-year warranty	
14	PTZ Camera		
	Basic Functions	Auto-tracking 2 with click and track functionality	
		Orientation aid for active object tracking and quick orientation	
		Support bandwidth and storage reduction technology	
		Built-in analytics	
		Enhanced security features	
	Image sensor	1/2.8” progressive scan CMOS	
	Lens	4.25-170 mm, F1.6-4.95 Horizontal field of view: 65.1°-2.00° (1080p) Vertical field of view: 39.1°-1.18° (1080p) Autofocus, auto-iris	
	Minimum illumination	Color: 0.1 lux at 30 IRE, F1.6 B/W: 0.002 lux at 30 IRE, F1.6 Color: 0.15 lux at 50 IRE, F1.6 B/W: 0.003 lux at 50 IRE, F1.6	
	Shutter speed	1/11000 s to 1/3 s with 60 Hz	

	Pan/tilt/zoom	Pan: 360° endless, 0.05°–450°/s Tilt: 220°, 0.05°–450°/s Zoom: 40x optical, 12x digital, total 480x zoom E-flip, 256 preset positions, tour recording (max 10, max duration 16 minutes each), guard tour (max 100), control queue, on-screen directional indicator, orientation aid PTZ, set new pan 0°, adjustable zoom speed, focus recall	
	Video compression	H.264 (MPEG-4 Part 10/AVC) Baseline, Main and High Profiles H.265 (MPEG-H Part 2/HEVC) Main Profile Motion JPEG	
	Resolution	HDTV 1080p 1920x1080 to 320x180	
	Frame rate	Up to 50/60 fps (50/60 Hz) in HDTV 1080p	
	Video streaming	Multiple, individually configurable streams in H.264, H.265 and Motion JPEG Controllable frame rate and bandwidth VBR/ABR/MBR H.264/H.265	
	Image settings	Electronic image stabilization (EIS), Manual shutter time, compression, color, brightness, sharpness, white balance, exposure control, exposure zones, fine tuning of behavior at low light, rotation: 0°, 180°, text and image overlay, polygon privacy masks, freeze on PTZ, automatic defog, backlight compensation, scene profiles Wide Dynamic Range (WDR): Up to 120 dB depending on scene, highlight compensation	
	Network security	Password protection, IP address filtering, HTTPS encryption, IEEE 802.1x (EAP-TLS) network access control, digest authentication, user access log, centralized certificate management, brute force delay protection, signed firmware, secure boot, protection of cryptographic keys with FIPS 140-2 certified TPM 2.0 module	
	Supported protocols	IPv4, IPv6 USGv6, HTTP, HTTP/2, HTTPS, SSL/TLS, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, Bonjour, UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, SRTP, TCP, UDP, IGMPv1/v2/v3, RTCP, ICMP, DHCPv4/v6, ARP, SOCKS, SSH, NTCIP, LLDP, MQTT v3.1.1, Syslog	
	Application Programming Interface	Open API for software integration, One-click cloud connection ONVIF Profile G, ONVIF Profile S and ONVIF Profile T	

	Event conditions	Device status: above operating temperature, above or below operating temperature, below operating temperature, fan failure, IP address removed, network lost, new IP address, shock detected, storage failure, system ready, within operating temperature	
		Edge storage: recording ongoing, storage disruption I/O: manual trigger, virtual input PTZ: PTZ malfunctioning, PTZ movement, PTZ preset position reached, PTZ ready Scheduled and recurring: scheduled event Video: live stream open	
	Event actions	Day/night mode, overlay text, video recording to edge storage, pre- and post-alarm video buffering, send SNMP trap PTZ: PTZ preset, start/stop guard tour File upload via FTP, SFTP, HTTP, HTTPS network share and email Notification via email, HTTP, HTTPS and TCP	
	Built-in installation aids	Pixel counter, leveling guide	
	Casing	IP66-, IP67-, NEMA 4X- and IK10-rated Metal casing (aluminum), polycarbonate (PC) clear dome, sunshield (ASA) With High PoE 60 W SFP midspan 1-port, RJ45 Push-pull Connector (IP66), Sunshield	
	Memory	1024 MB RAM, 512 MB Flash	
	Power	High PoE 60 W SFP midspan: 100–240 V AC, max 66.1 W Camera consumption: typical 14 W, max 51 W	
	Connectors	Shielded RJ45 10BASE-T/100BASE-TX PoE	
	Storage	Support for microSD/microSDHC/microSDXC card Support for SD card encryption Support for recording to network-attached storage (NAS)	
	Operating conditions	With 30 W: -20 °C to 50 °C With 60 W: -50 °C to 50 °C Maximum temperature according to NEMA TS 2 (2.2.7): 74 °C Humidity 10–100% RH (condensing)	

	Approvals	EMC EN 55032 Class A, EN 55035, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, EN 55024, FCC Part 15 Subpart B Class A, ICES-003 Class A, VCCI Class A, RCM AS/NZS CISPR 32 Class A, KCC KN32 Class A, KN35 EN 50121-4, IEC 62236-4	
		Safety IEC/EN/UL 60950-1, IS 13252, IEC/EN/UL 60950-22, IEC/EN/UL 62368–1	
		Environment IEC/EN 60529 IP66/IP67, NEMA TS 2 (2.2.7-2.2.9), IEC 62262 IK10, ISO 4892-2, EN 50121-4, IEC 62236-4, IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-60, IEC 60068-2-78,	
		NEMA 250 Type 4X	
		Network NIST SP500-267	
		Midspan: EN 60950-1, GS, UL, cUL, CE, FCC, VCCI, CB, KCC, UL-AR	
	Compute capabilities	Machine learning processing unit (MLPU)	
	Object analytics	Object classes: humans, vehicles Trigger conditions: line crossing, object in area Up to 10 scenarios Metadata visualized with color-coded bounding boxes Polygon include/exclude areas Perspective configuration ONVIF Motion Alarm event	
	Applications	Object Analytics, Motion Guard, Fence Guard, Loitering Guard, Video Motion Detection, auto-tracking	
		Basic analytics: object removed, enter/exit detector, object counter	
	Languages	English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Traditional Chinese	
	Warranty	5-year warranty	
15	PTZ Pole and Wall Mounting		
	Casing	Powder-coated aluminum casing	
	Connectors	Out: IP66 RJ45 Ethernet (male) In: RJ45 Ethernet (female), IDC	
	Environment	Indoor/outdoor	

	Operating conditions	condensing--50 °C to 65 °C, Humidity 10–100% RH	
	Approvals	Safety IEC/EN/UL 60950-1, IEC/EN/UL 60950-22 Environment IEC 60721, IEC 60721-4 Class 4M3, MIL-STD 810G 509.5, IP66, NEMA 250 Type 4X, RoHS, WEE Impact IK10 , IEC 62262	
	Maximum load	30 kg	
	Cable routing	Back: Cable hole Bottom: 3/4" Conduit entrance	
	Warranty	3-year warranty	
16	Ethernet Surge Protector		
	Basic Functions	Ethernet surge protectors shall be used to protect outdoor network devices such as IP cameras, switches or midspans from lightning entering through the Ethernet cable. It can be easily installed on a wall or a pole, and can withstand water, dust and the ingress of water.	
		Support data rates of up to 1 Gbps	
		Protects up to 10 kV surge	
		Flexible installation wall or pole mounted	
		Outdoor ready	
	Casing	Weatherproof metal enclosure	
	Environment	Indoor / outdoor	
	Connectors	RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE	
	Power Surge Handling Capability	10 kV, 5 kA to ground in 8/20 µs 800 V, 100 A PoE	
	Input Power	95 W (max)	
	Input Current	2 A (max)	
	Operating Conditions	*-40 °C to 85 °C	
	Approvals	IEC 60529 IP66 NEMA 250 Type 4X UL 497B, EN 5058, REACH, WEEE	
		Compatible with: GR1089, IEC 61643–21 ITU-T K.45	
	Warranty	3-year warranty	
17	Camera Pole Mount		
	Maximum load	15 kg (33 lbs)	
	Cable routing	Back: Cable hole	
		Side: U-shaped cable hole (26 mm/1 in)	
	Casing	NEMA 4X- and IK10-rated powder-coated aluminum mount	

	Approvals	Safety IEC/EN/UL 60950-1, IEC/EN/UL 60950-22 Environment EN 50581, NEMA 250 Type 4Xa	
		Impact IEC 62262 IK10	
	Warranty	3-years	
18	Thermal Cameras		
	Basic Functions	Temperature reading accuracy of ±0.5 °C	
		Dual camera function: thermal and optical	
		Audio feedback for normal and abnormal temperature reading	
	Thermal Camera function	Image sensor-Vanadium Oxide Uncooled Focal Plane Arrays	
		Resolution-160 × 120	
		Pixel interval-17 μm	
		Response Waveband-8 μm to 14 μm	
		NETD-Less than 40 mK (25°C), F# = 1.1	
		Lens (Focal Length)-3.1 mm	
		IFOV-5.48 mrad	
		Field of view -50°× 37.2°(H × V)	
	Optical function	Image Resolution-2688 × 1520	
		Image sensor -1/2.7" Progressive Scan CMOS	
		Min. Illumination-Color: 0.0089 Lux @ (F1.6, AGC ON), B/W: 0.0018 Lux @ (F1.6, AGC ON)	
		Lens (Focal Length)-4mm	
		Shutter speed-1s to 1/100,000s	
		WDR-120 dB	
	Image function	Bi-spectrum Image Fusion - view of thermal view and overlaid details of the optical channel	
		Picture in Picture - Combines details of thermal and optical image PIP, overlay thermal image on optical image	
	Smart function	Temperature Measurement - 3 temperature measurement rule types, 21 rules (10 points, 10 areas, and 1 line)	
		Temperature Range - 30 °C to +45 °C	
		Temperature Accuracy - ± 0.5 °C	
	Infrared	IR Distance - up to 15m	
		IR intensity & angle - automatic adjustment	
	General	Video Compression - H.265/H.264/MJPEG	
		Audio Compression - G .711u/G.711a/G.722.1/MP2L2/G.726/PCM	
		Protocols-TCP/IP, ICMP, HTTP, HTTPS, FTP, DHCP, DNS, DDNS, RTP, RTSP, RTCP, PPPoE, NTP, UPnP,	

		SMTP, SNMP, IGMP, 802.1X, QoS, IPv6, UDP, Bonjour	
		Simultaneous Live View- up to 20	
		User/Host Level - Up to 32 users, 3 levels: Administrator, Operator, User	
		Security Measures - User authentication (ID and PW), MAC address binding, HTTPS encryption, IEEE 802.1x access control, IP address filtering	
		Alarm input - 1-ch input (0-5 VDC)	
		Alarm output - 1-ch relay output, configurable	
		Alarm Action - SD recording/relay output/smart capture/FTP upload/email linkage/audio alarm/white light alarm	
		Audio Input - 1, 3.5 mm Mic in/Line in interface. Line input: 2 - 2.4 V [p-p], output impedance: 1 KΩ ± 10%	
		Communication Interface - 1, RJ45 10M/100M Self-adaptive Ethernet interface. 1, RS-485 interface	
		SD Memory Card - Built-in MicroSD card slot, supporting MicroSD/SDHC/SDXC card (up to 256 G), supports manual/alarm recording	
		Application Programming - Open-ended API, supporting ISAPI and third-party management platform	
		Web Browser - IE9+, chrome31-44, Firefox 30-51, Safari 5.02+ (mac)	
		Power -12 VDC ± 20%, two-core terminal block, PoE (802.3af, class 3)	
		Power Consumption - 12 VDC ± 20%: 0.5 A, max. 6 W, PoE (802.3af, class 3): 42.5 V to 57 V, 0.14 A to 0.22 A, max. 6.5 W	
		Working Temperatur - 10 °C to 35 °C(Indoor and windless environment use only)	
		Humidity - 95% or less	
		Protection Level - IP66 Standard, TVS 6000V Lightning protection, surge protection, voltage transient protection	
19	Indoor Dome Cameras		
	General Description	The 2-megapixel HD dome camera shall be discreet and provide 1080p video with WDR to ensure visible details in dark as well as bright areas of a scene for indoor application. It shall support bandwidth and storage reduction technology while maintaining the video quality.	
	Image sensor	Fixed focus, fixed iris, 1/3” progressive scan RGB CMOS	

	Lens	2.8 mm, F2.0 Horizontal field of view: 106° Vertical field of view: 59°	
	Minimum illumination	0.25 lux at 50 IRE F2.0	
	Shutter speed	1/32500 s to 1/5 s	
	Camera angle adjustment	Pan: ±105° Tilt: ±85° Rotate: ±175°	
	Video compression	H.264 (MPEG-4 Part 10/AVC) Main and High Profiles H.265 (MPEG-H Part 2/HEVC) Main Profile Motion JPEG	
	Resolution	1920x1080 (1080p) to 320x240	
	Frame rate	25/30 fps with power line frequency 50/60 Hz	
	Video streaming	Multiple, individually configurable streams in H.264, H.265 and Motion JPEG;	
		Controllable frame rate and bandwidth VBR/MBR H.264/H.265	
	Multi-view streaming	2 individually cropped out view areas in full frame rate	
	Image settings	Compression, color, brightness, sharpness, contrast, local contrast, white balance, exposure control, text and image overlay, mirroring of images, privacy masks WDR: up to 105 dB depending on scene Rotation: 0°, 90°, 180°, 270° including Corridor Format	
	Pan/Tilt/Zoom	Digital PTZ	
	Network security	Password protection, IP address filtering, HTTPSa encryption, IEEE 802.1x (EAP-TLS) network access control, digest authentication, user access log, centralized certificate management, brute force delay protection, signed firmware	
	Supported protocols	IPv4, IPv6 USGv6, HTTP, HTTPSa, SSL/TLS, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, Bonjour, UPnPTM, SNMP v1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, TCP, UDP, IGMPv1/v2/v3, RTCP, ICMP, DHCP, ARP, SOCKS, SSH, LLDP, MQTT v3.1.1	
	Application Programming Interface	Open API for software integration, One-Click Connection One-click cloud connection ONVIF Profile G, ONVIF Profile S and ONVIF Profile T	
	Event triggers	Analytics, virtual inputs through API, edge storage events	

