6/23/2023

Request for Proposal
Electronic Safety and Security Systems

For

Bay Arenac Intermediate School District
4228 2 Mile Rd, Bay City, MI 48706

Prepared by

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PART 1 - GENERAL

1.1 INTRODUCTION

A. The Bay Arenac Intermediate School District (BAISD) is seeking bids and proposals for a new Electronic Safety and Security Systems at buildings listed herein.

B. Bid documents may be obtained on the State of Michigan's web site at www.Michigan.gov/VSSlogin **and on the Bay Arenac Intermediate School District purchasing site.** https://www.baisd.net/teaching--learning/safety-information/rfp/

1.2 **Due per the Schedule of Events**, the Owner will receive bid proposals for the project. The Owner will not consider or accept a bid proposal received after the due date for bid proposal submission. The Owner is not responsible for any postal or delivery delays. No email, facsimile or other electronic bid proposals will be accepted. All bid proposals received after the due date will be returned by making them available to the respective Bidder, unopened, for said Bidder to pick-up at their sole cost and expense.

A. Bid proposals shall be submitted to:

Eric Allshouse
Director of Technology
Bay Arenac Intermediate School District
Educational Service Center
4228 2 Mile Rd, Bay City, MI 48706

B. Bids will be publicly opened per the schedule of events, virtually at the following:

Microsoft Teams Click here to join the meeting, Meeting ID: 295 883 671 911, Passcode: mzaSbP

Or call in (audio only): +1 734-412-4950, Phone Conference ID: 581 500 373#

1.3 PROPOSALS/QUOTES

A. Two (2) "hard" copies and two (2) electronic copies on a USB "flash" drive of each complete proposal are to be submitted in sealed packaging, clearly marked: **"ELECTRONIC SAFETY AND SECURITY SYSTEMS SEALED BID"** for and shall be identified with the Bidder's name and address and the date and time of the bid proposal opening. The Owner is not responsible for any postal or delivery delays. No email, facsimile or other electronic bid proposals will be accepted.

B. Proposals will be opened immediately following the due date of the proposals:

C. The hard copy with the original bid Bond shall be conspicuously labeled on the exterior of the proposal stating "ORIGINAL". All other copies shall be labeled "COPY".

1.4 PROPOSAL FORMAT

A. The Bid response shall be structured as follows:

1. Section 1 – Submittal Letter, Executive Summary, Proposed Schedule, Statement of Material Availability and Bid Bond
2. Section 2 – Proposal Forms, and Bill of Materials with Installed Pricing
3. Section 3 – Narratives, System Description, Information, and Brochures
4. Section 4 - Bidder Qualifications, References
5. Section 5 – Sample Bidder's Maintenance Contract

B. The "hard copy" Bids shall be submitted on 8 1/2" by 11" paper, single sided, single spaced using 10 to 12-point print, in 3 ring binders, clearly labeled to show the Bidder's name.

C. The electronic Bid shall be in the same structure and individual sections as the "hard copy" Bids, bound in .pdf files per section above, submitted on an USB "flash", "Thumb" or similar drive with the hard copies. The electronic copy shall provide an exact duplicate of the information provided in the hard copy vice versa.

1.5 SECURITY

A. Each bid proposal must be accompanied by bid security in the form of a certified check or bid bond in the amount not less than 5% of the bid proposal amount, made payable to Bay Arenac Intermediate School District or naming Bay Arenac Intermediate School Districtas the obligee. Bid bonds shall be issued by a company licensed to do business in the State of Michigan

1.6 INSURANCE REQUIREMENTS

A. The Owner requires that all bidders submit proof of insurance with the following requirements:

1. Bay Arenac Intermediate School District must be listed as an additional insured on the Contractors General Liability Coverage. Bidders must agree to this in their Bid.
2. Provide Bay Arenac Intermediate School District with a copy of the Proof of General Liability Coverage from the Contractor with a minimum of $1,000,000 for projects with a value less than $1,000,000 and a minimum limit of $2,000,000 for projects with a value between $1,000,000 and $10,000,000. Bidders must agree to this in their proposal.
3. The Contractor must agree to hold the Owner harmless and to indemnify the Owner for losses from Contractor negligence as follows:
    a. The waiver of subrogation clause in the AIA contract (A-201 or A-232) "General Conditions, and/or any other contract regarding this project, must be deleted.
    b. The parties agree that the Owner is not waiving any rights its insurers may have to subrogation. To the extent any term in the Agreement is contrary to this provision, such term is void and unenforceable.

1.7 STATEMENT OF MATERIAL AVAILABILITY AND PROPOSED SCHEDULE

A. Bidders shall provide a statement of material availability with their proposal response. The statement shall include:

1. Availability of all material at time of proposal submission including associated lead times.
2. Forecasted availability of material at the time of project award (reference Schedule of Events). Use supplier's forecasted availability.
3. Proposed schedule of installation based on material and labor availability.

1.8 FAMILIAL DISCLOSURE AFFIDAVIT

A. Each bid proposal must be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the owner or any employee of the Bidder and any member of the Board of Education or the Superintendent of Bay Arenac Intermediate School District. The Board of Education will not accept a bid proposal that does not include this sworn and notarized disclosure statement.

1.9 AFFIDAVIT OF COMPLIANCE – IRAN ECONOMIC SANCTIONS

A. Each bid proposal must be accompanied by the Iran Economic Sanctions Affidavit of Compliance in compliance with Michigan Public Act No. 517 of 2012. The Bay Arenac Intermediate School District Board of Education will not accept a bid proposal that does not include this sworn and notarized disclosure statement.

1.10 RESERVATION OF RIGHTS

A. The Owner reserves the right, in its sole and absolute discretion (for this provision and all other provisions contained in this RFP), to accept or reject, in whole or in part, any or all bid proposal with or without cause, to waive any irregularities or informalities in this RFP process or any bid proposal, and to award the contract to other than the low bidder, when in the opinion of the Owner, such action will best serve the Owner's interests.

1.11 WITHDRAWAL OF BID PROPOSALS/QUOTES

A. All bid proposals submitted shall not be withdrawn and shall be irrevocable for a minimum period of ninety (90) calendar days following the due date for receipt of bid proposals set forth above.

1.12 REQUESTS FOR CLARIFICATION

A. Bidders may request that the Owner clarify information contained in this RFP. All such requests must be made in writing via email to John Foster, Convergent Technology Partners, at jfoster@ctpartners.net. Requests for Clarifications and inquiries may only be made via email. The deadline for all Requests for Clarification is per the date and time indicated in the schedule of events. The aggregated answers to all Requests for Clarification will be provided in an addendum to the RFP which will be issued and posted on the Purchasing page of the **State of Michigan's web site at** www.Michigan.gov/VSSlogin and the Bay Arenac Intermediate School District Purchasing site https://www.baisd.net/teaching--learning/safety-information/rfp/ no later than three (3) business days prior to the bid opening date for all potential proposers to view.

1.13 RESTRICTION ON COMMUNICATION

A. From the issue date of this RFP until a Contractor is selected and the contract is awarded a prospective Contractor shall not communicate about the subject of this RFP or a Contractor's

bid proposal with the Owner, its Board of Education, or any individual member, administrators, faculty, staff, students, or employees, except for additional requests for clarification in accordance with the paragraph above.

1.14 RELEASE OF CLAIMS

A. Each Bidder by submitting its Proposal releases the Owner from all claims arising out of, and related to, this RFP process and selection of a Contractor.

1.15 PROPOSAL COST

A. Respondents of this RFP are responsible for all costs incurred by them or others acting on their behalf in preparing or submitting a bid proposal, or otherwise responding to this RFP, or any negotiations incidental to its bid proposal or this RFP.

1.16 COLLUSIVE BIDDING

A. All Bidders certify that its bid proposal is made without any previous understanding, agreement or connection with any person, firm or corporation making a bid proposal for the same project and is in all respects fair, without outside control, collusion, fraud, or other illegal action.

1.17 DEFINITIONS

A. Bid Documents are defined as the Instructions to Bidders, Schedule of Events, this RFP, including all Supplemental forms, Attachments, Appendices, Specifications, Drawings and Addenda and the Contract.

B. Addenda are written or graphic instruments issued prior to the due date of bid proposals which modify or interpret the Bid Documents by additions, deletions, clarifications, or corrections. All Addenda issued to Bidders prior to the due date of bid proposals shall become part of the Bid Documents and all bid proposals are to include the Project/Work therein described. Each Bid Proposal submitted shall list all Addenda that have been received prior to the due date of bid proposals.

C. As used in these Instructions to Bidders, the term "Bid Proposal" means a bid proposal prepared and submitted in response to this RFP.

D. As used in these Instructions to Bidders, the term "PSC" refers to the Professional Service Contractor and means Convergent Technology Partners and its assigned representatives.

E. Throughout this RFP and Contract, the “Owner” or “Client” will be used to refer to Bay Arenac Intermediate School District (BAISD) and bidders submitting bid proposals will be referred to as "Bidders" or "Vendors” and a successful Bidder or Vendor will be referred to as a “Contractor” or “Integrator”.

1.18 BIDDER'S REPRESENTATION

A. Each Bidder, by submitting a Bid Proposal, represents that the Bidder has read and understands the Bid Documents and is familiar with the local conditions under which the project is to be performed. Bidders will be held to have physically reviewed and compared the Sites with Bid Documents and have satisfied themselves to all conditions affecting the execution of the Work/Project.

1.19 EXAMINATION OF BID DOCUMENTS

A. A **Mandatory** pre-bid walk through will be held per the Schedule of Events for the purpose of answering any questions from the Vendors and visiting the Site. The location of the Bidder's conference is:

Bay Arenac Intermediate School District
Educational Service Center
4228 2 Mile Rd, Bay City, MI 48706

B. Before submitting a Bid Proposal, each Bidder shall examine the RFP documents carefully and shall read the Specifications and the Bid Documents. Each Bidder shall gather complete information prior to bidding as to existing conditions and limitations under which the Work/Project is to be performed and shall include in its Bid Proposal a sum to cover the cost of items necessary to perform the Work/Project as set forth in the Bid Documents.

C. No allowance or additional fees will be made to a Bidder because of lack of such examination or knowledge. The submission of a Bid Proposal will be considered as conclusive evidence that the Bidder has made such examination. An on-site-inspection of the Sites during the Bidder's Conference will be for all Bidders.

D. Bidders may make written request to the PSC for interpretation or correction of any ambiguity, inconsistency or error in the Bid Documents that are discovered. These questions shall be submitted to the PSC per the Schedule of Events. Only a written interpretation or correction by Addendum shall be binding on Bidders. No explanations or interpretations requested or made orally will be considered binding. All questions will be responded to in writing and all addenda will be posted to the State of Michigan's web site at www.Michigan.gov/VSSlogin and the Bay Arenac Intermediate School District Purchasing site https://www.baisd.net/teaching--learning/safety-information/rfp/ .

1.20 SUBSTITUTIONS

A. Each Bid Proposal shall be based upon the materials and equipment described in the Bid Documents. Please note material that are indicated no substitutions allowed.

B. Voluntary alternates as substitutions for materials and equipment will be considered and evaluated if the Base Bid includes specified materials and equipment. In addition to the Base Bid, the submission of voluntary alternates is acceptable. If a voluntary alternate is submitted for consideration, it shall be expressed on the Bid Form as an "add" or "deduct" amount from the Base Bid. If a voluntary alternate is submitted, the Bidder shall also submit sufficient information in the form of drawings, specifications, and a complete description of the proposed substitute, the cost savings, or advantages. Additionally, provide the name of the material or equipment for which it is substituted, drawings, cuts, performance and test data and any other data or information necessary for a complete evaluation, sufficient for analysis of the alternate. The Owner reserves the right to unilaterally accept or reject, in whole or in part, any voluntary alternates.

1.21 BIDDING PROCEDURES

A. All Bids Proposal must be submitted on the Bid Proposal Forms provided as part of the Bid Documents and in accordance with the Advertisement to Bid and Instructions to Bidders.

Bidders must provide a complete list of proposed subcontractors (one per discipline) as indicated on the Bid Forms. Listing two or more subcontractors per discipline will be grounds for disqualification.

B. All Bidders must provide a proposal for the Base Bid that meets or exceeds the specifications set forth in this RFP. However, all Bidders may suggest voluntary alternates if it is felt that the alternate proposal better suits the intent of this RFP. Any alternate must be listed as such with separate pricing sheets. Any variance of the feature/functionality of the Base Bid must be identified in any alternates proposed.

C. Prior to the due date for bid proposals, any Addenda will be available for inspection wherever the Bid Documents are kept available for that purpose. No Addendum will be issued later than three (3) days prior to the due date for bid proposals. It is each Bidders responsibility to ascertain prior to submitting a Bid Proposal that he/she has received all Addenda issued and shall acknowledge their receipt in their Bid Proposal Form.

D. All Bids must be signed as follows:

1. Corporations: Signature of an officer of the firm who is authorized to bind the corporation.
2. Partnerships: Signature of one partner who is authorized to bind the firm and all its Partners.
3. Bids submitted by Joint Ventures shall be signed by one of the Joint Ventures and shall be accompanied by a certified copy of the Power of Attorney authorizing the individual signing to bind all the Joint Ventures. If a certified copy of the Joint Venture's certificate submitted with the Bid Proposal indicates that all Joint Ventures have signed, no authorization is required.
4. Individuals signing on own behalf: No authorization is required.
5. Individual signing on behalf of another: Power of Attorney or comparable evidence of authority shall accompany Bid.

E. Bid proposals shall be prepared on unaltered Bid Forms, which are a part of this RFP. Bidders shall make no additional stipulations on the Bid Form nor qualify the Bid Proposal in any other manner. Unauthorized conditions, limitations, or provisions attached to the Bid Proposal will be cause for rejection of the Bid Proposal. If alterations by erasure or interlineations are made for any reason, explain over such erasure or interlineations with a signed statement from the Bidder. No additional charges, other than those listed on the Bid Proposal Form and Bid Supplemental Forms, shall be made. Prices quoted will include verification/coordination of order, all costs for shipping, delivery to all Sites, insurance, payment and performance bonds, unpacking, setup, installation, operation, testing, cleanup, training, and all other requirements contained in the bid documents.

F. Bids shall be submitted in a sealed envelope. Identified on the face of the envelope:

1. Project name
2. Name and address of Bidder
3. Notation **“ELECTRONIC SAFETY AND SECURITY SYSTEMS SEALED BID”**

G. No responsibility shall attach to the PSC, the Owner, or the authorized representatives of either one, for the premature opening of any Bid Proposal which is not properly addressed, delivered and/or identified. In such event, that Bid Proposal will not be considered, and the Bidder will be automatically disqualified from consideration.

H. Negligence in preparation, improper preparation, errors in and/or omissions in the Bid Proposal shall not relieve the Bidder from fulfillment of all applicable obligations and requirements of contained in the Bid Documents.

I. The Owner or PSC in making copies available of the Bid Documents to Bidders do so only for the purpose of obtaining bid proposals on the project and do not confer a license or grant of use to a Bidder for any other purpose.

J. All Bidders must complete, sign, and return the attached "FAMILIAL DISCLOSURE" and "IRAN ECONOMIC SANCTIONS AFFIDAVITS" with their Bid Proposal.

K. **Bidders must include a Bill of Material (BOM) per building, along with installed line-item pricing for all components proposed**, including, but not limited to, maintenance and support with the total listed where indicated in the Bid Proposal Forms. **Failure to provide the complete BOM with line-item pricing will result in disqualification of the Bid proposal.** This does not preclude filling out the Unit Pricing Form Attachment B.

L. The Owner considers this RFP legally binding and will require that this Request for Proposal and the Bid Proposal be incorporated by reference into any subsequent Contract between the Contractor and the Owner. It should be understood by the Bidder that this means that the Owner expects the Bidder to satisfy all requirements and specifications contained in the RFP. Any exceptions to the RFP must be explicitly noted in the Bid Proposal and accepted by the Owner. Lack of listing all exceptions will be considered acceptance of all specifications as presented in this RFP

1.22 CONSIDERATION OF BIDS

A. The Bidder acknowledges the right of the Owner to accept or reject any or all Bid proposals, in whole or in part, with or without cause, to waive any irregularities or informalities in this RFP process or any Bid Proposal, and to award the contract to other than the low bidder. In addition, the Bidder recognizes the right of the Owner to reject a Bid Proposal:

1. If the Bidder fails to furnish any required Bid Security, or to submit the data and forms required by the Bid Documents; or

2. If the Bid Proposal is in any way incomplete or irregular; or

3. If the Bidder's performance was unsatisfactory under a prior contract for the construction, repair, modification, or demolition of a facility with the Owner, or a contractor in privacy of contract with the Owner, which was funded, directly or indirectly, by the Owner.

B. The Owner shall have the right to accept alternates in any order or combination and to determine the lowest qualified Bidder based on the sum of the base bid, revisions due to missing material and the alternates accepted.

C. Once the contract is awarded to the Contractor, the contract is contingent upon Bay Arenac Intermediate School District Board of Education approval and the Contractor providing the

Owner with all documents required by the RFP prior to commencement of the Work/Project (i.e. Insurance Certificates, Labor and Material Payment Bond and Performance Bond, etc.). Further, the Owner reserves the unrestricted right to reduce the contract amount by reducing the scope of Work/project and/or components. Any such action will be taken before specific work on a building or on a project component has commenced. Contract amount shall be reduced or increased based on the unit pricing values.

D. Bidders to whom an award of a contract is under consideration shall submit to the Owner upon his/her request a properly executed Contractor's Qualification Statement, AIA Document A305 or other information format specified by the Owner.

1.23 BID PROPOSAL EVALUATION

A. Proposals will be evaluated minimally on the following criteria:

1. Compliance with bidding procedures and completeness of proposal
2. Compliance with RFP technical and administrative requirements
3. Price
4. Material and labor availability
5. Experience and references

1.24 BID SECURITY

A. The Bid Proposal shall be accompanied by a Bid Security of a certified check or cashier's check payable to the Owner or by a satisfactory Bid Bond Entity naming the Owner as the obligee and executed by the Bidder and a surety company authorized to do business in the State of Michigan, in an amount identified in the Instructions to Bidders. The check or amount of Bid Bond shall be forfeited to the Owner upon failure of the Contractor to enter into the Contract. The Contractor's Bid security will be retained until the Contractor has signed the contract and has furnished the required Certificates of Insurance and other required Bonds and documents required by the RFP. Bonds signed by an Attorney-In-Fact must be accompanied by a certified and effectively dated copy of their Power of Attorney.

B. The Owner reserves the right to retain the Bid security of all Bidders until the Contractor enters into the contract or until ninety (90) days after bid opening, whichever is later. If the Contractor refuses to enter into the Contract, the Owner may retain their Bid Security as liquidated damages but not as a penalty.

1.25 PERFORMANCE, LABOR, AND MATERIAL PAYMENT BONDS

A. At or prior to delivery of the signed Contract, the Owner will require the Contractor to secure and post a Labor and Material Payment Bond and a Performance Bond including bonding for all subcontractors, each in the amount of 100% of the Contract Sum including bonding for all subcontractors. Surety shall be a company incorporated in the United States and must appear on the U.S. Treasury Departments approved surety list and be adaptable to the Owner. The Contractor shall obtain such bonds in a manner consistent with Michigan law.

1.26 TAXES

A. Installation services for the tangible personal property purchased by the Owner is not subject to sales taxation. Moreover, the Owner is exempt from taxation on all tangible personal property purchased by the Owner for its use and consumption; however, this exemption would not apply to any materials required under the Bid Documents that are deemed to be a component of a construction/improvement project to the Owner's Sites/Facilities. All prices submitted on the Bid Proposal Form shall be inclusive of all applicable taxes.

1.27 PERMITS AND FEES

A. All prices submitted on the Bid Proposal Form shall be inclusive of all applicable/required permits and fees.

1.28 MICHIGAN RIGHT-TO-KNOW LAW

A. All Contractors must conform to the provisions of the Michigan Right-To-Know Law, 1986 PA 80, which requires employers to:

1. Develop a communication program designed to safeguard the handling of hazardous chemicals through labeling of chemical containers, and development and availability of Material Safety Data Sheets.

2. Provide training for employees who work with these chemicals; and

3. Develop a written hazard communications program.

B. The law also provides for specific employee rights. These include:

1. The right to be notified (by employer or Contractor posting) of the location of Safety Data Sheet (SDS)

2. The right to be notified (by employer or Contractor posting) of new or revised SDS no later than five working days after receipt.

3. The right to request copies of SDS from their employers or Contractors.

C. Provisions of Michigan's Right-to-Know Law may be found in those sections of the Michigan Occupational Safety and Health Act (MIOSHA), which contain Right-to-Know provisions, and the Federal Hazard Community Standard, which is part of the MIOSHA Right-to-Know Law through adoption.

1.29 WITHDRAWAL OF BIDS

A. A Bidder may withdraw its Bid Proposal by written request from an authorized Bidder representative, at any time prior to the due date of bid proposals.

B. No Bidder may withdraw a Bid Proposal for a period of ninety (90) calendar days, following the due date for receipt of bid proposals, and all bid proposals shall be subject to acceptance by the Owner during this ninety (90) day period.

1.30 EXECUTION OF CONTRACT

A. The Contractor to whom the contract is awarded shall, within ten (10) calendar days after Notice of Award and receipt of the contract from the Owner, execute and deliver required copies to the Owner.

B. At or prior to delivery of the executed Contract, the Contractor to whom the contract is awarded shall deliver to the Owner those Certificates of Insurance required by the Bid Documents and such Labor and Materials Payment Bonds and Performance Bond as are required by Owner and any other documents required by this RFP.

C. The Owner shall approve the provided Bonds and Certificates of Insurance before the Contractor may proceed with the Work/Project. Failure or refusal to provide Bonds, Certificates of Insurance or any other documents required by this RFP in a form(s) satisfactory to the Owner shall subject the Contractor to loss of time from the allowable construction period equal to the time of delay in furnishing the required material.

1.31 POST BID INFORMATION

A. All additional information required for the proper evaluation of the bidder's proposal shall be promptly provided upon request by the PSC or Owner.

1. This is not to be construed as additional time to provide documentation or information that is required to be included to be in the bid proposal.

1.32 TIME OF COMPLETION

A. The Bidder agrees to complete the Work within the timeframes listed in the Schedule of Events or as mutually agreed during the project kick-off meeting.

1.33 EQUAL OPPORTUNITY

A. The Contractor and all its subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin.

1.34 CONSORTIUM FOR PURCHASING

A. Any school district within the BAISD service area is eligible to purchase directly from the successful bidder's proposal.

PART 2 - EXECUTION

2.1 SITE REQUIREMENTS

A. The Owner Site is an instructional and administrative facility that provides up to year-round services to their students, staff, and the community. As such, activities in all buildings are critical to the provisioning of services to the students, staff and the community and shall not be interrupted by the Contractor's Work activities.

B. The computer and telephone systems associated with this Work will not be taken off-line or removed from service during normal working hours without coordination of the Owner's IT department and the staff of affected buildings. Arrangements must be made by the Contractor to coordinate any such activities.

C. The Contractor will be required to work around all the conditions listed above, as well as working with the Owner's staff to minimize disruptions to normal Owner activities.

D. Installation Guidelines

1. All Work performed on this Project will be installed in accordance with the current edition of the Michigan Electrical Code, the current edition of the BICSI Telecommunications Distribution Methods Manual, the current edition of the BICSI

Cabling Installation Manual, the latest issue of the TIA Standards as published by Global Engineering Documents as TIA Commercial Building Telecommunications Standard, and all local codes and ordinances.

2.2 QUALITY ASSURANCE

A. Project Manager

1. The Contractor will provide a full-time Project Manager who will act as a single point of contact for all activities regarding this Project. The Project Manager must be a management employee and will not be involved in personally performing craft installation work

2. The Project Manager is required to attend necessary technology and construction meetings for coordination before Work is started and construction meetings once Work is in progress.

3. The Project Manager will be required to make on-site decisions regarding the scope of the Work and any changes required by the Work.

4. The Project Manager will be totally responsible for all aspects of the Work and shall have the authority to make immediate decisions regarding implementation or Owner approved changes to the Work.

B. Compliance with Laws and Regulations

1. The Contractor performance of the Work shall comply with all applicable federal, state, and local laws, rules, and regulations and Owner policies, procedure, rules and regulations. The Contractor shall give required notices, shall procure necessary governmental licenses and inspections, and shall pay without burden to the Owner, all fees and charges in connection therewith unless specifically provided otherwise. In the event of violation, the Contractor shall pay all fines and penalties; including attorney's fees and other defense costs and expenses in connection therewith.

C. Federal Communications Commission

1. Equipment requiring FCC registration or approval shall have received such approval and shall be appropriately identified.

D. Codes, Standards, and Ordinances

1. All Work shall conform to the latest edition of the Michigan Electrical Code, the Building Code, and all local codes and ordinances, as applicable. Current versions of TIA-568 and TIA-569 shall be adhered to during all installation activities. Methodologies outlined in the latest edition of the BICSI Telecommunications Distribution Methods Manual shall also be used during all installation activities. Should conflicts exist with the foregoing, the authority having jurisdiction for enforcement will have responsibility for making interpretation. The Contractor is wholly responsible to meet or exceed all codes, standards, regulation, manufacturer installation standards and industry best practices.

2.3 SAFETY

A. The Contractor shall take the necessary precautions and bear the sole responsibility for the safety of the methods employed in performing the Work. The Contractor shall at all times

comply with the regulations set forth by federal, state, and local laws, rules, and regulations concerning "OSHA" and all applicable state labor laws, regulations, and standards. The Contractor shall indemnify and hold harmless the Owner from and against all liabilities, suits, damages, costs, and expenses (including attorney's fees and court costs) that may be imposed on the Owner because of the Contractor, or its subcontractor, or supplier's failure to comply with the regulations stated herein.

2.4 INSPECTION, ACCEPTANCE, AND TITLE

A. Inspection and Acceptance will be upon successful installation unless otherwise provided. Title to/or risk of loss or damage to all items shall be the responsibility of the Contractor until acceptance by the Owner unless loss or damage results from negligence by the Owner. If the materials or services supplied to the Owner are found to be defective or do not conform to the specifications, the Owner reserves the right to cancel the Contract upon written notice to and return products at the Contractor's expense, based upon the terms of the Contract.

