Addendum 2 for RFB921600-01

Project Name: STS Cottage Dorm Conversion
DAS RFB #: 921600-01
DAS Project #: 9216.00
Date: 2/14/2022

QUESTIONS FROM CONTRACTORS

Q1: Will the 1 year warranty begin when each cottage is completed and turned over for occupancy or does 1 year warranty begin when all 3 cottages are completed?

A1: A substantial completion date will be established for each cottage. The warranty period will begin at the substantial completion date for each cottage. The camera bid package will

CHANGES TO SPECIFICATIONS AND DRAWINGS

Specifications:

00 01 10 Table of Contents
- Has been replaced by attached 00 01 10 Table of Contents.

00 41 16 Bid Form
- Has been replaced by attached 00 41 16 Bid Form.

01 12 00 Contract Summary
- Has been replaced by attached 01 12 00 Contract Summary.

06 20 00 Finish Carpentry
- Delete paragraph 1.04 A.2. “Include certification program label.”
- Delete paragraph 1.05 Quality Assurance in its entirety.

10 26 00 Wall and Door Protection
- Revise paragraph 2.02 A.2. “Width of Wings: 1 inch.”

10 44 00 Fire Protection Specialties
- Delete paragraph 1.01 B. “Fire extinguisher cabinets.”
- Add paragraph 2.02 A.1. “Provide one Fire Extinguisher in each Cottage Control area. Install in locked casework cabinet, location coordinated with Owner.”
- Delete section 2.03 Fire Extinguisher Cabinets in its entirety.
- Revise paragraph 3.02 C. to read “Place extinguishers and accessories in locked casework cabinets.”

23 05 93 Cleaning and Testing
- Delete references to glycol in this specification section. This includes Paragraph 2.1, Item D and Paragraph 3.2, Item B2. Glycol is not required for system flushing on this project.

23 82 00 Terminal Heating Equipment
- Delete section.

28 13 00 Access Control Database Management
- Added entire section

28 23 00 Video Management System
- Added entire section

Drawings:

A151, A161, A171

- Details B2/A151 & B2/A161:
  - Added ceiling repair note
- Detail J11:
  - Added missing window tag at east wall
  - Added detail reference at floor infill note

A400

- Details A15 & J15:
  - Added floor drain and terrazzo patch note

A401

- Details A3 & D3:
  - Added auto-release hook accessory note.

A500

- Added detail A5/A500 – Floor Infill Detail

PD102 & P102

- Clarification on scope regarding water service entrance into Cottage building 7&8. Demo 3" cold water service back to 6" pipe where it enters the mechanical room. Connect new 4" pipe to existing 6" main.

P601

- Modify Floor Drain FD-1 drain description as follows:
  - Manufacturer/Model: ZURN Z415-BZ1
  - Description: FIXTURE: 5" FLOOR DRAIN – CHROME PLATED BRONZE GRATE WITH VANDAL PROOF, SECURED, ADJUSTABLE TOP, CAST IRON BODY WITH SURFACE MEMBRANE CLAMP, 2" BOTTOM OUTLET, FLASHING COLLAR, DEEP SEAL TRAP.

ATTACHMENTS

-Revised spec section 00 01 10 Table of Contents
-Revised spec section 00 41 16 Bid Form
-Revised spec section 01 12 00 Contract Summary
-Revised spec section 06 20 00 Finish Carpentry
-Revised spec section 10 26 00 Wall and Door Protection
-Revised spec section 10 44 00 Fire Protection Specialties
-Revised spec section 23 05 93 Cleaning and Testing
-Added spec section 28 13 00 Access Control Database Management
-Added spec section 28 23 00 Video Management System
-Revised drawings for the following pages: A151, A161, A171, A400, A401, and A500
-Hazardous Materials Report
-Pre-Bid Meeting Attendees

END OF ADDENDUM

SECTION 00 0110

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2 ADDM

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END OF SECTION

SECTION 00 4116

BID FORM

RFB #921600-01

BID FORM for CONSTRUCTION CONTRACT
for
State Training School
3211 Edgington Avenue, Eldora, Iowa 50627
Project 9216.00

Iowa Department of Administrative Services
Hoover State Office Building, Level 3
1305 East Walnut Street
Des Moines, Iowa 50319-0105

The following documents are to be completed and submitted with your bid.

1. Bid Proposal Form (Required)
2. Non Discrimination Clause Form
3. Contractor Targeted Small Business Enterprise Pre-Bid Contract Information Form
4. Bid Security – 5% of total Bid amount (Is to be submit in separate envelope) (Required)

Authorized Representative:
The undersigned Bidder, in response to your Request for Bid for construction of the above project, having examined the Drawings, Specifications, and other Bidding Documents dated January 7, 2022, and Addenda issued and acknowledged below as received and being familiar with all the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, equipment and supplies to perform all work to construct the project in strict accordance with the proposed Contract Documents, within the time and at the prices stated below. Prices are to cover all expenses incurred in performing the work required under the proposed Contract Documents, of which this bid is a part.