	Event actions	Record video: SD card and network share Upload of images or video clips: FTP, SFTP, HTTP, HTTPS, network share, and email Pre- and post-alarm video or image buffering for recording or upload Notification: email, HTTP, HTTPS, TCP, and SNMP trap Overlay text	
	Analytics	Included	
		Motion Guard, Fence Guard, Loitering Guard, Video Motion Detection, active tampering alarm Supported Digital Auto-tracking, People Counter, Queue Monitor, Occupancy Estimator, Direction Detector, Tailgating Detector, Random Selector	
	Mounting	Recessed in ceiling or wall	
	Memory	512 MB RAM, 512 MB Flash	
	Power	Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 1 Typical 2.8 W, max 3.7 W	
	Connectors	Shielded RJ45 10BASE-T/100BASE-TX PoE	
	Storage	Support for microSD/microSDHC/microSDXC card Support for SD card encryption Support for recording to network-attached storage (NAS)	
	Operating conditions	0 °C to 45 °C Humidity 15-85% RH (non-condensing)	
	Approvals	EMC EN 55032 Class B, EN 55024, EN 61000-6-1, EN 61000-6-2, FCC Part 15 Subpart B Class A and B, ICES-003 Class B, VCCI Class B, RCM AS/NZS CISPR 32 Class B, KCC KN32 Class B, KN35	
		Safety IEC/EN/UL 62368-1, IS 13252	
		Environment IEC 60068–2–6, IEC 60068–2–27, IEC 60068–2–2, IEC 60068–2–14	
		Network NIST SP500-267	
	Languages	English, German, French, Spanish, Italian, Russian, Simplified Chinese, Japanese, Korean, Portuguese, Traditional Chinese	
	Warranty	5-year warranty	
20	IDF Outdoor Cabinet		

		12 U 600*600mm outdoor wall mount network cabinet(with 2 fans, 1 6ports PDU, 1 shelf)	
		Telemax LIU, for 48-core (also called splicing box), outdoor Dome type enclosure,2 in 2 out	
		Fabricated fiber cable service loop bracket	
		Fiber optic LC-LC patch cord - SM, 9/125, 2meters, Duplex - OS1 PVC	
		4 ports Fiber distribution panel SC coupler, , contain LC coupler and pigtail, plastic	
		Planet IP40 Industrial L2+/L4 4-Port 1000T 802.3at PoE + 2-Port 100/1000X SFP Full Managed Switch (-40 to 75 C, dual redundant power input on 48~56VDC terminal block, ERPS Ring, 1588, Modbus TCP, ONVIF, Cybersecurity features)	
		48V, 240W Din-Rail Power Supply (NDR-240-48, adjustable 48-56V DC Output)	
		Mini GBIC WDM TX1550 Module - 10KM (-40 to 75C), DDM Supported	
		Fiber optic LC pigtail, 9/125, 1.5-m, -OS1 PVC	
		Circuit Breaker 10amp w/ outlet & cover	
		Power strip 4 outlet	
		Light indicator (red Color)	
		Telemax 1U 19" Cable Manager metal material, horizontal	
		UPS Ablerex GR2000 2000VA 1000watts w/ Led Display 4-Sockets w/ Battery Floor Mount	
		AVR Goldsource 500watts	
Network, Datacenter, and Command Center			
21	Fiber Aggregate Switch		
	Functions	Layer 3 static routing	
		RIP (Routing Information Protocol)	
		OSPF (Open Shortest Path First) with 10Gbps uplink	
		128Gbps switching fabric	
		4 x 10GBASE-SR/LR SFP+ ports	
		24 x 100/1000BASE-X mini-GBIC/SFP ports	
		8 x 10/100/1000BASE-T RJ45 copper ports	
		Dynamic ARP inspection	
		MAC-based Access Control List	
		IP-based Access Control List (ACL)	
		Layer 3 VLAN Routing	
		SFP Diagnosis Mechanism	
	SFP/mini-GBIC Slots	24 x 100/1000BASE-X SFP interfaces, compatible with 100BASE-FX SFP transceiver	

	Copper Ports	8 x 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports, shared with Port-1 to Port-8	
	SFP+ Slots	4 x 10GBASE-SR/LR SFP+ interfaces (port-25 to port-28) Compatible with 1000BASE-SX/LX/BX SFP transceiver	
	Switch Architecture	Store-and-forward	
	Switch Fabric	128Gbps/non-blocking	
	Switch Throughput	95.23Mpps	
	Routing Table	IPv4 Routing Entry:13K / IPv6 Routing Entry: 3.2K	
	ACL Table	3K	
	IPv4 Layer 3 Functions	IP Routing Protocol-Static route, RIPv1/v2, OSPFv2, BGPv4, Policy-based routing (PBR), LPM routing (MD5 authentication), Hardware-based Layer 3 routing	
		Multicast Routing Protocol - IGMP v1/v2/v3, DVMRP, PIM-DM/SM, PIM-SSM	
		Layer 3 Protocol - VRRP v1/v3, ARP, ARP Proxy, IGMP Proxy	
	IPv6 Layer 3 Functions	IP Routing Protocol - RIPng, OSPFv3, BGPv4+, IPv6 LPM Routing, IPv6 Policy-based Routing (PBR), IPv6 VRRPv3, IPv6 URPF, IPv6 RA, Hardware-based Layer 3 routing	
		Multicast Routing Protocol - PIM-SM/DM for IPv6, MLD for IPv6 (v1), MLDv1/v2, MLD Snooping, 6 to 4 Tunnels, IPv6 Any Cast RP, Multicast receive control, Illegal multicast source detect	
		Layer 3 Protocol - Configured Tunnels, ISATAP, GRE Tunnel	
		Port Configuration - Port disable/enable, Auto-negotiation 10/100/1000Mbps full and half duplex mode selection, Flow control disable/enable, Bandwidth control on each port, Port loopback detect	
		Port Status - Display each port's speed duplex mode, link status, flow control status and auto negotiation status	
		VLAN - 802.1Q tagged VLAN, up to 256 VLAN groups 802.1ad Q-in-Q (VLAN stacking), GVRP for VLAN management, Private VLAN Edge (PVE) supported Protocol-based VLAN, MAC-based VLAN IP subnet VLAN	
		QoS - 8 priority queues on all switch ports, Supports strict priority and Weighted Round Robin (WRR) CoS policies, Traffic classification: - IEEE 802.1p CoS/ToS - IPv4/IPv6 DSCP, - Port-based WRR	

		Access Control List - Supports Standard and Expanded ACL, IP-based ACL/MAC-based ACL, Time-based ACL, Up to 1K entries	
		Security - Supports MAC + port binding, IPv4/IPv6 + MAC + port binding, IPv4/IPv6 + port binding, Supports MAC filter, ARP scanning prevention	
		Authentication -IEEE 802.1x port-based network access control AAA authentication: TACACS+ and IPv4/IPv6 over RADIUS	
		System Configuration - Console, Telnet, SSH, Web browser, SNMP v1, v2c and v3	
		Regulatory Compliance - FCC Part 15 Class A, CE	
	Standards Compliance	IEEE 802.3 10BASE-T	
		IEEE 802.3u 100BASE-TX	
		IEEE 802.3z Gigabit 1000BASE-SX/LX	
		IEEE 802.3ab Gigabit 1000BASE-T	
		IEEE 802.3ae 10Gb/s Ethernet	
		IEEE 802.3x flow control and back pressure IEEE 802.3ad port trunk with LACP	
		IEEE 802.1D Spanning Tree Protocol	
		IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.1s Multiple Spanning Tree Protocol IEEE 802.1p Class of Service	
		IEEE 802.1Q VLAN tagging	
		IEEE 802.1X port authentication network control IEEE 802.1ab LLDP	
		RFC 768 UDP	
		RFC 793 TFTP RFC 791 IP	
		RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP v1 RFC 2236 IGMP v2 RFC 3376 IGMP v3 RFC 2710 MLD v1 FRC 3810 MLD v2 RFC 2328 OSPF v2 RFC 1058 RIP v1 RFC 2453 RIP v2	
22	Distribution Switch		
	10/100/1000 RJ45 Ports	24	
	100/1000BASE-X SFP Ports	4	
	10G SFP+ Ports	4 10GBASE-SR/LR SFP+ interface	
		Backward compatible with 1000BASE-SX/LX/BX SFP transceiver	
	Management Port	1 x 10/100/1000BASE-T RJ45 port	
	Console Port	1 x RJ45-to-RS232 serial port (115200, 8, N, 1)	
	USB Port	1 x USB 2.0 for switch configuration backup and resoter	
	CPU	ARM A9 800MHz	

	RAM	512Mbytes	
	Flash Memory	128Mbytes	
	Power Requirements	AC 100~240V, 50/60Hz	
	Fan	2	
	Switch Architecture	Store-and-forward	
	Switch Fabric	128Gbps/non-blocking	
	Switch Throughput	95.23Mpps	
	Address Table	16K MAC address table with auto learning function	
	ARP Table	4K	
	Routing Table	1024 (IPv4 + IPv6)	
	IP Interface	1024	
	ACL Table	1024	
	Shared Data Buffer	1.5MB	
	Jumbo Frame	10KBytes	
	Flow Control	Back pressure for half duplex IEEE 802.3x pause frame for full duplex	
	PoE Standard	IEEE 802.3at PoE+ PSE	
	PoE Power Supply Type	End-span	
	PoE Power Output	Per port 53V DC, 30.8 watts	
	PoE Power Budget	370 watts	
	IPv4 Routing Protocol	Static route, RIPv1/v2, OSPFv2, BGPv4, Policy-based routing (PBR), LPM routing (MD5 authentication), Hardware-based Layer 3 routing	
	IPv6 Routing Protocol	RIPng, OSPFv3, BGPv4+, IPv6 LPM Routing, IPv6 Policy-based Routing (PBR), IPv6 VRRPv3, IPv6 URPF, IPv6 RA, Hardware-based Layer 3 routing	
	Layer 3 Protocol	Configured Tunnels, ISATAP, GRE Tunnel	
	Port Configuration	Port disable/enable, Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow control disable/enable,	
		Bandwidth control on each port, Port loopback detect	
	Port Status	Display each port's speed duplex mode, link status, flow control status and auto negotiation status	
	VLAN	802.1Q tagged VLAN, up to 4K VLAN groups, 802.1ad Q-in-Q (VLAN stacking), GVRP for VLAN management, Private VLAN Edge (PVE) supported Protocol-based VLAN, MAC-based VLAN IP subnet VLAN	

	Spanning Tree Protocol	STP, IEEE 802.1D (Classic Spanning Tree Protocol),	
		RSTP, IEEE 802.1w (Rapid Spanning Tree Protocol)	
		MSTP, IEEE 802.1s (Multiple Spanning Tree Protocol, spanning tree by VLAN) Supports BPDU and root guard	
	Bandwidth Control	TX/RX/Both	
		At least 64Kbps step	
	QoS	8 priority queues on all switch ports	
		Supports strict priority and Weighted Round Robin (WRR) CoS policies Traffic classification:	
		- IEEE 802.1p CoS/ToS - IPv4/IPv6 DSCP	
		- Port-based WRR	
	Ring	Supports ITU-G G.8032 ERPS	
	Access Control List	Supports Standard and Expanded ACL	
		IP-based ACL/MAC-based ACL	
		Time-based ACL	
		Up to 1024 entries	
	Security	Supports MAC + port binding	
		IPv4/IPv6 + MAC + port binding	
		IPv4/IPv6 + port binding	
		Supports MAC filter	
		ARP scanning prevention	
	AAA Authentication	TACACS+ and IPv4/IPv6 over RADIUS	
	Network Access Control	IEEE 802.1x port-based network access control	
		MAC-based authentication	
		Web authentication	
	Regulatory Compliance	FCC Part 15 Class A, CE	
23	42U Conventional Server Rack		
	Form Factor	42u Data Rack	
	Rails	4x Vertical Mounting Rails	
	Front Cover	Swing Out Plexiglass with Lock	
	Rear Cover	Swing Out Plain with Ventilations and Lock	
	Side Covers	Detachable with Ventilations and Locks (Push Lock and Camlock)	
	Top Cover	Detachable with 4 Exhaust Fans	
	Bottom Cover	Detachable with Cable Entry/Exit	
	UPS	6KVA	
	Accessories	Connectors & miscelllaneous rough-in materials	
		With 1pc 12CO Vertical PDU, 3-prong, 220V Dual Outlet With 1pc Rear Vertical Cable Manager (Ring Type) With 30pcs Cagenut and Bolt With Caster Wheels and Leveling Feet	

	Migration of existing components	Bidder is responsible for the migration,civil works, and warranty coverage of existing equipment that will be transferred from the existing IDF to the Server Rack.	
24	Smart Cabinet(Server Rack) With Fire Suppression		
	Basic Functions	Centralized monitoring	
		Power Distribution Unit	
		Smart Lock	
		Centralized Management & Monitoring	
		Thermal management (Cooling Unit)	
		UPS & Internal Battery	
		Touch panel display	
		Power management	
		Emergency fans	
		Lighting system	
	Cabinet Size	2000×800×1100 (mm)	
	Usable U Space	42U	
	Usable U Space	Outdoor	
	Rack design	Fully enclosed containment	
	Display panel	9-inch LCD touchscreen	
	Cooling capacity	900 W ~ 3500 W, Variable Speed	
	UPS	6 KVA	
	UPS power factor	1	
	IT system capacity	≤3kW	
	System input requirement	50A/1P, 220/230/240Vac	
	System Frequency	50Hz & 60Hz	
	Power Distribution Units (PDU)	16A input, 14xC13+2xC19, 1 pc (PMB)16A input, 12xC13+4xC19, 1 pc (PDU)	
	Refrigerant	R410A	
	Water Leak Detection	equipped	
	Door Lock System	Smart Lock (Glass Door)	
	Centralized Monitoring & Management	equipped	
	Safety Standards	EN 60950-1:2006 + A11:2009 +A1:2010+ A12:2011 + A2:2013	
	EMC Standards	EN 55024:2010 EN 61000-3- 12:2011	
	Noise Level	≤50dB	