1. When the Owner is referred to in this section of the RFP relative to inspections, the Owner has designated the PSC as the party to perform such inspections on behalf of the Owner. Notwithstanding the above, the Owner may also perform such inspections along with the PSC.

B. The Owner shall at all times have access to the Work wherever it is in preparation or progress and shall provide proper facilities for such access and for inspection.

C. The Contractor shall not close-up any Work until the Owner or applicable AHJ has inspected the Work. Should the Contractor close-up the work prior to inspection, the Contractor shall uncover the Work for inspection at no cost to the Owner, and then recover the Work according to the specifications contained herein. The Contractor shall notify the Owner and applicable AHJ in writing when the Work is ready for inspection. The Owner and AHJ will inspect the Work as expeditiously as possible after receipt of notification from the Contractor.

2.5 STATUS REPORTS, MEETINGS AND CONSTRUCTION COORDINATION

A. It shall be the Contractor's responsibility to provide the Owner / PSC with written weekly project status reports while actively engaged in craft work and a summary report at the beginning of periods of inactivity between phases or construction delays noting status at that time and expected date of return to work in addition to the requirements listed below. These reports are required and shall include, but not be limited to:

B. Project completion percentage.

C. All problems that were encountered.

D. Any foreseeable problems that may arise.

E. General status of the project

F. The Owner / PSC reserves the right to hold additional status meetings on a regular basis with the Contractor's Project Manager.

END OF SECTION

BAY ARENAC INTERMEDIATE SCHOOL DISTRICT
ELECTRONIC SAFETY AND SECURITY SYSTEMS

SECTION 00 30 10 - SCHEDULE OF EVENTS

The following is a projected schedule of events for this project. The schedule may change depending upon the results of the responses and a final schedule will be established prior to contracting with the Contractor. Additionally, the final schedule shall be subject to change based on construction schedule and progress.

EVENT	**DATE**
Bid Release	June 23rd, 2023
Bidder's Conference Date and time	July 11th, 2023 10:00 AM
Final Date and time for Questions	July 17th, 2023 12:00 PM Local
Bid Due Date/time and Public Opening (Virtual)	July 25th, 2023 1:00 PM Local
Contract Award	August 21st, 2023
Project Start Date	August 28th, 2023
Preferred Project Completion	January 2nd, 2024

End of Section

BAY ARENAC INTERMEDIATE SCHOOL DISTRICT
ELECTRONIC SAFETY AND SECURITY SYSTEMS

SECTION 00 40 10 - BID PROPOSAL FORM

OWNER: Eric Allshouse - Director of Technology
Bay Arenac Intermediate School District
4228 2 Mile Rd, Bay City, MI 48706

PROJECT: Electronic Safety and Security Systems

NAME OF BIDDER: _____

BASE BID:

Lump sum bid for all work specified and shown on the drawings as indicated for base bid in the amount of:

_____ Dollars ($_____)

The Bid Proposal amount shall be shown in both words and figures. In the case of discrepancy, the amount shown in words shall govern.

BASE BID: The undersigned, having examined the Bid Documents and examined the conditions affecting the Work/Project, hereby proposes and agrees to furnish all of the labor, materials, and equipment and perform all work necessary to complete the Work/Project as required by the Bid Documents for the stipulated sum identified above and detailed in Supplemental A (Cost Analysis Worksheet). The Bid Documents set forth the terms and conditions upon which the Bidder will provide a "turnkey" solution for the installation and operation of the project for use by the Owner and represents and warrants that the design, operation, and functionality of the project are in accordance with the Bid Documents. All prices provided by the Bidder on this Bid Proposal Form must include all cables, connectors, equipment etc. that are necessary to the make the project fully operational for the intent and purpose stated in the Bid Documents

BID SECURITY: Enclosed herewith find (Certified Check)/ (Bid Bond) in the amount of $_____ being five percent (5%) of the maximum Bid Proposal herein, made payable to Bay Arenac Intermediate School District or naming Bay Arenac Intermediate School District as obligee. The proceeds of which are to remain the property of Bay Arenac Intermediate School District, if the Bidder does not, within ten (10) days after notice of the acceptance of Bid Proposal, enter the Contract.

EXCEPTIONS AND SUBCONTRACTORS

Any exceptions to the terms and conditions contained in the RFP or contract must be identified below: (Identify each with specific RFP section/part/paragraph, attach a separate sheet if required) Referring to an annotated RFP is NOT acceptable. Additionally, any subcontractors must be listed below with all contact information.

_____

_____

_____

ADDENDA

This RFP incorporates the following Addenda:

Addendum No. ____ Dated _____ Addendum No. ____ Dated _____

Addendum No. ____ Dated _____ Addendum No. ____ Dated _____

Addendum No. ____ Dated _____ Addendum No. ____ Dated _____

BID PROPOSAL FORM REQUIRED ATTACHMENTS:

The following Bid Form Proposal Supplements are attached hereto and are considered an integral part of this Bid Proposal Form:

- SUPPLEMENTAL A – Cost Analysis Worksheet
- SUPPLEMENTAL B – Unit Pricing
- SUPPLEMENTAL C – Mandatory Alternates
- SUPPLEMENTAL D – Voluntary Alternates
- SUPPLEMENTAL E – Familial Disclosure Affidavit
- SUPPLEMENTAL F – Iran Economic Sanctions Act Compliance Affidavit

The following additional information must also be included for the bid proposal to be considered compliant:

- **Statement of Equipment Availability**
- **Bill of Material and installed pricing**
- Proposed Schedule
- Comprehensive Narrative of the proposed System/Solution
- Diagrams or Schematics supporting the System/Solution Narrative
- Other information as indicated herein.

BIDDER NAME: _____

ADDRESS: _____

_____

_____

DATE: _____

TELEPHONE: _____

EMAIL ADDRESS: _____

If award is made to our firm based upon our Bid Proposal, we agree to enter into the form of Contract with the Owner in accordance with this Request for Proposal, the contract and our Bid Proposal.

My signature certifies that the Bid Proposal as submitted complies with all terms and conditions as set forth in this Request for Proposal, unless specifically enumerated as an exception as part of this Bid Proposal Form.

I hereby certify that I am authorized to sign as a Representative for the Firm:

_____

(Authorized Signature) (Title)

BAY ARENAC INTERMEDIATE SCHOOL DISTRICT
ELECTRONIC SAFETY AND SECURITY SYSTEMS

SUPPLEMENTAL A - COST ANALYSIS WORKSHEET

OWNER: Eric Allshouse - Director of Technology
Bay Arenac Intermediate School District
4228 2 Mile Rd, Bay City, MI 48706

BIDDER: _____

ADDRESS: _____

_____

BID BREAKDOWN

Educational Service Center	COMPONENT	Pricing
ESS Headend Equipment/Software	Material	
	Labor	
	Sub Total	
Wiring and cabling	Material	
	Labor	
	Sub Total	
Access Control Devices/Equipment	Material	
	Labor	
	Sub Total	
Cameras and Video Surveillance Equipment	Material	
	Labor	
	Sub Total	
Demo of Existing	Labor	
Programming	Labor	
Training	Labor	
	Sub Total	
	Performance and Materials Bond	
	Educational Service Center Total	

Career Center	COMPONENT	Pricing
Wiring and cabling	Material	
	Labor	
	Sub Total	
Access Control Devices/Equipment	Material	
	Labor	
	Sub Total	
Cameras and Video Surveillance Equipment	Material	
	Labor	

	Sub Total	
Demo of Existing	Labor	
Programming	Labor	
Training	Labor	
	Sub Total	
	Performance and Materials Bond	
	Career Center Total	

Transportation	**COMPONENT**	**Pricing**
Wiring and cabling	Material	
	Labor	
	Sub Total	
Access Control Devices/Equipment	Material	
	Labor	
	Sub Total	
Cameras and Video Surveillance Equipment	Material	
	Labor	
	Sub Total	
Demo of Existing	Labor	
Programming	Labor	
Training	Labor	
	Sub Total	
	Performance and Materials Bond	
	Transportation Building Total	

Conference Center	**COMPONENT**	**Pricing**
Wiring and cabling	Material	
	Labor	
	Sub Total	
Access Control Devices/Equipment	Material	
	Labor	
	Sub Total	
Cameras and Video Surveillance Equipment	Material	
	Labor	
	Sub Total	
Demo of Existing	Labor	
Programming	Labor	
Training	Labor	
	Sub Total	

Performance and Materials Bond		
Conference Center Total		
Bay Living and Learning Center	**COMPONENT**	**Pricing**
Wiring and cabling	Material	
	Labor	
	Sub Total	
Access Control Devices/Equipment	Material	
	Labor	
	Sub Total	
Cameras and Video Surveillance Equipment	Material	
	Labor	
	Sub Total	
Demo of Existing	Labor	
Programming	Labor	
Training	Labor	
	Sub Total	
Performance and Materials Bond		
Bay Living and Learning Center Total		
Arenac Living and Learning Center	**COMPONENT**	**Pricing**
Wiring and cabling	Material	
	Labor	
	Sub Total	
Access Control Devices/Equipment	Material	
	Labor	
	Sub Total	
Cameras and Video Surveillance Equipment	Material	
	Labor	
	Sub Total	
Demo of Existing	Labor	
Programming	Labor	
Training	Labor	
	Sub Total	
Performance and Materials Bond		
Arenac Living and Learning Center Total		

Performance Labor and Material Bonds – All Buildings	
Base Bid – All Buildings	
Total Base bid (PLM Bond and Buildings)	

00 40 12 UNIT PRICING
SECURITY

Provide this unit pricing supplement, attached to and submitted with the Bid Proposal. These unit costs, which shall be considered firm pricing during the contract period and not subject to change, will be used to determine costs (**Inclusive of both labor and material including all wiring and connectivity, and associated licenses**) for additions and deletions during the contract period. The Owner reserves the right to adjust any or all quantities at any time.

#	Item	Part Number	Unit Price
UP01	Type 1 camera		
UP02	Type 2 camera		
UP03	Type 3 camera		
UP04	Type 4 camera		
UP05	Type 5 camera		
UP06	Type 6 camera		
UP07	Type 7 camera		
UP08	Parapet mount		
UP09	Corner mount		
UP10	Gooseneck bracket		
UP11	Wall mount bracket (not flush mount)		
UP12	Access control 4–door panel, complete		
UP13	Access control 8–door panel, complete		
UP14	Access control 16–door panel, complete		
UP15	Card reader		
UP16	Door strike – complete		
UP17	Door Position Sensor		
UP18	Mag lock door release button		
UP19	Request to exit (REX)		
UP20	Panic or Lock-down Button		
UP21	Door release button – wired		
UP22	Package of 100 ACS credentials (cards)		
UP23	48 port layer 3 network switch		

SUPPLEMENTAL C - MANDATORY ALTERNATES

Alternate 1: Delete server requirements – use Owner servers. Provide labor to install virtualized software on Owner equipment.

Add _____ ($)_____

Alternate 2: Delete door position sensors from door position sensor only doors

Add _____ ($)_____

Alternate 3:

Add _____ ($)_____

BAY ARENAC INTERMEDIATE SCHOOL DISTRICT
ELECTRONIC SAFETY AND SECURITY SYSTEMS

SUPPLEMENTAL D - VOLUNTARY ALTERNATES
Bidder to list all voluntary alternates on this sheet.

VOLUNTARY ALTERNATE 1:

Add/Deduct/No Change

_____ Dollars ($_____)

VOLUNTARY ALTERNATE 2:

Add/Deduct/No Change

_____ Dollars ($_____)

VOLUNTARY ALTERNATE 3:

Add/Deduct/No Change

_____ Dollars ($_____)

BAY ARENAC INTERMEDIATE SCHOOL DISTRICT
ELECTRONIC SAFETY AND SECURITY SYSTEMS

SUPPLEMENTAL E - FAMILIAL DISCLOSURE AFFIDAVIT

The undersigned, the owner or authorized officer of _____ (the "Bidder"), pursuant to the familial disclosure requirement provided in the Bay Arenac Intermediate School District's Request for Proposal(s), hereby represents and warrants that, except as provided below, no familial relationships exist between the owner or any employee of the Bidder, and any member of the Board of Education of the School District or the Superintendent of the School District.

List any Familial Relationships:

BIDDER:

_____

By:
_____

Title:
_____

STATE OF MICHIGAN
COUNTY OF _____

This instrument was acknowledged before me on the _____ day of _____, _____, by

_____.

_____
, Notary Public

_____ County, Michigan

My Commission Expires: _____

Acting in the County of: _____

SUPPLEMENTAL F - AFFIDAVIT OF COMPLIANCE – IRAN ECONOMIC SANCTIONS ACT

Michigan Public Act No. 517 of 2012

The undersigned, the owner or authorized officer of the below named applicant (the "Applicant"), pursuant to the compliance certification requirement provided in the Bay Arenac Intermediate School District's Request For Proposals for Electronic Safety and Security Systems (the "RFP"), hereby certifies, represents and warrants that the Applicant (including its officers, directors and employees) is not an "Iran linked business" within the meaning of the Iran Economic Sanctions Act, Michigan Public Act No. 517 of 2012 (the "Act"), and that in the event Applicant is awarded a contract as a result of the aforementioned RFP, the Applicant will not become an "Iran linked business" at any time during the course of performing the Work or any services under the contract.

The Applicant further acknowledges that any person who is found to have submitted a false certification is responsible for a civil penalty of not more than $250,000.00 or 2 times the amount of the contract or proposed contract for which the false certification was made, whichever is greater, the cost of the Owner's investigation, and reasonable attorney fees, in addition to the fine. Moreover, any person who submitted a false certification shall be ineligible to bid on a request for proposal for three (3) years from the date it is determined that the person has submitted the false certification.

APPLICANT:

Name of Applicant

By: _____

Title: _____

Date: _____

State of Michigan, County of _____)

This instrument was acknowledged before me on the _____ day of _____, _____, by

_____.

_____, Notary Public _____ County, _____

My Commission Expires: _____

Acting in the County of: _____

SECTION 27 05 00 COMMON WORK RESULTS FOR SECURITY

PART 1 - GENERAL

1.1. SUMMARY

A. The successful bidder/Integrator (hereafter referred to as the Integrator) shall supply equipment, materials, labor, and services to provide the following systems including, but not limited to:
   1. System(s) as indicated in each Section
   2. Structured Cabling, Security Cabling and system wiring
   3. Testing and test documentation as indicated in each Section.
   4. Fire stopping.
   5. Extended warranty and manufacturer's certification of systems, products, and labor.

B. Provide all equipment, materials, labor, whether specifically mentioned or not, which are necessary to complete or perfect all parts of the installation. Ensure that they are in compliance with requirements stated or reasonably inferred by the contract documents.

1.2. RELATED SECTIONS

A. Section 00 00 00
B. Section 27 10 00 Structured Cabling
C. Section 28 00 00 Electronic Safety and Security Systems
D. Section 28 10 00 Access Control
E. Section 28 23 00 Video Surveillance

1.3. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this section.
B. Also as indicated in each section.

1.4. REFERENCES

A. Local Codes and Standards - all applicable
   1. Anywhere Standards conflict with electrical or safety Codes, Integrator shall defer to applicable local codes or ordinances, or default to the most stringent requirements listed by either. Knowledge and execution of applicable codes is the sole responsibility of the Integrator. Any code violations committed at the time of installation shall be remedied at the Integrator's expense. Integrator is responsible to bring any perceived conflicts between project documents and referenced Standards or Codes to the attention of the PSC for resolution.

B. Integrators shall adhere to latest ratified editions of the following; this list is not all inclusive:
   1. ADA – Americans with Disabilities Act
   2. American Society for Testing and Materials (ASTM)
   3. American National Standards Institute (ANSI)
   4. Insulated Cables Engineers Association (ICEA)
   5. National Electrical Manufacturers Association (NEMA)
   6. Institute of Electrical and Electronics Engineers (IEEE)

a. National Electric Safety Code (NESC IEEE C2)

7. American National Standards Institute (ANSI) Telecommunications Industry Association (TIA)
   a. ANSI/TIA-568- Commercial Building Telecommunications Cabling Standard
   b. ANSI/TIA-569 - Telecommunications Pathways and Spaces
   c. ANSI/TIA-606 - Administration Standard for Telecommunications Infrastructure
   d. ANSI/TIA-607 - Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises
8. ISO/IEC
   a. ISO/IEC 11801– Information Technology – Generic Cabling For Customer Premises
   b. ISO / IEC 10918 – JPEG
   c. ISO / IEC 14496 –10, MPEG-4 Part 10 (ITU H.264) EC 60839-11-1:2013 Alarm and electronic security systems
   d. ISO/IEC 14443-3:2011 – Identification Cards
9. National Fire Protection Association
   a. NFPA 70 National Electrical Code (NEC)
   b. NFPA 101 – Life Safety Code
   c. NFPA 731 - Standard for the Installation of Electronic Premises Security Systems
10. Michigan Electrical Code
11. Restriction of Hazardous Substances Directive 2002/95/EC (RoHS)
12. Security Industry Association - Open Supervised Device Protocol (OSDP)
13. Underwriters Laboratories (UL)
    a. UL 2024A Optical Fiber Cable Routing Assemblies for non-metallic cable pathways
    b. UL-294 Standard for Safety Access Control System Units
14. Building Industry Consulting Services International (BICSI)
    a. Telecommunications Distribution Design Manual (TDMM)
    b. Information Technology Systems Installations Methods Manual (ITSIMM)
    c. Outside Plant Design Reference Manual (OSPDRM)

C. Federal, state, and local codes, rules, regulations, and ordinances
   1. The Integrator shall perform all work according to Federal, State, and local codes, rules, regulations, and ordinances governing the work. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply.

D. Others as indicated in each section.

1.5. QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled, meeting the National Electrical code, Michigan Electrical Code and/or National Building Code and tested by a qualified testing agency, and marked for intended location and application
B. Telecommunications Pathways and Spaces: Comply with TIA-569, the National Electrical Code and the National Building Code.
C. Grounding: Comply with ANSI/TIA-607 and the National Electrical Code.

1.6. GENERAL PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install interior equipment cable until spaces are enclosed and weather-tight, wet work in spaces is complete and dry, and work above ceilings in IT spaces is complete.

B. This Integrator shall examine the conditions under which the system installation is to be performed and notify the Owner's Representative or Design Professional in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to provide a workmanlike installation.

C. Review areas of potential interference and resolve conflicts before proceeding with the work. Coordinate ceiling layout and wall layout and other work that penetrates or is supported throughout the space of the building. All work shall be flush and workmanlike in all finished areas.

1.7. COORDINATION

A. Coordinate layout and installation of communications equipment with Owner's telecommunications and LAN equipment and service suppliers.

B. Coordinate all work with:

1. Owner for available work hours and site access requirements
2. Owner IT department
3. Others as indicated herein.

C. Record agreements reached in meetings and distribute them to other participants.

D. Adjust arrangements and locations of distribution frames, cross -connects, and patch panels in equipment rooms to accommodate and optimize arrangement and space requirements of telephone switch and LAN equipment and as required by project documents.

E. Adjust arrangements and locations of equipment with distribution frames, cross-connects, and patch panels of cabling systems of other communications, electronic safety and security, and related systems that share space in the equipment room.

F. Coordinate location of power raceways and receptacles with locations of communications equipment requiring electrical power to operate.

1.8. PERMITS, FEES, and CERTIFICATES OF APPROVAL.

A. The Integrator will make application and pay for all required permits.

B. As indicated in each section.

1.9. ABBREVIATIONS AND ACRONYMS

A. General

1. 8p/8c connector – Commonly referred to as “RJ45”
2. MPTL – Modular Plug Terminated Link, ANSI/TIA test procedures for field installed modular plugs on UTP cable
3. NLT – No Later Than
4. SCS - Structured Cabling System
5. TBD – To be determined
6. PSC – Professional Services Contractor (Convergent Technology Partners)
7. UNO – Unless Notified/Noted Otherwise
8. UTP – Unshielded Twisted Pair

9. IP: Internet Protocol
10. LAN: Local Area Network
11. UPS: Uninterruptible Power Supply
12. SMS: Security Management System
13. SAN: Storage Area Network
14. DAS: Direct Attached Storage
15. LDAP: Lightweight Directory Access Protocol
16. NAS: Network Attached Storage
17. AES: Advanced Encryption Standard.
18. API: Application Programming Interface.
19. NVR: Network Video Recorder

B. Access Control
1. ACS: Access Control System
2. AES: Advanced Electronic Encryption
3. API: Application Programming Interface
4. DPS: Door Position Sensor
5. POE: Power-Over-Ethernet
6. REX: Request to Exit
7. RFID: Radio Frequency Identification
8. SIA: Security Industry Association

C. Video Surveillance
1. ACC: Advanced Audio Coding.
2. DLNA: Digital Living Network Alliance.
3. EULA: End User License Agreement.
4. FPS: Frames per Second.
5. Full HD: High Definition video resolution of 1920 x 1080 pixels.
6. GOP: Group of Pictures.
7. H.264/H.265: Video compression formats.
8. HD: High Definition video resolution of 1280 x 720 pixels.
9. I/O: Input/Output.
10. JPEG: Joint Photographic Experts Group (image format).
11. MPEG: Moving Picture Experts Group (video format).
12. NAS: Network Attached Storage.
13. ONVIF: Open Network Video Interface Forum.
14. RTSP: Real Time Streaming Protocol.
15. SDK: Software Development Kit.
16. UPnP: Universal Plug and Play.
17. VMS: Video Management Software.

1.10. SUBMITTALS

A. General:
1. As required by individual Sections herein

B. Shop Drawings:
1. Provide cable routing diagrams.
2. Show patch panel numbering for all patch panels.

3. Provide a schedule of materials list with quantities and manufactures indicated for all materials installed in the project.

C. Product Data:
   1. Provide manufacturer's product data specifications sheets indicating products being submitted and any long lead time items.
   2. Provide submittals for products with long lead times as soon as possible for ordering the materials.
   3. Provide submittals (1) week after receiving notice to proceed and prior to installation of any of the product.

D. Schedule
   1. Submit a coordinated schedule no later than (2) weeks after "notice to proceed" to include the following.
      a. Preconstruction meeting and walkthrough.
      b. Start and duration of system milestones.
      c. Punch List.
      d. Final Punch List.

E. Cable Test Results:
   1. Cable Tests
      a. All UTP shall be tested using the "Permanent Link Method" and MPTL for Modular Terminated Plugs as outlined in the ANSI/TIA 568 Standard standard.

F. Project Record Drawings
   1. Submit project record documents at Contract Closeout.
   2. The Integrator shall deliver one (1) set of hard-copy and one (1) set of electronics as-built drawings per building to the PSC/owner within two (2) calendar weeks of completion of the project. A set of as-built drawings shall be provided to the owner in approved electronic form (i.e., USB) and utilizing software that is acceptable to the owner and PSC. The Integrator shall deliver the digital media to the owner/PSC within two (2) calendar weeks of completion of the project.
      a. As-built Drawings must contain.
         1) Main Cable Routes
         2) Labeling at end device
         3) Cable locations by type

G. Submit, within two (2) weeks after notice to proceed, the names and qualifications of those persons who will have management and supervisory positions over the employees on the job site. Submit the name of the supervisory person who will be on the job site daily and have responsibility for day-to- day decisions. Submit the name of the Project Manager who will attend meetings and have authority to make decisions for issues and requirements that arise from such meetings.

H. Upon request by the engineer/designer (PSC), the Owner, and/or the Owner's representative will furnish a list of references with specific information regarding the type of project and involvement in providing other products and/or support equipment used on this project.

I. Where equipment and materials have industry certification, labels, or standards (i.e., NEMA-National Electrical Manufacturer's Assn.), this equipment shall be labeled as certified or complying with the standards.

J. Material and equipment shall be new, and conform to grade, quality, and standards specified. Equipment and materials of the same type shall be a product of the same manufacturer throughout.

1. All hardware proposed must be the current offering of the manufacturer and receive the highest level of standard support offered by the manufacturer.
    a. All equipment shall have the latest firmware revisions installed at time of acceptance.
2. Factory refurbished hardware which is in "new condition" as well as used, shopworn, prototype, demonstrator models, etc. are not acceptable.
3. The System must consist of standards-based products or components whose performance, reliability, and maintainability can be demonstrated.

1.11. QUALITY ASSURANCE

A. Submit documentation with the bid listing the names of employees that may be used on this project indicating their experience, level of expertise, and certificates of training.

B. The Integrator's project manager shall make periodic inspections to assure quality, code, standards, and RFP compliance.

C. Comply with directives from the PSC regarding quality, codes, standards, and RFP compliance

1.12. WARRANTY

A. Submit at project closeout, a signed and registered manufacturer product warranty and applications assurance. See individual (system) Sections for warranty requirements.

B. All software required to run or view the test data must accompany the application.

C. Copies of as-built drawings must be submitted to the manufacturer via electronic or hard copy. (Drawings must be in AutoCAD or Visio)

D. Submit a statement, at notice to proceed, of any Integrator warranties in addition to the manufacturer's stated and supplied warranties. Submit at closeout signed copies of the Integrator provided warranties that are in addition to manufacturer's stated and supplied warranties.

1.13. DELIVERY, STORAGE, AND HANDLING

A. Protect equipment during transit, storage, and handling to prevent damage, theft, soiling, and misalignment. Coordinate with the owner for potential secure storage of equipment and materials.

B. Do not store equipment where conditions fall outside manufacturer's recommendations for environmental conditions.

C. Follow manufacturer's recommended procedures for storage of materials & equipment.

D. Do not install damaged equipment; remove from site and replace damaged equipment with new equipment.

1.14. USE OF THE SITE

A. The sites are both educational and administrative in nature. Access to the sites shall be at the owner's direction in matters in which the owner deems it necessary to place restriction.
B. Access to building wherein the work is performed shall be as directed by the owner.
C. The owner will occupy the premises during the entire period of construction for conducting his or her normal business operations. Cooperate with the owner to minimize conflict and to facilitate the owner's operations.
D. Proceed with the work without interfering with ordinary use and operations of the owner.