Bidder acknowledges receipt of the following Addenda which are a part of the Bidding Documents and for which any effect on cost of the Work is included in the bid amounts indicated:

Number	_____	_____	_____	_____	_____
Dated	_____	_____	_____	_____	_____

Note that the State of Iowa is exempt from State and Local sales and use taxes (including local option and school option) for this project. Taxes on construction materials shall NOT be included in the bid amounts.

Amounts shall be indicated in both words and figures. In case of discrepancy, the amount indicated in words shall govern.

BID PACKAGES:

BP 09-1

Description: General Construction

Bidder proposes and agrees to perform all work as described in the Construction Documents for the sum of:

_____

_____ Dollars

($_____).

BP 09-1 Alternate #02

Description: First Floor Existing Window Replacement Deduct

Bidder proposes and agrees to perform all work as described in the Construction Documents for the sum of:

_____

_____ Dollars

($_____).

BP 09-1 Alternate #03

Description: Dorm Room Gypsum Wall Board Ceilings Deduct

Bidder proposes and agrees to perform all work as described in the Construction Documents for the sum of:

_____

_____ Dollars

($_____).

BP 23-1

Description: Plumbing/Mechanical

Bidder proposes and agrees to perform all work as described in the Construction Documents for the sum of:

_____

_____ Dollars

($_____).

BP 26-1

Description: Electrical

Bidder proposes and agrees to perform all work as described in the Construction Documents for the sum of:

_____

_____ Dollars

($_____).

BP 26-1 Alternate #01

Description: Ground Floor Light Fixtures Deduct

Bidder proposes and agrees to perform all work as described in the Construction Documents for the sum of:

_____

_____ Dollars

($_____).

BP 26-1 Alternate #04

Description: Add to perform Bid Package #27-1 work under Bid Package #26-1.

Bidder proposes and agrees to perform all work as described in the Construction Documents for the sum of:

_____

_____ Dollars

($_____).

BP 27-1

Description: Cameras

Bidder proposes and agrees to perform all work as described in the Construction Documents for the sum of:

_____

_____ Dollars

($_____).

Bidder hereby certifies that:

1. This bid is genuine and is not made in the interest of or on behalf of any undisclosed person, firm or corporation;
2. Bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain any advantage over any other bidder or over the Owner.
3. Bidder hereby certifies that the Bidder is registered with the Iowa Labor Commissioner as a Contractor as required by Chapter 91C, Code of Iowa.
4. Bidder agrees to comply with all Federal and State Affirmative Action/Equal Employment Opportunity requirements concerning fair employment and will not discriminate between or among them by reason of race, color, religion, sex, national origin or physical handicap.
5. All construction under this Contract shall conform to the requirements of the *Iowa State Building Code*.
6. Bidder agrees that this bid shall remain valid and shall not be withdrawn for a period of thirty (30) calendar days after the date for receipt of bids.
7. Bidder agrees that if written notice of acceptance of this bid is mailed, emailed, or delivered to the undersigned within thirty (30) days after the date in which bids are due, or at any time thereafter before it is withdrawn, the undersigned will sign and return the Contract Agreement, prepared in accord with the Bidding Documents and this bid as accepted; and will also provide proof of insurance coverage and required surety bonds.
8. Bidder understands that the Owner reserves the right to reject any and all bids, and to waive irregularities or informalities and enter into a contract for the work, as the Owner deems to be in the best interest of the State.
9. Bidder understands that the Owner reserves the right to accept any, or no, Alternate Bid, if requested, and that the Alternate Bids may be considered in any order or combination, and the low Bidder shall be determined on the basis of the sum of the base bid and any Alternate(s) accepted.

Subcontractors:
The Trade Contractor must identify all Subcontractors and Suppliers within 48 hours of the published date and time for which bids must be submitted, in accordance with Iowa Code Section 8A311, as amended by House File 646 in 2011. Subcontractors and suppliers may not be changed without the approval of the Owner. Requests for changing a Subcontractor or supplier must identify the reason for the proposed change, the name of the new Subcontractor or supplier, and the change in the subcontractor or supplier price as a result of the change. Any reduction in subcontractor or supplier price as a result of the change, if the change is approved by the Owner, shall be deducted from the Trade Contract Price via a deductive Change Order. Any such changes, if approved by the Owner, which result in an increase in the Trade Contract Price shall be borne by the Trade Contractor.