	High Availability (Cooling)	equipped	
	Cabinet Fire Suppression System	System: Non-pressurized aerosol generator	
		Volume discharge: 2.4 to 6.9 cu. m.	
		Discharge: time 20 secs	
		Activation, current: Built-in starter, 1.3A	
		Operation conditions : -40°C to 75°C/ Up to 95% RH at 54°C	
		Detection Technology: Linear heat detector cable	
		Certification : CEN/TR 15276-1, NEN-ISO 15779, UL 2775 and BRL K23001	
		Extinguishing agent: non-toxic	
		Ecological & environmental safety: O.D.P.=0, G.W.P.=0	
25	24 Port POE Switch		
	10/100/1000 RJ45 Ports	24	
	100/1000BASE-X SFP Ports	4	
	10G SFP+ Ports	4 10GBASE-SR/LR SFP+	
	interface	Backward compatible with 1000BASE-SX/LX/BX SFP transceiver	
	Management Port	1 x 10/100/1000BASE-T RJ45 port	
	Console Port	1 x RJ45-to-RS232 serial port (115200, 8, N, 1)	
	USB Port	1 x USB 2.0 for switch configuration backup and resoter	
	CPU	ARM A9 800MHz	
	RAM	512Mbytes	
	Flash Memory	128Mbytes	
	Power Requirements	AC 100~240V, 50/60Hz	
	Fan	2	
	Switch Architecture	Store-and-forward	
	Switch Fabric	128Gbps/non-blocking	
	Switch Throughput	95.23Mpps	
	Address Table	16K MAC address table with auto learning function	
	ARP Table	4K	
	Routing Table	1024 (IPv4 + IPv6)	
	IP Interface	1024	
	ACL Table	1024	
	Shared Data Buffer	1.5MB	
	Jumbo Frame	10KBytes	
	Flow Control	Back pressure for half duplex	

		IEEE 802.3x pause frame for full duplex	
	PoE Standard	IEEE 802.3at PoE+ PSE	
	PoE Power Supply Type	End-span	
	PoE Power Output	Per port 53V DC, 30.8 watts	
	PoE Power Budget	370 watts	
	IPv4 Routing Protocol	Static route, RIPv1/v2, OSPFv2, BGPv4, Policy-based routing (PBR), LPM routing (MD5 authentication), Hardware-based Layer 3 routing	
	IPv6 Routing Protocol	RIPng, OSPFv3, BGPv4+, IPv6 LPM Routing, IPv6 Policy-based Routing (PBR), IPv6 VRRPv3, IPv6 URPF, IPv6 RA, Hardware-based Layer 3 routing	
	Layer 3 Protocol	Configured Tunnels, ISATAP, GRE Tunnel	
	Port Configuration	Port disable/enable, Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow control disable/enable, Bandwidth control on each port, Port loopback detect	
	Port Status	Display each port's speed duplex mode, link status, flow control status and auto negotiation status	
	VLAN	802.1Q tagged VLAN, up to 4K VLAN groups, 802.1ad Q-in-Q (VLAN stacking), GVRP for VLAN management, Private VLAN Edge (PVE) supported Protocol-based VLAN, MAC-based VLAN IP subnet VLAN	
	Spanning Tree Protocol	STP, IEEE 802.1D (Classic	
	Spanning Tree Protocol	RSTP, IEEE 802.1w (Rapid Spanning Tree Protocol)	
		MSTP, IEEE 802.1s (Multiple Spanning Tree Protocol, spanning tree by VLAN) Supports BPDU and root guard	
	Bandwidth Control	TX/RX/Both At least 64Kbps step	
	QoS	8 priority queues on all switch ports	
		Supports strict priority and Weighted Round Robin (WRR) CoS policies Traffic classification:	
		- IEEE 802.1p CoS/ToS - IPv4/IPv6 DSCP	
		- Port-based WRR	
	Ring	Supports ITU-G G.8032 ERPS	
	Access Control List	Supports Standard and Expanded ACL	
		IP-based ACL/MAC-based ACL	
		Time-based ACL	
		Up to 1024 entries	
	Security	Supports MAC + port binding	
		IPv4/IPv6 + MAC + port binding	
		IPv4/IPv6 + port binding	
		Supports MAC filter	

		ARP scanning prevention	
	AAA Authentication	TACACS+ and IPv4/IPv6 over RADIUS	
	Network Access Control	IEEE 802.1x port-based network access control	
		MAC-based authentication	
		Web authentication	
26	4 Port POE Switch		
	Copper Ports	4 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports	
	SFP/mini-GBIC Slots	2 1000BASE-SX/LX/BX SFP interfaces (Port-5 to Port-6) Compatible with 100BASE-FX SFP	
	PoE Injector Port	4 ports with 802.3at/af PoE injector function with Port-1 to Port8	
	Console	1 x RJ45-to-RS232 serial port (115200, 8, N, 1)	
	Switch Architecture	Store-and-Forward	
	Switch Fabric	12Gbps/non-blocking	
	Throughput	8.928Mpps at 64 bytes packet	
	Address Table	8K entries, automatic source address learning and aging	
	Shared Data Buffer	4Mbits	
	Flow Control	IEEE 802.3x pause frame for full duplex Back pressure for half duplex	
	Jumbo Frame	9Kbytes	
	Enclosure	IP40 metal case	
	Installation	DIN-rail kit and wall-mount kit	
	Alarm	One relay output for power failure. Alarm relay current carry ability: 1A @ 24V DC	
	Power Requirements	Dual 48~56V DC	
	Power consumption	Max. 151.8 watts/520.82BTU	
	PoE Standard	IEEE 802.3at Power over Ethernet Plus/PSE	
	PoE Power Supply Type	End-span	
	PoE Power Output	IEEE 802.3af Standard	
		- Per port 48V~51V DC max. 15.4 watts	
		IEEE 802.3at Standard	
		- Per port 51V~56V DC, max. 36 watts	
	PoE Power Budget	Dual power input: 144W maximum	
	Basic Management Interfaces:	Console; Telnet; Web browser; SNMP v1, v2c	
	Secure Management Interfaces:	SSH, SSL, SNMP v3	
		Port disable/enable	

	Port Configuration	Auto-negotiation 10/100/1000Mbps full and half duplex mode selection	
		Flow control disable/enable	
		Power saving mode control	
	Port Status	Display each port's speed duplex mode, link status, flow control status, auto negotiation status, trunk status	
	VLAN	IEEE 802.1Q tag-based VLAN, up to 255 VLAN groups	
		IEEE 802.1ad Q-in-Q tunneling	
		Private VLAN Edge (PVE)	
		MAC-based VLAN	
		Protocol-based VLAN	
		Voice VLAN	
		MVR (Multicast VLAN Registration)	
		GVRP	
		Up to 255 VLAN groups, out of 4094 VLAN IDs	
	QoS	Traffic classification based, strict priority and WRR 8-level priority for switching	
		- Port number	
		- 802.1p priority	
		- 802.1Q VLAN tag	
		- DSCP/TOS field in IP packet	
	IGMP Snooping	IPv4 IGMP (v1/v2/v3) snooping, up to 255 multicast groups IPv4 IGMP querier mode support	
	MLD Snooping	IPv6 MLD (v1/v2) snooping, up to 255 multicast groups	
		IPv6 MLD querier mode support	
	Access Control List	IP-based ACL/MAC-based ACL, Up to 123 entries	
	Bandwidth Control	Per port bandwidth control	
		Ingress: 500Kb~1000Mbps	
		Egress: 500Kb~1000Mbps	
	Regulatory Compliance	FCC Part 15 Class A, CE	
	Stability Testing	IEC 60068-2-32 (free fall)	
		IEC 60068-2-27 (shock)	
		IEC 60068-2-6 (vibration)	
27	Branded Workstations		
	Processor	Latest Generation i7 (8-core, 16MB Cache, 2.5GHz to 4.9GHz)	
	Storage	512GB M.2 NVME SSD	
		1TB HDD SATA	
	Ram	2x8GB DDR4	
	Graphics Card	6GB GDDR6 NVIDIA GeForce GTX 1660 Ti	
	Operating System	Win 10 Pro	
	Input	USB Mouse and Keyboard	

	Wireless Device	Killer™ Wi-Fi 6 AX1650i (2x2) 802.11ax Wireless and Bluetooth 5.1	
	Monitor	LED-backlit LED monitor	
		Panel Type-IPS	
		Aspect Ratio (16:9)	
		Native Resolution Full HD (1080p) 1920 x 1080 (VGA: 60 Hz, HDMI: 75 Hz)	
		Pixel Pitch 0.2715 mm	
		Color Support 16.7 million colors	
		Input Connectors 2xHDMI, VGA	
		Display Position Adjustments Tilt	
		Screen Coating Anti-glare 3H hardness	
		Compliant Standards NA	
		Diagonal Size 23 inches	
	Accessories	Mini DisplayPort (M) to HDMI (F) Adapter Cable	
	ISO Certification	Manufactured by an ISO 9001 or ISO 9002 certified Personal Computer manufacturing company. (supported by certified true copy of ISO certification)	
	Quality Assurance	All components must be branded and should be factory installed with corresponding part numbers and descriptions that can be viewed and verified via web.	
		The manufacturer's signature must be etched or printed or embedded on the motherboard. (supported by a certification from the manufacturer)	
		Must have a real-time, web-based warranty information on all parts.	
		Brand must have a manufacturer's local depot for spare parts. (supported by a letter of certification and address from the manufacturer with the option of the agency to do site visit)	
28	UNINTERRUPTABLE POWER SUPPLY		
	Quality Assurance	The brand's manufacturer must have a website for components or accessories, where information and descriptions can be viewed by the service provider and end-user.	
		Brand must have a manufacturer's local depot for spare parts. (supported by a letter of certification and address from the manufacturer with the option of the agency to do site visit)	
	ISO Certification	Manufactured by an ISO 9001 certified manufacturing company.	
	Output Power Capacity	325 Watts / 625 VA	

	Max Configurable Power	325 Watts / 625 VA	
	Nominal Output Voltage	230 V	
	Output Frequency	50/60 Hz +/- I Hz	
	Nominal Input Voltage	230 V	
	Input Frequency	45 - 65 Hz	
	Input voltage range for main operations	151 - 299 V	
	Output Connections	(3) Universal Receptacle (Battery Backup)	
	Maximum Input Current	3 A	
	Input Breaker Capacity	7 A	
	Cord Length	1 meter	
	Surge energy rating	273 Joules	
	Battery Type	Maintenance-free sealed Lead-Acid battery with suspended electrolyte: leakproof	
	RoHS Compliant	Yes	
29	Video Wall Monitor		
	Diagonal size	55” (138.7 cm)	
	Type	IPS (in Plane switching)	
	Resolution	1920x1080	
	Pixel pitch	0.63mm(H) * 0.63mm(V)	
	Active Display Area	1209.6mm * 680.4mm	
	Brightness	Max 500 cd/m2	
	Contrast Ratio	1,200:1	
	Viewing Angle(H/V)	178/178	
	Response Time(G-to-G)	8 ms	
	Display Colors	8 bit - 16.7M	
	Color Gamut	72%	
	Operation Hour	24 x 7	
	Haze	25%	
	Dynamic C/R	45,000:1	
	H-Scanning	57.3kHz ~ 70kHz	
	V-Scanning	48Hz ~ 75Hz	
	Maximum Pixel Frequency	82 MHz	

	Input	RGB - DVI-D, Display Port 1.2	
		Video - HDMI 2.0 (2)	
		HDCP - HDCP 2.2	
		Audio- Stereo mini jack	
	Output	RGB - DP1.2(Loop-out)	
		Audio - Stereo mini jack	
		External control - RS232C(in/out), RJ45	
		External sensor - Detachable type (IR)	
		Power Supply - AC 100 - 240 V, 50/60 Hz	
		Max Power - 242 W	
		Typical Power - 136 W	
		BTU - 825	
		Sleep mode power - less than 0.5W	
		Key feature - Ultra-narrow bezel	
	Special features	ACM Support(Advanced Color Management), Auto Source Switching & Recovery, Haze 28%, Temperature Sensor, RS232C/ RJ45 MDC,Plug and Play (DDC2B), Video Wall(15x15(OSD)), Video Wall Daisy Chain(10x10), Pivot Display, Image Rotation, Button Lock, DP1.2 Digital Daisy Chain(Supporting UHD Resolution, HDCP support), Smart F/W update, Clock Battery(168hrs Clock Keeping), IP5X tested, EMC Class A, Center IR	
	Safety Certification	UL (USA) : UL 60950-1, CSA (Canada) : CSA C22.2 No. 60950-1 , TUV (Germany) : EN60950-1, NEMKO (Norway) : EN60950-1 , KC (Korea) : K60950-1 , CCC (China) : GB4943.1-2011, PSB (Singapore) : IEC60950-1, GOST (Russia) : IEC60950-1, EN55022, SIQ (Slovenia) : IEC60950-1, EN55022, PCBC (Poland) : IEC60590-1, EN55022, NOM (Mexico) : NOM-019-SCFI-1993, IRAM (Argenti- na) :IEC60950-1, SASO (Saudi Arabia) : IEC60950-1	
	EMC Certification	FCC (USA): FCC Part 15, Subpart B class A, CE (Europe) :EN55022, EN55024, VCCI (Japan) :VCCI CISPR32:2016, KCC (Korea):KN32, KN35, BSMI (Taiwan) :CNS13438 (CISPR22), C-Tick (Australia) :AS/NZS CISPR32:2015, CCC(China) :GB9254-2008, GB17625.1-2012	
	IP Rating	IP5X	
	Media player type	Signage player box	
30	Videowall Management System and Controller for Screens with Touch Panel		