1.15. CONTINUITY OF SERVICES

A. Take no action that will interfere with, or interrupt, existing building services, especially security and surveillance, unless previous arrangements have been made with the owner's representative. Arrange the work to minimize shutdown time
B. Owner's personnel will perform shutdown of operating systems. The Integrator shall give three (3) days' advance notice for systems shutdown.
C. Should services be inadvertently interrupted, immediately furnish labor, including overtime, material, and equipment necessary for prompt restoration of interrupted service.

PART 2 - PRODUCTS

2.1. MANUFACTURERS

A. Provide products as indicated in individual articles.
B. Where no manufacturer is specified, provide products of manufacturers in compliance with requirements.
C. Provide proof the manufacturer selected has successfully had these same products installed at other facilities and provide references with name, title, address, phone number & e-mail address of each point of contact within each referenced account.
D. Provide proof the manufacturer has 20 years or more of designing, manufacturing and providing fiber optic cables, within the continental United States.
E. Provide proof the manufacturer is located within the U.S., is incorporated within the U.S. and that the major products (fiber optic cables, cable assemblies and termination hardware) are manufactured within the U.S.
F. Substitutions: Substitution requests will be considered only if submitted to Owner's Representative not less than 7 working days prior to project bid date. Acceptance or rejection of proposed substitution is at Owner's Representatives sole discretion. No exceptions. Requests for substitutions shall be considered not approved unless approval is issued in writing by Owner's Representative.
G. Rejection: For equipment, cabling, wiring, materials, and all other products indicated or specified as no substitutions or no alternates, Owner does not expect nor desire requests for substitutions and alternate products other than those specified. Owner reserves right for Owner's Representative to reject proposed substitution requests and submissions of alternates without review or justification.

PART 3 - EXECUTION

3.1. PRE-INSTALLATION SITE SURVEY

A. Prior to the start of systems installation, The Integrator will meet at the project site with the owner's representative and representatives of trades performing related work to coordinate efforts. Review areas of potential interference and resolve conflicts before proceeding with the work. Facilitation with the general contractor (when applicable) shall be necessary to plan the crucial scheduled completions of the equipment rooms and telecommunications rooms.
B. Examine areas and conditions under which the system is to be installed. Do not proceed with the work until satisfactory conditions have been achieved.
C. Exact location of cable terminations and field devices shall be field verified with owner at time of installation.

3.2. HANDLING AND PROTECTION OF EQUIPMENT AND MATERIALS

A. The Integrator shall be responsible for safekeeping their own and subcontractor's property, such as equipment and materials, on the job site. The owner assumes no responsibility for protection of above-named property against fire, theft, and environmental conditions.

3.3. CLEANUP

A. Touch-up, repair or replace damaged products before substantial completion, unless specified otherwise.
B. All work materials shall be removed at the end of each workday and the work area left in the same condition as found. Upon completion of the work, the Integrator must remove all tools, equipment and all rubbish and debris from the premises and must leave the premises clean and neat.

3.4. PROTECTION OF OWNER'S FACILITIES

A. Effectively protect the owner's facilities, equipment, and materials from dust, dirt, and damage during construction.
B. Protect installed products until completion of project
C. Remove protection at completion of work.

3.5. QUALITY ASSURANCE

A. Should it be found by the engineer that the materials, or any portion thereof, furnished and installed under this contract fail to comply with the specifications and drawings, with respect or regard to the quality, amount of value of materials, appliances, or labor used in the work, it shall be rejected and replaced by the Integrator, and all work distributed by changes necessitated in consequence of said defects or imperfections shall be made good at the Integrator's expense.

3.6. INSTALLATION

A. Prior to pulling cable through conduit, mandrel the conduits to remove foreign material before pulling commences.
B. Beginning installation means that the Integrator accepts existing conditions.
C. Integrator shall furnish all required installation tools to facilitate Cable installation without damage to the cable jacket. Such equipment is to include, but not be limited to, sheaves, winches, cable reels, cable reel jackets, duct entrance funnels, pulling tension gauges, and similar devices. All equipment shall be of substantial construction to allow steady progress once pulling has begun. Makeshift devices that may move or wear in a manner to pose a hazard to the cable or employees shall not be used.

D. Cable pulling shall be done in accordance with cable manufacturer's recommended procedures and ANSI/IEEE C2 standards. Manufacturer's recommendations shall be a part of the cable submittal. Recommended pulling tensions and minimum bending radii shall not be exceeded. Any cable bent or kinked to a radius less than recommended shall not be installed.
E. During cable pulling operation, an adequate number of workers shall be present to allow cable observation at all points of duct entry and exit as well as to feed cable and operate pulling machinery.
F. Pulling lubricant shall be used to ease pulling tensions. Lubricant shall be of a type that is non- injurious to the cable material used. Lubricant shall not harden or become adhesive with age.
G. Avoid abrasion and other damage to cables during installation.
H. All exposed cable shall be labeled at 35-foot (maximum) intervals with tags indicating ownership, cable type, and fiber type installed.

3.7. LABELING

A. All labeling shall be in accordance with ANSI/TIA-606 unless otherwise noted by the owner.
B. Mark up floor plans showing Cable routes, segments, Cable type, and marking of cables. Turn these drawings over to the owner two (2) weeks prior to move-in to allow the owner's personnel to connect and test owner-provided equipment in a timely fashion.

3.8. TESTING AND ACCEPTANCE

A. Test procedures must meet manufacturer's standards and Section 27 10 00.
B. The Integrator shall correct, in a timely manner, any failure to comply with Contract Documents as reasonably determined by Owner.
C. If final acceptance is significantly delayed because of defective new equipment or because the installation is not in accordance with the Contract Documents, the Integrator shall pay for all the Owner's additional time and expenses resulting from the delay and any extensions of Acceptance Testing.
D. As additionally indicated in each Section.
    1. The Integrator shall provide written reports of all test data in written form to the owner. At such time the Integrator turns over test data to the PSC.
    2. In the event that test results are not satisfactory, the Integrator shall make adjustments, replacements, and changes as necessary and shall then repeat the test or tests that disclosed faulty or defective material, equipment, or installation method, and shall perform additional tests as the PSC deems necessary.
        a. Tests related to connected equipment of others shall only be done with the permission and presence of the Integrator involved. The Integrator shall perform only that testing as required to prove the fiber connections are correct.
        b. One (1) record copy of all test data shall be submitted to the PSC/engineer for approval. The Integrator shall notify the PSC/engineer at least one week in advance of the test date so that the PSC/engineer may be present.

END OF SECTION

SECTION 27 10 00 STRUCTURED CABLING SYSTEMS

PART 1 - GENERAL

1.1. SUMMARY

A. All hardware, enclosures, racks, equipment and other equipment as indicated herein and on project drawings and documents, and as required for a complete installation per industry norms, standards and best practices

B. Section Includes:

1. Category 6 cabling, termination and testing
2. Racks, cabinets and accessories as indicated
3. Adjustment of existing equipment in existing enclosures for inclusion of new security equipment
4. Raceway, J-Hooks and other supports

1.2. RELATED SECTIONS:

1. Section 27 05 00 Common Work Results for Security
2. Section 28 00 00 Electronic Safety and Security
3. Section 28 10 00 Access Control
4. Section 28 23 00 Video Surveillance

1.3. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 0 & 1 Specification Sections, apply to this Section.

1.4. CODES, STANDARDS AND REFERENCES

A. The Contractor shall adhere to the latest edition of the following codes, standards, and references. Additionally, the Contractor shall adhere to all other codes, regulation and standards not stated here:

1. As listed in Section 27 05 00
2. Manufacturers Recommendations
3. Best Practices and Industry Norms

1.5. SUBMITTALS

A. Coordinate with Division 0 & 1 and individual Sections herein.

B. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for equipment racks and cabinets. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

1. Cable - Include the following installation data for each type used:
   a. Nominal OD.
   b. Minimum bending radius.
   c. Maximum pulling tension.

C. Shop Drawings: For communications equipment room fittings. Include plans, elevations, sections, details, and attachments to other work.

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Wiring diagrams to show typical wiring schematics including the following:

a. Patch panels.
b. Cross-connects and patch cords

3. Equipment Racks and Cabinets: Include workspace requirements and access for cable connections.
4. Cross-connects and patch panels: Detail mounting assemblies and show elevations and physical relationship between the installed components.

D. Field quality-control reports.
E. Maintenance Data: For splices and connectors to include in maintenance manuals.
F. Qualification Data: For installer, qualified layout technician, installation supervisor, and field inspector.

1.6. QUALITY ASSURANCE

A. Bidder qualifications:
1. Work under this section shall be performed by and the equipment shall be provided by the approved telecommunications contractor and key personnel. Qualifications shall be provided for the telecommunications system contractor, the telecommunications system installer, and the supervisor (if different from the installer). A minimum of 30 days prior to installation, submit documentation of the experience of the telecommunications contractor and of the key personnel.
2. The telecommunications contractor shall be a firm which is regularly and professionally engaged in the business of the applications, installation, and testing of the specified telecommunications systems and equipment. The telecommunications contractor shall demonstrate experience in providing successful telecommunications systems within the past 3 years of similar scope and size. Submit documentation for a minimum of three and a maximum of five successful telecommunication system installations for the telecommunications contractor.
3. Minimum Manufacturer Qualifications
a. Cabling, equipment and hardware manufacturers shall have a minimum of 3 years experience in the manufacturing, assembly, and factory testing of components which comply with TIA-568, TIA-569, TIA 606 and TIA-607.

B. Installer Qualifications
1. Installers: Installation personnel shall be certified by the manufacturer for the installed product.
2. Installation Supervision: Installation shall be under the direct supervision of an RCDD, ITS Technician or ITS 2 Installer or equivalent certification, who shall be present at all times when Work of this Section is performed at Project site.
3. Cable Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
4. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Telecommunications Pathways and Spaces: Comply with TIA-569

D. Bonding and Grounding: Comply with TIA-607
E. Test Plan - Provide a complete and detailed test plan for the telecommunications cabling system including a complete list of test equipment for the components and accessories for each cable type specified, 30 days prior to the proposed test date for approval. Include procedures for certification, validation, and testing. Test plan shall include all test requirements detailed herein at a minimum.
F. Regulatory Requirements - In each of the publications referred to herein, consider the advisory provisions to be mandatory, as though the word, "shall" had been substituted for "should" wherever it appears. Equipment, materials, installation, and workmanship shall be in accordance with the mandatory and advisory provisions of NFPA 70 unless more stringent requirements are specified or indicated.
G. Standard Products - Provide materials and equipment that are products of manufacturers regularly engaged in the production of such products which are of equal material, design and workmanship unless specific manufacturer and/or part numbers is included herein. Products shall have been in satisfactory commercial or industrial use for 2 years prior to bid opening. The 2-year period shall include applications of equipment and materials under similar circumstances and of similar size. The product shall have been on sale on the commercial market through advertisements, manufacturers' catalogs, or brochures during the 2-year period. Where two or more items of the same class of equipment are required, these items shall be products of a single manufacturer; however, the component parts of the item need not be the products of the same manufacturer unless stated in this section.
H. Material and Equipment Manufacturing Date - Products manufactured more than 1 year prior to date of delivery to site shall not be used, unless specified otherwise.

1.7. CABLE DELIVERY, STORAGE, AND HANDLING
A. Inspect and test cables upon receipt at Project site.

1.8. PROJECT CONDITIONS
A. Environmental Limitations: Do not deliver or install cable, equipment frames and cable trays until spaces are enclosed and weather tight, wet work in spaces is complete and dry.

1.9. COORDINATION
A. Coordinate layout and installation of security equipment with Owner's telecommunications and LAN equipment and service suppliers.
B. Meet jointly with telecommunications and LAN equipment suppliers, local exchange carrier representatives, and Owner to exchange information and agree on details of equipment arrangements and installation interfaces.
    1. Record agreements reached in meetings and distribute them to other participants.
    2. Adjust arrangements and locations of distribution frames, cross-connects, and patch panels in equipment rooms to accommodate and optimize arrangement and space requirements of security equipment.
    3. Adjust arrangements and locations of equipment with distribution frames, cross-connects, and patch panels of cabling systems of other

telecommunications, electronic safety and security, and related systems that share space in the equipment room.

4. Coordinate location of power raceways and receptacles with locations of telecommunications equipment requiring electrical power to operate.

1.10. SYSTEM DESCRIPTION

A. GENERAL DESCRIPTION
B. Category 6 UTP cable, terminations and testing as indicated on drawings and herein
C. Access Control Cabling
D. IT room build-out including all fittings, cabinets racks and cable tray as indicated on drawings.

1.11. DEFINITIONS AND ABBREVIATIONS

1. Unless otherwise specified or indicated herein, electrical and electronics terms used in this specification shall be as defined in TIA-568, TIA-569, TIA-606 and IEEE 100 and herein.
2. BICSI: Building Industry Consulting Service International.
3. Cross-Connect: A facility enabling the termination of cable elements and their interconnection or cross-connection.
4. EMI: Electromagnetic interference.
5. IDC: Insulation displacement connector.
6. Outlet/Connectors: A connecting device in the work area on which horizontal cable or outlet cable terminates.
7. RCDD: Registered Communications Distribution Designer.
8. TDMM (BICSI): Telecommunications Design Methods Manual
9. UTP: Unshielded twisted pair.
10. LAN: Local area network.
11. Cable tray: A fabricated structure consisting of sides and bottom constructed of steel with dimensions not exceeding 12” x 4” or a basket tray consisting of sides and bottom constructed of wire mesh not exceeding 2” x 4” (50mm x 100mm) spacing.
12. PSC – Professional Services Contractor (Convergent Technology Partners)
13. SCS – Structured Cabling System
14. WAO – Work Area Outlet
15. APC – Angle Polished Connector
16. UPC – Uniform Polished Connector
17. POLAN – Passive Optical LAN

1.12. SUBMITTALS

A. Provide Permanent Link” test results for all Category 6 UTP cables.
   1. Summary reports in a bundled .pdf format for each building.
   2. Detailed reports for each cable in a bundled .pdf format, then “zipped” to reduce file size.
B. Test results for other types of cable as necessary.
C. Cabling Administration Drawings: Show building floor plans with cabling administration-point labeling. Identify labeling convention and show labels for telecommunications closets, pathways and cables, termination hardware and

positions, horizontal cables, work areas and workstation terminal positions, grounding buses and pathways, and equipment grounding conductors. Follow convention of TIA-606. Furnish electronic record of all drawings, in software and format selected by Owner.

PART 2 - PRODUCT

2.1. Components shall be UL or third party certified. Where equipment or materials are specified to conform to industry and technical society reference standards of the organizations, submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the Owner. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard. Provide a complete system of telecommunications cabling and pathway components using star topology. Provide support structures and pathways, complete with outlets, cables, connecting hardware and telecommunications cabinets/racks. Cabling and interconnecting hardware and components for telecommunications systems shall be UL listed or third-party independent testing laboratory certified and shall comply with NFPA 70 and conform to the requirements specified herein.

A. Category 6 Plenum Rated UTP Cable
    1. Shall be Green in color
B. Approved manufacturers
    1. CommScope
    2. Belden
    3. Vertical Cable
    4. Superior Essex
    5. Purenet
    6. Leviton
    7. Siemon
    8. General
C. Category 6 Connectivity Approved Manufacturers
    1. Belden IBDN
    2. Dynacom
    3. Hubbell
    4. ICC
    5. Legrand/Ortronics
    6. Leviton
    7. Signamax
    8. Siemon
    9. Superior Modular (OCC)
    10. Systimax/CommScope & Uniprise/CommScope
D. Racks, Cabinets and Accessories as indicated on project drawings
    1. Approved manufacturers
        a. Legrand

b. Middle Atlantic
c. Great Lakes
d. Hoffman
e. Equivalent

2. Requirements
   a. Free-standing
   b. 42 U high
   c. TIA/EIA-310-D-compliant 19” rack rails
3. Floor Mounted Relay Rack
   a. Aluminum construction
   b. Both two and four-post as indicated on project drawings
4. Wall Mounted equipment rack
   a. Aluminum or steel construction
   b. Size as indicate3d on project drawings
5. Enclosed Cabinet
   a. Steel construction with a baked-polyester powder coat finish, front- and rear-locking sections/doors and standard TIA/EIA-310-D-compliant, 19-inch (483-mm) adjustable rack rails
   b. 42” deep x 24” high
   c. All cabinets keyed alike
      1) Front door and rear section shall be keyed differently, but front and rear shall be keyed the same as all other cabinets.
   d. Cable access provisions in the roof and base
   e. Grounding bus bar.
   f. Louvered side panels.
   g. Horizontal power strip 15A, 8 outlets, surge protected, comply with UL 1363.
      1) LED indicator lights for power and protection status, reverse polarity and open outlet ground
      2) Rocker-type on-off switch illuminated when in on position
      3) Protection modes shall be line to neutral, line to ground, and neutral to ground. UL 1449 clamping voltage for all 3 modes shall be not more than 330 V
   h. Ventilation: A low-noise fan for forced-air cabinet ventilation as required. Fan shall be equipped with a filtered input vent and shall be connected to operate from 105- to 130-V ac, 60 Hz; separately fused and switched; arranged to be powered when main cabinet power switch is on.
      1) Provide two 100CFM fan panels in each cabinet, one for intake and one for exhaust. Intake shall be mounted low in the front, exhaust mounted high in the rear.
      2) Front and back doors shall be vented and louvered.

2.2. Pathways

A. General Requirements: Provide telecommunications pathways in accordance with TIA-569 and as specified herein and on project drawings and associated documents. Provide system furniture pathways in accordance with UL 1286.
B. Cable Support: NRTL labeled. Cable support brackets shall be designed to prevent degradation of cable performance and pinch points that could damage cable. Comply with NFPA 70 and UL 2043 for fire-resistant and low-smoke-producing characteristics.
C. Cable Guides and Fasteners
    1. Provide cable guides specifically manufactured for the purpose of routing cables, wires and patch cords horizontally and vertically on equipment racks and telecommunications backboards (to accommodate cross-connect wiring, etc.).
    2. Cable guides of ring or bracket type devices mounted on rack and backboard for horizontal cable management and individually mounted for vertical cable management. Mount cable guides with screws, nuts and lock washers.
    3. Hook and Loop (I.e. Velcro®) shall be used to fasten cables. Tie-wraps or similar type fasteners shall not be used.
D. Category 6 Cable Connectivity
    1. Category 6 UTP Jacks (“8p/8c” or “RJ45”)
        a. Shall be Green in color
    2. Patch Panels
    3. Surface Mounted Jack Housings
E. Patch and Line Cords
    1. Category 6 UTP – factory assembled with strain relief boots
        a. Shall be Green in color
        b. Patch cords (between patch panel and equipment) shall be shall nominally be 1M in length, and shall be green in color
            1) Coordinate final lengths with Owner/PSC
        c. Line cords (Between Jack housing and end device) shall be 2M in length and green in color.
F. Fire Stopping / Smoke Seal
    1. Intended to close off opening or penetration during fire or materials that fill openings in wall or floor assembly where penetration is by cables, cable trays, conduits, and poke-through termination devices, including electrical outlet boxes along with their means of support through wall or floor openings.
    2. Asbestos-free materials and systems capable of maintaining effective barrier against flame, smoke and gases in compliance with requirements of UL/C, Interlink listed and FM approved, and not exceeding opening sizes for which they are intended.
        a. Intumescent Putties
        b. Caulks and sealants
        c. Collars, sheets, blankets, pillows and bricks

PART 3 - EXECUTION

3.1. WIRING METHODS

A. Wiring Method: Install cables in raceways and cable trays (if specified) except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces, in

attics, and in gypsum board partitions where unenclosed wiring method may be used. Conceal raceway and cables except in unfinished spaces.

B. Install plenum cable in environmental air spaces, including plenum ceilings.

C. Wiring within Enclosures: Bundle, lace, and train cables to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.

3.2. INSTALLATION OF PATHWAYS

A. Comply with requirements for demarcation point, pathways, cabinets, and racks. Drawings indicate general arrangement of pathways and fittings.

3.3. INSTALLATION OF RACKS AND CABINETS

A. Securely fasten racks and cabinets to the floor or wall.

B. Install per type and quantity indicated on project drawings.

3.4. INSTALLATION OF CABLES

A. Summary

1. UTP cable shall be home run from the security device outlet to each building’s Telecommunications room, IDF or MDF as indicated and terminated on new patch panels.
2. A 20-foot service loop shall be neatly coiled and secured at the security device and be fastened to the building’s structure.
3. Surface mounted jack enclosures shall house the termination at the security device, with the line cord running form the jack to the security device.
    a. Neatly coil and secure excess length on the line cord and fasten to building structure.
    b. Fasten the jack enclosure to building structure. Label, in the largest font possible, the jack enclosure.
        1) Double-sided tape is not acceptable.

B. Comply with NECA 1.

C. General Requirements for Cabling:

1. Comply with TIA-568.
2. Comply with BICSI TDMM, "Cable Termination Practices."
3. Install 110-style IDC termination hardware unless otherwise indicated.
4. Terminate conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, cross-connects, and patch panels.
5. Cables may not be spliced. Secure and support cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
6. Install lacing bars to restrain cables, to prevent straining connections, and to prevent bending cables to smaller radii than minimums recommended by manufacturer.
7. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI TDMM, "Cabling Termination Practices". Install lacing bars and distribution spools.

8. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
9. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
10. In the telecommunications equipment room, provide a 5-foot-long service loop on the end of each cable.

D. Pulling Cable: Comply with BICSI TDMM, "Pulling Cable." Monitor cable pull tensions.
   1. UTP Cable Installation:
      a. Comply with TIA-568 and manufacturer's instructions.
      b. Do not remove more than the minimum of cable jacket required for termination. To maintain cable geometry do not untwist UTP cables more than 1/2 inch from the point of termination.
   2. Open-Cable Installation:
      a. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
      b. Suspend UTP cable not in a wire way or pathway a minimum of 8 inches above ceilings by approved cable supports not more than 60 inches apart.
      c. Approved supports include Category 6 rated J – hooks, saddles etc.
      d. All cable shall be independently suspended from building structure using rated support components. The use of tie wraps and bridle rings is prohibited
      e. Cable shall not be supported directly by structural members or in contact with pipes, ducts, or other potentially damaging items.
      f. Group connecting hardware for cables into separate logical fields.

E. Separation from EMI Sources (Copper UTP and SDI Cabling):
   1. Comply with BICSI TDMM and TIA-569 for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.
   2. Separation between open telecommunications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
      a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches.
      b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches.
      c. Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches.
      d. Separation between telecommunications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
      e. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2 inches.
      f. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches.
      g. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches.

h. Separation between telecommunications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
i. Electrical Equipment Rating Less Than 2 kVA: No requirement.
j. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches.
k. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches.
l. Separation between Telecommunications Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches.
m. Separation between Telecommunications Cables and Fluorescent Fixtures: A minimum of 5 inches.

3.5. FIRESTOPPING

A. Comply with TIA-569, "Firestopping."
B. Comply with BICSI TDMM, "Firestopping Systems" Article.
C. Firestop all new and reused or abandoned existing fire partition penetrations to meet or exceed the partitions fire rating.

3.6. GROUNDING

A. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.
B. Comply with TIA-607-A.
C. Bond metallic equipment and cable shield to the grounding bus bar, using not smaller than No. 6 AWG stranded copper equipment grounding conductor.
D. Bond metallic equipment to the grounding bus bar, using not smaller than No. 6 AWG stranded copper equipment grounding conductor.
E. Bond the shield of shielded cable to the grounding bus bar in telecommunications rooms and spaces.

3.7. IDENTIFICATION

A. Identify system components, wiring, and cabling complying with TIA-606.
B. Label each cable within 4 inches (100 mm) of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
C. Label each terminal strip and screw terminal in each cabinet, rack, or panel.
D. Individually number wiring conductors connected to terminal strips and identify each cable or wiring group being extended from a panel or cabinet to a building-mounted device shall be identified with name and number of particular device as shown.
E. Label each unit and field within distribution racks and frames.
F. Label all components of the grounding system per TIA – 606 and TIA-607.
G. Cabling Administration Drawings: Show building floor plans with cabling administration-point labeling. Identify labeling convention and show labels for telecommunications closets, pathways and cables, terminal hardware and positions, horizontal cables, work areas and workstation terminal positions, grounding buses and pathways, and equipment grounding conductors.
H. Cable and Wire Identification:
    1. Label each cable within 4 inches (100 mm) of each termination, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
    2. Label each connector and connecting hardware. (Jack and jack patch panel)

a. Manufacturer's preprinted labels for each jack is acceptable.

3. Labels shall be preprinted or computer-printed type with printing area and font color that contrasts with cable jacket color but still complies with requirements in TIA-606.
4. Cables use flexible vinyl or polyester that flex as cables are bent.
5. Cable system label method:
   a. Category 6 UTP Cables shall be labeled "Termination Location" (MDF, IDF, etc.) – "Cabinet #" – "Patch Panel #" – "Jack #". For example: "MDF-1-1-38" which denoted terminated in the MDF in the first cabinet on the first patch panel on the 38th port.
   b. All other security cables shall be labeled per individual sections.

3.8. FIELD QUALITY CONTROL

A. Perform tests and inspections
   1. Visually inspect UTP jacket materials for NRTL certification markings. Inspect cabling terminations in telecommunications equipment rooms for compliance with color-coding for pin assignments and inspect cabling connections for compliance with TIA-568.
   2. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
   3. Test instruments shall meet or exceed applicable requirements in TIA-568 for Category 6 Permanent Link. Perform tests with a tester that complies with performance requirements in "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in "Measurement Accuracy (Informative)" Annex. Use only test cords and adapters that are qualified by test equipment manufacturer for permanent link test configuration.
      a. All Category 6 cable shall be tested using the Permanent Link method.
   4. Horizontal UTP for data shall be tested using the Permanent Link Method.