Enforcement of Reciprocal Resident Bidder Preference, per Iowa Code 73A.21.

All bidders shall either check the box next to “Resident Bidder” or check the box next to “Nonresident Bidder” and by doing so and signing thereafter certifies and attests to the same. All information requested must be provided. Seek out the advice of an attorney if you have questions.

“Resident Bidder” means a person or entity authorized to transact business in of the State of Iowa and having a place of business for transacting business within the State of Iowa at which it is conducting and has conducted business for at least three years prior to the date of the first advertisement for the public improvement. Note, however, that if a nonresident bidder’s state or foreign country has a more stringent definition of a resident bidder, the more stringent definition is applicable as to bidders from that state or foreign country.

☐ Resident Bidder

Name of Resident Bidder: _____

By: _____
Authorized Agent and Signatory of Resident Bidder

OR:

☐ Nonresident Bidder

Name of Nonresident Bidder: _____

Name of State or Foreign Country of Nonresident Bidder: _____

Particularly identify and describe any preference, labor preference, or any other type of preferential treatment, in effect in the nonresident bidder's state or foreign country at the time of this bid:

_____
_____
_____
_____

NOTICE: Nonresident Bidders domiciled in a state or country with a resident labor force preference shall make and keep, for a period of not less than three years, accurate records of all workers employed on the public improvement. The records shall include each worker's name, address, telephone number when available, social security number, trade classification, and the starting ending time of employment.

By: _____
Authorized Agent and Signatory of Nonresident Bidder

Bid Form shall be signed by an officer of the company with authority to bind in a contract.
Notice of acceptance of this bid, or request for additional information by the Department of Administrative Services, may be addressed to the undersigned at the address set forth below:

Legal Name of Firm: _____

Date: _____

Signature of Bidder: _____

Title: _____

Typed Name of Signatory: _____

Email: _____

Business Address:

_____
_____
_____

Telephone Number: _____ Fax Number: _____

Federal Tax Identification Number: _____

Iowa Contractor Registration Number: _____

Bidder Safety Manager Name:_____

For an out-of-state Bidder, Bidder certifies that the Resident Preference given by the State or Foreign Country of Bidder's residence, _____, is _____ %.

END OF SECTION

SECTION 01 1200

CONTRACT SUMMARY

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Project Information
B. Project Summary
C. Bid Scope Summary
D. Work Hour Restrictions
E. Access to Site
F. Coordination with Occupants
G. Rules for Construction Workers
H. Bid Package Instructions

1.02 PROJECT INFORMATION

A. Facility Name/Location: State Training School, 3211 Edgington Avenue, Eldora, Iowa 50627
B. DAS Project #: 9216.00
C. Owner: State of Iowa, Department of Administrative Services, Hoover State Office Building, Level 3, 1305 East Walnut Street, Des Moines, IA 50319
D. Owner's Representative: Jennifer Kleene, Iowa Department of Administrative Services, 109 SE 13th Street, Des Moines, IA 50319
E. Construction Manager: Jeffrey Reams, Story Construction, 2810 Wakefield Circle, Ames, Iowa 50010

1.03 PROJECT SUMMARY

A. The project includes renovating the open dorm space in Cottage 5, Cottage 6 (Receiving) and Cottage 7 to 16 sleeping rooms in each cottage and campus camera additions at State Training School, Eldora, Iowa 50627.
B. Target date to provide substantial completion is January 31, 2023.

1.04 BID SCOPE SUMMARY

A. Scope Applicable to All Bid Packages:
   1. The Contractor's Work includes all labor, supervision, materials, equipment, services, supplies, tools, facilities, transportation, hoisting, storage, receiving, licenses, inspections, certifications, overhead, profit, or other items required or reasonably inferable to properly and timely perform and complete all work and services to be performed by the Contractor pursuant to this Agreement. Unless specifically stated otherwise, incidental work required to accomplish the work of this Bid Package shall be included the bid. This would include, but not be limited to, temporary facilities, protection of the work, security of equipment, materials, and work in progress, etc. Contractor's Work shall be performed in accordance with the Drawings, Specification Divisions 00 and 01, and Specification sections applicable to each Contractor's scope.
   2. Contractor is responsible for all labor and equipment to unload, account for all material delivered, stock, and delivery for this scope of work. Storage and delivery of materials and equipment at the Site shall be permitted only to the extent approved in advance by the Construction Manager, and if anything so stored obstructs the progress of any portion of the work, it shall be promptly removed or relocated by the Contractor without reimbursement.
   3. On site supervision by Prime Contractor at all times work by that contractor or their subcontractors/suppliers is taking place.