	Basic Functions	The Video Wall Controller provides a visual user interface that allows the operators and decision-makers to preview all systems data source and video content to ensure the correct source is switched to the required videowall intuitively.	
		Video wall control over IP via node (selectable encoder & decoder in single unit)	
		Decentralized architecture, no central processing to eliminate single point of failure	
		Scalability and connectivity	
		Flexible to re-size, re-position and overlap pictures by drag & drop control	
		Video wall lay-out and control scenario preset & recall	
		Seamless operator access for computers and sources and share/cast to other operators or videowall	
		User-friendly wireless control via tablet	
	Video input	1 x HDMI	
	Video output	1 x HDMI	
	Audio	1-In + 1-Out	
	Ethernet	RJ-45	
	RS-485	built-in	
	RS-232	built-in	
	IR & IO ports	3	
	Power	POE	
	Video compression	H.264	
	Resolution	1920 x 1200	
	Bit rate	Configurable 4 to 20 Mbps per stream	
	Latency	up to 31 ms	
31	Biometric Terminal for Main Door of CCTV Monitoring		
	Features	Temperature measuring range: 30 °C to 45 °C (86 °F to 113 °F), accuracy: ± 0.5 °C	
		Recognition distance: 0.5 to 1.8 m	
		Face mask wearing alert	
		Wiegand protocol	
		Face recognition	
		Audio prompt for authentication result	
	Temperature measurement range	30 °C to 45 °C	
	Sensor	Vanadium Oxide uncooled sensor	
	Accuracy	± 0.5 °C, without black body calibration	
	Measuring distance	0.5 to 1.8 m	
	Screen type	Touchscreen	
	Card capacity	6000	

	Face capacity	6000	
	Event capacity	100,000	
	Camera	2 megapixel, dual lens	
	Card type	Mifare	
	Card reading distance	0 to 5 cm	
	Face recognition distance	0.5-1.8m	
	Live view	supported	
	Face anti-spoofing	supported	
	Working temperature	0 °C to 50 °C	
	Humidity	10 to 90% non-condensing	
	Environment	Indoor & windless environment use only	
32	Network Firewall for Head Office		
	Ports	2 x GE RJ45/SFP Shared Media Pairs; 6 x GE RJ45 Internal Ports; 2 x GE RJ45 FortiLink Ports; 1 x USB Port; 1 x Console Port;	
	Storage	128GB SSD onboard storage.	
	Throughput	1.4 IPS Throughput, 1Gbps NGFW Throughput; 900 Mbps Threat Protection Throughput;	
	License and Support	Unified Threat Protection (UTP); IPS; Advanced Malware Protection; Application Control; Web Filtering; Antispam Service; 24x7 Support	
	Quality Assurance	Must be of same brand as existing firewall of the agency	
33	Network Firewall for Public Zones		
	Ports	2 x GE RJ45 WAN; 1 x DMZ Ports; 5 x GE RJ45 Internal Ports; 2 x GE RJ45 FortiLink Ports; 1x USB Port; 1 x Console Port; 1.4 Gbps IPS Throughput; 1 Gbps NGFW Throughput 2; 700 Mbps Threat Protection Throughput	
	Storage	128GB SSD onboard storage.	
	Throughput	1.4 IPS Throughput, 1Gbps NGFW Throughput; 900 Mbps Threat Protection Throughput;	
	License and Support	Unified Threat Protection (UTP); IPS; Advanced Malware Protection; Application Control; Web Filtering; Antispam Service; 24x7 Support	
	Quality Assurance	Must be of same brand as existing firewall of the agency	
34	Core Switch		

	10/100/1000 or Multigigabit copper ports	24	
	AC power supply	350W AC	
	Switching capacity	208 Gbps on 24-port Gigabit Ethernet model	
	Stacking bandwidth	480 Gbps	
	MAC addresses	32,000 Total	
	IPv4 routes (ARP plus learned routes)	32,000 (24,000 direct routes and 8000 indirect routes)	
	IPv4 routing entries	32,000	
	IPv6 routing entries	16,000	
	Multicast routing scale	8000	
	QoS scale entries	5120	
	ACL scale entries	5120	
	Packet buffer per SKU	16 MB buffer for 24 port Gigabit Ethernet	
	FNF entries	64,000 flow on 24- and 48-port Gigabit Ethernet models	
	DRAM	8 GB	
	Flash	16 GB	
	VLAN IDs	4000	
	Total Switched Virtual Interfaces (SVIs)	2000	
	Jumbo frames	9198 bytes	
	Total routed ports per 9300 Series stack	208	
	Wireless bandwidth per switch	Up to 48 Gbps on 24-port Gigabit Ethernet model	
	Forwarding rate	154.76 Mpps	
	Mean time between failures (hours)	299,000	
	Safety certifications	UL 60950-1	
		CAN/CSA-C222.2 No. 60950-1	
		EN 60950-1	
		IEC 60950-1	

		AS/NZS 60950.1	
		IEEE 802.3	
	Electromagnetic emissions certifications	47 CFR Part 15	
		CISPR22 Class A	
		EN 300 386 V1.6.1	
		EN 55022 Class A	
		EN 55032 Class A	
		CISPR 32 Class A	
		EN61000-3-2	
		EN61000-3-3	
		ICES-003 Class A	
		TCVN 7189 Class A	
		V-3 Class A	
		CISPR24	
		EN 300 386	
		EN55024	
		TCVN 7317	
35	Wireless Access Points		
	Features	Next-generation Wi-Fi 802.11ac with dual-band (2.4 GHz + 5 GHz) support and maximum data rate up to 2.53 Gbps	
	Power over Ethernet Plus (PoE+)	Integrated	
	Gigabit Ethernet port speed	Included	
	WDS Bridge and Workgroup Bridge Support	Supported	
	Captive Portal	Supported	
	Centralized Management via Clustering	Supported	
	Advanced security and preventions (802.1X Supplicant, SSID to VLAN mapping, ACL, etc.)	Supported	
	IPv6	supported	
	Standards	IEEE 802.11a, 802.11b, 802.11g, 802.11n, and 802.11ac	
	Frequency	2.4 GHz and 5 GHz (concurrent)	
	MIMO	4x4 with MU-MIMO support	

	Regulatory Certification	FCC: 47 CFR FCC Part 15, Subpart B, Class B; 47 CFR FCC Part 15, Subpart C; 47 CFR FCC Part 15, Subpart E	
	CE	EN55022, Class B; EN61000-3-2; EN61000-3-3; 55024; EN 301 489-1 / EN 301 489-17, Class B; EN 300 328; EN 301 893; EN 62311; EN 50385	
36	Internet Connection For Head Office		
	Bandwidth	200MB Dedicated/Leased Line	
	Useable IPs	Includes 5 Public IPs	
	Networking	Managed Router included	
	Contract	24 Months	
37	Internet Connection for Public Zones		
	Bandwidth	40Mbps Dedicated/Leased Line	
	Useable IPs	Includes 5 Public IPs	
	Networking	Managed Router included	
	Contract	24 Months	
	-		
	-		
B	**Data Management Platform with PEZA Operation Automation and Application Development for ELOA**		
	Overview of Deliverables		
	Inception Report	The Contract shall deliver an Inception Report within three (3) weeks from issuance of the Notice to Proceed (NTP). The Inception Report shall, at the minimum, consist of the work plan, project approach, impact analysis, and assessment methodology.	
	Technical Assessment	The Contractor shall conduct Technical Assessment of the current applications and databases within two (2) weeks from receipt of Notice to Proceed.	
	List of Deliverables	1. Complete, end-to-end engagement including discovery, design, development, testing, deployment and monitoring of the following:	
		1.a. Web Application for Electronic Letter of Authority (eLOA)	

		1.a.1. eLOA Locator Portal • Must deliver a client facing Portal for Locators • Must have registration, authentication and authorization screens and functionalities • Must have online submission and uploading of required documents • Must be web responsive and compatible with mobile devices • Must be able to send email notifications for each critical step in application process. • Must provide validation page for checking application status and LOA document validity via QR Code • Must have real-time messaging/chat functionality with processor/evaluator • Must be able to interface with existing online payment facility to generate orders of payment and retrieve payment information when needed • eLOA Portal must support at least 5,000 users	
		1.a.2. eLOA Processor/Admin Portal • Must develop a web Application for PEZA Processors and Administrators • Must have dashboard view • Must have compliance monitoring and verification functionalities • Must have real-time notifications • Must be able to generate reports at unit and management levels • Must have approval capabilities with customizable workflows • Must have real-time messaging/chat functionality with applicant • Must enable processor to monitor application status and duration in compliance to the government's Ease of Doing Business (EODB) initiative and Anti-Red Tape (ARTA) Law • Must enable processor to generate LOA document draft from applicant submission data • Must enable processor to attach electronic signature to LOA draft • Must enable processor to generate and publish a finalized digital LOA document in PDF format • Software and subscription licenses should be for two (2) years • Must be able to support at least 50 administrators	

		1.a.3. eLOA Backend and API Integration • Must be able to look-up into existing PEZA applications to be used by eLOA for reference and if need be, to consolidate the records from the database.	
		1.a.4. Database • The database product must be 100% open source with Enterprise Support provided • The product must be cloud agnostic and cloud native (runs on any cloud or containerized environment) to provide flexibility of infrastructure choice. • The database product must support both the SQL and NoSQL API's under a common storage substrate to ensure support for different database services currently and in future • The product must be able to support a single synchronous cluster stretched across multiple AZ's/regions/cross clouds, and support multiple advanced replication architectures for resiliency of the system • The product must horizontally scale to support adhoc peak workloads. • The product must offer a single user interface across various clouds with simplified database management and monitoring like DB upgrades, backups, security & on-demand scaling of nodes to simplify operation and management • The product must support distributed atomicity, consistency, isolation, and durability (ACID) with both serializable & snapshot isolation • The product must provide ability to increase computing capacity in a linear fashion by adding new nodes to the existing database system with no downtime • The product must support row-level locking and Multi Version Concurrency Control • The product must support database compression, with minimal or no impact on performance	

		1.b. Data Integration Platform • Data Management Work Packages o Test Cases and Results o ETL Documentation • Dashboard Development Work Packages • Dashboard • Handover Materials • Data Visualization Training o Workshop materials in soft copy o Six days workshop sessions o Certificates of completion for participants in soft copy	
		1.b.1. The Contractor must propose a platform that will allow to streamline data and gradually on-board key databases for automated data consumption and sharing.	
		1.b.1.a. Design Principles • Must have the ability to ingest data from various data applications • Must have the ability to prepare, transform, profile and monitor the data. • Must have the ability to transform and combine data from disparate sources • Must have the ability store structured and unstructured data • Must have the ability to prepare the data for analytical purposes. • Must allow users to generate reports • Must apply security to prevent unauthorized access • Software and subscription licenses should be two (2) years • Must be able to support at least 30 administrators	

		1.b.1.b. Data Management Platform Tools • The solution platform must take a scale-out approach, achieving scale by pooling industry-standard commodity servers and storage devices. • The solution must also be scalable in the performance dimension, that applications experience no degradation in performance as the volume of data in the system is increased. • The solution should have the ability to combine multiple sources in a single repository • The solution should support no limits on the concurrent number of users. It shall support all the users that need to simultaneously utilize it. It shall be able to accommodate increasing data volumes and additional users over time • The solution should provide data aware Massively Parallel Processing (MPP) capabilities out of the box and should separate metadata from data nodes • The product architecture must be open source and is a truly Massively Parallel Processing (MPP) Architecture that leverages share-nothing architecture to yield a very good performance for the Data Warehouse. • The solution should be able to run on-premise using bare Metal, on VM, or on public cloud (AWS, Azure, GCP) or in a container	
		1.b.1.c. Data Analytics Platform • The solution should be able to support federated queries and have built-in machine learning libraries. • Solution should provide data federation to OLTP database, Data Lakes, Cloud storages like S3, NFS etc. out of the box. • Solution should be data aware and should have a build- in big data query optimizer and the optimizer must take a global view of execution across the cluster to ensure all nodes are evenly utilized. • The product should be fully compliant with SQL-96 Standards, SQL2008 Standards and support SQL2003 OLAP extensions. • The product must support a range of index types at least like B-tree, Bitmap, R-tree, GIST. • The solution should have the capability to support dynamic tiering of hot, warm and cold data that applications can deliver. • The solution should have the capability to support large number of nodes in a cluster. Should be shall be able to accommodate additional nodes overtime and increasing volumes	

		1.b.1.d. Data Integration Platform • The solution should support Codeless, optimized integration to hundreds of applications and data sources across on-premises and cloud • The solution should have broad range of connectors that support any data type (structured, unstructured, or complex), any pattern (across batch, ETL, ELT, real-time, big data processing, APIs, events, and streaming) and advanced capabilities like PDO, change data capture, advanced lookups, partitioning, and error handling. • The solution can replicate and synchronize bulk data, at scale • The solution should perform a few simple steps focused on defining the source and target, and you can complete an advanced integration task without being an integration expert • The solution should have Mass data ingestion capability that can streamline high-performance transfer of enterprise data assets in file format, securely and at scale, from on-premises and cloud sources (such as Amazon S3, Azure Blob, or HDFS) to cloud-based data stores and warehouses • The solution should support task flow orchestration that orchestrate multiple data integration tasks and mappings, run them in a non-linear parallel fashion, and perform advanced exception handling and decision-making • The solution should support business innovation with advanced integration patterns, connecting all types of data across cloud, hybrid cloud, and on-premises environments, serving both IT and business users	
		1.b.1.d. Investment Performance Report To develop and commission a data management platform in order to create a centralized dashboard, analytics and reporting system with content sourced from PEZA's existing databases, as well as databases that may be identified by PEZA to be populated in the future • CPIS and EZMPR data must be loaded to the Data warehouse via Data Integration Platform • Data warehouse must store the unprocessed and transformed data • PEZA Dashboard must be sourced from Data warehouse	

		1.b.1.d.1.Should be able to generate reports including but not limited to the following: o Summary of no. of Enterprises per Zone Location, City, Town, Province, Region o Summary of Monthly Approved Investments, Approved Projects, Projected Exports, and Projected Employment o DTI-OSEC Template for PEZA Approved Investments o PSA Template on Approved Investments o List of Stockholders and Principal Officers o Indicators - Investment, Exports, Employment o Indicators by Industry Sector o Summary of no. of Operating Ecozones, Enterprise, Investments, Exports and Direct Employment per Province o Summary of Indicators per Type of Enterprise o Summary of Indicators by Region o Investment Report	
		1.b.1.d.2. Initial sources include the following locally-hosted databases o Oracle Database Size: 200GB o Marklogic Database Size: 200MB • Should be able to process other data sources to be determined during data gathering	
		1.b.1.d.3. Other Reports to be Determined During Data Gathering • Should be able to generate additional report templates and accommodate additional data sources as needed • The complete list of reports to be generated by the system will be discussed and finalized by the stakeholders during the data gathering process	
		1.c. Supply and delivery of third-party software and subscription licenses valid for two (2) years in support of the above mentioned information systems	
	Training and Documentation	1. Bidder must provide technical training to the assigned PEZA personnel and operators	
		2. Must provide manuals and technical documents of the entire system	
		3. Must provide as-built plans. Training materials. Data sheets, system manuals, configuration documentation, and equipment inventory in two (2) hard copies and soft copies in PDF format as appropriate.	