END OF SECTION

SECTION 28 00 00 ELECTRONIC SAFETY AND SECURITY

PART 1 - GENERAL

1.1 OVERVIEW

A. This project is the for acquisition and installation of a new Electronic Safety and Security system (ESS) that includes:
   1. Access Control
   2. Video Surveillance
B. The intent is for either a unified or integrated system to allow the user to administer the system from a single screen.
C. All field devices (cameras, etc.) must be certified partners of the ESS system proposed.
D. Surge Protection: Protect components from voltage surges originating external to equipment housing and entering through power, communication, signal, control, or sensing leads. Include surge protection for external wiring of each conductor entry connection to components.
E. Tamper Protection: Tamper switches on enclosures, control units, pull boxes, junction boxes, cabinets, and other system components shall initiate a tamper-alarm signal when unit is opened, disconnected or partially disassembled. Control-station, control-unit alarm display shall identify tamper alarms and indicate locations.
F. Appropriate signage shall be designed, provided, and posted that notifies people that an area is under camera surveillance.

1.2 SMARTBOOT SCHOOL LOCKDOWN SYSTEM®

A. The Career Center has an existing SmartBoot School Lockdown System® from The Lockout Co. The system consists of a door barricade “boot” housed in an alarmed housing in each classroom. When removed from the housing the system triggers a building-wide alert notification through flashing light fixtures in the corridors while at the same time contacting emergency dispatch (911 center) of the alert including which room triggered the alert. The SmartBoot® system communicates between devices using Bluetooth technology.
B. The ESS will be integrated with the system to initiate alarms form system activation. See also individual sections.

1.3 LOCATIONS

A. Educational Service Center (ESC) - 4228 2 Mile Rd, Bay City, MI 48706
B. Career Center (BACC) - 4155 Monitor Rd, Bay City, MI 48706
C. Transportation - 2905 Bay Arenac Dr, Bay City, MI 48706
D. Conference center - 2939 Bay Arenac Dr, Bay City, MI 48706
E. Bay Living and Learning Center (BLLC) - 1435 W Center Rd, Essexville, MI 48732
F. Arenac Living and Learning Center (ALLC) – 2032 Pine River Rd, Standish MI 48658

1.4 ESS INCLUDES

A. Security/Perimeter Access Control System.
B. Video Cameras
C. Network Video Management System
D. Miscellaneous other security devices
E. Network POE/POE+ switches for cameras

1.5 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including general and supplementary conditions and Division 0 and Division 1 Specification Sections, apply to this Section.
B. Section 27 05 00 – Common Work Results for Communications
C. Section 27 05 26 – Grounding and Bonding for Communications
D. Section 28 10 00 – Access Control System
E. Section 28 23 00 - Security and Surveillance Video

1.6 SUMMARY

A. Provide all labor, materials, equipment, software, programming licenses and services for a 100% turn-key ESS system as indicated on the drawings and as specified herein.
B. Provide all labor, materials, equipment, software, programming licenses and integration or migration services

1.7 ABREVIATIONS

A. ACS – Access Control System
B. NVMS – Network Video Management System
C. PSC – Professional Services Contractor (Convergent Technology Partners)
D. ESS – Unified or Integrated Security Platform

1.8 CYBER SECURITY

A. The ESS must have these Certifications for cyber security.
    1. CSPN Certification from ANSSI
    2. UL 2900-2-3 Level 3 Cyber Security Readiness Certification
    3. ISO/IEW 27001 Standard
    4. Microsoft Gold Certification

1.1. DASHBOARDS

A. The ESS shall have the ability to create and customize dynamic live dashboards for system monitoring allowing data such as, but not limited to
    1. Health Diagnostics and reports with graphical representation of that data
    2. SDK reports
    3. Live Video
    4. Access control events
    5. Alarms

1.2. REPORTING

A. The ESS shall support comprehensive data filtering for most reports based on entity type, event type, event timestamp, custom fields, and more.
B. The reporting task shall have the ability to display results through graphics such as pie charts and bar graphs.

1.3. INTRUSION

A. The ESS shall support Mercury and Honeywell panels. They should be able to arm/disarm zones for these directly from the monitoring UI, and the dynamic graphical map.

1.4. CYBER SECURITY REQUIREMENTS

A. The ESS shall be an IP enabled solution. All communication between the SSM and CSA shall be based on standard TCP/IP protocol and shall use TLS encryption with digital certificates to secure the communication channel.
B. The ESS shall support user authentication with claims-based authentication using external providers.

C. The ESS shall limit the IP ports in use and shall provide the Administrator with the ability to configure these ports.
D. The ESS shall have a module for an embedded SIP server which can bring SIP intercom call ups directly from the monitoring UI, be able to call out to a remote door station from that monitoring UI and be able to communicate from operator to operator via native SIP.
E. The VMS shall support only secured media stream requests, unless explicitly configured otherwise. Secured media stream requests shall be secured with strong certificate-based authentication leveraging RTSPS (RTSP over TLS). Client authentication for media stream requests is claims-based and may use a limited lifetime security token.
F. The VMS shall offer the ability to encrypt the media stream, including video, audio, and metadata with authenticated encryption. Media stream encryption shall be done at rest and in transit and be a certificate-based AES 128-bits encryption. The VMS shall:

1. Allow encryption to be set on a per camera basis for all or some of the cameras.
2. Provide up to 20 different certificates for different groups of CSA or users who have been granted access to decrypted streams.
3. Not decrease the recording performance by more than 50% when encryption is enabled.
4. Use Secure RTP (SRTP) to encrypt the payload of a media stream in transit and allow multicast and unicast of the encrypted stream.
5. Use a random encryption key and change periodically.
6. Allow encrypted streams to be exported.

G. The VMS shall support end to end encrypted streams with cameras supporting Secure RTP (SRTP) both in unicast and multicast from the camera.

1.5. FAILOVER and STANDBY REQUIREMENTS
A. The ESS shall support native and off-the-shelf failover options
1.6. ACCESS CONTROL HARDWARE
B. The ESS shall support Mercury, Assa Abloy (direct, DSR is not acceptable), Schlage AD/NDE, Salto SALIS/SVN, HID Vertx/EDGE
C. The ESS shall have an edge-based gateway which provides edge failover, peer to peer communications and global IO linking (between all the hardware's listed above)
D. OSDP Version 2 must be supported by the access control manufacture, and have the ability to change an OSDP HID reader from multi-class to high frequency directly through that protocol
1.7. CLOUD ARCHIVING
A. The VMS shall support the automatic transfer of video recorded on the server(s) to the cloud, based on the age of the video (future).
1.8. GENERAL CLIENT SOFTWARE REQUIREMENTS
A. The Client Software Applications (CSA) shall provide the user interface for ESS configuration and monitoring over any network and be accessible locally or from a remote connection.
1.9. WEB CLIENT GENERAL REQUIREMENTS

A. The web client shall be platform independent and run within Microsoft Edge, Internet Explorer, Firefox, Safari, and Google Chrome.
B. Web pages for the web client shall be managed and pushed by the Web Server Role. Microsoft IIS or any other web hosting service shall not be required given that all the web pages shall be hosted by the Web Server Role.
C. Video Stream shall be redirected to the Web Client with no stream transformation or re-encoding for all streams in H264.
D. The ESS shall provide the ability for simultaneous Web Clients.
E. Functionalities:
    1. Standby Directory
    2. Encrypted communications for all transactions.
    3. Print reports and export to CSV file.
    4. Customer logo customization shall be available for multi-tenant and hosted services applications.
    5. Video
        a. Live and playback video at 320 x 240, 640 x 480 or 1280 x 1024 @ 15 fps.
        b. Video export.
        c. 1, 4, 6 or 9 tiles.
        d. Basic PTZ Controls (Pan/Tilt, Zoom, go to presets, start pattern).
        e. Start / Stop recording.
        f. Sample web page for customers to see how to view video for their own development.
        g. Add bookmarks.
    6. Alarms
        a. Alarm report.

1.9 SUBMITTALS
A. Informational Submittals
    1. Product Data
B. Manufacturer product data sheets
C. Manufacturer product instructions, and installation and operating manuals
D. Shop Drawings
    1. Complete set of proposed drawings, identifying equipment locations, types of cabling, numbers of conductors, raceway locations, and termination points of each conductor.
    2. Complete listing of proposed devices, indicating interconnection equipment locations and specifying terminal/connecter termination locations.
    3. Operational narrative of each component/system.

1.10 CLOSEOUT SUBMITTALS
A. Warranty Documentation
    1. Integrator’s Warranty
    2. Manufacturer warranty statements for all system components and applicable equipment.

1.11 Record Documentation:
A. Maintenance Material Submissions:
    1. Listing of spare parts required to maintain the system.

B. Closeout Submittals
   1. As-built drawings showing main cable routes, cable termination points, equipment and devices, access-controlled doors, cameras and labeling /identification of the same.
   2. Final listing of cameras, doors, locations, and normal status in MS Excel format including:
      a. IP addresses, MAC addresses, Serial numbers, VLan information and other information as required by the Owner
   3. Complete set of supplier's operating instructions, installation instructions, and troubleshooting guide, to include but not be limited to instructions for:
   4. Schematic drawings depicting:
      a. type and location of interface equipment/components,
      b. number of cables and conductors, raceway locations, types of connectors, circuit requirements and type and dimensions of enclosures.

1.12 WORK BY OTHERS

A. Network Equipment (except network POE/POE+ switches for cameras)
B. Fiber Optics link between Bay City and Essexville locations
C. Leased fiber optics (150 Mbps) to ALLC in Standish, MI.
D. Existing Electrical Systems

1.13 CONFIDENTIALITY

A. All drawings, specifications, and other documents and information about the Work are confidential information and shall remain secure and confidential at all times. Confidential
B. Information shall not be deliberately or inadvertently disclosed to anyone other than the Contractor's personnel and subcontractors who require disclosure to perform the Work.
C. The Contractor shall keep track of all confidential information at all times and shall ensure that all copies are accounted for at all times. The Contractor shall not permit any persons to have access to the confidential information of the Work unless and until the Contractor has assured itself of the trustworthiness of such persons.

1.14 COORDINATION / DESIGN INTENT

A. The specifications and drawings shall be complimentary and of equal authority and priority.
B. Refer conflicts and differences within the Contract Documents to the PSC prior to submission bids to perform this Work. If any such differences or conflicts are not called to attention of the PSC prior to bid submission, the PSC shall decide which of the conflicting requirements shall govern and the Contractor shall perform the Work at no additional cost to the Owner or its representatives in accordance with said decision.
C. Should the drawings disagree in themselves or with other Contract Documents, the greater quantity of Work or materials shall be furnished and performed. Decision by the PSC shall be final.
D. It is intended that work under this specification shall be design-build in nature. Integrator shall determine all parts and pieces required to complete a functional system. All requirements listed under substitutions shall still apply.

1.15 PERMITS

A. The Contractor shall ensure compliance with and an understanding of all local codes and contract conditions and shall obtain all permits necessary pertaining to the Work.
B. The Contractor shall be responsible for submitting to the local authority having jurisdiction (AHJ) the electric lock/electronic lock procedure submittal for permitting as required. The Contractor shall only be responsible for lock permitting of electric locks controlled by the Access Control System.

1.16 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.
B. Installer/Contractor Qualifications: Company specializing in performing the work of this section and approved by manufacturer(s).
    1. The Installer/Contractor shall have a service facility and organization with staffing capable of providing comprehensive maintenance and service for the specified systems with a 150-mile radius of the Project.
    2. The system programmer shall have attended manufacturer training and obtained certification in Genetec Security Center - Omnicast™ Technical Certification
    3. The Installer/Contractor shall have local in-house engineering and project management capabilities consistent with the requirements of the Work. The Installer/Contractor shall provide a team managed by a project manager responsible for submittals, installation, scheduling, manpower, testing, record documents, etc.
C. Products Requiring Electrical Connection: Listed and classified by UL as suitable for the purpose specified and indicated. Also comply with NFPA 70, Article 100.
D. All equipment provided by the Contractor shall be new and shall meet or exceed the latest published specifications of the manufacturer in all respects.
E. The Contractor shall provide the latest revision of a specified piece of equipment at the time of bid.
F. For equipment and components that become discontinued between bidding and installation, Integrator shall provide the next comparable model with the minimum functionality listed as the specified product.

1.17 PRE-INSTALLATION MEETING

A. Convene at least one week before starting work of this section. This should occur prior to Electrical rough in sequence starting on site.

1.18 DELIVERY, STORAGE, AND PROTECTION

A. Deliver all system components to project site in the manufacturer's original packaging.
B. Store all system components under cover and elevated above grade in a climate-controlled area of the project.
C. Handle, store and provide protection for all system components prior to installation in strict accordance with any manufacturer recommendations or requirements.

1.19 ENVIRONMENTAL REQUIREMENTS

A. Do not install facility security and surveillance system components when environmental conditions are outside of the manufacturer's established limits.
B. Maintain environmental conditions recommended by the manufacturer once facility security and surveillance system installation has commenced.

1.20 INSTALLATION WARRANTY
A. One-year Integrator installation labor and material warranty

1.21 MANUFACTURER WARRANTY AND SUPPORT:
A. Software and Hardware Warranty:
1. Provide a minimum two-year Manufacturer Warranty
2. Manufacturer’s software warranty must be described in the manufacturer’s EULA for the product.
B. Software and Firmware Support:
1. Provide free access to any software service updates or hot fixes released due to a material defect or error in the product.
2. Provide new firmware and device driver packs, multiple times per year, to extend support for additional devices without the need for a new version of the product.
3. Provide free access to self-paced interactive e-training.

1.22 SOFTWARE UPDATES AND UPGRADES:
A. Make software and firmware upgrades available for a period of at least two-years from activation of the software license. Coverage options shall include:
1. Free access to any new product versions for the purchased Milestone VMS software product.
B. Prioritized handling of support phone call response times based upon criticality of issue, for questions submitted by email or that cannot be answered in initial phone call.
C. Additional years of software upgrades available for purchase separately.
D. All components of the ESS shall have the latest release of both Software and Firmware at system acceptance.

1.23 CONTRACTOR WARRANTY:
A. Fully warrant parts, materials, and labor for a minimum of one year from date of the final acceptance of the ESS, including wiring, software, hardware and third-party products, including:
1. Provision of all new software service releases during the warranty period.
2. Provision of all new firmware and device driver packs.

1.24 MAINTENANCE AND SERVICE:
A. General Requirements:
1. Provide all services required and equipment necessary to maintain VMS in an operational state as specified for one year from formal written acceptance of system.
2. Provide all necessary material required for performing scheduled adjustments or other non-scheduled work.
3. Minimize impacts on facility operations when performing scheduled adjustments or other non-scheduled work.

PART 2 - PRODUCT

2.1 Approved manufacturers:
A. As specified in each individual section.

2.2 EXISTING SYSTEMS TO BE DEMO'D:

A. Honeywell WinPac
B. HikVision
C. Speco
D. There may be other standalone systems in buildings. All existing are to be demolished and replaced.

2.3 SERVERS

A. Provide and install all required servers or appliances for both access control and video. Storage of video shall be calculated for an average of 15FPS plus 25% additional.
B. Alternate – Use Owner provided servers, provide all technical requirements and storage size base on the above. Provide all software and labor to install virtual instances on the Owner's servers.
C. Minimum Server requirements:
    1. OS - Windows Server Standard 2019 LTSC
    2. Processor - 2x Intel® Xeon® Silver 4210 2.20GHz or equal
    3. Memory - 16GB DDR4
    4. Ethernet - 4x 1GbE RJ45
    5. Peripherals - 2x USB 2.0 + 2x USB 3.0
    6. Performance - 670 Mbps
    7. Raid Controller – H750 8GB NV cache
    8. Raid level – Raid 6

PART 3 - EXECUTION

3.1 ACCESS CONTROL AND VIDEO SURVEILLANCE

A. Provide and install all requirements contained within this RFP.

3.2 ADI MIGRATION

A. Provide Owner with all labor to assist with active directory integration migration on this system.

3.3 NORMAL OPERATION

A. All exterior doors, and any others determined by the Owner, shall be locked. All door hardware shall be fail-safe allowing free egress at any time.
B. During normal operation any badge holder's credential shall work at access-controlled doors per permissions programmed.
C. Non-credentialed persons (Visitors, etc.) shall enter through the main entrance only, after requesting permission via the video intercom.
    1. Administrative staff will allow or deny access based on the district's policies.
    2. In buildings with a secure vestibule, or where non-credentialled persons enter directly into the building's office, administrative staff will allow or deny access to the interior of the building through a remotely activated access-controlled door using a push button or "soft" button on the security software running on their PC.

3.4 BUILDING LOCKDOWN/EMERGENCY

A. If, after allowing entry into the office or an incident occurs requiring a building lockdown the following shall occur:
    1. Administrative staff will initiate the lockdown protocol which will secure all access-controlled door hardware yet still allows free egress out of the building.

a. A screen “pop-up” will pull up all cameras in the area of the initiated alarm and clearly show that the system is in alarm state.

2. External strobes will flash while a lockdown is in progress, notifying staff, students and the public to not approach the building.
3. Access to the office or other secured entry area from inside the building through access-controlled doors will be restricted to only those persons with permissions to access doors in the lockdown/emergency state.
4. Access to specific doors may be granted through the system software to only those persons with appropriate permissions, to allow access into the building by first-responders.
5. The system may only be taken out of this alarm state by a system administrator via the software.

3.5 OUTAGES

A. At no time will any portion of the existing security system become inoperable. Planned outages shall be coordinated with the Owner a week in advance. Unplanned outages shall be immediately reported to the Owner for their remediation during the outage. The integrator is responsible for completing repairs as quickly as possible and shall compensate the Owner for any additional remediation costs (Staffing, outside or additional security guards, etc.)

3.6 TRAINING

A. Provide a minimum of two hours of system administrative/technical training to the Owner. Training must be to the Owner’s satisfaction.
B. Provide a minimum of 8 hours of user training to the Owner in one-hour blocks. Training must be to the Owner’s satisfaction.
C. Provide training materials in the form of printed, digital (pdf) and access to online training if available.

3.7 FINAL ACCEPTANCE

A. Final acceptance and closeout of the contract will be given only after all the following have occurred:
   1. All closeout and administration documentation have been received, reviewed, and approved by Owner’s design professional (PSC).
   2. All tests have been conducted, system demonstrated with and accepted by the Owner and review and approval of all test documents by Owner’s design professional (PSC).
   3. A physical “punch” inspection has been made by for conformance to the RFP and drawings, quality of workmanship, operation, and identification by the Owner’s design professional (PSC).
B. Acceptance shall not be given until all “punch list” items have been rectified to Owner’s/PSC’s satisfaction, Owner has beneficial use of the system, all training has been conducted to the Owner’s satisfaction and Owner has accepted the system by signature and taken full ownership.
C. All punch list items shall be complete within 10 business days.
D. If deemed by the Owner or PSC that the system is not ready for inspection when the punch list is attempted requiring multiple trips to inspect or confirm completion of certified completed punch-list (certified by Integrator) a fee of $150.00 per hour shall be assessed against and paid by the Integrator’s retainage.

3.8 CLOSEOUT

A. Provide, prior to Final Acceptance, Owner and PSC all system documentation, record drawings and warranty information.
B. Acceptance by Owner of ACS operation and camera aim, focus, and field of view.
C. Training completed to the Owner's satisfaction.
D. Demonstration of all features and functions of all devices in the system, to the Owner's/PSC's satisfaction.
E. System has been fault-free for 30 consecutive days.

END OF SECTION

SECTION 28 10 00 ACCESS CONTROL

PART 1 - GENERAL

1.1 OVERVIEW

A. Provide and install a complete access control system as part of the new Bay Arenac ISD Electronic Safety and Security (ESS) System for the following buildings:
   1. BAISD Career Center (BACC)
   2. BAISD Educational Service Center (ESC)
   3. BAISD Transportation (BG)
   4. BAISD Conference Center (CONF)
   5. Bay Living and Learning Center (BLLC)
   6. Arenac Living and Learning Center (ALLC)

1.2 SECTION INCLUDES

A. Security/Perimeter Access Control System.
   1. Servers/Appliances
   2. Controllers
   3. Credentials and readers
   4. All required cabling
   5. Credential holder database and management
   6. Credential creation and Reporting
   7. Door Hardware
      a. Readers, Alarms, Door Contacts, PIR, etc. and Integration
      b. Physical door hardware as indicated herein
   8. Remote release button hardware
   9. Duress hardware (Panic Buttons, Lockdown Buttons)
   10. Video Management System integration

1.3 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including general and supplementary conditions and Division 0 and Division 1 Specification Sections, apply to this Section.
B. Section 27 05 00 – Common Work Results for Communications
C. Section 27 10 00 – Structured Cabling
D. Section 28 23 00 – Video Surveillance

1.4 SUMMARY

A. Provide all labor, materials, equipment, software, programming licenses and services for a 100% turn-key Access Control System as part of the new security system for the Bay Arenac Intermediate School District (BAISD), as indicated on the drawings and as specified herein. Any material or labor not noted herein, but required for a complete solution, shall be included at no cost to the Owner. The owner is not responsible for any materials that are not included in the bid response.
   1. This project shall include licensing for the quantity of devices, integration or other associated licenses required for the proposed system and the requirements herein.
   2. Licenses (If required by the system) shall be provided for eight (8) operators, with unit pricing provided to add seats. (if applicable)
B. Contractor to provide power to all electrified access control hardware included in this project.
   1. Does not include Magnetic Locks

1.5 CAREER CENTER "LOCKOUT SMARTBOOT SYSTEM®"

A. The ESS shall be integrated with the SmartBoot® system so that when that system is activated it will trigger an event in the ESS to initiate an alarm that will pull up associated cameras in the area and any other event-to-action operation required of the ESS.
B. The integrator shall coordinate integration with this vendor. Contact information is: Andy York, Director of Technology, The Lockout Co., LLC, C: (989) 513-5563

1.6 ABREVIATIONS

A. ACS – Access Control System
B. ACP – Access Control Panel
C. AHG – Authority Having Jurisdiction
D. ESS – Electronic Safety and Security System
E. PSC – Professional Services Contractor (Convergent Technology Partners)

1.7 SUBMITTALS

A. Submit under provisions of Section 01 33 00 – SUBMITTAL PROCEDURES.
B. Product Data: Manufacturer's data sheets on each product to be used, including:
    1. Preparation instructions and recommendations.
    2. Storage and handling requirements and recommendations.
    3. Installation methods.
    4. Lead Times
C. Shop Drawings: Include system schematics showing components and controls, installation requirements, and relationship with adjacent construction.
D. In addition to the requirements established by the bid proposal form and Division 0 and 1 specification, include the following with the bid submission:
    1. System diagram with the proposed solution detailing the overall equipment and interconnections of the access control system. Show equipment locations, manufacturer/model, and cable types.
    2. Description of the level of integration that your solution provides with Microsoft Windows-based computers and any computer via web-browser. Note limitations of various web browsers. Please explain, in detail. In addition, please include the recommended hardware specifications in order to utilize the access control client.
    3. Description of the level of integration that your solution provides with Apple iOS and Android devices. Explain, in detail noting any specific features or limitations.
    4. Industry certifications, including installation personnel certification of the Manufacturer being proposed.
    5. Quantity of Gigabit Ethernet connections that are required for the system. The number of connections should be denoted on the schematic design.

1.8 SCOPE OF WORK (GENERAL)

A. New Server/Appliance - See also section 28 00 00
B. New door hardware at required locations.
C. New card readers, request to exit devices, connection to electrified door hardware at new and existing locations.
D. New lockdown and panic buttons
E. New ACS door panels.

F. New plenum-rated cabling from access control panels to door locations for all devices including but not limited to card readers, REX, door contacts, and electrified hardware.
G. Installation and programming of access control software and associated hardware (client and badging computers, server).
H. Connect electric strikes and monitor status of door controls.
I. Integration of existing handicap access buttons
J. All cabling, wiring and connections required.
K. All specialty conduit requirements.
L. System Programming
M. Training
N. Demolition of existing system and devices
O. Per Door Schedule

1.9 WORK BY OTHERS

A. Network and Network Equipment (Except POE/POE+ switches for cameras)
B. Fiber Optics link between buildings (Except ALLC)

1.10 SYSTEM DESCRIPTION

A. System shall consist of one or more networked servers/appliances, and field-installed Controllers, connected by a high-speed electronic data transmission network.
B. The access control system shall be designed to be utilized 24 hours per day, 7 days a week, 365 days of the year.
C. The access control system shall be based upon standard components and proven technology using open and published protocols.
D. The access control system head-end server shall be located in the ESC Data Center/MDF, designed for a multi-site deployment.
E. The access control system shall offer centralized management of all devices, panels and users, and offer a rule-based system driven by schedules and events.
F. The Contractor will utilize the Owner's WAN for connecting remote buildings.
    1. BAISD owns and uses SM fiber to all buildings except the Arenac LLC.
    2. Arenac LLC uses leased fiber @ 150Mbps
G. Access Control: shall connect to all reader and alarming devices to support the following:
    1. Interior Building Areas: Control access into areas as shown on drawings.
    2. Restrict Access of individual credential-holders by time of day, day of week/month/year and specific points of entry via user-configurable software.
    3. The ability to group like-individuals in "roles" or "groups".
    4. Unlock doors and selected areas automatically, where shown on drawings, for a scheduled period throughout the day allowing free access and egress without the use of a card and avoiding the generation of an alarm condition on the access control system. The system operator shall be able to lock and unlock doors from the computer system.
    5. Lock doors and selected areas automatically, where shown on drawings, during lockdown procedure initiation or other events as indicated by the Owner.
        a. Lockdown initiation shall manual be via software, or local physical lockdown buttons.
    6. Monitor Points in building and selected areas as shown on drawings that may provide unauthorized access or egress, that are propped or held open or may be

a point for forced entry. The system shall report changes in status for all monitored points indicating the specific location so the operator can respond appropriately.

H. Badging /Credentials
   1. The Owner will be reusing their existing credentials - AlphaPass Prox clamshell cards which are comparable to HID ProxCard II (1326)
   2. Provide price for additional credentials in packs of 100

I. Contractor shall supply specifications for Computers/Workstations. Configure the intended system function by installing the appropriate system software, services and operating system on Owner supplied Computers.
   1. ESS Monitoring Workstation (Networked):
      a. Owner will supply Workstations per the Contractors specification.
         1) Capable of adding a 2nd monitor in the future for the purpose of viewing additional security cameras
   2. New Central Database Server: The Central Database Server shall be installed in the ESC Data Center. The system shall provide connectivity between the Central Database Server and all Access Control Panels over a Local/Wide Area Network (LAN/WAN).
      a. New servers and appliances shall be rack mountable.
      b. Access control, photo imaging, and programming data must reside on a single database.
      c. The system shall provide real-time transactional storage of all system events.
      d. The system shall archive date/time-ordered events in a separate archive database.

J. Access Control Panels (ACPs): The ACPs shall be installed as indicated on the Contract Documents, communicating to the Central Server over a local LAN/WAN connection.

1.11 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Company specializing in manufacturing the products specified with minimum 15 years documented experience.
   2. Manufacturer shall be capable of providing through its resellers a sole-source, turn-key solution including, but not limited to system server, wiring, networking components, and other peripherals essential for operation of the solution.
   3. Manufacturer or their certified partner shall be directly accessible to end users for advice on service, support, and warranty issues. They shall maintain support information for public access on a web site and facilitate contact with technical resources.
   4. Software and firmware updates shall be performed by the Contractor (Certified Partner) at no charge within a valid maintenance agreement period.
      a. Software and firmware updates shall freely accessible for download from the manufacturer's web site and available at no charge with a valid maintenance agreement by the owner if they choose to do the updates themselves.
      b. Terms for release of software revisions offering substantially new capabilities shall be offered for sale or at no cost with a valid maintenance agreement.

5. Manufacturer's operation manual and training tutorials shall be directly accessible through the software main menu and provided on PC-compatible CD, flash drive available by download for installation on any personal computer. The manual and tutorial shall provide for intuitive topic search and help for system operation and function explanations. Additional computer support and help utilities shall be included on the system server main menu to assist in managing functions such as multi-media control, file management, disk and media management, file authentication, backup and more.

B. Installer Qualifications:
   1. Company specializing in installing the Products specified in this section and Related Work with minimum five (5) years documented experience. Experience shall include projects with access control systems of similar scope and magnitude of the project.
   2. Company shall be a Certified Dealer of the manufacturer.
   3. Project personnel shall be trained and certified by the manufacturer
   4. Company shall have warehousing, engineering and maintenance services within 150 miles of project.

1.12 DELIVERY, STORAGE, AND HANDLING
   A. Per manufacturer’s environmental requirements
   B. Store products in manufacturer's unopened packaging until ready for installation.
   C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.13 PROJECT CONDITIONS
   A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's limits.
   B. Coordinate access and working time with Owner.

1.14 COORDINATION
   A. Coordinate all work with:
      1. Owner for available work hours, existing credential holder data base transition and programming.
      2. Owner IT department for integration with the Owner’s network and installation of the Central database server in the server room
      3. Others as required – Fire Alarm Vendor, Intrusion Detection Vendor, etc.

1.15 WARRANTY
   A. Manufacturer’s Warranty of the ESS System:
      1. Provide a comprehensive labor and material warranty for three (3) years from the final acceptance of the manufactured hardware. The warranty shall be unconditional for all manufactured hardware.
      2. Technical support shall be available for 24 hours per day and 7 days per week to all Certified Dealers/Value Added Resellers.

1.16 SPECIAL TOOLS, EQUIPMENT AND MATERIALS
   A. All necessary equipment, materials, and special tools that are required to maintain each system provided under this Contract, shall be delivered to the System Owner or owner's representative by the Contractor. Additionally, a complete list of said necessary equipment, materials, and special tools shall be submitted to the System Owner within a minimum of two (2) weeks prior to final acceptance test.

1.17 CODES, STANDARDS, REGULATIONS AND COMPLIANCES

A. The codes, standards, regulations and compliances listed in the Contract Documents are part of the Contract to the extent of their applicability to the project. The latest edition of the following codes, standards and regulations apply:
B. Safety Standards:
   1. UL 294, Fifth Edition, Access Control System Units.
   2. UL 1076, Fifth Edition, Proprietary Burglar Alarm Units and Systems.
   3. CSA C22.2 No. 205-M1983, First Edition, Signal Equipment.
C. Federal Communications Commission (FCC) Rules and Regulations: (Title 47 CFR) Part 15 - Subpart-B: Radio Frequency Devices – Unintentional Radiators.
D. Encryption Standards: (AES) Advanced Encryption Standard Algorithm.
E. As listed in Section 27 05 00 Common Work Results for Security

PRODUCTS

2.1 GENERAL

A. The ACS shall be an enterprise class IP based access control software solution. It shall be fully integrated with the Video Surveillance portion of the ESS. The ESS shall allow the seamless integration of the ACS with an IP video management system (VMS).
B. The ACS shall be highly scalable to support configurations consisting of thousands of doors with facilities spanning multiple geographic areas.
C. The ACS shall support an unrestricted number of logs and historical transactions (events and alarms) with the maximum allowed being limited by the amount of hard disk space available.
D. The ACS shall support a variety of access control functionalities, including but not limited to:
   1. Controller management, door management, elevator management, and area management and monitoring (I.e. – panic b.
   2. Cardholder and cardholder group management, credential management, and access rule management.
   3. Badge printing and template creation.
E. Manufacturer:
   1. Genetec
   2. Lenel
   3. As indicated herein.
F. Certification
   1. The ACS shall be certified:
      a. UL-294
      b. ULC-S319
      c. EN-60839-11-1

2.2 LIFE SAFETY

A. Card access system’s lock power supply shall be connected to the fire alarm system by the Security Contractor.
B. All electric doors in pathway of building egress shall release as required by life safety codes.
C. Provide a means to release doors as required by NFPA or local jurisdiction.

2.3 ACS ACCESS MANAGEMENT

A. The ACS shall be based on an open architecture able to support multiple access control hardware manufacturers. The ACS shall be able to integrate with multiple

non-proprietary interface modules and controllers, access readers, and other third-party applications.

B. The ACS shall be an IP enabled solution. All communication between the ACS and hardware controllers shall be based on standard TCP/IP protocol.

C. Access Manager Role
   1. The Access Manager Role shall be the server that synchronizes all access control hardware units under its control, such as door controllers and I/O modules. It shall also be able to validate and log all access activities and events when the door controllers and I/O modules are online.
   2. The Access Manager Role shall maintain the communication link with the hardware controllers under its control. It shall also continuously monitor whether the controllers are online or offline.
   3. Synchronization of hardware units shall be automated and transparent to users and shall occur in the background. It shall also be possible to manually synchronize units or to synchronize units on a schedule.
   4. The Access Manager Role shall support doors and controllers located within one or more facilities. The Access Server shall support a minimum of 200 readers and up to 2000 readers per computer.

D. The Access Server shall store all access events associated with the doors, areas, hardware zones (hardware input points), elevators, and controllers under its direct control.

2.4 ACS DOOR MANAGEMENT

A. The ACS shall support the configuration and management of doors. A user shall be able to add, delete, or modify a door if he or she has the appropriate privileges.

B. The ACS shall permit multiple access rules to be associated to a door.

C. The ACS shall support the following forms of authentication: Card Only, Card or Keypad (PIN), or Card and Keypad (PIN). It shall be possible to define a schedule for when Card Only or Card and Keypad authentication modes shall be required.

D. It shall be possible to set an extended grant time on a per-door basis (in addition to the standard grant time). Cardholder properties shall include the option of using the extended grant time. When flagged cardholders are granted access, the door shall be unlocked for the duration of the extended grant time instead of the standard grant time.

E. The ACS shall allow the configuration of the relocking mode on doors such as on door open, after a definite time, or on door close.

F. The ACS shall support the ability to enforce the use of two valid reads from different cardholders to grant access to an area.

G. The ACS shall support the ability to enable access rules for other cardholders once a supervisor has accessed an area.

H. The ACS shall support the ability to enable unlocking schedule on a door once an employee has entered the facility.

I. Readerless doors:
   1. The ACS shall support doors configured with any of the following : lock, REX, door position sensors.
   2. The implementation of a readerless door shall be possible with the use of standard access hardware IO modules. External hardware such as timers, shall not be required.

3. Unlocking schedules shall be programmable for readerless doors.
4. Standard door activity reports shall also be possible with readerless doors.

J. Unlocking schedules and exceptions to unlocking schedules shall be associated with a door. An unlocking schedule shall determine when a door should be automatically unlocked. The ACS shall also support the use of a specific offline unlocking schedule. Exceptions to unlocking schedules shall be used to define time periods during which unlocking schedules shall not be applied, such as during statutory holidays.

K. The ACS shall support one or more cameras per door. Video shall then be associated to door access events, such as access grant or access denied.

2.5 SMARTPHONE and TABLET APP GENERAL REQUIREMENTS

A. The ESS should support mobile apps for various off-the-shelf smartphones and tablets. The mobile apps shall communicate with the Mobile Server of the USP over any WIFI or mobile network connection.

B. Mobile apps shall communicate with the ESS via a Mobile Server. Communication between the mobile device and the Mobile Server shall support optional encryption.

C. Supported device manufacturers shall include (refer to Mobile App specifications for latest compatibility list):
1. Apple iPod Touch, iPhone, and iPad.
2. Android-compatible smartphones and tablets.
3. Windows and Windows Phone 8.1

D. It shall be possible to download the mobile apps from the Central application store (Apple iTunes App Store, Google Play, Windows Store).

E. Functions
1. Live monitoring and command and control of the USP.
2. Control of camera PTZ.
3. Receive alarm push notifications from the Apple Push Notification Server or from the Google Android push server.
4. Alarm management (view and acknowledge alarms, video tied to alarms).
5. View USP hierarchy and search for entities.
6. Digital zoom on cameras.
7. Support for adaptive resolution scaling.
8. Save camera layouts.
9. Picture-in-picture to view live video when doing playback.
10. View up to 20 cameras simultaneously on iPads.

2.6 PROGRAMMING

A. Provide Graphical User Interface (GUI), including graphic maps/floor plans with all devices shown. Provide all alarm, trouble, access, Alarm/event reporting, and GUI operator interfacing through the graphic maps in the system software. Owner shall be responsible for providing the maps and the contractor is responsible for programming the devices.

B. Provide software capable of, but not limited to, the following programming:
1. Time Schedules
a. Provide up to 256 user-definable time schedules. These time schedules are to determine the day(s) and times that access will be granted, or a scheduled event is to occur. Any and all of the time schedules are to be available for defining access privileges and scheduled events. Provide ALWAYS and NEVER schedules that cannot be altered or removed from the

system. Each user-defined time schedule must have the option of reacting or not reacting to user-defined special days, with the ability to react uniquely to each type of special day.

2. Special Days
   a. Provide an unlimited number of user definable special days to be used for configuring exceptions to the normal operating rules, typically for specifying holiday operating rules. Allow for each special day to be assigned to a user-defined type.
3. ACU Daylight Savings Time Adjustment
   a. Provide a software-configurable, user defined adjustment for Daylight Savings Time. The ACU must not need to be connected to a PC workstation for the adjustment to occur.
4. Scheduled Events
   a. Any access-controlled reader is to be capable of scheduled unlock periods to allow for card-free access. The access-controlled reader is to also be capable of requiring one valid access event before beginning a scheduled unlock period.
   b. Any access control point is to be capable of requiring a valid card or valid card and PIN code via keypad on a scheduled basis for high security areas. The use of PIN via keypad functions must not reduce the number of card readers or alarm points available in the ACU(s). Any designated alarm input must be able to be scheduled Secured and Accessed. Any relay output must be capable of scheduled ON and OFF periods to allow for automatic input and output system control.

C. Minimum Card Holder Capability
   1. A minimum of 1000 individual users may be given access cards or codes and have their access controlled and recorded.
D. Access Groups
   1. Each system user must be assignable to a minimum of 4 of 256 possible access groups. An access group is defined as one or more people who are allowed access to the same areas at the same days and time periods.
E. Active and Expire Dates
   1. Any card or user may be configured with activation and expiration dates. The card can be assigned to any valid access group and will be activated and expired according to the specified dates.
F. Maximum Use Settings
   1. Any card or user may be configured with maximum number of uses for that card. The card can be assigned to any valid access group and will be expired according to the specified number of card use.
G. Door Outputs
   1. Provide each access control reader with one dedicated relay outputs. Both relays are to provide Normally Open and Normally Closed contacts. Use the first relay for electric lock control while the second is software configurable to activate for door forced open, door left open too long, duress, passback violations, invalid access attempts and valid unlock conditions. Allow for both relays to be separately programmable for energize times from 1 second to 10

minutes. The second relay must allow a delay time to be specified, causing its activation to be delayed after an activating condition occurs.

H. Anti-Passback
   1. Provide global anti-passback capability. Any door on the system can be linked to one of 256 users defined passback areas or two 2 pre-defined areas. Each door may be set up to automatically forgive passback entries at one of the following intervals:
      A. Never
      B. Midnight
      C. Every 12 hours (Midnight and Noon)
      D. Every 6 hours
      E. Every 2 hours
      F. Each hour
      G. Every 30 minutes
   2. Each door can be configured to deny or grant access for passback violations and individual users can be exempt to the passback rules. The anti-passback features must be a global function and operate completely independent of the ACS software, except configuring the passback rules. Additionally, the operator is to have the ability to manually forgive an individual user or all users by command from the ACS.

I. User List or Who's In (Muster Reports)
   1. Provide the capability to generate dynamic lists of users in certain access-controlled areas, based either upon selected users or selected areas. The lists must have the option of automatically refreshing after a user-selected interval of time.

J. Special Event Mode/Emergency Condition Mode
   1. Provide support in which user-selected alarm point activations cause changes to user access privileges. The changes to user access privileges must be configurable to restrict normal access to no access or limited access.

K. Door Groups
   1. Allow up to 256 door groups to be configured. Doors belonging to the same group be able to be locked, unlocked, disabled, and enabled on command from the ACS.

L. Door Interlocking
   1. Allow a group of doors to be software configured so that if any door in the group is unsecure, access through all other doors is automatically disabled. This feature is also known as a "mantrap" configuration. The interlocking features must not require the ACS to be on-line for proper operation.

M. Provide support for the required use of a keypad code, in addition to a valid credential during user-selected schedules.

N. Remote Door Control
   1. Provide the ESS operator the capability of manually controlling any access point by issuing a simple command from the ACS. Provide the operator the ability to lock, unlock, enable, and disable any door or Door Group in this manner. This activity is to cause an entry to be logged displaying the door name, number and time that it was performed.

O. Reader Disable

1. Provide support for disabling readers in reaction to a user-selected number of invalid access attempts.

P. Disable Event Messages
   1. Allow users to disable user-selected event messages (Door Forced Open, Door Open Too Long, Door Closed, Request to Exit) for user-selected doors. Allow users to disable certain messages (Door Forced Open, Door Open Too Long) according to a user-selected schedule.

Q. Input and Output Groups
   1. Allow for up to 256 user-defined (input and output) groups to be defined. Each Input device is to be able to be linked to these groups for arming, disarming, shunting and un-shunting as well as output control.

R. Delays
   1. Each alarm device must allow a delay to be specified which is either an entry type or a dwell type. An entry-type delay is to prevent the input from issuing an alarm event until the delay elapses. If unarmed during the delay period, the alarm is to be ignored. A dwell-type delay requires the input to remain in the alarm state for the full delay duration before issuing an alarm.
   2. Allow for a time schedule to automatically control the activation and de-activation of the Scheduled type with all other types configured to activate based on input and output group conditions. Additionally, a time schedule must be specified to configure when the output is to actively monitor the input and output groups.

S. Remote Output Control
   1. Provide the operator the capability of manually controlling any output point by issuing a simple command from the SCC. Based upon the output type, provide the ESS operator the ability to ENABLE, DISABLE, turn ON and turn OFF any output in this manner. Log an entry when this activity is performed displaying the output name and time performed.

T. Remote Reset Command
   1. Provide the capability for any ACU to reset manually or by command issued from the ACS with the option of simulating the ACU reset settings or forcing a reset type as specified by the user.

U. Traced Cards
   1. Provide the capability of selecting any number of cardholders for the purpose of limiting reports to only traced users displaying all traced cardholder events in a user-selected alternate color.

2.9 SOFTWARE

A. The software development tools, and language shall be an existing, industry-accepted, type that is widely used in commercial systems. The system shall be modular in nature, allowing the system capacities to be easily expanded without requiring major changes to the system operation, while maintaining all defined system data as well as historical information.

B. Graphical User Interface (GUI): All System functions shall be accessible via point and click mouse control. Systems requiring command string control or complex syntax are not acceptable.

C. The system shall provide a top-down methodology which allows the configuration of the software and hardware devices, options, and features in a fluid and logical method.

2.10 OPERATION

A. Provide the capability to arm or disarm alarm points both manually and automatically by time of day, day of week or by operator command and the capability to disarm alarm points based on a valid access.
B. When used for elevator control, the ACS is to grant access to elevator floors based on a valid credential, or by schedule.
C. Provide the capability to place ACU(s) in an off-line mode. In the off-line mode, the ACU(s) must retain a historical summary of all ACU activity transactions, up to the maximum capacity of the ACU memory buffer. Provide the ability for manual operator control of system output relays with the manual functions to energize, de-energize, enable or disable.
D. Provide the ability to display a stored 'video image' of the cardholder based on card activity and switch real-time CCTV camera to the card reader location for specific card usage. (Future integration with VMS)

2.11 ALARM EVENTS:

A. Alarm Event Priority: The system shall allow a user-definable alarm priority (numeric value) to be assigned to individual devices and events.
B. Configuration of Alarm Event behavior: The system shall allow alarm events to be configured as follows:
    2. Displaying Alarm Events:
    3. Shall be able to display alarm events for panel-level alarms at the ACP.
    1. Able to persist alarm events that are acknowledged but not restored.
C. Automated features for Alarm Events:
    1. Software shall be able to prevent application shutdown when pending alarm events are unacknowledged (configurable with operator confirmation).
    2. Software shall be able to ‘pop’ the Alarm Event screen to the forefront of the GUI focus when an incoming alarm event is logged.
    3. Shall be able to automatically open a Graphical Display (floor plan) on the Monitoring Station when an associated alarm event activates and is within the workstation priority range, if applied.
    4. Software shall be able to automatically call up the live digital video feed from the camera that is associated with the cause of the alarm activation. (Future)
    5. Software shall be able to automatically delete alarm events that are both acknowledged and restored.
D. Door Supervision: The system shall allow for unique configuration of door supervision resisters (series only, parallel only, and series-parallel, no resistor).
E. Surveillance Camera Association: The system shall allow a reader to be associated with a specific camera for displaying live video from the associated reader
F. Output Activation: The system shall allow each reader to be configured to cause an output to activate based on activity at that door.

2.12 OPERATORS/USERS:

A. The system software shall be capable of identifying an unlimited number of system operators. Passwords shall be hidden from the Software GUI

B. Each operator authorized to operate any portion of the system shall be addressed within the system by a unique user defined name. The operator's name will be used throughout the system to identify commands and functions that the operator has executed as part of an audit trail.
C. All commands issued by a system operator while monitoring system activity including locking/unlocking doors, event acknowledgment, etc. shall be stored in the historical archive for later recall. The report command shall include the operator's name, time and date the command was issued, and the command issued by the operator.
D. Provide customizable Operator Privileges to allow/restrict commands, system programming and viewing/editing data. Privileges are enforced system wide.
E. Operator Privileges:
    1. Privilege Control: Each operator shall be assigned an operator privilege matrix. Operator privilege matrices define the individual commands within the system that the operator is authorized to execute. Privilege matrices also determine which fields the operator can see and/or edit. The privileges and filters shall be unique to each operator.
    2. Administrative/Master Privilege: When selecting the Master Operator privilege option within the system, the operator shall be given access to assign/modify the Operator privileges along with select Workstation options. Certain system programming or configuration may be reserved for operators with master privileges.

2.13 CREDENTIAL RECORD DEFINITIONS:
A. User Defined Field Labels: The system shall allow a privileged user to specify field name, field type, field restrictions and whether a field is mandatory and/or functions as a select list.

2.14 AUTOMATED PERSONNEL DATA IMPORT:
A. The system shall provide a means to import personnel information from a system provided Application Programming Interface (API) or approved equivalent, a Database Stored Procedure, or an external ODBC data source. Additionally, the import shall execute in the background periodically. The import procedure shall also perform the necessary validity checking.
B. Bulk/Batch Import/Export: The system software shall provide means for bulk importing and bulk editing of card records using a data file generated from another source. The external source file shall be ODBC compliant. The system shall also provide the means to generate/export the same format file of existing card records, allowing the information in the system to be exported to other computers and applications. The system shall allow the user to select the records that shall be included in the export file.
    1. The contractor is responsible for importing all existing credential holders' data into the new system from the existing.

2.15 REPORTS:
A. All programmed and transactional history shall be automatically stored to the database for later recall and shall be immediately available for report generation.
B. The system software shall be able to generate reports without affecting the real-time operation of the system and shall be generated to the operator's screen, hard disk, or printer(s). The database shall be searchable based on variables available on the

individual report matrix. Systems requiring the user to type complicated search strings are not acceptable.

C. The system shall be capable of producing reports of database configuration information and historical activity to include hardware and software configuration, group, time zone, activity and audit log reports.
D. The system shall have a list of pre-defined reports. The operator shall be able to pick an existing report, modify an existing report or generate a new report.
    1. Pre-defined reports that shall report the database configuration for area, holiday, time specifications, time zones, elevator, event, all groups, control outputs and authorized cardholders.
E. It shall be possible to use third party report tools to generate reports not already provided by the Access Control System.
F. User Status "Who's-In" Report: The "Who's-In" report shall provide a listing of all personnel that the system has determined to be in a user-specified area and shall automatically refresh to keep current as personnel exit the area.
G. The system shall provide an audit trail function that records permanent changes in data configured by system operators.

2.16 ACTIVITY (EVENT) MONITORING:

A. Provide a screen pop-up on the operator's computer for active alarms. Include the event, date/ time display, user, active events, events require acknowledgement and loop/site information.
    1. If the Access control system program has been minimized or if the monitoring window is behind other tabs/windows, the alarm monitoring window shall pop open and be displayed on the operator workstation as the front-most window.
B. Event Audible Annunciation – provide the ability for additional audio annunciation when there is at least one active and unacknowledged event.
C. The operator can view additional details of the event using a single keystroke or mouse click by clicking on the event item which will present with alarm response instructions that have been programmed into the system.

2.17 GRAPHICS:

A. System software shall be programmed so that all end devices be placed on a system map using graphic symbols.
B. Graphic symbols shall be associated to every state that each hardware/field device can report and will allow the device icons to act as a dynamic icon when being monitored on the graphic map/floor plan. Graphic icons placed on the floor plan shall include alarm inputs, output control points, doors, cameras, motion detectors, alarms, and other graphic symbols that represent field devices and their states.
    1. Upon activation of an event, the operator shall, using a single keystroke, be able to view the associated graphic/floor plan on the workstation monitor. The operator shall use the mouse to click on any of the icons on the graphic and issue a command that is associated with the field device.

2.18 ACCESS CONTROL PANEL DESIGN

A. The access control panel shall be an intelligent ACP with a modular design that can support any combination of field devices within one panel.
    1. The ACP shall provide a minimum of three (3) on-board inputs. The inputs are reserved for reporting tamper, AC power fail, and low battery conditions.

2. The ACP shall allow for "Hot-Swap" serviceability. This allows for modular boards (DRM, DIO, DSI, AMM, ORM/ERM, etc.) to be changed without an ACP power-down.
3. There shall be diagnostic LEDs indicating the receiving and transmitting data for the on-board communications.
4. ACPs shall be able to determine the validity, authorization privileges, and schedules associated with each credential presented. The ACP shall be able to validate credentials without having to connect or communicate with the Security Management System in order to accurately grant or deny access. The ACP shall be capable of storing in resident memory all access credentials and their privileges, all door and other hardware configuration, and all associated schedules, I/O groups, timers, delays, and any related hardware linking and configured behavior. Each ACP shall have the capacity to store system events at the panel until reconnection with the system communication server is established, including the activation of reader/door events, inputs/outputs, ACP inputs, scheduled events, etc.

2.19 ACCESS CONTROL PANELS
- A. Shall be managed Mercury panels
- B. Approved Manufacturers:
  1. Life Safety Power
  2. Genetec

2.20 ACCESS CONTROL READER
- A. 125kHz Wiegand Proximity Reader
- B. Manufacturer:
  1. HID
  2. Approved equal

2.21 BADGES/CREDENTIALS
- A. Owner Provided

2.22 REMOTE DOOR RELASE BUTTONS
- A. Momentary contact physical buttons used to release access control doors remotely. Provide under worksurface, desktop and wall mounted options.

2.23 PANIC AND LOCKDOWN BUTTONS
- A. Momentary contact physical buttons used to initiate alarms or lockdown procedures.
- B. Covert under worksurface mounted with either recessed button or with guard ring to prevent accidental activation.

2.24 DOOR POSITION SENSORS
- A. Securitron DPS-M Door Position Switch for Metal Doors, Concealed, 0.4 Amp, White
- B. Approved Equal

2.25 REQUEST TO EXIT DEVICES
- A. Tamper detection and Timer, White
- B. Accurate and adjustable detection zone with horizontal and vertical adjustment
- C. Approved Manufacturers
  1. Kantech
  2. Approved Equal

2.26 ON-PREMISES SECURITY KEY BOX
- A. Each building shall have physically keyed, tamper-alarmed Security Key box that will contain a credential to provide non-destructive emergency access to the building.