		4. The Contractor shall conduct technology transfer within four (4) months from receipt of NTP for the following at no additional cost to the PEZA. Certificates and User Manuals shall be issued to the participants upon completion of the conduct of development.	
		4.1. Executive Orientation – At least 10 participants for a period of four (4) hours	
		4.2. User Training Per Application – At least 10 participants per system	
		4.3. The Service Provider shall submit a Training Plan, which shall include the course outline, participant requirements (if any), and the date, time and venue of training	
		4.4. Training Sessions may be conducted onsite or through virtual teleconference	
		4.5. The Training Plan must be approved first by the end users prior to carrying out the training sessions	
		4.6. The Service Provider shall cover all expenses related to the training sessions including venue, necessary equipment and supplies, accommodation of trainers and participants, handouts, and other printed materials, and transportation costs if the training is conducted outside of Metro Manila	
	Additional Documents	The following are the minimum requirements for documentation, which must be provided by the service provider to the end-user.	
		1. Detailed Design Specifications Document (DDSD)	
		2. Detailed Functional Specifications Document (DFSD)	
		3. Use Cases or User Requirements	
		4. Project Plan	
		5. Acceptance Test Plan	
		6. As-Built Document	
		7. Technical Documentation, which includes but is not limited to, documentation of code, algorithms, interfaces, data models, and API	
		8. User's Manual for end-users, system administrators, and support staff	
		9. Recommendations for future development or areas for improvement	
		10. Service Level Agreement (SLA) commitment in terms of system availability and performance during the warranty period	
		11. Cloud Resource Capacity Plan	
	Development Time-Frame	The Systems shall be developed within four (4) months. Project activity provided below	

	Warranty and Maintenance	1. Warranty period for the project must be one (1) year on workmanship and three (3) years on equipment or specified in the Technical Specification warranty clause (Annex A and B). This must include a quarterly preventive maintenance service for the duration of warranty period	
		2. Bidder must include 24 x 7 technical support with a twenty-four (24) hour response time upon receipt of call, for troubleshooting purposes.	
		3. Resolution can be delivered in the form of telephone, electronic and/or on-site resolution. It shall refer to a condition wherein the reported problem is resolved by the Contractor to the satisfaction of PEZA	
		4. Bidder must have a help desk system in place to accommodate support requests and issue service tickets that can be referenced to obtain status updates and reports until resolution of the issue	
		5. Bidder must provide on-site support at no charge should an issue not to be remotely resolvable	
		6. Bidder must issue a warranty certificate deemed to commence after the date of issuance of Certificate of Completion and Acceptance, per site.	
	< detailed equipment and system specifications can be found below >		
	Compute as a Service		
	Master and Segment Servers	Must have Two (2) latest 2nd generation Intel Scalable Processors up to Twelve (12) Cores, 2.7Ghz per CPU	
		Must have 64GB (4x 16GB RDIMM, 3200MT/s, Dual Rank) Memory configuration per server	
		Must provide flexible raid configuration options. Support for RAID 0, RAID 1, RAID 5, RAID 6, RAID 10, RAID 50 and RAID 60	
		Must have three (3) 480GB SSD SATA Mix Use 6Gbps 512 2.5in Hot-plug per server	
		Must have Intel networking cards of 4-port 1Gb Base-T and 4-port 10Gb SFP+ per server	
		Must have Dual, Hot-plug, Redundant Power Supply (1+1), 750W per server	
		Must have Red hat Linux Enterprise Linux Operating System per server	
		Must have Two (2) VMware vSphere 7 Standard for 1 CPU, up to 32 cores per Server	

		Must have One (1) VMware vCenter Standard 7 for One (1) instance	
		Must handle operating ambient temperatures from 10°C to 35°C (50°F to 95°F)	
		Must have Embedded Management and Automation	
		Must be IPMI 2.0 compliant	
		Must be compatible with leading mobile device operating system to monitor the servers	
	Top Rack Switches	Must have 12 x 10Gb SFP+ ports with 12 x SFP+ SR Transceiver and OM4 LC-LC FC Cable, 30M per switch	
		Must have Support 3x QSFP28 ports per switch	
		Must have support Multi-functional 10/25/40/50/100GbE switching in High Performance Computing Clusters	
		Must have high-availability of systems, switches must be configured for virtual link trunking (VLT)	
	Management Switch	Must have 24x 1Gbe ports and 4x SFP+ ports	
		Must have Support Auto-negotiation for speed and flow control	
		Must have support Auto MDI/MDIX, port mirroring, Flow-based port mirroring, Broadcast storm control	
		Must have support VLAN Tagging, Double VLAN Tagging, GVRP, Multiple Spanning Tree (MSTP), Protocol-based VLANs	
	Equipment Retention	All Equipment will be retained by PEZA after the contract period.	
	Enterprise Storage as a Service (ESTaaS):		
		Dedicated Virtual Private Storage – All Flash Block Storage	
		Capacity for Production Workloads	
		Engine Controller : F200 Gen 3 Flash Optimized	
		2 x 7.68TB SSD	
		14TB Effective Capacity	
		RAID 10 Protection	
		Network Protocol - FC	
		Zero hidden transport fees; free ingress and free egress	
		• Load balancers, traffic managers and powerful content delivery network (CDN) options	
		• High throughput, low latency, resilient	
		• Elastic IP (EIP) to expose instances outside of Compute environments	
	Basic Functions	• Security groups feature to provide ultimate control over inbound/ outbound traffic	

		· Must include a Server Rack to accommodate the servers for Command Center and Automation	
	Storage	Storage must be a software defined storage in a single storage platform that delivers flexible, multi-tenant enterprise virtual storage arrays, such as SAN, NAS and Object Storage technology for petabyte-scale primary and secondary storage.	
		Storage must have virtual private storage arrays that can be configured as either Block, File and/or Object Storage arrays. Each virtual storage array should have dedicated and isolated resources such as adjustable controllers, cache, drives and network protocols, exceptional data security, management control and predictable performance.	
		Storage must be able to run multiple virtual private storage arrays with various network protocols simultaneously and independently from one another.	
		Storage must provide dynamic and flexible provisioning capabilities to configure online new capacities and storage performance.	
		Storage must provide comprehensive performance and capacity adjustments on the fly to match application-changing needs.	
		Storage must provide a comprehensive multi-tenant, enterprise class storage subsystem with scale out expandability, quality of service, billing, provisioning, monitoring and support all delivered a service. Performance on each virtual array must be	
		Storage must provide multi-tenant (department) storage array provisioning with workload isolation. Configuration must support hybrid drives setup and all SSD array.	
		Storage must be able to support Block, File, S3, swift and object storage using CIFS, NFS, ISCSI and FC protocol.	
		Storage system must be unified with capabilities to natively support FC, iSCSI, IP and/or ISER. (iSCSI Extension over RDMA).	
		Storage must provide a solution that enables the user to consume storage without the need to worry about scaling limits, firmware upgrades, and enterprise support agreements.	
		Storage must be scalable to support up to 100 storage nodes using storage node clustering.	

		Storage must provide integration and replication capabilities to public cloud service provider.	
		Storage must provide native support for snapshots, clone, replication and online volume migration.	
		Storage must support synchronous and asynchronous replication	
		Storage must provide native support for array replication to object storage.	
		Storage must have built-in backup to Object storage functionality.	
		Storage must provide data protection capabilities using data encryption in flight using IPSEC and also at rest allowing a per array encryption key to be set.	
		Storage must provide AES-256 encryption on each separate virtual array.	
		Storage must provide 100% storage up time SLA.	
		Storage must provide flexible raid configuration options. Support for RAID 10, 1 and 6.	
		Storage must provide two (2) way protection on Object Storage.	
		Storage must have 16GB FC, 1GB and 10GB, 40GB, 100GB IP Networking connectivity available.	
		Storage must provide usage tracking with metered billing supporting reporting and chargebacks.	
		Storage must support SSD (solid-state or flash drive), NVMe SSD and NL-SAS drives in one system.	
		Storage must have capabilities to monitor and tune the whole system with quality of service.	
		Storage must support scale up, scale out and scale down.	
		Storage must have no disruptive upgrade on storage firmware and hot fixes. Upgrades and updates must be done online.	
		Proposed storage must have capacity on demand available anytime	
		Storage must have performance on demand available anytime.	
		Storage must support restful API coverage.	
		Storage must have one large cache with no Read and Write partitioning and must be able to support 3.2TB cache expansion using Solid State Drive (SSD).	

		Proposed solution must support data in place upgrade to newer model at no cost, no EOL, no downtime and no migration cost	
		Storage must support storage auto tiering for data placement on SSD, HDD and object storage on the same array.	
		Storage must support up to 500TB max filesystem size for NAS share and single volume on block storage	
		Storage must have built in file analytics for data management	
		Storage must have support for built in cont`ainer services to run tasks inside storage through docker container technology.	
	Equipment Retention	All Equipment will be retained by PEZA after the contract period.	
	IMPLEMENTATION APPROACH		
	General Requirements	The developers should apply the following functionalities and methodologies to both information systems;	
		The proposed development of web applications must be agile, containerized and must apply the CI/CD method.	
		Should have Search capability based on roles and permission and full-text search;	
		Web services components of the deliverables must comply with OpenAPI specifications, must use a RESTful architecture, unless a different protocol or architecture is necessary for implementation	
		Comply with the government's cloud-first policy	
		The system must provide simple and clear navigational interaction across screens. It must also have page navigation history, search facilities, easy to use menus, appropriate security, and other desirable properties that conform to Internet standards	
	Built-in security and administrative features	For systems with public facing portals, user can register online for their log in account subject to the approval of the processor/administrator;	
		Integration of email notification during user's registration and password recovery;	
		Granular user access rights at per role and user basis configurable by the administrator;	

		Audit Trail to keep logs of events, system, and database activities configurable by the administrator;	
		Include best-practices for error handling. Log and notify the administrators for errors and exceptions encountered;	
	PROJECT DEVELOPMENT TEAM REQUIREMENT		
	Manpower Requirement	A. Project Manager B. Business Analyst C. System Architect D. Senior Programmer E. Programmers F. Quality Assurance Specialist G. Database Specialist H. Documentation Specialist I. Certified Cloud Practitioner / Developer / Solution Arichitect	
	PRE-DEVELOPMENT		
		1. Confer with the clients the actual computerization requirements for the identified processes (scoping);	
		2. Conduct systems analysis and submit designs and specifications that include the overall integration of the functional requirements for the above processes.	
	Development of Test Versions		
		1. Prepare prototype based on the approved design and *specifications*;	
		2. Validate with the clients the prototype vis-á-vis with the *requirements*;	
		3. Commence the development and validate with clients the test *versions* of the software;	
		4. Pre-configure the hardware, the database and application servers, and the appropriate web services using a secure and best optimization techniques of web hosting;	
		5. Prepare training test modules and conduct end-user-acceptance *testing*;	
		6. Prepare updated manuals of operation and technical *documentations*;	
		7. Conduct vulnerability and system penetration test on the production *server,* application and network connection, and incorporate recommended solutions.	
	Deployment of Final Version and Implementation		

		1. Deploy the final version of system to the production servers;	
		2. Facilitate the system roll-out and provide guidance to users;	
		3. Provide 8x5 on-call technical support on-site or through remote access within the software warranty period without additional cost;	
		4. Operational turn-over of the system;	
		5. Support resolution can be delivered in the form of telephone, electronic and/or on-site resolution. It shall refer to a condition wherein the reported problem is resolved by the Contractor to the satisfaction of PEZA	
		6. Any error or fault in any of the services delivered (e.g. design, programming, data conversion / migration error, etc.) shall be acted upon, resolved and / or replaced accordingly at no cost to PEZA.	
		7. Notwithstanding the provision of quality assurance, the service provider is required to provide a one-year (after final Project acceptance) guarantee and assurance that the project and all its component parts are accurate, complete, operable, uncompromised, and error-free in accordance with set standards and performance criteria. Thus, anytime within the one-year warranty, the service provider shall supply or make available to PEZA the necessary services to correct data entry / data validation error / faults, mitigate program bugs.	
		8. Contractor should perform a series of Vulnerability Assessment and Penetration Testing (initial and post-curing) on the server, application and network connection that includes a Summary Report to be signed off by the nominated Data Privacy and Security Officer of PEZA.	
		9.. Contractor should determine through Cloud Capacity Planning the baselines, metrics, usage patterns, and resource ceilings in order to predict and correctly match real-world demand to available cloud resources in order to prevent future bottlenecks and performance degradation.	
		10. Validity of subscription and software licenses should start at the date of complete delivery unless the said license is necessary during the UAT/Testing. In such event the license subscription shall start at the date of the UAT.	

		11. The Contractor must provide fifty (50) man-days during the warranty period to cover additional data source of PEZA.	
		12. The Contractor must provide one (1) year warranty from the date of acceptance.	

Table of Quantities

*Please refer to **Annex "B"***

Section VIII. Checklist of Technical and Financial Documents

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages); **or**

☐ (b) Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document, **and**

☐ (c) Mayor's or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas; **and**

☐ (d) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

Technical Documents

☐ (e) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; **and**

☐ (f) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided for in Sections 23.4.1.3 and 23.4.2.4 of the 2016 revised IRR of RA No. 9184, within the relevant period as provided in the Bidding Documents; **and**

☐ (g) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission; **or**
Original copy of Notarized Bid Securing Declaration; **and**

☐ (h) Conformity with the Technical Specifications, which may include production/delivery schedule, manpower requirements, and/or aftersales/parts, if applicable; **and**

☐ (i) Original duly signed Omnibus Sworn Statement (OSS); **and** if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

Financial Documents

☐ (j) The Supplier's audited financial statements, showing, among others, the Supplier's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission; **and**

☐ (k) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC); **or**
A committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation.

Class "B" Documents

☐ (l) If applicable, a duly signed joint venture agreement (JVA) in case the joint venture is already in existence;
or
duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

II. FINANCIAL COMPONENT ENVELOPE

☐ (m) Original of duly signed and accomplished Financial Bid Form; **and**

☐ (n) Original of duly signed and accomplished Price Schedule(s).

Other documentary requirements under RA No. 9184 (as applicable)

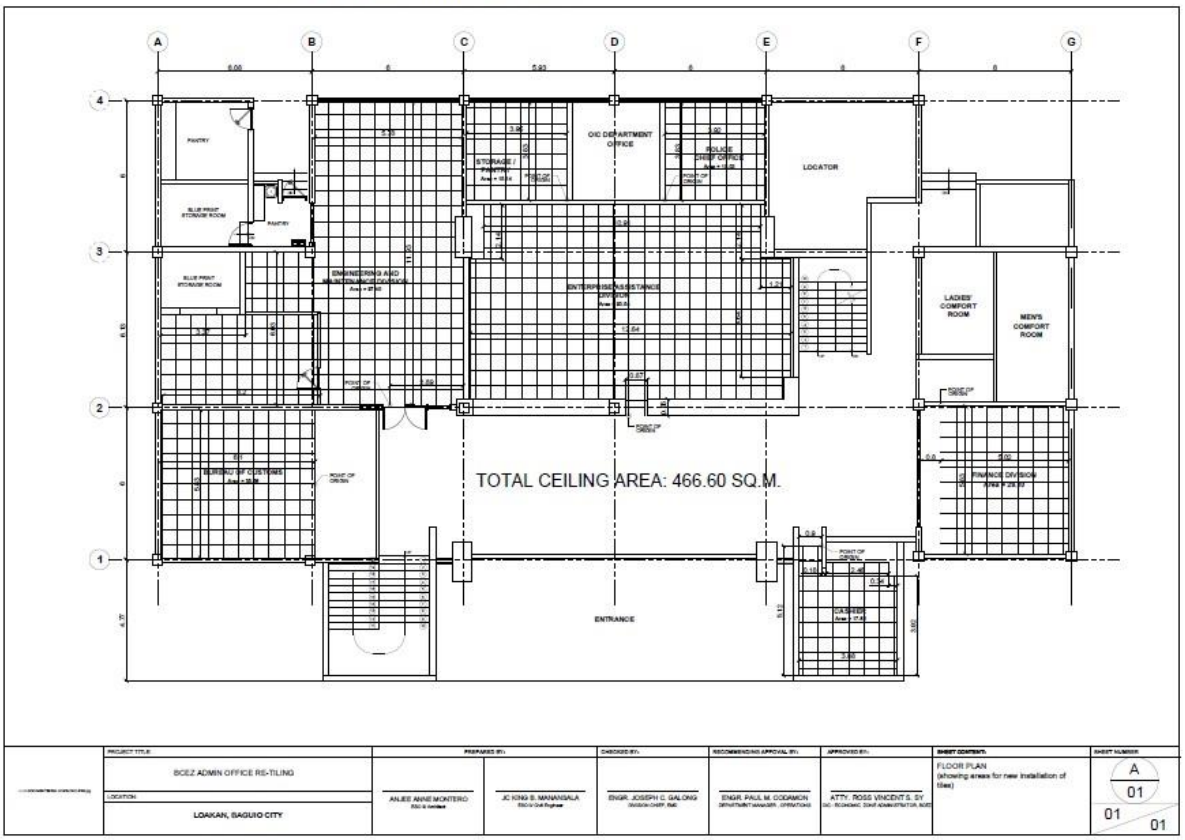
☐ (o) *[For foreign bidders claiming by reason of their country's extension of reciprocal rights to Filipinos]* Certification from the relevant government office of their country stating that Filipinos are allowed to participate in government procurement activities for the same item or product.

☐ (p) Certification from the DTI if the Bidder claims preference as a Domestic Bidder or Domestic Entity.

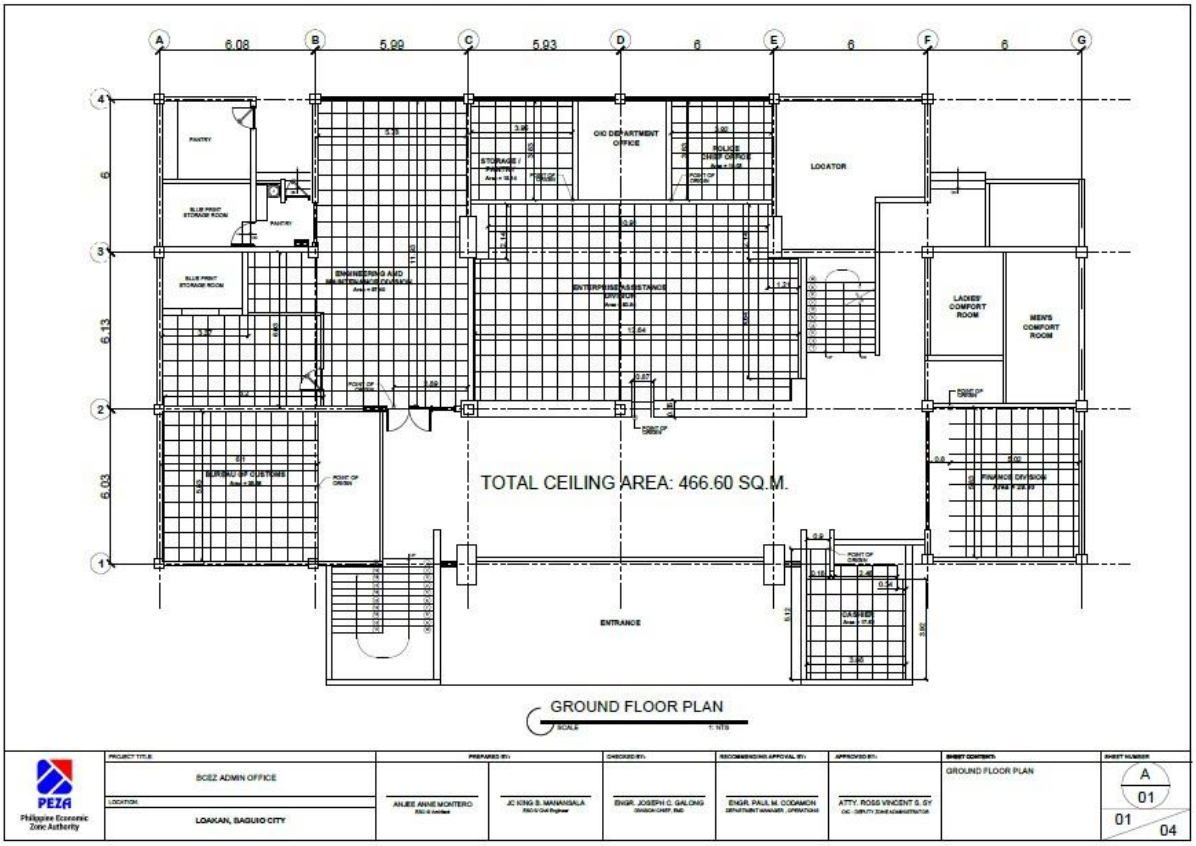
Annex “A”

Floor Plans

BCEZ ADMIN OFFICE



BCEZ ADMIN OFFICE



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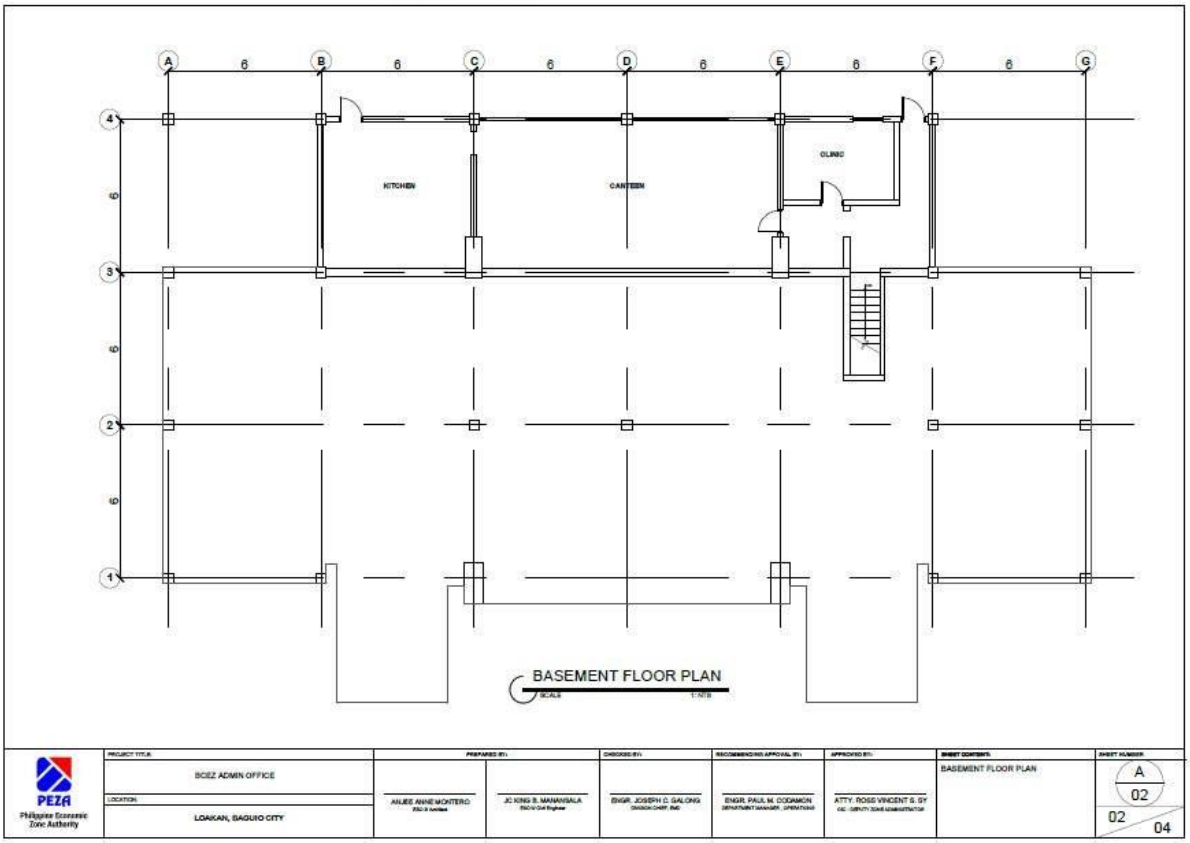

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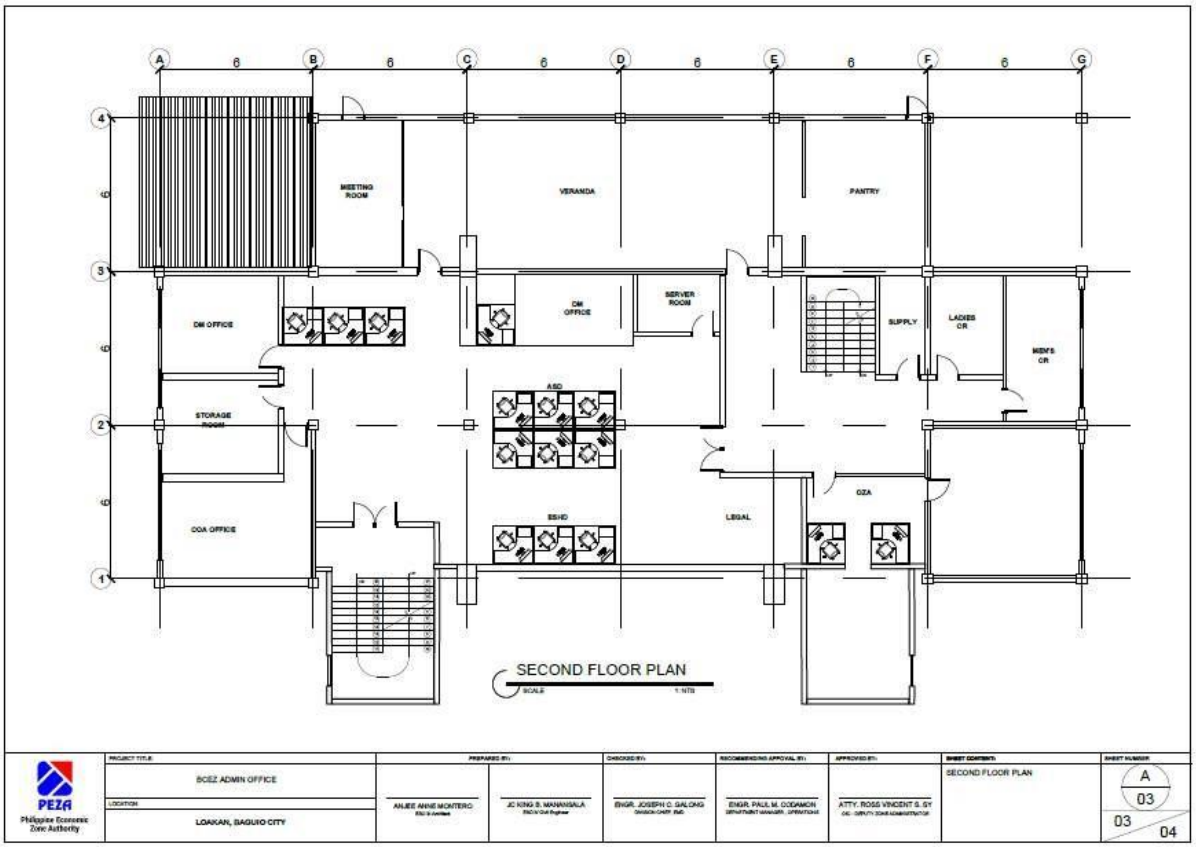