B. All boxes shall be keyed alike with keys provided to appropriate first responders by the Owner.
C. Manufacturers
   1. Knox Box® Rapid Entry System
   2. Approved equivalent

2.27 ELECTRIFIED DOOR HARDWARE
A. Rim, Mortise and Strikes as required by application

2.28 EXTERNAL STROBE LIGHTS
A. Blue in color, flashes at a rate of 30 times per minute, 135 candela.
B. May be either IP POE or directly powered.
C. Integrator is responsible for providing electrical power (Local or centralized)

PART 3 - EXECUTION

3.1 GENERAL
A. The Contractor shall provide all materials, equipment and labor necessary to install, test, and cut-over the system and ancillary equipment as shown on drawings and/or contained herein for a complete, professional installation. This includes, but is not limited to, delivery, unloading, storage, installation, inspection and testing of the system and components, and management of all Contractor and any subcontractor personnel.
B. Any equipment proposed in response to this RFP must be installed and tested at least two working (business) days prior to the scheduled cut-over date or as indicate in the Schedule of Events, whichever is earlier.
C. Notwithstanding the written certification by the Contractor that the equipment has been installed and ready for use, the equipment shall not be deemed installed within the terms of the contract until such installation is confirmed by the Owner through successful performance.
D. The equipment must meet or exceed the agreed acceptance criteria during a 30-day acceptance period, which begins on the installation (cut-over) date. The system will then be accepted following this successful 30-day period.
E. The Contractor shall make all reasonable efforts to minimize disruption to normal Owner activities. The Owner reserves the right to determine if the Contractor's work is causing undue disruption to the Owner's normal business routines, and, if so, arrange with the Contractor alternate times and/or methods for completing the work causing the disruption.
F. The Contractor shall provide weekly (or as requested) project status reports, to the Owner or Owner's representative (PSC) as to the progress and performance of all portions of the work. The Contractor shall cooperate fully to ensure that the Owner's identified critical facilities and services are maintained through the installation and minimal disruption is incurred when cut over to the new system.
G. The Contractor shall inform the Owner ten (10) working days prior to any required utility shut offs that are necessary to accomplish the installation of the proposed equipment. The Owner reserves the right to determine appropriate times for such outages.

3.2 SYSTEM SEQUENCE OF OPERATIONS
A. The final sequence of operations for all access control doors, elevators and spaces shall be coordinated with and determined by the Owner or Owner's representative (PSC) prior to final programming of individual access points and the system.

B. See also Section 28 00 00.

3.3 DAMAGE, SERVICE OUTAGES AND RESTORATION

A. In the event of a Contractor caused damage to the facility (I.e. – ceiling tiles, wall finishes, etc.) or outage of any system, the Contractor shall immediately perform, or cause to perform all efforts and provide all material or equipment required to repair damage or restore service to the affected system(s) to the same level as before the outage, at no cost to the Owner. The Contractor shall work directly with the Owner as required to restore service.

3.4 INSPECTION AND PREPARATION WORK

A. This contractor shall examine the conditions under which the system installation is to be performed and notify the Owner's Representative or Design Professional in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to provide a workmanlike installation.

B. Review areas of potential interference and resolve conflicts before proceeding with the work. Coordinate ceiling layout and wall layout and other work that penetrates or is supported throughout the space of the building. All work shall be flush and workmanlike in all finished areas.

3.5 INSTALLATION

A. Install materials and equipment in accordance with manufacturer's printed instructions to comply with governing regulations and industry standards applicable to the work and as shown on approved shop drawings.

B. Arrange and mount all equipment and materials in a manner acceptable to the PSC and Owner.

C. Installation shall conform to the basic guidelines.

1. Use of approved wire, cable, raceways, wiring, devices, hangers, supports and fastening devices.
2. Separation of high and low voltage wiring is required throughout the installation.
3. All wiring shall be thoroughly tested for grounds and opens.
4. All medium or higher voltage power wiring shall be in metallic conduit. The maximum conduit fill shall not exceed 40% of rated capacity. Refer to NFPA 70-NEC for additional requirements.

D. Cabling and Wire Requirements:

1. Low voltage signal and/or control wiring shall run in separate conduit/raceway from electric power cables within open areas. Plenum-rated cabling shall be used in all areas. Cables for door locks are power cables. Provide separation from lighting fixtures and other electrical appurtenances. Provide electrical interference protection circuits as required to maintain the signal quality specified herein and required by system manufacturers.
2. The individual systems low voltage cabling shall use separate junction boxes and enclosures.
3. The minimum low voltage cabling for security, communications and safety systems shall be as required by the manufacturers without cost increases to owner for the full function intended. The systems cabling shall meet the requirements of NFPA 70/NEC Articles 725, 760 and 800 as applicable for each type of system specified.

a. All dimensions and conditions shall be verified in the field. The Contractor shall notify the Architect of any discrepancies before proceeding with the work.
b. Card reader cables shall be NFPA 70, Article 725 compliant.
c. Electrified mortise and door strike power cabling shall be NFPA 70, Article 725 compliant.
d. Door control/door monitoring power cabling shall be NFPA 70, Article 725 compliant.
e. Elevator and fire alarm interfacing cabling shall be NFPA 70, Article 725 compliant.
f. Card Readers to Control Panel: maximum length shall not exceed 500 feet.
g. Extended Reader Line Drivers: may be used between the Central Unit and the Remote Unit for a maximum length not to exceed 10,000 feet (3050 m). Cabling between the Central unit and the control panel shall be as specified for a reader, request to exit and a relay. Cabling between the Remote Unit shall be as specified for a reader, request to exit and a door strike.
h. Alarm Point and Request to Exit Point to Control Panel: maximum length shall not exceed 500 feet (150 m).
i. Relay to Device: maximum distance shall not exceed 1,000 feet (300 m).

E. Identification/labeling
1. Label all ACPs and other major equipment with unique identifiers to aid in maintenance and troubleshooting. ACP labels shall contain the door #s associated with the ACP and as shown on project drawings.
2. Label all cable at both ends with source or destination and use. (I.e. – At door 101, power cable should read “ACS Power from (Source location” or “ACS Power to Door 101s ACP” at source end, etc.)

F. Fire Stopping:
1. Provide code required fire stopping at all fire rated wall, floor and partition penetrations with UL listed fire-stopping materials to meet fire rating of penetrated partition.

G. Junction Boxes, Enclosures/Cabinets, Equipment Racks:
1. The junction and pull boxes shall be securely attached to the structural members of the building at locations accessible for servicing. Provide access doors at locations accessible for servicing. Provide access doors at locations where access is not readily available.
2. The equipment enclosures shall be installed at approved locations and be typically ventilated as required to maintain the environmental conditions specified by the electronic equipment manufacturers.
3. All junction boxes and pull boxes shall be labeled. The box label shall state the system and use of cabling. The labeling shall be made with markers which are indelible when and after in contact with water and oil.
4. Each box and enclosure shall contain a cabling and wiring log identifying all cabling accessible whether connected or transiting through.

H. Grounding and Surge Protection:
1. Provide grounding, surge protection and clamping circuit requirements per manufacturers requirements and ANSI/TIA-607.

3.6 ADJUSTING, TESTING AND CLEANING

A. Contractor shall be required to perform complete testing and verification of the following:
    1. Card Reader maximum access time shall be 0.75 seconds under all system loads, i.e. regardless of number of cards presented simultaneously.
    2. Proper operation of electric door strikes, egress switching (where required), door position monitor switches and exit hardware.
    3. Proper operation of electro-magnetic locks and strikes, including full interface, control and override by the Card Access System.
    4. Proper operation of magnetic door switches.
    5. Proper operation of keyed EML bypass / override stations.

3.7 ADDITIONAL MATERIALS

A. Contractor shall provide the following spare equipment for items scheduled:
    1. Five (5) card readers.
    2. Five (5) PIR egress devices.
    3. Five (5) door position contacts.

3.8 DEMONSTRATION

A. Provide system demonstration.
B. Demonstrate normal and abnormal modes of operation and required response to each.

3.9 PROTECTION AND CLEANUP

A. Protect installed products until completion of project.
B. Touch-up, repair or replace damaged products before substantial completion.
C. All work materials shall be removed at the end of each workday and the work area left in the same condition as found. Upon completion of the work, the Contractor must remove all tools, equipment and all rubbish and debris from the premises and must leave the premises clean and neat.

3.10 TESTING AND ACCEPTANCE

A. The equipment must meet or exceed the agreed acceptance criteria during a 30-day acceptance period, which begins on the installation (cut-over) date. The system will then be accepted following this successful 30-day period.
B. Test procedures must meet manufacturer's standards.
C. The Contractor shall correct, in a timely manner, any failure to comply with Contract Documents as reasonably determined by Owner.
D. If final acceptance is significantly delayed because of defective new equipment or because the installation is not in accordance with the Contract Documents, the Contractor shall pay for all the Owner’s additional time and expenses resulting from the delay and any extensions of Acceptance Testing.

3.11 INSTALLATION TESTS

A. During the installation, the Contractor shall perform all tests necessary to ensure that the portions of the system being installed are ready for precut-over tests. The installation tests shall include, but not be limited to, all manufacturer recommendations and requirements.
    1. At the completion of the tests the contractor shall provide test results to the Owner.

3.12 PRECUT-OVER TESTS

A. Prior to cut-over of each portion of the system, the Contractor shall perform scheduled precut-over tests designed to confirm the operation of all components and

sub systems meeting manufacturer's performance specifications. All service features shall be tested and demonstrated. The Contractor shall provide all necessary test equipment and manpower and shall furnish a certified copy of the test procedures, data and results.

1. At the completion of the tests the contractor shall provide test results to the Owner.

3.13 DEPLOYMENT SERVICE AND SYSTEM COMMISSIONING

A. General Requirements.
   1. Access to phone support and online chat for technical assistance
   2. Online case management
   3. Online system availability monitor
   4. Access to Major and Minor Release Upgrades
   5. 24/7 pager support and dedicated support specialist (Specifier, additional cost)
B. Performance and reliability tests shall be conducted, demonstrating acceptable performance over a full thirty (30) day period after cut-over.
C. Acceptance of the system shall be granted after all equipment has passed the tests set forth by the contract and has been in operation thirty (30) consecutive days without a major failure.
   1. At the completion of the tests the contractor shall provide test results to the Owner.

3.14 TRAINING

A. The Contractor shall provide training both pre-cutover and post cutover, using adequate training aids in the use of the equipment for users and attendants. The cost of this initial training must be included in the bid price.
B. User training sessions shall be conducted in facilities provided by the Owner
   1. Training shall be of a "hands-on" nature, using live equipment.
   2. Training shall commence not prior to one week before system cut-over for any site.
C. Training will also be required for one or more of the Owner’s employees on the administration of the system and all ancillary components. This training shall be performed on-site.
D. Training sessions will be required for one or more of the Owner’s employees covering all aspects of operation, configuration, maintenance, and warranty service procedures for all the equipment provided. This training shall be performed on-site.
E. Follow up training is to be provided if necessary, at no additional cost. Time shall be coordinated with Owner’s representative.
F. Provide a minimum of 8 hours training.

3.15 CLOSEOUT AND DOCUMENTATION

A. Fully detailed documentation and record drawings of installation layout and performance shall be submitted for review within thirty (30) days of completion of work and shall include as a minimum:
B. Drawings showing layout of panels and equipment in racks.
C. Drawings shall accurately record actual locations of each item of fixed equipment. Drawings will indicate location of equipment and tagged circuits. A functional block diagram will also be required.
D. Drawings shall be submitted with three (3) copies to the Owner.

E. Final record drawings shall be submitted in appropriate size to drawing detail. Two (2) hard copies and one (1) soft copy (CD, Flash Drive or DVD) will be required in a Visio format. Drawings should include enough detail to allow troubleshooting (example: VLAN, equipment, module, bay face layout). Drawings shall be professionally done. Hand drawings and notations will not be accepted.
F. A Microsoft Excel spreadsheet of all equipment with manufacturer, model, part number, serial number, MAC address, IP, address, location, or any other pertinent information is to be included by the Contractor.
G. All drawings and the information contained therein become the sole property of the Owner.

3.16 PUNCH LIST

A. The Contractor shall perform required remedial work, without claim for additional labor or other costs. Where required, the Contractor shall re-test and submit a revised Test Report.
B. The Contractor shall notify the Owner of completion of the Punch List.
C. If after notification and inspection by the Owner, the identified Punch List items have not been corrected the Contractor will be notified that remedial work is still required. Additional time spent by the Owner or their representatives (inclusive of travel), due to the failure of the Contractor to correct Punch List items and finish the project by the agreed upon completion date as set forth in the Contract Documents, will be charged to the Contractor at the rate of ninety-five dollars ($150) per hour and deducted from the Contractors retainage.

3.17 OWNER'S RIGHT TO USE

A. Acceptance of the work of this section will occur after completion of corrections and adjustments required by "Punch List" (as generated during on-site inspections and review of testing documentation).
B. The Owner reserves the right to use equipment, material and services provided as part of the work of this section, prior to acceptance, without incurring any obligation to accept any equipment or completed systems until Punch List work is complete and systems comply with the Contract Documents.

3.18 WARRANTY, MAINTENANCE AND SUPPORT

A. All systems and components shall be guaranteed free of defects in materials and workmanship for a minimum period of two (2) years or the manufacturers' warranty, whichever is greater, from the date of acceptance and shall be repaired or replaced within timelines stated below following report of such defects by the Owner. Parts, Software Assurance and labor are included during the entire warranty period. The date of acceptance shall be defined as the date that the systems are demonstrated to Owner personnel to be in working order and the final invoice has been accepted and paid.
B. All equipment failures shall be repaired or replaced within twenty-four (24) hours of notification. The contractor shall notify the Owner upon completion of repair. Notification shall be made during Owner's normal business hours.
C. The Contractor is responsible to ensure that all software and firmware revisions are of the latest version at time of acceptance and, is responsible to keep all software current throughout the entire warranty period.
D. During the Warranty and Maintenance Periods, the Contractor shall provide the necessary labor, parts, material, and transportation to maintain all equipment bid in

good working order and in compliance with the equipment manufacturer's specifications. Costs for Warranty service must be included in the bid price.

E. Maintenance Services during the Warranty Period shall meet all General Specifications.
F. During the warranty period, there shall be no charge for any required hardware, software, as well as associated labor to resolve the warranty issue.
G. Manufacturer required software updates are to be provided at no charge during the warranty period, including all labor.
H. The Contractor shall not be held responsible for repairs or replacements made necessary by misuse, negligence, accident, theft or unexpected loss, abuse, connection to foreign electrical current, fire, water, flood, wind storms, lightning, and any acts of God or public enemy, failure to provide and maintain a suitable operating environment, unauthorized attachments or modification, or improper software changes, wiring, installation, repair or alteration by anyone other than the Contractor. If the Owner requests the Contractor to perform repairs necessitated by any of the above causes, the Contractor will perform said repairs at the Contractor's prevailing rates for similar services and material.
I. The Contractor shall provide personnel who have been fully trained and qualified on the equipment to be serviced and/or certified by the equipment manufacturer. The Owner desires that such personnel be directly employed by the Contractor. Contractor must state whether any installation personnel or maintenance technicians that are to be used to perform this contract are employed by subcontractors or other third-party companies. Bidders must provide the number of Bidder employed technicians in the area that are factory certified to work on the proposed equipment. The Bidder must provide the name and a summary of qualifications of the lead maintenance technicians that will be responsible for maintenance of the System at the Owner’s Offices. The Owner will hold this information in strict confidence.
J. Remedial maintenance is performed by the Contractor on an unscheduled basis arising from equipment or software failure. The time required for the Contractor to respond to a call for remedial maintenance is known as response time. This time is defined as the interval between the time a trouble call is made to the Contractor by the appropriate Owner’s personnel or by automatic notification from system monitoring equipment and the time qualified maintenance service personnel begin identification of the cause of the trouble and resolution of the problem.
K. If remote diagnostics determines that a major loss of service has occurred and that dispatch to the site of a repair technician is required to correct the problem, then the service technician must arrive at the site within two (2) hours of initial notification regardless of the time of day or day of the week when the call is placed
L. Response time for minor loss of service shall be within the Contractor's next business day. Minor loss of service is defined as any failure not defined as a major loss of service.
M. Contractor must provide a telephone number to report service affecting failures that is available 24 hours a day, 365 days a year.
N. The Contractor must, upon receipt of a maintenance call:
    1. Use best efforts to determine, by remote access or physical inspection, the origins and solutions to the problem.

2. Begin a trouble report showing the time the problem was reported and nature of the problem.
3. Dispatch a service technician, if necessary, and proceed diligently to correct any failures.

O. At the Owner's request, the Contractor must provide reports of maintenance calls, detailing types of failures, dispatch and response times, total repair times, and a summary of maintenance records for the requested period. Sufficient records to facilitate this must be kept.

P. Provide a complete escalation plan for maintenance situations that includes names, addresses, titles, and phone numbers of the people to be contacted, in ascending order, in the event of a maintenance crisis. This plan shall also include descriptions of the circumstances and procedures to be used under various maintenance scenarios including, but not limited to, catastrophic failure, major failures, and major and minor failures that regular maintenance personnel are unable to resolve in a timely manner.

Q. Contractor must provide the location and a complete description of the engineering facilities that are available for the support of the system, as well as the existing company policy on the kinds of circumstances under which such support is made available. Please state the physical address of where each of the Owners sites would have support dispatched from.

DOOR HARDWARE SCHEDULE

EDUCATIONAL SERVICE CENTER

Door	Existing Hardware	Card Reader	Door Sensor	REX	Handicap Button	Video Intercom
1	N/A	N/A	New	N/A	N/A	N/A
2	ASSA-ABLOY E.S.	Replace	N/A	Replace	N/A	N/A
IT Storage	RCI E.S.	Replace	N/A	Replace	N/A	N/A
MDF1	RCI E.S.	Replace	N/A	Replace	N/A	N/A
MDF2	ADAMS RITE E.S.	Replace	N/A	Replace	N/A	N/A
3A	ASSA ABLOY HES E.S.	Replace	New	New	Yes	N/A
3B	ASSA ABLOY MAG LOCK 1200D	Replace	New	MagLock Release	Yes	Replace
4	N/A	N/A	New	N/A	N/A	N/A
5	N/A	N/A	New	N/A	N/A	N/A

CONFERENCE CENTER

Door	Existing Hardware	Card Reader	Door Sensor	REX	Handicap Button	Video Intercom
1	ASA ABLOY MAG LOCK 1200D	Replace	New	MagLock Release	N/A	Replace
2	N/A	N/A	New	N/A	N/A	N/A
3	N/A	N/A	New	N/A	N/A	N/A

TRANSPORTATION

Door	Existing Hardware	Card Reader	Door Sensor	REX	Handicap Button	Video Intercom
1	Electric Strike	Replace	Replace	N/A	N/A	N/A
2	Electric Strike	Replace	Replace	N/A	N/A	N/A
3	Electric Strike	Replace	Replace	N/A	N/A	N/A
4	Electric Strike	Replace	Replace	N/A	N/A	N/A
5	Electric Strike	Replace	Replace	N/A	N/A	N/A

CAREER CENTER

Door	Existing Hardware	Card Reader	Door Sensor	REX	Handicap Button	Video Intercom
1A	Yale 7000 Panic Bar	Replace	New	N/A	Yes	Replace
1B	Electric Strike	Replace	New	New	Yes	Replace *1
Student Svcs. 1E	None – Add New Electric Strike *2	New	New	New	N/A	N/A
Adult Ed 101A	None – Add New Electric Strike *3	New	New	New	N/A	N/A
Adult Ed 101B	None – Add New Electric Strike *3	New	New	New	N/A	N/A
2-8, 12-18, 21-23, 25-35, 37-39, 41-47, 49	N/A	N/A	New	N/A	N/A	N/A
9	Sargent Panic Bar 805H	Replace	New	N/A	N/A	N/A
10	Sargent Panic Bar 805H	Replace	New	N/A	N/A	N/A
11	Sargent Panic Bar 805H	Replace	New	N/A	Yes	N/A
19	Yale Panic Bar 311N with Electric Strike	Replace	New	N/A	N/A	N/A
20	Sargent Panic Bar 805H	Replace	New	N/A	Yes	N/A
24	Sargent Panic Bar 805H	Replace	New	N/A	N/A	N/A
36	Yale Panic Bar 311N	Replace	New	N/A	Yes	N/A
40	Yale Panic Bar 311N	Replace	New	N/A	Yes	N/A
48	Yale Panic Bar 311N	Replace	New	N/A	N/A	N/A
140	None – Add New Electric Strike *2	New	New	New	N/A	N/A
142	None – Add New Electric Strike *2	New	New	New	N/A	N/A
144A	None – Add New Electric Strike *2	New	New	New	N/A	N/A
145A	None – Add New Electric Strike *2	New	New	New	N/A	N/A
151A	None – Add New Electric Strike *2	New	New	New	N/A	N/A
152A	None – Add New Electric Strike *2	New	New	New	N/A	N/A
152E	None – Add New Electric Strike *2	New	New	New	N/A	N/A

BAY LIVING AND LEARNING CENTER

Door	Existing Hardware	Card Reader	Door Sensor	REX	Handicap Button	Video Intercom
1,3,6-9,11	N/A	N/A	New	N/A	N/A	N/A
2	TRINE Electric Strike	Replace	New	Replace	Yes	Replace
4	Electric Strike	Replace	New	Replace	N/A	N/A
5	Vertical Rod Panic Bar	Replace	New	N/A	N/A	N/A

10A	Vertical Rod Panic Bar	Replace	New	N/A	Yes	Replace
10B	N/A	N/A	N/A	N/A	N/A	N/A
10C	Vertical Rod Panic Bar	Replace	New	N/A	N/A	N/A
12	Vertical Rod Panic Bar	Replace	New	N/A	N/A	N/A

ARENAC LIVING AND LEARNING CENTER (PRE-SCHOOL AND HEAD START)

Door	Existing Hardware	Card Reader	Door Sensor	REX	Handicap Button	Video Intercom
1	Sargent Panic Bar 805H with E.S.	Replace	New	N/A	N/A	N/A
2-8,11	N/A	N/A	N/A	N/A	N/A	N/A
9	Falcon Panic Hardware	Replace	New	N/A	N/A	N/A
10	Sargent Panic Bar 805H with E.S.	Replace	New	N/A	N/A	N/A
12	Sargent Panic Bar 805H	Replace	New	N/A	Yes	Yes

END OF DOOR SCHEDULE

END OF SECTION

SECTION 28 23 00 VIDEO SURVEILLANCE

PART 1 - GENERAL

1.1. OVERVIEW

A. Provide and install a complete Video Surveillance and Video Management System as part of the new Electronic Safety and Security System for the Bay Arenac Intermediate School District (BAISD), hereinafter referred to as the ESS as specified in this section.
   1. Educational Service Center
   2. Conference Center
   3. Transportation Building
   4. Career Center
   5. Bay Living and Learning Center (BLLC)
   6. Arenac Living and Learning Center (ALLC)

B. Provide and install server-based storage for a minimum of 30+1 days for all buildings
   1. Recommend and propose onsite and/or on-camera storage as applicable (I.E. locations with limited connectivity bandwidth)

C. Provide and install all licenses required: I.e. Mobile apps, Users, cameras, integration with third-party systems, etc.
   1. Licenses shall be a one-time cost (non-recurring)

1.2. SECTION INCLUDES

A. Network Video Management
B. Cameras
C. Integration with Access Control
D. Integration with SmartBoot system
E. Server(s) and software
F. Control station with its associated equipment.
G. Video Intercom
H. POE/POE+ Switches (for cameras)

1.3. RELATED SECTIONS

A. Division 27 drawings and specifications
B. Division 28 drawings and specifications

1.4. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 0 & 1 Specification Sections, apply to this Section.

1.5. CODES, STANDARDS AND REFERENCES

A. The Contractor shall adhere to the latest edition of the following codes, standards, and references. Additionally, the Contractor shall adhere to all other codes, regulation and standards not stated here:
   1. Section 27 05 00 - COMMON WORK RESULTS
   2. Manufacturers Recommendations
   3. Best Practices and Industry Norms

1.6. DEFINITIONS

A. ACS – Access Control System
B. AHJ – Authority Having Jurisdiction
C. ALPR – Automatic License Plate Recognition
D. CSA – Client Software Application
E. NVS – Network Video Storage
F. NVMS – Network Video Management System
G. SDK – Software Development Kit
H. SSM – Server Software Module
I. PSC – Professional Service Contractor A.K.A “designer” (Convergent Technology Partners)
J. ESS – Unified Security Platform
K. UWC – Unified Web Client
L. VMS – Video Management System

1.7. SUBMITTALS

A. Product Data: Provide manufacturer's data sheets and installation manuals on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.
B. Shop Drawings: Provide the following drawings.
   1. Schematic of system components with physical space requirements.
   2. System network topology diagram.
   3. Connecting riser diagrams for all interfacing equipment.
C. List of all equipment with part numbers.
D. Locations for all components to be installed under this scope of work.
E. Coordination Drawings: Plans drawing to scale and coordinating locations of facility security and surveillance system equipment. Indicate ceiling sESS ension assembly members, method of attaching hangers to building structure and location of items requiring installation coordination including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels and other architectural features.

1.8. CLOSEOUT SUBMITTALS

A. As-Built Drawings: Provide original shop drawings modified to reflect changes made to comply with installation/configuration requirements and actual field conditions.
B. Maintenance Contracts: Submit a maintenance service agreement, including cost and services for a two-year period for Owner’s review.
C. Installer and System/Product Certificates: The manufacturer shall review all submittals and shall furnish signed certificates indicating that installer has been trained and certified by the manufacturer(s), complies with their requirements and that the proposed system when properly installed will meet the requirements of both the manufacturer and this specification. The PSC reserves the right to postpone review of submittals until evidence of submittal review by manufacturer(s) and satisfactory certification is submitted.
D. Field Test Reports: Indicate and interpret test results for compliance with performance requirements of installed systems.

E. Maintenance Data: For facility security system equipment and components to include in maintenance manuals specified for project closeout. In addition to requirements specified, include the following:
   1. Detailed operating instructions covering operation under both normal and abnormal conditions
   2. Routine maintenance requirements for system components.
   3. Lists of spare parts and replacement components recommended to be stored at the site for ready access.
F. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.9. APPROVED MANUFACTURERS

A. Basic and general features and operational requirements are listed herein. The inclusion or exclusion of a given feature from one manufacturer does not exclude the need to supply those features should another manufacturer be selected. Comparison to the standard features, and optional features listed herein as a requirements will serve as the determination for the complete scope of work.
B. Allowed ESSand Video Management System Manufacturer:
   1. Genetec, Inc.
   2. Milestone
C. Allowed Camera Manufacturers.
   1. I-Pro
   2. Hanwha Techwin
   3. Axis
D. Allowed Manufactures for all other components listed in this specification
   1. Substitutions for other components listed elsewhere in the specification shall meet the functional requirements as described. Preference will be given to suites of products by the same manufactures.