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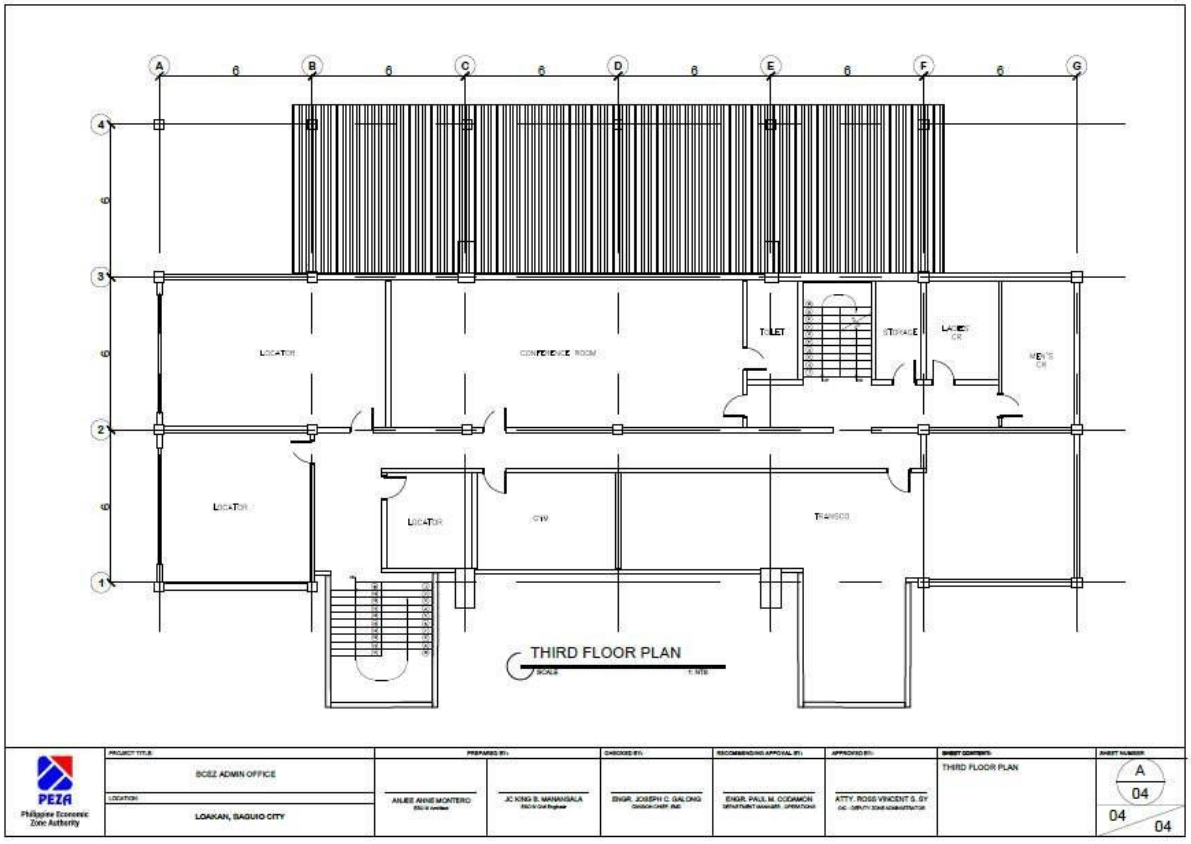
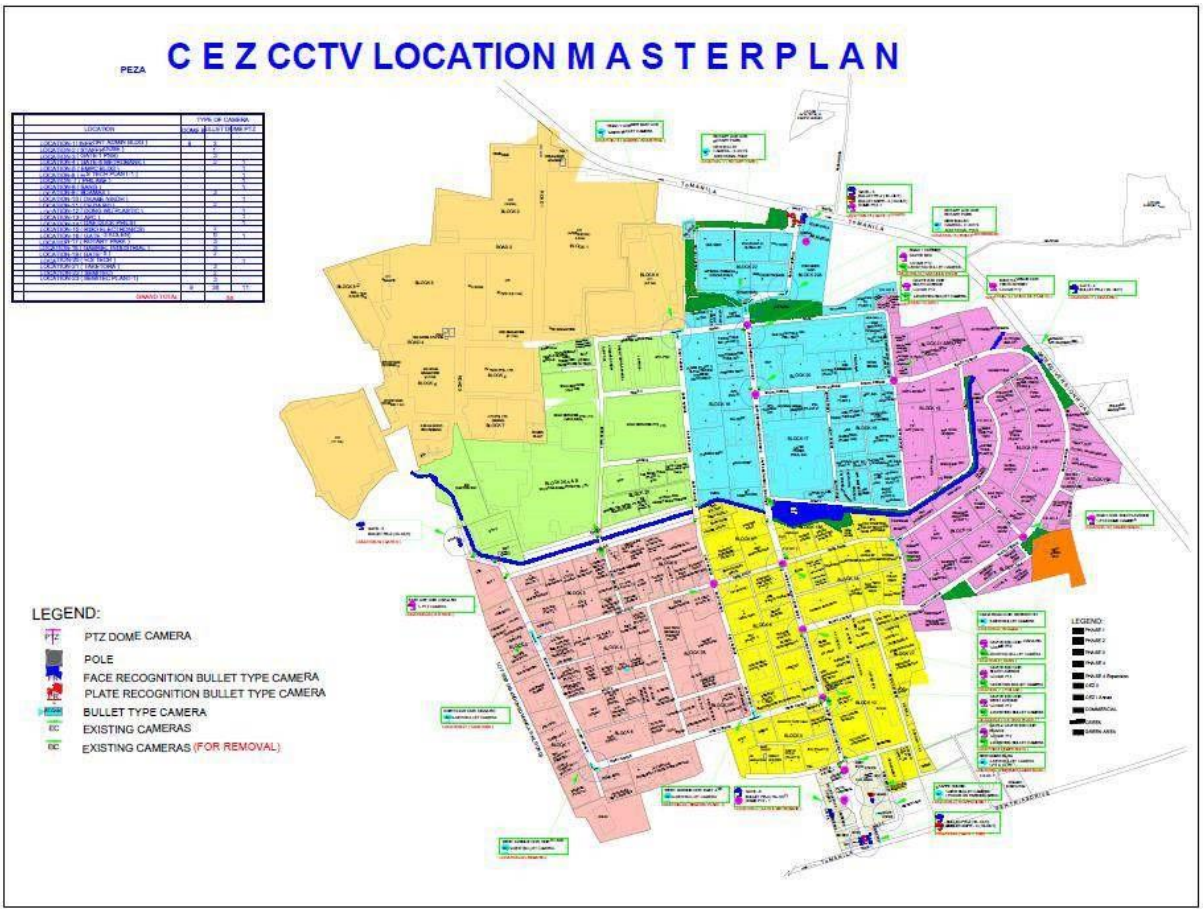
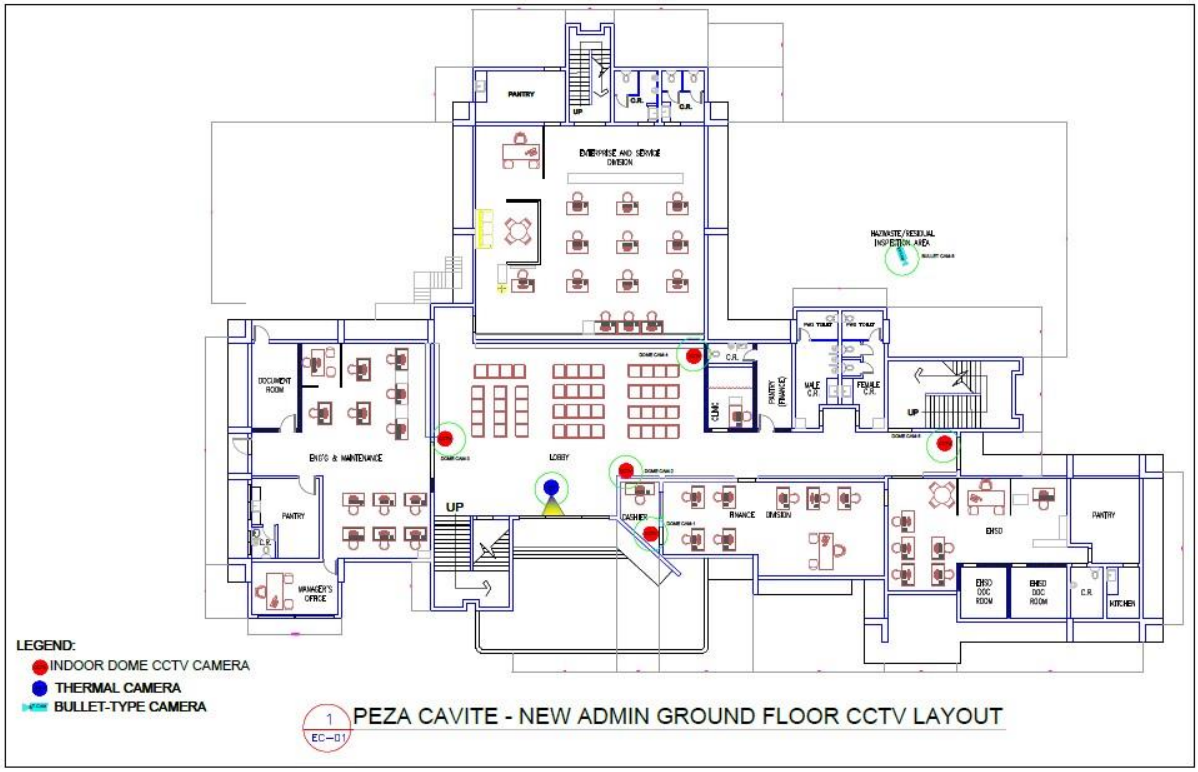
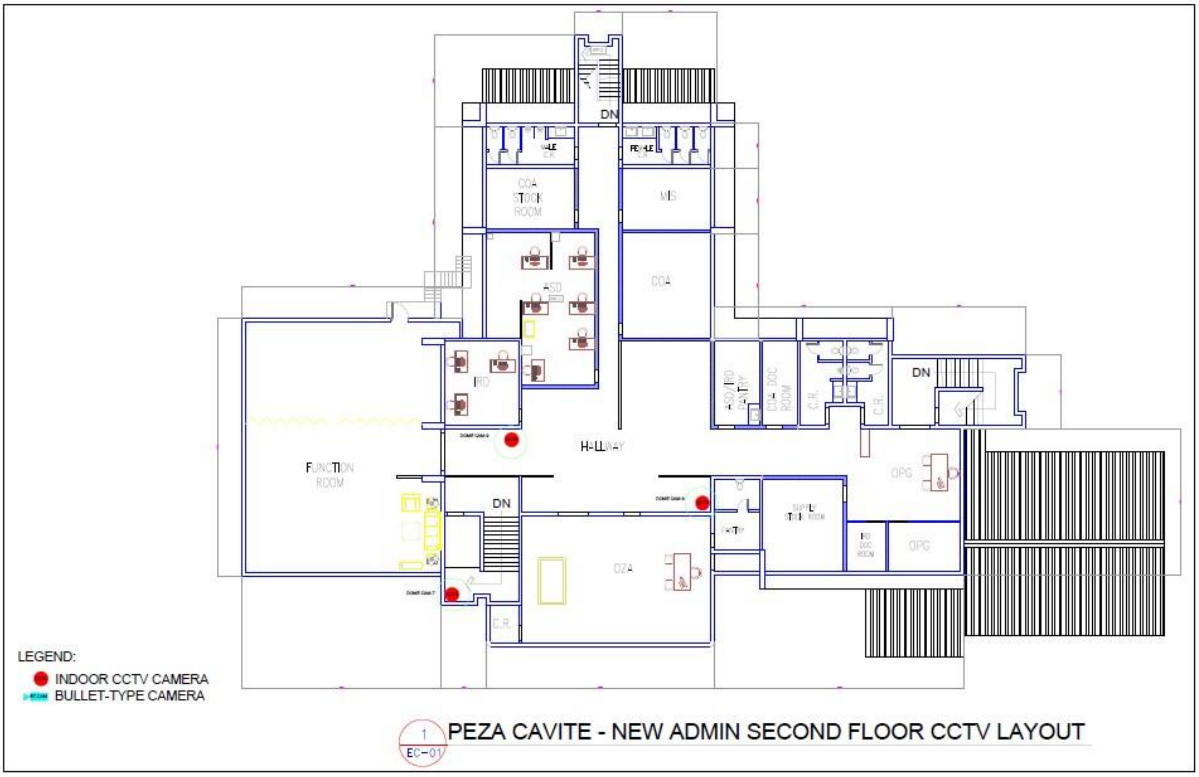
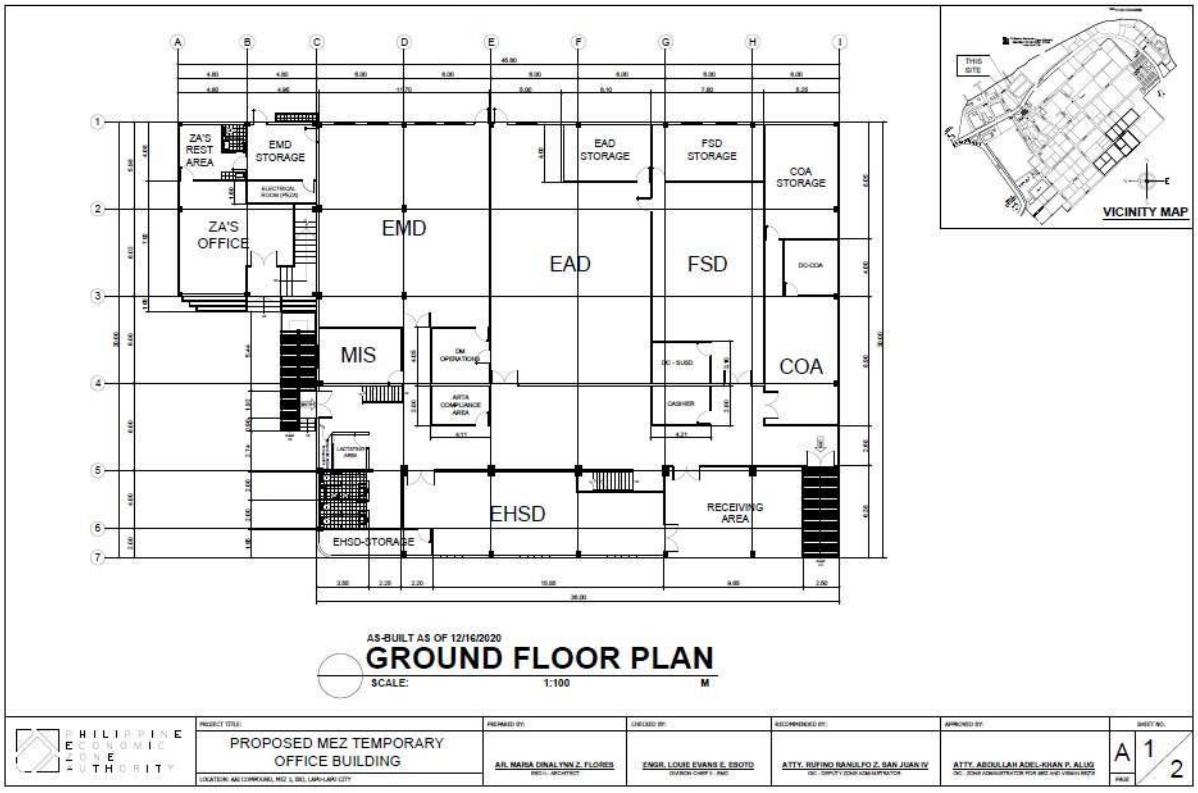