1.10. PERFORMANCE REQUIREMENTS

A. Contractor shall design, furnish and install all products, equipment, accessories and materials necessary to provide a completely operational facility video surveillance system without additional cost to the Owner.
B. Contractor shall furnish and install all equipment, components, low-voltage power and/or control wiring and mounting hardware as required to meet the manufacturer's specifications and documented installation procedures.
C. The drawings indicate approximate locations and quantities. The Contractor shall determine final equipment layouts and exact equipment locations and quantities to ensure coverage that fully satisfies the intent of the Contract Documents.
D. Other off-the-shelf components, including but not limited to computers, monitors, printers, badge enrollment cameras and accessories shall be acceptable as recommended by the system manufacturer as long as the components meet the functional and technical requirements stated herein.
E. Contractor shall coordinate with all affected trades to ensure a timely and expeditious system installation is achieved.

F. Furnish and install all necessary accessories for installation of applicable video surveillance system components in the equipment cabinet in each building's IT equipment room as indicated on drawings.
G. Ethernet cabling for power-over-Ethernet and non-powered-over-Ethernet IP-based cameras shall be by the security and surveillance integrator from device and equipment locations to the point of connection to the switches.
H. All client PCs will be furnished by the Owner per the manufacturer's specification.
I. Servers shall be provided by the contractor
J. The Security contractor will install and program system software and databases on all security servers and client PCs for a fully functional system.

1.11. RECORDING

A. Initial Camera recording shall be set at 5FPS without motion, and 30FPS on motion (Or proposed camera maximum).

PART 2 - PRODUCT

2.1. NETWORK VIDEO MANAGEMENT SYSTEM (NVMS or VMS)

A. The VMS shall be based on a true open architecture that shall allow the use of non-proprietary workstation and server hardware, non-proprietary network infrastructure and non-proprietary storage.
B. The VMS shall offer a complete and scalable video surveillance solution that shall allow cameras to be added on a unit-by-unit basis.
C. The VMS shall interface with analog-to-digital video encoders and IP cameras and with digital-to-analog video decoders, hereafter referred to as Network Video Storage (NVS).

2.2. MAPPING

A. The VMS shall have the ability to import maps or floorplans and allow interactive graphical symbols be placed for all ESS endpoints (cameras, ACS doors, duress or lockdown buttons, etc.)

2.3. ONVIF

A. All video streams supplied from analog cameras or IP cameras shall be digitally encoded in H.265, H.264, MPEG-4, MPEG-2, MJPEG, MxPEG, Wavelet or JPEG2000 compression formats and recorded simultaneously in real time.
B. All audio streams supplied from IP video servers shall be digitally encoded in g711 (u-law), g721, g723, or AAC compression formats and recorded simultaneously in real time.
C. Each camera's bit rate, frame rate, and resolution shall be set independently from other cameras in the system, and altering these settings shall not affect the recording and display settings of other cameras.
D. The VMS shall be able to retrieve and set the current position of PTZ cameras using XYZ coordinates.
E. The VMS shall support PTZ camera protocols from multiple manufacturers, including analog and IP protocols.
F. The VMS shall arbitrate the user conflict on PTZ usage based on user levels per camera.

2.4. VIDEO STORAGE

A. Video storage configuration for the SSM shall be:
   1. Internal or external IDE/SATA/SAS organized or not in a RAID configuration.
   2. Internal or external SCSI/iSCSI/Fiber Channel organized or not in a RAID configuration.
   3. Within the overall storage system, it shall be possible to include disks located on:
      a. External PCs on a LAN or WAN
      b. Network Attached Servers (NAS) on a LAN or WAN
      c. Storage Area Networks (SAN)

2.5. CAMERAS
   A. Approved Manufacturers:
      1. I-Pro
      2. Hanwha Techwin
      3. AXIS

2.6. CAMERA TYPES
   A. Type 1: 12 MP Vandal Resistant outdoor panoramic
      1. I-Pro WV S4576L
      2. Hanwha Techwin XNF-9010RV
      3. AXIS
   B. Type 2: 12 MP Indoor panoramic
      1. I-Pro WV-S4176
      2. Hanwha Techwin XNF-9010RV
      3. AXIS
   C. Type 3: 2 MP Indoor Dome
      1. I-Pro WV-S2136L
      2. Hanwha Techwin QND-6082R
      3. AXIS
   D. Type 4: 2MP (1080P) Indoor, Vandal Resistant Dome
      1. I-Pro WV-S2236L
      2. Hanwha Techwin QNV-6082R
      3. AXIS
   E. Type 5: 5MP Exterior Dome, Vandal Resistant
      1. I-Pro WV-S25500-V3LN
      2. Hanwha Techwin QNV-8080R
      3. AXIS
   F. Type 6: 4MP Vandal Resistant (4) multi-sensor, (POE+)
      1. I-Pro WV-X8544
      2. Hanwha Techwin PNM-9002VQ
      3. AXIS
   G. Type 7: 4MP Vandal Resistant (3) multi-sensor, (POE+)
      1. I-Pro WV-X8543
      2. Hanwha Techwin PNM-9002VQ
      3. AXIS
   H. All mounting accessories and hardware are to be included with all cameras.

2.7. POE/POE+ NETWORK SWITCHES

A. Provide new, layer 3 managed network switches for connectivity of all cameras to the Owner's network and to provide power (POE and/or POE+) to all IP cameras.
   1. Switches may be either 24 or 48 port depending on the quantity of cameras they service.
   2. Provide all connectivity of the switch(es) to the Owner's network

2.8. VIDEO INTERCOM

A. Video intercoms shall interface with both the access control and video surveillance portions of the ESS. They will allow district staff to view, interact with and allow or deny access to individuals into the facility.
B. Video intercoms shall have a camera with WDR (or capable of clearing showing a person's face when backlit) and two way audio.
   1. Zenitel
   2. Hanwha Techwin Techwin TID600R
   3. Aiphone IX-DV-IP
   4. 2N (Axis)
   5. Approved Equal

2.9. VIDEO INTERCOM ANSWERING POINTS

A. Provide video intercom answering points as indicated on the drawings and below. Video Intercoms shall allow audio and video interaction through any of the following:
   1. SIP Enabled VoIP telephones (by owner)
   2. Standalone answering consoles – I.E. Grandstream, Zenitel
   3. ESS Web client
   4. ESS Software

2.10. VIDEO DISPLAYS

A. Provide matrixed video content on wall mounted displays, locations and quantity as indicated on drawings.
B. Approved Manufacturers:
   1. Panasonic TH-43SQE2U 43-inch Class 4K UHD Digital Display
   2. LG 43UL3J-E UL3J Series - 43" LED-backlit LCD display
   3. Samsung QM43R Digital Display
   4. Approved equal
C. Provide required parts and material for ceiling mounting.
   1. Approved Manufacturers:
      a. Chief
      b. Peerless
      c. Monoprice
      d. Approved equal

PART 3 - EXECUTION

3.1. COORDINATION

A. Coordinate with:
   1. Fire Alarm subcontractor for interface necessary for control of electrically powered door hardware.

2. Owner's information technology department as required to allocate the necessary servers, workstations, peripherals, storage space, and network bandwidth to support access control and surveillance system operation.
3. All other affected trades to ensure the products specified herein are installed in an expeditious manner.

3.2. INSTALLATION

A. Install all system components in strict accordance with reviewed submittals and with manufacturer's instructions.
B. Seal exterior devices to protect against weather conditions including heat, cold, moisture, dust and sand.
C. Install equipment to allow adequate clearance for testing and maintenance.
D. Provide tamper-resistant screws and fasteners for equipment located in accessible and/or public areas.
E. Wherever possible, remove contractor and manufacturer equipment logos from security field devices.
F. Install all low-voltage power cabling and network cabling in accordance with the requirements of applicable Division 27 and 28 sections.
G. Install devices and components at locations shown on drawings unless alternate locations are approved by the Owner/PSC.
H. Install all low voltage wiring necessary for facility security and surveillance system operation.
I. Install all miscellaneous components, accessories and hardware necessary for a full and complete facility security and surveillance system.
J. Temporarily mount each camera at the locations proposed on reviewed submittals. Review with Owner and adjust for the best view (direction, focal length, focus, etc.) possible prior to final installation.

3.3. SURGE PROTECTION

A. Surge Protection: Protect components from voltage surges originating external to equipment housing and entering through power, communication, signal, control, or sensing leads. Include surge protection for external wiring of each conductor entry connection to components.

3.4. GROUNDING

A. Refer to Section 27 05 26 GROUNDING AND BONDING FOR COMMUNICATIONS SYSTEMS for grounding of equipment.

3.5. LABELING

A. Label all cabling, terminations and equipment according to ANSI/TIA-606-C Administration Standard for Commercial Telecommunications Infrastructure.

3.6. PROTECTION

A. Protect installed system components from subsequent damage by construction activities.

3.7. SYSTEM PROGRAMMING

A. The Security contractor will install, and program Owner provided servers and client PCs for a full functional system.

3.8. COMMISIONING

A. Aim and focus all cameras with the Owner/PSC to obtain the desired view.
B. Set up all video displays to the desired camera views and matrix of views with Owner.

3.9. TRAINING
A. Per Section 28 00 00

3.10. CLOSEOUT
A. Per Section 28 00 00

END OF SECTION

CAMERA LIST FROM I-PRO SDT - FOR REFERENCE ONLY

#	Area	Model	Name	Mounting	Type	Camera Unit No	Height	Viewing Angle	Zoom Ratio	PPF	Tilt Angle	Camera Unit Angle	Compression	Resolution
1	ALLC	WV-S8544	ALLC01-6	Corner	Outdoor Multi-Sensor	Unit1	12 ft.	100	1	40	40.77	28.56	H.265	2688x1520
						Unit2		100	1	40	40.77	90		
						Unit3		85.8	1.37	40	33.97	151.92		
						Unit4		45.4	2.44	75	21.03	189.83		
2	ALLC	WV-S4176	ALLC02-2	Ceiling	Indoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
3	ALLC	WV-S2136	ALLC03-3	Ceiling	Indoor Fixed Dome		9 ft.	54.8	2.61	40	19.25		H.265	1920x1080
4	ALLC	WV-S4176	ALLC04-2	Flush Wall	Indoor Panoramic		9 ft.	180	-	50	-		H.265	2992x2992
5	ALLC	WV-S4176	ALLC05-2	Ceiling	Indoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
6	ALLC	WV-S25500-V3L	ALLC06-5	Surface Wall	Outdoor Fixed Dome		12 ft.	56.1	2.41	40	20.65		H.265	3072x1728
7	ALLC	WV-S25500-V3L	ALLC07-5	Surface Wall	Outdoor Fixed Dome		12 ft.	59.3	2.31	40	21.87		H.265	3072x1728
8	BACC1	WV-S4576L(M)	BACC1-01-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
9	BACC1	WV-S4576L(M)	BACC1-02-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
10	BACC1	WV-S4576L(M)	BACC1-03-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
11	BACC1	WV-S4576L(M)	BACC1-04-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
12	BACC1	WV-S25500-V3L	BACC1-05-5	Ceiling	Outdoor Fixed Dome		9 ft.	33	3.1	43	10.76		H.265	3072x1728
13	BACC1	WV-S4576L(M)	BACC1-06-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
14	BACC1	WV-S4576L(M)	BACC1-07-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
15	BACC1	WV-S4576L(M)	BACC1-08-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
16	BACC1	WV-S4576L(M)	BACC1-09-1	Ceiling	Outdoor Panoramic		20 ft.	360	-	29	-		H.265	2992x2992
17	BACC1	WV-S25500-V3L	BACC1-10-5	Ceiling	Outdoor Fixed Dome		9 ft.	52.7	2.51	39	17.02		H.265	3072x1728
18	BACC1	WV-S25500-V3L	BACC1-11-5	Ceiling	Outdoor Fixed Dome		9 ft.	60.7	2.27	36	19.51		H.265	3072x1728
19	BACC1	WV-S25500-V3L	BACC1-12-5	Ceiling	Outdoor Fixed Dome		9 ft.	62.4	2.22	40	20.36		H.265	3072x1728
20	BACC1	WV-S4576L(M)	BACC1-13-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
21	BACC1	WV-S4576L(M)	BACC1-14-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
22	BACC1	WV-S25500-V3L	BACC1-15-5	Ceiling	Outdoor Fixed Dome		9 ft.	52.7	2.51	34	16.74		H.265	3072x1728
23	BACC1	WV-S4176	BACC1-16-2	Ceiling	Indoor Panoramic		9 ft.	360	-	13	-		H.265	2992x2992
24	BACC1	WV-S4176	BACC1-17-2	Ceiling	Indoor Panoramic		9 ft.	360	-	13	-		H.265	2992x2992
25	BACC1	WV-S4176	BACC1-18-2	Ceiling	Indoor Panoramic		9 ft.	360	-	13	-		H.265	2992x2992
26	BACC1	WV-S4576L(M)	BACC1-19-1	Flush Wall	Outdoor Panoramic		14 ft.	360	-	94	-		H.265	2992x2992
27	BACC1	WV-S4576L(M)	BACC1-20-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	94	-		H.265	2992x2992
28	BACC1	WV-S25500-V3L	BACC1-21-5	Ceiling	Indoor Fixed Dome		9 ft.	92.3	1.37	44	31.2		H.265	3072x1728
29	BACC1	WV-S4576L(M)	BACC1-22-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
30	BACC1	WV-S4576L(M)	BACC1-23-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
31	BACC1	WV-S4576L(M)	BACC1-24-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
32	BACC1	WV-S8544	BACC1-25-6	Corner	Outdoor Multi-Sensor	Unit1	20 ft.	45	2.45	40	22.55	350.6	H.265	2688x1520
						Unit2		45	2.45	40	22.73	125.05		
						Unit3		45	2.45	40	22.54	170.53		
						Unit4		45	2.45	40	22.73	215.39		
33	BACC1	WV-S25500-V3L	BACC1-26-5	Surface Wall	Outdoor Fixed Dome		9 ft.	52.7	2.51	37	16.94		H.265	3072x1728
34	BACC1	WV-S8544	BACC1-27-6	Corner	Outdoor Multi-Sensor	Unit1	12 ft.	45	2.45	40	16.94	29.24	H.265	2688x1520
						Unit2		43	2.5	40	16.22	73.42		
						Unit3		91.7	1.22	40	36.72	144.99		
						Unit4		45	2.45	40	17.04	217.17		
35	BACC1	WV-S4576L(M)	BACC1-28-1	Surface Wall	Outdoor Panoramic		12 ft.	360	-	40	-		H.265	2992x2992

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36	BACC1	WV-S25500-V3L	BACC1-29-5	Ceiling	Outdoor Fixed Dome		9 ft.	52.7	2.51	25	16.22		H.265	3072x1728
38	BACC1	WV-S4576L(M)	BACC1-30-1	Flush Wall	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
39	BACC1	WV-S8544L	BACC1-31-6	Parapet	Outdoor Multi-Sensor	Unit1	15 ft.	45.3	2.44	40	19.2	22.26	H.265	2688x1520
						Unit2		52.3	2.26	40	22.43	72.62		
						Unit3		43	2.5	40	18.28	120.11		
						Unit4		71.9	1.74	40	31.46	181.21		
40	BACC1	WV-S4576L(M)	BACC1-32-1	Flush Wall	Outdoor Panoramic		9 ft.	180	-	30	-		H.265	2992x2992
41	BACC1	WV-S4576L(M)	BACC1-33-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	94	-		H.265	2992x2992
42	BACC1	WV-S4576L(M)	BACC1-34-1	Surface Wall	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
43	BACC1	WV-S25500-V3L	BACC1-35-5	Surface Wall	Outdoor Fixed Dome		9 ft.	67.8	2.06	30	21.33		H.265	3072x1728
44	BACC1	WV-S25500-V3L	BACC1-36-5	Surface Wall	Outdoor Fixed Dome		9 ft.	62.6	2.21	30	19.69		H.265	3072x1728
45	BACC1	WV-S4576L(M)	BACC1-37-1	Surface Wall	Outdoor Panoramic		11 ft.	360	-	40	-		H.265	2992x2992
46	BACC1	WV-S8544L	BACC1-38-6	Corner	Outdoor Multi-Sensor	Unit1	22 ft.	43	2.5	40	23.04	340.46	H.265	2688x1520
						Unit2		45	2.45	40	24.17	209.37		
						Unit3		43	2.5	40	22.89	253.46		
						Unit4		43	2.5	40	23.04	296.86		
47	BACC1	WV-S4576L(M)	BACC1-39-1	Corner	Outdoor Panoramic		12 ft.	360	-	37	-		H.265	2992x2992
48	BACC1	WV-S25500-V3L	BACC1-40-5	Surface Wall	Outdoor Fixed Dome		15 ft.	52.7	2.51	43	21.99		H.265	3072x1728
49	BACC1	WV-S4576L(M)	BACC1-41-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
50	BACC1	WV-S4576L(M)	BACC1-42-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
51	BACC1	WV-S8544L	BACC1-43-6	Parapet	Outdoor Multi-Sensor	Unit1	20 ft.	45.3	2.44	40	22.89	336.13	H.265	2688x1520
						Unit2		52.3	2.26	40	26.68	100.36		
						Unit3		43	2.5	40	21.67	147.85		
						Unit4		43	2.5	40	21.67	191.06		
52	BACC1	WV-S8544L	BACC1-44-6	Corner	Outdoor Multi-Sensor	Unit1	15 ft.	43	2.5	40	18.28	334.74	H.265	2688x1520
						Unit2		43	2.5	40	18.28	18.01		
						Unit3		43	2.5	40	18.28	61.43		
						Unit4		43	2.5	40	18.28	104.37		
53	BACC1	WV-S4576L(M)	BACC1-45-1	Ceiling	Outdoor Panoramic		9 ft.	360		40	0	-	H.265	2992x2992
54	BACC2	WV-S4576L(M)	BACC2-01B-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	38	-		H.265	2992x2992
55	BACC2	WV-S4576L(M)	BACC2-02A-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	38	-		H.265	2992x2992
56	BACC2	WV-S4576L(M)	BACC2-02B-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
57	BACC2	WV-S4576L(M)	BACC2-03A-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
58	BACC2	WV-S4576L(M)	BACC2-03B-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
59	BACC2	WV-S4576L(M)	BACC2-04B-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
60	BACC2	WV-S4576L(M)	BACC2-05B-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
61	BACC2	WV-S4576L(M)	BACC2-06B-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	38	-		H.265	2992x2992
62	BACC2	WV-S2236L	BACC2-07B-4	Ceiling	Indoor Fixed Dome		9 ft.	114	1	32	41.03		H.265	1920x1080
63	BACC2	WV-S4576L(M)	BACC2-8-1	Flush Wall	Outdoor Panoramic		8 ft.	180		41	-	0	H.265	2992x2992
64	BACC2	WV-S4576L(M)	BACC2-9-1	Flush Wall	Outdoor Panoramic		8 ft.	180		40	-	0	H.265	2992x2992
65	BACC2	WV-S4576L(M)	BACC2-10-1	Flush Wall	Outdoor Panoramic		8 ft.	180		39	-	0	H.265	2992x2992
66	BACC2	WV-S4576L(M)	BACC2-11-1	Flush Wall	Outdoor Panoramic		8 ft.	180		41	-	0	H.265	2992x2992
67	BLLC	WV-S25500-V3L	BLLC01-5	Surface Wall	Outdoor Fixed Dome		12 ft.	62.1	2.23	42	23.12		H.265	3072x1728
68	BLLC	WV-S8543	BLLC02-3	Flush Wall	Outdoor Multi-Sensor	Unit1	12 ft.	50	2.32	42	19.22	115.58	H.265	2688x1520
						Unit2		100	1	46	42.71	182.64		
						Unit3		50	2.32	42	19.17	246.95		
69	BLLC	WV-S25500-V3L	BLLC03-5	Surface Wall	Outdoor Fixed Dome		12 ft.	103	1	42	40.89		H.265	3072x1728

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70	BLLC	WV-S4176	BLLC04-2	Ceiling	Indoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
71	BLLC	WV-S4576L(M)	BLLC05-1	Ceiling	Outdoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
72	BLLC	WV-S2136	BLLC06-3	Ceiling	Indoor Fixed Dome		11 ft.	48.2	2.78	40	18.95		H.265	1920x1080
73	BLLC	WV-S4176	BLLC07-2	Ceiling	Indoor Panoramic		9 ft.	360	-	42	-		H.265	2992x2992
74	BLLC	WV-S4176	BLLC08-2	Ceiling	Indoor Panoramic		9 ft.	360	-	42	-		H.265	2992x2992
75	BLLC	WV-S4176	BLLC09-2	Ceiling	Indoor Panoramic		9 ft.	360	-	38	-		H.265	2992x2992
76	BLLC	WV-S2236L	BLLC10-4	Ceiling	Indoor Fixed Dome		9 ft.	36	3.1	40	12.52		H.265	1920x1080
77	BLLC	WV-S2236L	BLLC11-4	Ceiling	Indoor Fixed Dome		9 ft.	36	3.1	38	12.39		H.265	1920x1080
78	BLLC	WV-S2236L	BLLC12-4	Ceiling	Indoor Fixed Dome		9 ft.	41.8	2.94	38	14.44		H.265	1920x1080
79	BLLC	WV-S2136	BLLC13-3	Ceiling	Indoor Fixed Dome		9 ft.	41.8	2.95	38	14.44		H.265	1920x1080
80	BLLC	WV-S2136	BLLC14-3	Ceiling	Indoor Fixed Dome		9 ft.	36	3.1	38	12.39		H.265	1920x1080
81	BLLC	WV-S8543	BLLC15-3	Surface Wall	Outdoor Multi-Sensor	Unit1	12 ft.	43	2.5	40	16.25	64.82	H.265	2688x1520
						Unit2		47.3	2.39	37	17.53	110.09	H.265	
						Unit3		61.5	2.01	40	23.59	196.17	H.265	
82	Conference Ctr	WV-S25500-V3L	CONF01-5	Ceiling	Outdoor Fixed Dome		11 ft.	90	1.39	23	29.56		H.265	3072x1728
83	Conference Ctr	WV-S2236L	CONF02-4	Ceiling	Indoor Fixed Dome		9 ft.	89.3	1.67	30	30.5		H.265	1920x1080
84	Conference Ctr	WV-S2236L	CONF03-4	Ceiling	Indoor Fixed Dome		9 ft.	89.3	1.67	31	30.66		H.265	1920x1080
85	ESC LOWER	WV-S4176	ESC1-01-2	Flush Wall	Indoor Panoramic		9 ft.	180	-	47	-		H.265	2992x2992
86	ESC LOWER	WV-S4176	ESC1-02-2	Ceiling	Indoor Panoramic		9 ft.	360	-	39	-		H.265	2992x2992
87	ESC LOWER	WV-S4176	ESC1-03-2	Ceiling	Indoor Panoramic		9 ft.	360	-	48	-		H.265	2992x2992
88	ESC LOWER	WV-S4176	ESC1-04-2	Ceiling	Indoor Panoramic		9 ft.	360	-	33	-		H.265	2992x2992
89	ESC LOWER	WV-S4176	ESC1-05-2	Ceiling	Indoor Panoramic		9 ft.	360	-	42	-		H.265	2992x2992
90	ESC UPPER	WV-S4176	ESC2-01-2	Flush Wall	Indoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
91	ESC UPPER	WV-S4176	ESC2-02-2	Ceiling	Indoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
92	ESC UPPER	WV-S4176	ESC2-03-2	Ceiling	Indoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
93	ESC UPPER	WV-S4176	ESC2-04-2	Ceiling	Indoor Panoramic		9 ft.	360	-	29	-		H.265	2992x2992
94	ESC UPPER	WV-S4576L(M)	ESC2-05-1	Flush Wall	Outdoor Panoramic		15 ft.	360	-	40	-		H.265	2992x2992
95	ESC UPPER	WV-S8543L	ESC2-06-7	Corner	Outdoor Multi-Sensor	Unit1	12 ft.	85.4	1.38	40	33.79	312.22	H.265	2688x1520
						Unit2		85.2	1.39	40	33.7	37.71		
.						Unit3		100	1	40	40.77	131.43		
96	ESC UPPER	WV-S4176	ESC2-07	Ceiling	Indoor Panoramic		9 ft.	360	-	40	-		H.265	2992x2992
97	Transportation	WV-S8543L	TX01-7	Corner	Outdoor Multi-Sensor	Unit1	11 ft.	70	1.79	47	26.96	33.66	H.265	2688x1520
						Unit2		100	1	34	37.05	118.56		
						Unit3		100	1	35	37.28	220.17		
98	Transportation	WV-S25500-V3L	TX02-5	Flush Wall	Outdoor Fixed Dome		12 ft.	50	2.59	45	18.77		H.265	3072x1728
99	Transportation	WV-S4576L(M)	TX03-1	Flush Wall	Outdoor Panoramic		15 ft.	360	-	40	-		H.265	2992x2992
100	Transportation	WV-S25500-V3L	TX04-5	Flush Wall	Outdoor Fixed Dome		20 ft.	50	2.59	40	23.92		H.265	3072x1728
101	Transportation	WV-S25500-V3L	TX05-5	Flush Wall	Outdoor Fixed Dome		20 ft.	50	2.59	44	24.84		H.265	3072x1728
102	Transportation	WV-S25500-V3L	TX06-5	Flush Wall	Outdoor Fixed Dome		15 ft.	81.5	1.65	40	34.7		H.265	3072x1728

THIS SKETCH IS FOR REFERENCE ONLY AND SHOWS THE EXPECTED COVERAGE AREA OF EACH CAMERA. THE EDGE OF THE COVERAGE SHOWN FOR EACH CAMERA IS ~40PPF

FOR REFERENCE ONLY

NOT TO SCALE - BAR SCALE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS

1
TS-102

ESC LOWER LEVEL SECURITY
NTS


MR
ML
ML
VIC
CR
HC
THIS SKETCH IS FOR REFERENCE ONLY AND SHOWS THE EXPECTED COVERAGE AREA OF EACH CAMERA. THE EDGE OF THE COVERAGE SHOWN FOR EACH CAMERA IS ~40PPF
2
TS-102
ENLARGED MAIN ENTRY
NTS
FOR REFERENCE ONLY
CA
PINCONNING ROOM
IDF 1
TEMPLE ROOM
UP
UP
DN
DN
DOOR 2
DOOR 4
DOOR 5
DOOR 3
FAP
CR
NR
W
S
N
E
0'
5'
10'
20'
30'
40'
50'
NOT TO SCALE - BAR SCALE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS
1
TS-102
ESC UPPER LEVEL SECURITY
NTS

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NOTES (This sheet only):

1. REFERENCE RFP DOOR HARDWARE AND ACS COMPONENTS SCHEDULE FOR REQUIREMENTS.
2. REMOVE, REPLACE OR ADD IP CAMERAS AS INDICATED AND IN RFP CAMERA SCHEDULE.
3. PROVIDE AND INSTALL ALL CAMERA CAMERA ACCESSORIES AND ASSOCIATED PATHWAY.
4. INSTALL CAMERAS AS INDICATED.
5. DEMO ALL EXISTING UNUSED SECURITY EQUIPMENT, CABLING AND WIRING.
6. FIELD COORDINATE ALL POWER, SPACE AND IT REQUIREMENTS WITH OWNER.
7. FIELD VERIFY AND COORDINATE ALL HEIGHTS AND FINAL LOCATIONS WITH OWNER/PSC.
8. VERIFY NEW FIRE PANEL (FIRE ALARM SYSTEM BY OTHERS) LOCATION FOR MAGLOCK CONNECTIVITY.
9. SECURITY AND DOOR HARDWARE ICONS ARE DIAGRAMMATIC - FIELD VERIFY.
10. COORDINATE FINAL LOCATION OF INTERCOM CONSOLE WITH OWNER.