PEZA
C E Z CCTV LOCATION M A S T E R P L A N
LEGEND:
PTZ DOME CAMERA
POLE
FACE RECOGNITION BULLET TYPE CAMERA
PLATE RECOGNITION BULLET TYPE CAMERA
BULLET TYPE CAMERA
EXISTING CAMERAS
EXISTING CAMERAS (FOR REMOVAL)

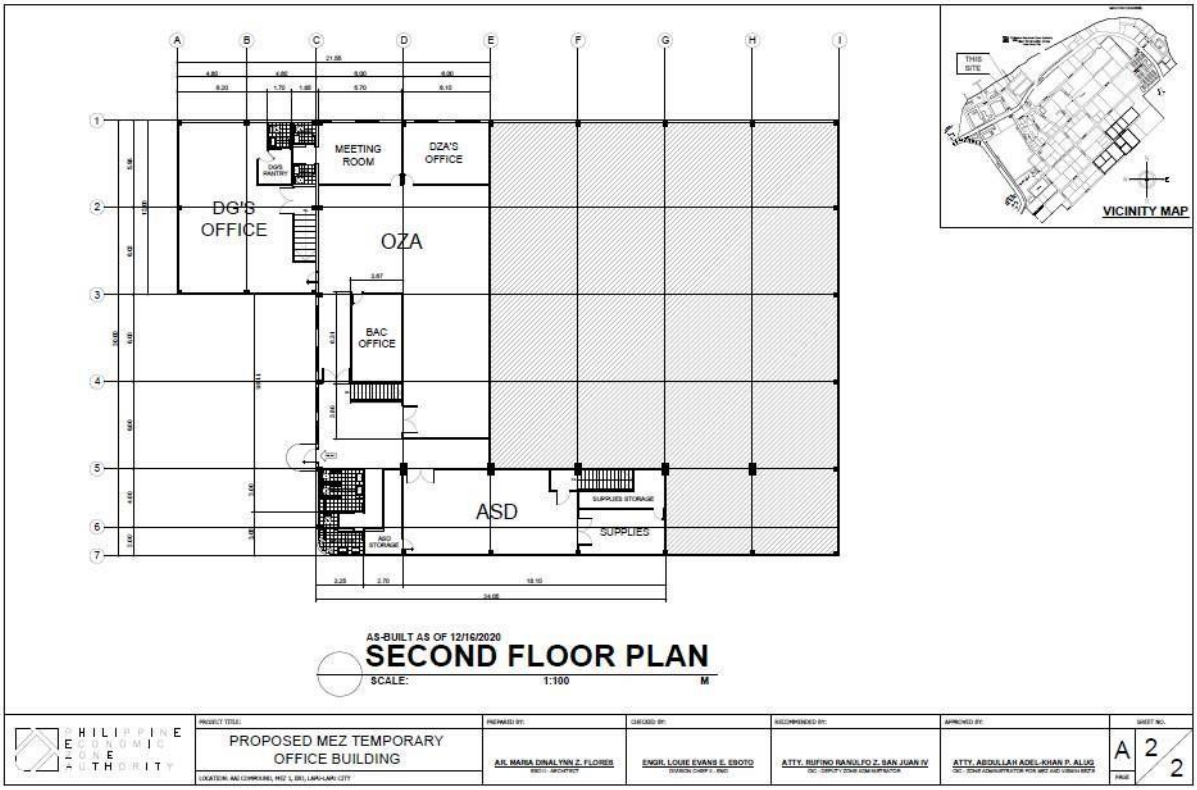

PANTRY
ENTERPRISE AND SERVICE DIVISION
DOCUMENT ROOM
ENTG & MAINTENANCE
LOBBY
CASHIER
FINANCE DIVISION
CLINIC
PANTRY (FINANCE)
MALE C.R.
FEMALE C.R.
MANAGER'S OFFICE
ENRD
ENRD DOC ROOM
KITCHEN
LEGEND:
INDOOR DOME CCTV CAMERA
THERMAL CAMERA
BULLET-TYPE CAMERA
1 EC-01
PEZA CAVITE - NEW ADMIN GROUND FLOOR CCTV LAYOUT



MEZ Ground Floor Plan



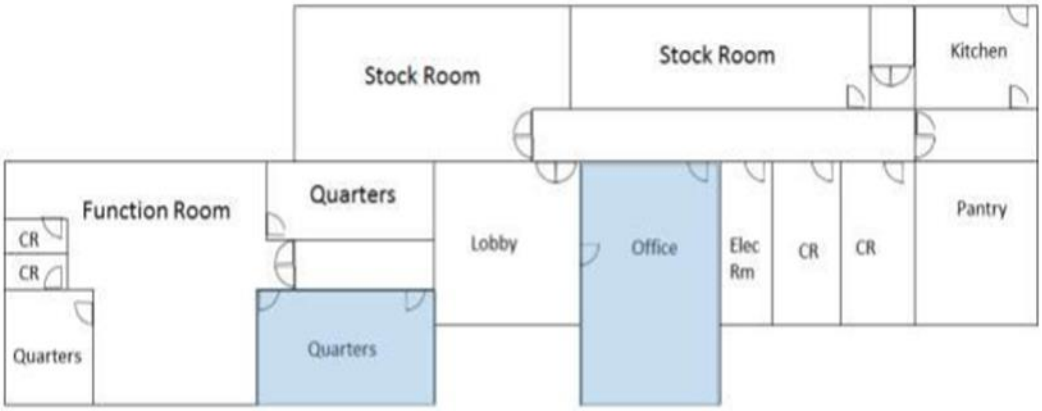
MEZ Second Floor Plan



PHILIPPINE ECONOMIC ZONE AUTHORITY	PROJECT TITLE: PROPOSED MEZ TEMPORARY OFFICE BUILDING LOCATION: A&C COMPOUND, MEZ 1, EBI, LIMA-LIAN CITY	PREPARED BY: AR. MARIA DINALYNN Z. FLORES	CHECKED BY: ENGR. LOUIE EVANS E. ESOTO	RECOMMENDED BY: ATTY. RUFINO RANULFO Z. SAN JUAN IV	APPROVED BY: ATTY. ABDULLAH ADEL-KHAN P. ALIG	SHEET NO. A 2/2

Possible Locations for the Control Room in PEZ Administration Building

Existing Admin



Possible Locations

Quarters – 24 feet x 9.4 feet
Office – 7.5 feet x 33 feet

Annex "B"

Revised Table of Quantities

A	Enterprise Video Surveillance Integrated to the Command Center for 4 Public Zone						
No.	Description	Qty	Distribution				
			Head Office	MEZ	CEZ	BCEZ	PEZ
Video Management System and Licenses							
	Video Management System with NVR	5	1	1	1	1	1
	Video Management System Server	10	2	2	2	2	2
	System Health Monitoring Server	5	1	1	1	1	1
	Video Security Monitoring Licenses With Dongle / Server	22	1	4	5	5	7
	Fail-Over Network Video Recorder	1	1	0	0	0	0
	Additional Camera licenses for Integration	24	0	0	24	0	0
	Failover camera licenses	90	90	0	0	0	0
	Camera Connection Licenses	238	0	90	58	60	30
Face Recognition and ANPR							
	4-Channel Face Recognition Server	6	0	2	2	1	1
	2-Channel Face Recognition Server	2	0	1	1	0	0
	Automatic Number Plate Recognition System	4	0	1	1	1	1
	ANPR Server	10	0	4	3	2	1
	Face Recognition System Licenses	26	0	10	13	3	3
	License Plate Recognition Licenses(Slow speed) for cameras	27	0	10	8	3	4
	License Plate Recognition Licenses(High speed)	6	0	2	2	2	0
Thermal Scanning System							
	Deep Learning AI Network Video Recorder	4	0	1	1	1	1
Access Control System							
	Access Control	4	0	1	1	1	1
Cameras and Accessories							
	Bullet Camera	177	0	70	38	46	23
	PTZ Camera	33	0	10	11	8	4
	PTZ Pole and Wall Mounting	33	0	10	11	8	4
	Ethernet Surge Protector	177	0	70	38	46	23
	Camera Pole Mount	177	0	70	38	46	23
	Thermal Cameras	4	0	1	1	1	1
	Indoor Dome Cameras	28	0	10	9	6	3
	IDF Outdoor Cabinet with 1KVA Outdoor UPS	67	0	28	20	12	7
Network, Datacenter, and Command Center							
	Core Switch	4	0	1	1	1	1
	Distribution Switch	5	1	1	1	1	1
	42U Conventional Server Rack with UPS	1	1	0	0	0	0
	Smart Cabinet(Server Rack) With Fire Suppression and UPS	4	0	1	1	1	1

	24 Port POE Switch	7	0	2	2	2	1
	4 Port POE Switch	67	0	28	20	12	7
	Branded Workstations With UPS	10	0	3	3	2	2
	Video Wall Monitor	20	0	6	6	6	2
	Videowall Management System and Controller for Screens with Touch Panel	5	1	1	1	1	1
	Biometric (in-out) access control for Main Door of CCTV Monitoring	4	0	1	1	1	1
	Network Firewall for Head Office	1	1	0	0	0	0
	Network Firewall for Zones	4	0	1	1	1	1
	Fiber Aggregate Switch	5	0	2	1	1	1
	Wireless Access Points	7	1	2	2	0	2
	Internet Connection For Head Office	1	1	0	0	0	0
	Internet Connection for Public Zones	4	0	1	1	1	1
	Fiber optic MDF Component	4	0	1	1	1	1
	Fiber Distribution Patch Panel 24 ports LC SC 19''Rack Mount 430x250x1U						
	Planet Layer 3 24-Port 10/100/1000T 802.3at PoE with 4-port shared 100/1000X SFP + 4-Port 10G SFP+ Stackable Managed Gigabit Switch (370W, Multicast Routing: PIM-DM/SM, DVM RP), 220 Vac						
	Planet Layer 3 24-Port 100/1000X SFP with 16-Port shared TP + 4-Port 10G SFP+ Stackable Managed Switch plus 2 Stacking ports, trunking stack up to 6 units, 220 Vac						
	Mini GBIC WDM TX1310 Module - 10KM (-40 to 75C), DDM Supported						
	10GBASE-T SFP+ Copper RJ45 Transceiver						
	Fiber optic LC pigtail, 9/125, 1.5-m, -OS1 PVC						
	Fiber optic LC-LC patch cord - SM, 9/125, 2meters, Duplex - OS1 PVC						
	1U 19'' Keystone 24-port Patch panel full loaded with 24 pieces Cat.6 UTP Keystone jacks Patch Panel						
	Patch Cord Cat6 1Meter (Blue)						
Civil, Wiring, Roughing –Ins Works As May Be Required		5	1	1	1	1	1
	Installation and other Works						
	Testing & Commissioning						
	Project Mgmt						
	Miscellaneous and Others						
	Materials						
Installation Materials		5	1	1	1	1	1
	Fiber Optic Cable / UTP Cable /Wire Cable						
	Fiber Cable - Aireal Cabling -Figure-8 Aerial (with messenger wire) armored (min order 2000m)						

	48 **Core Fig8** Armored,single mode Aerial Fiber Optic Cable						
	Cat6 UTP 0.57mm OD Outdoor Lan Cable w/ double jacket (PVC+PE) 305m/box						
	Power cabling, Gauge 14, 2-conductor, stranded, THHN						
	ROYAL CORD NO. 12/3 (POWER CABLE) (75Mtr) FOR POWER TAPPING						
	PELCO - ELECTRIC Pampanga I Electric Cooperative Inc.http://www.pelco1.org.ph › NewConnection						
	New Meter Installation /Sub-Meter selested pole due to the Power 220v tapping at Photo cell						
	New Meter for the Camera /(New Connection) meter cost and processing Cost included Documentation , materials for installation imc pipe,wire ,Nema Box,Breaker ,Grounding Rod and Mater Base. (This Convert for the cost to the additonal wireless anttena for the Back of Timex Peza Locator)						
Materials and Tools		5	1	1	1	1	1

B	**Data Management Platform with PEZA Operation Automation and Application Development for ELOA**						
No.	**Description**	**Qty**	**Distribution**				
			Head Office	MEZ	CEZ	BCEZ	PEZ
2.10	Rack Mount Master Server	2	2	0	0	0	0
2.20	Segment Servers	2	2	0	0	0	0
2.30	Top Rack Switches	2	2	0	0	0	0
2.40	Management Switch	1	1	0	0	0	0
2.50	Enterprise Storage as a Service (ESTaaS)	1	1	0	0	0	0

Health Protocols at Pampanga Economic Zone

1. Visitors must present a valid ID.
2. For individuals who are not fully vaccinated, please bring and present your Negative RT-PCR test result or negative antigen test result taken within 48 hours prior to arrival.
3. For fully vaccinated individuals are exempted from presenting a negative COVID-19 test result. They should present a COVID-19 domestic vaccination card issued by a legitimate vaccinating establishment whether local or foreign. A fully vaccinated individual is someone who has more than or equal to 2 weeks after having received the second dose in a 2-dose vaccine; or more than or equal to 2 weeks after having received a single-dose vaccine.
4. Ensure compliance with minimum public health standards during their stay in the province.