LEGEND

BAY ARENAC ISD
SECURITY
CONFERENCE CENTER
2959 Bay Arenac Dr, Bay City, MI 48706

CONVERGENT

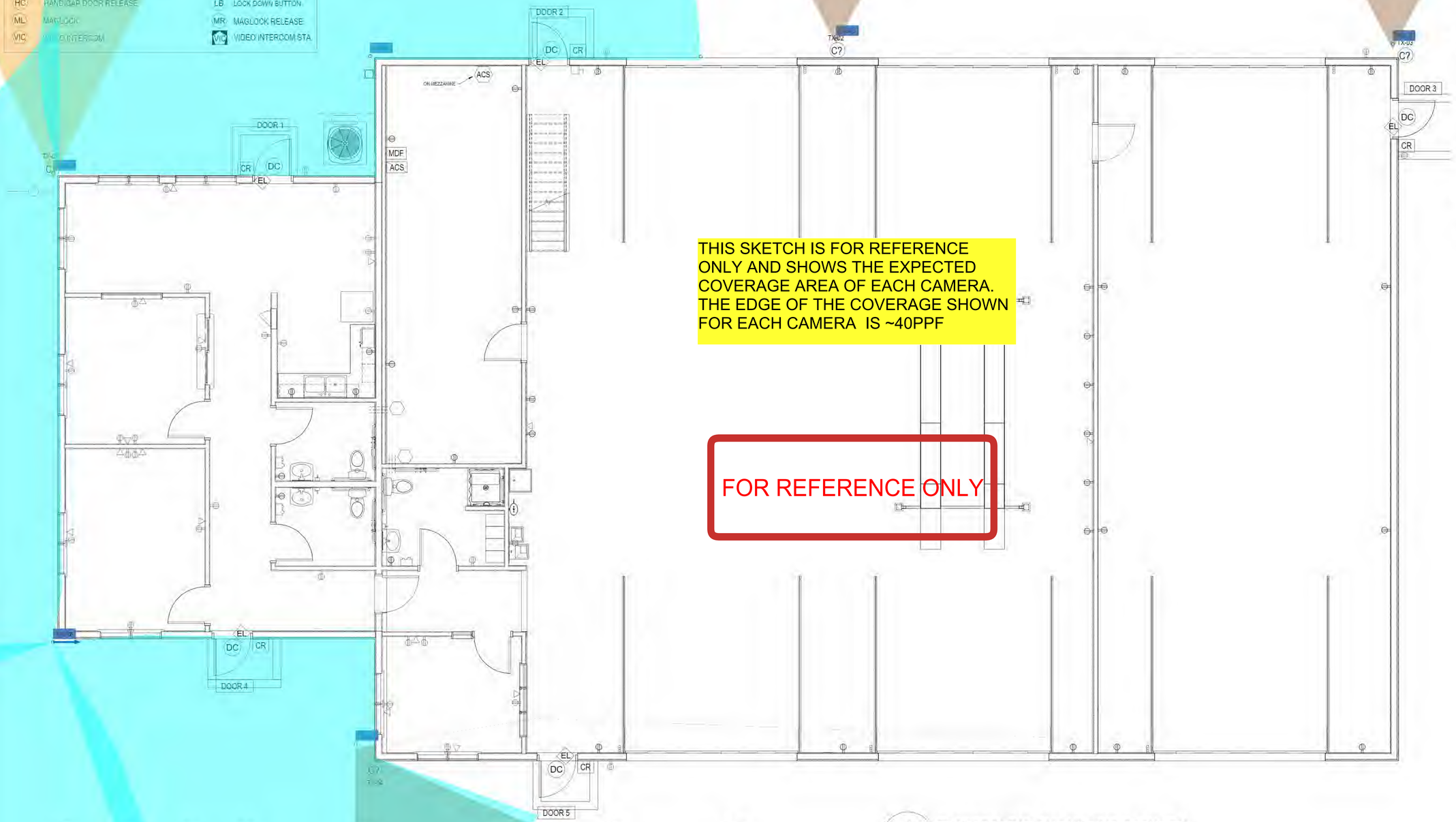
CONF-TS101

LEGEND

ACS	EXISTING ACCESS CONTROL EQUIP.	CR	CARD READER
ACS	NEW ACCESS CONTROL PANEL	EL	ELECTRIC LOCK
CA	EXISTING CAMERA TO DEMO	DC	DOOR CONTACT
C# ID-##	NEW CAMERA - TYPE AND ID	REX	IR REQUEST TO EXIT
VMS	EXISTING VIDEO MANAGEMENT EQUIP.	RR	REMOTE DOOR RELEASE
HC	HANDICAP DOOR RELEASE	PB	PANIC BUTTON
ML	MAGLOCK	LB	LOCK DOWN BUTTON
VIC	VIDEO INTERCOM	MR	MAGLOCK RELEASE
		VIC	VIDEO INTERCOM STA

NOTES (This sheet only):

1. REFERENCE RFP DOOR HARDWARE AND ACS COMPONENTS SCHEDULE FOR REQUIREMENTS .
2. REMOVE, REPLACE OR ADD IP CAMREAS AS INDICATED AND IN RFP CAMERA SCHEDULE..
3. PROVIDE AND INSTALL ALL CAMERA CAMERA ACCESSORIES AND ASSOCIATED PATHWAY.
4. INSTALL CAMERAS AS INDICATED.
5. DEMO ALL EXISTING UNUSED SECURITY EQUIPMENT, CABLING AND WIRING.
6. FIELD COORDINATE ALL POWER, SPACE AND IT REQUIREMENTS WITH OWNER.
7. FIELD VERIFY AND COORDINATE ALL HEIGHTS AND FINAL LOCATIONS WITH OWNER/PSC.
8. SECURITY AND DOOR HARDWARE ICONS ARE DIAGRAMMATIC ONLY - FIELD VERIFY



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NOT TO SCALE - BAR SCALE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS

1 / TS101 TRANSPORTATION BUILDING SECURITY
NTS

DATE	ISSUE	AUTHOR
6/16/2023	OWNER REVIEW	EGH

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SECURITY

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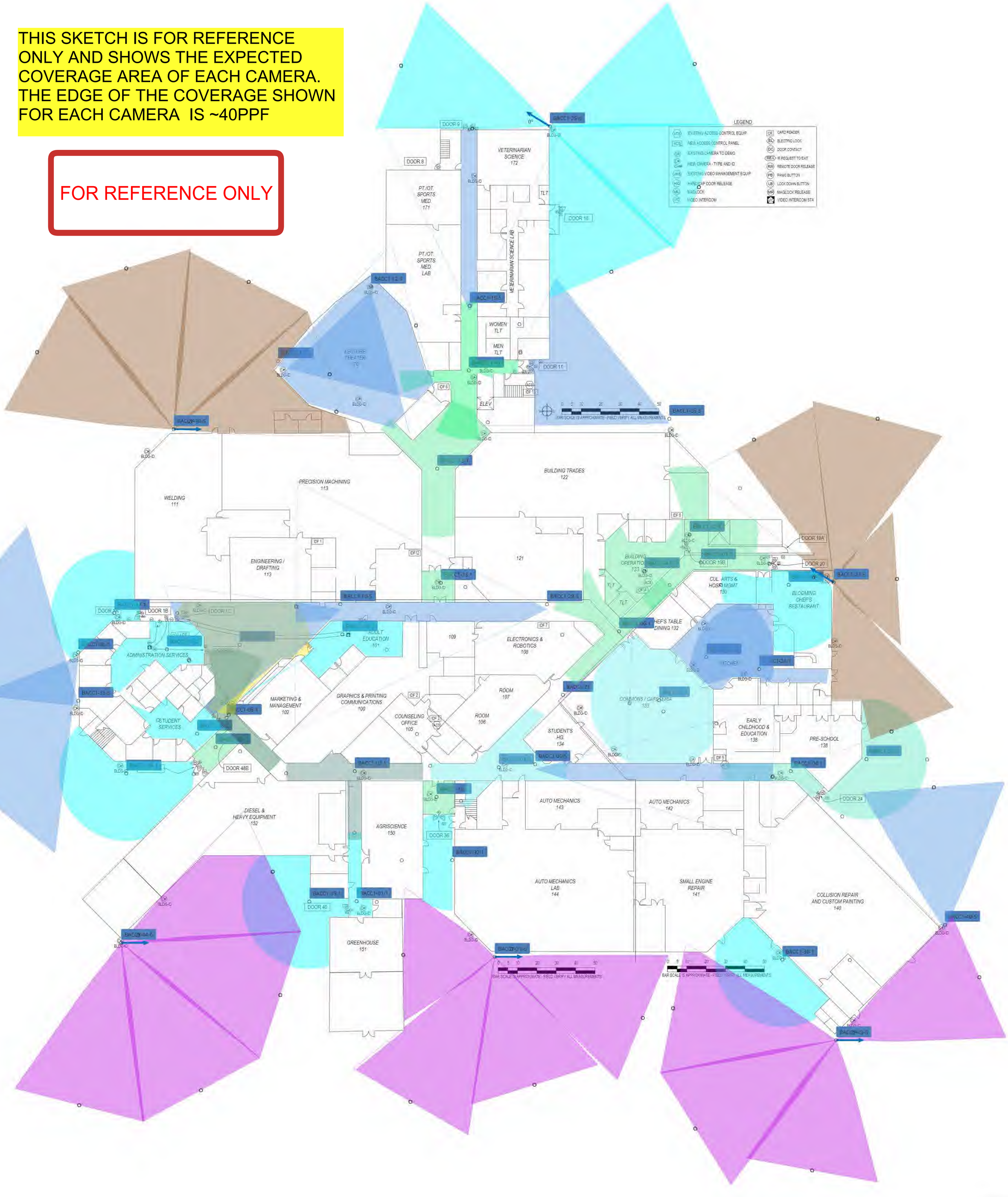
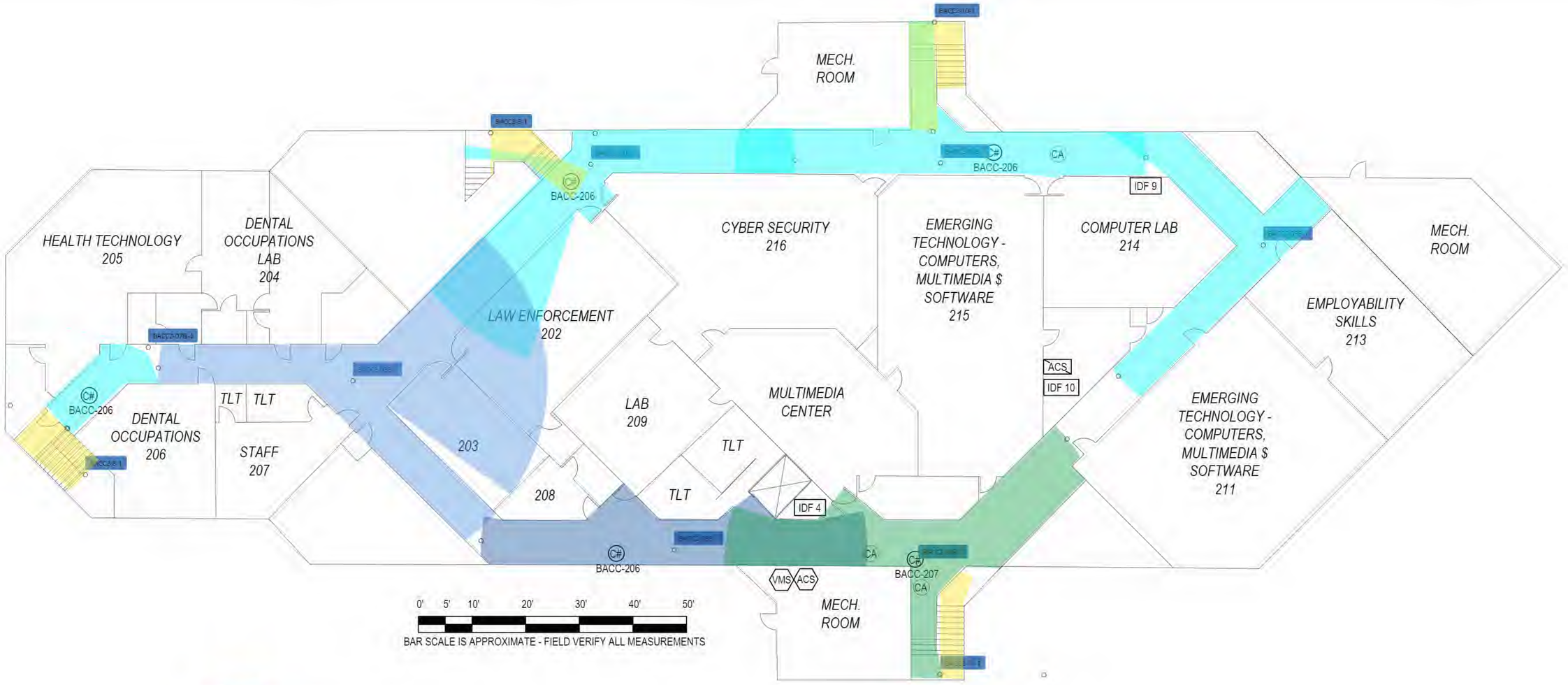
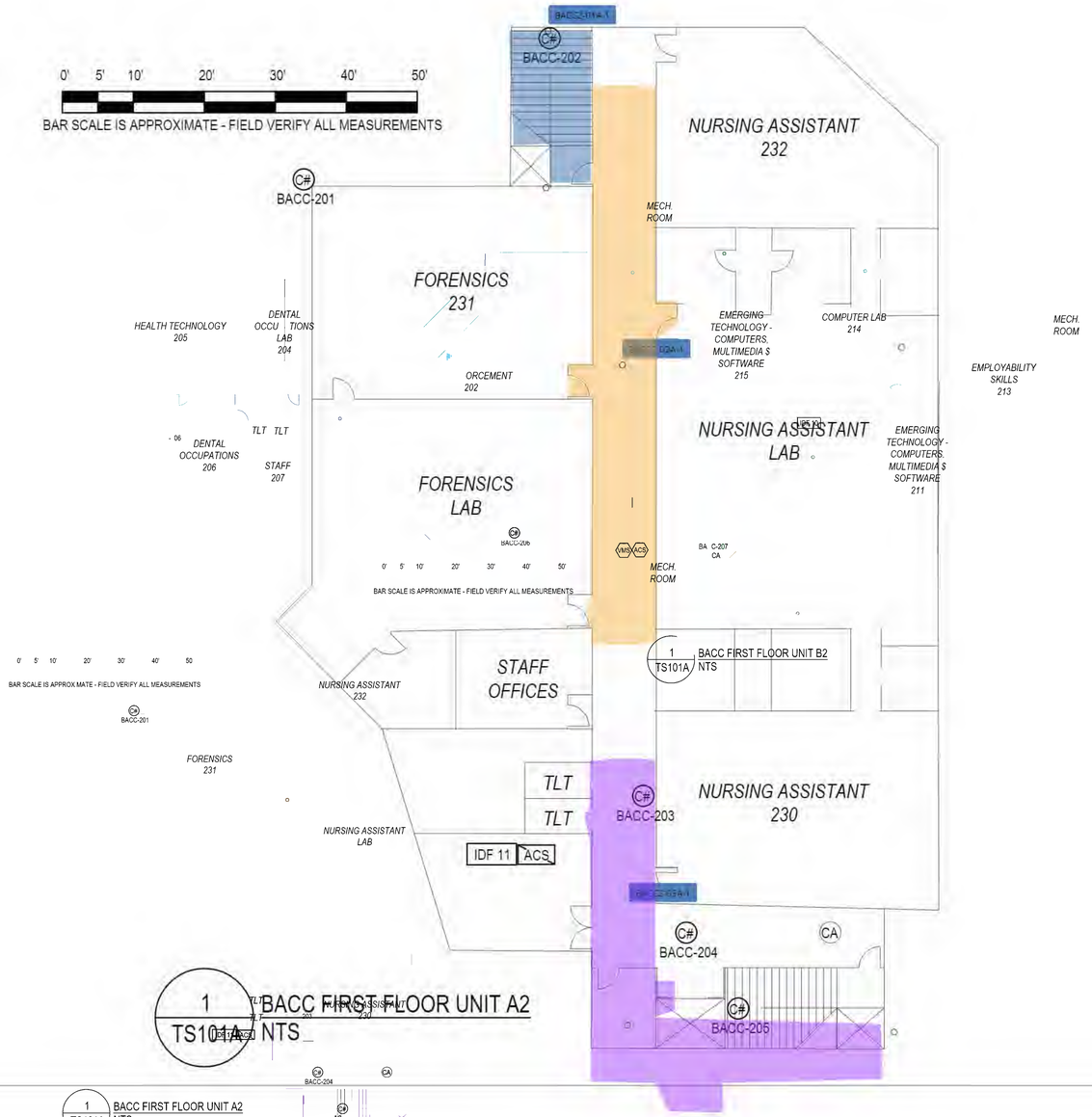
FOR REFERENCE ONLY







1 TS101A BACC FIRST FLOOR UNIT B2 NTS

1 TS101A BACC FIRST FLOOR UNIT A2 NTS


PHONE
13
13A
7
10B
21
32
CR
NOTES (This sheet only):
1. REFERENCE RFP DOOR HARDWARE AND ACS COMPONENTS SCHEDULE FOR REQUIREMENTS
2. REMOVE, REPLACE OR ADD IP CAMREAS AS INDICATED AND IN RFP CAMERA SCHEDULE..
3. PROVIDE AND INSTALL ALL CAMERA CAMERA ACCESSORIES AND ASSOCIATED PATHWAY.
4. INSTALL CAMERAS AS INDICATED.
5. DEMO ALL EXISTING UNUSED SECURITY EQUIPMENT, CABLING AND WIRING.
6. FIELD COORDINATE ALL POWER. SPACE AND IT REQUIREMENTS WITH OWNER.
7. FIELD VERIFY AND COORDINATE ALL HEIGHTS AND FINAL LOCATIONS WITH OWNER/PSC.
8. SECURITY AND DOOR HARDWARE ICONS ARE DIAGRAMMATIC - FIELD VERIFY
9. COORDINATE FINAL LOCATION OF INTERCOM CONSOLES
LEGEND
ACS EXISTING ACCESS CONTROL EQUIP.
ACS NEW ACCESS CONTROL PANEL
CA EXISTING CAMERA TO DEMO
C# ID-## NEW CAMERA - TYPE AND ID
VMS EXISTING VIDEO MANAGEMENT EQUIP.
HC HANDICAP DOOR RELEASE
ML MAGLOCK
VIC VIDEO INTERCOM
CR CARD READER
EL ELECTRIC LOCK
DC DOOR CONTACT
REX IR REQUEST TO EXIT
RR REMOTE DOOR RELEASE
PB PANIC BUTTON
LB LOCK DOWN BUTTON
MR MAGLOCK RELEASE
VIC VIDEO INTERCOM STA.
1
TS-101
6/16/2023
OWNER REVIEW
EGH
DATE
ISSUE
AUTHOR
BAY ARENAC ISD
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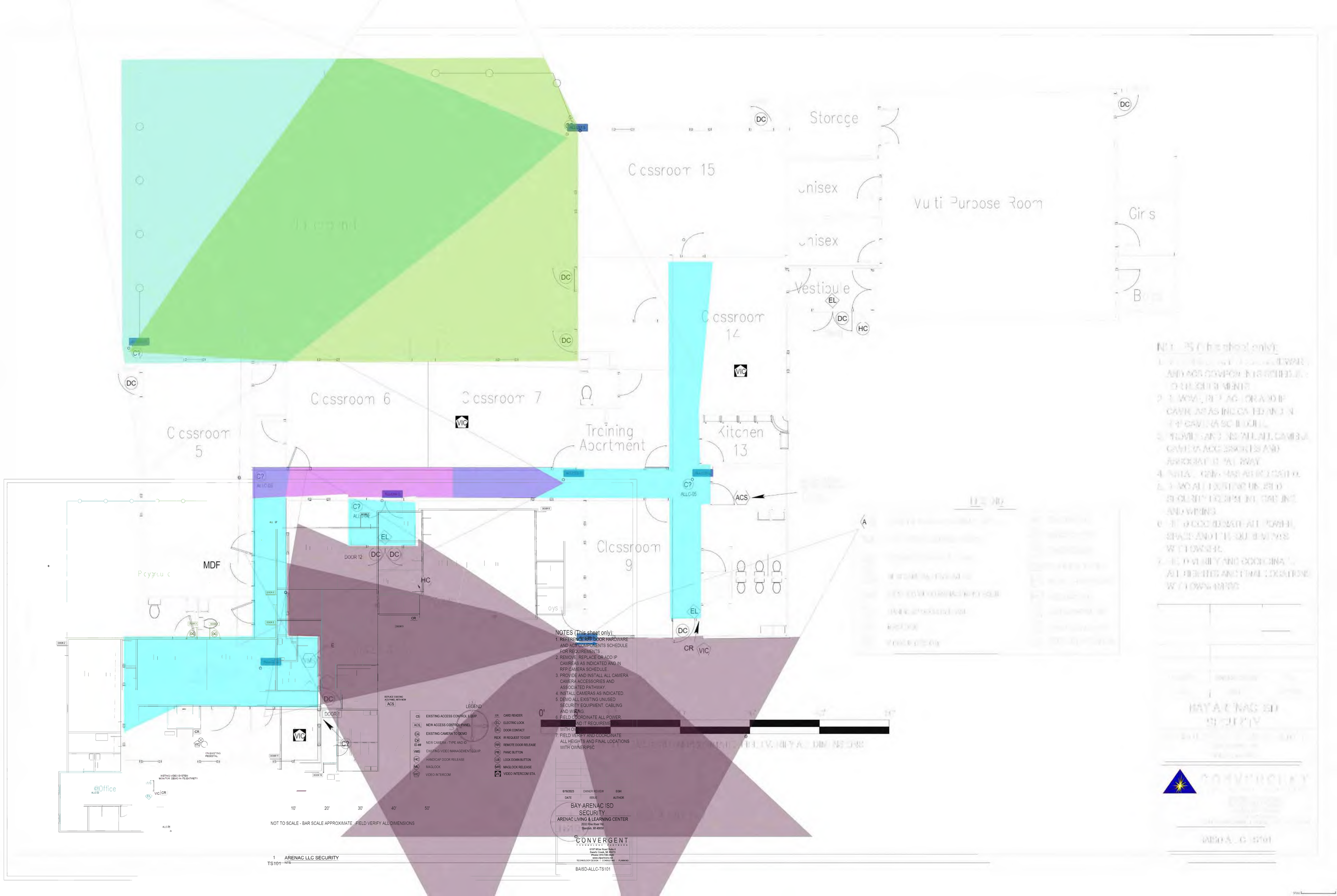
TECHNOLOGY DESIGN | CONSULTING | PLANNING
BAISD-BLLC-TS100
5' 10' 20' 30' 40' 50'
NOT TO SCALE - BAR SCALE APPROXIMATE FIELD VERIFY ALL DIMENSIONS
LIVING & LEARNING CENTER
NTS



NOT TO SCALE - BAR SCALE APPROXIMATE. FIELD VERIFY ALL DIMENSIONS

1 ARENAC LLC SECURITY
TS101 NTS

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LEGEND

CS	EXISTING ACCESS CONTROL EQUIP.	CR	CARD READER
ACS	NEW ACCESS CONTROL PANEL	EL	ELECTRIC LOCK
CA	EXISTING CAMERA TO DEMO	DC	DOOR CONTACT
C# ID-##	NEW CAMERA - TYPE AND ID	REX	IR REQUEST TO EXIT
VMS	EXISTING VIDEO MANAGEMENT EQUIP.	RR	REMOTE DOOR RELEASE
HC	HANDICAP DOOR RELEASE	PB	PANIC BUTTON
ML	MAGLOCK	LB	LOCK DOWN BUTTON
VIC	VIDEO INTERCOM	MR	MAGLOCK RELEASE
		VIC	VIDEO INTERCOM STA.

DATE	ISSUE	AUTHOR
6/16/2023	OWNER REVIEW	EGH

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