4. Provide all temporary facilities required for this scope of work including trailer, trailer power, telephone, secured storage, temporary power for work, temporary and task lighting for work, etc. as determined necessary by Contractor. Coordinate location of trailers, material storage and utility lines with Construction Manager. Limited space is available, and permission to bring any such facility or excess materials on to the site shall be approved by the Construction Manager.
5. Contractor shall provide all equipment and tools for Contractor's own cleanup. Clean up shall be done at end of every shift or more frequently if required for the Contractor to perform their work, for other Contractors to perform their work, as required by the Owner's operations, and at the discretion of the Construction Manager.
6. All turf, landscaping, and subgrade disturbances caused by equipment traffic or other activities related to the Contractor's scope shall be repaired or restored to proper conditions by the Contractor.
7. Protect adjacent existing building elements from damage from Scope of work. Repair existing building elements damaged during Contractor's Scope of work.
8. Each person (excluding delivery drivers) shall submit to and pass a background check run by the State of Iowa prior to site entry. Information needed for background checks include full name, date of birth, and social security number. There is no cost to the Contractor for background checks. Plan that each background check takes two weeks from the date of submission.
9. Contractors shall clean up and dispose of waste materials and debris generated from their work daily.
10. Contractors shall have a copy of their own Company Safety Manual onsite and submit an electronic copy to the Construction Manager.
11. If not included in the Company Safety Manual, Contractors shall submit their OSHA-required Silica Control Policy/Plan along with documentation identifying who the onsite Component Silica Control person(s) are, prior to beginning work onsite.
12. Refer to Section 01 4000-3.04 regarding inspection and testing responsibilities.
13. Contractors shall maintain an accurate set of As-Built Drawings throughout the duration of the Project.
14. All persons shall wear hardhats, safety classes, work boots, full-length pants, and shirts with a minimum of 4-inch sleeves while onsite.
15. All persons are prohibited from using products containing tobacco and/or nicotine on site.
16. Each person working onsite (excluding delivery drivers) shall attend a 45-minute State Training School and Story Construction Co. safety orientation prior to site entry. Upon successful completion of the orientation, each person will receive a hard-hat sticker to identify successful completion. Each person must successfully complete the orientation prior to being allowed onsite to perform work. A 24-hour notice to the Construction Manager of the need for an orientation is required.
17. Each Contractor shall designate a representative to attend one 60-minute pre-construction meeting.
18. Each Contractor and their Subcontractors shall designate an onsite representative to attend a daily 15-minute "End of Shift Meeting" on days which work is performed by them.
19. Each Contractor and their Subcontractors shall designate an onsite representative to attend a weekly 60-minute production and planning meeting the weeks which work is performed by them, plus the two (2) weeks ahead of each Contractor/Subcontractor starting work on site.
20. Each Contractor shall designate a representative to attend a 60-minute bi-weekly Owner/Designer/Construction Manager Meeting.

21. Prior to the weekly production and planning meeting, each Contractor and their Subcontractors shall populate the project planning and communication board with daily activities. This shall include activity description, quantity of work planned for completion daily, crew size for each activity, and location of each activity. The Construction Manager will assist with the population of the board.
22. Each Contractor shall have their Project Manager and onsite representative attend a Story Construction Co. Planning and Production system orientation. Plan for this meeting to last 2-hours.

1.05 WORK HOUR RESTRICTIONS

A. Work hours are from 7:00 AM to 6:00 PM, Monday through Friday unless arrangements are made in advance.

1.06 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings.
B. Provide access to and from site as required by law and Owner:
   1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
   2. Do not obstruct roadways, sidewalks, or other public ways without permission of Owner and permit if required.
C. Facility will be occupied at all times during duration of work. Contractor personnel shall conduct themselves in an agreeable manner at all times. Failure to do so may result in removal from the work site.
D. Personal vehicles shall be parked in the designated parking areas shown in the drawings. The vehicles are to remain locked and not running unless occupied.
E. Tool trailers and office trailers shall be coordinated with the construction manager and facility for specific location. Tool trailers and office trailers must always be locked unless occupied by personnel.

1.07 OWNER OCCUPANCY

A. Owner intends to occupy the Project upon Substantial Completion.
B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
C. Schedule the Work to accommodate Owner occupancy.
D. Owner plans to occupy cottages not under construction. Only one cottage can be under construction at a time.
E. From Specification 00 3113:
   1. Anticipated schedule flow is Cottage 7 → Cottage 6 → Cottage 5.
   2. Final schedule to be established during Phase-Pull exercise of the CP2.0 process.
   3. There will be one week of no work between Cottages to allow for the Facility to move out of one cottage and into the other.
   4. There will be one week of no work following the ceiling demo in each Cottage to allow for hazardous material abatement. The no work will apply to the specific location and adjacent locations as identified by the abatement contractor.

1.08 RULES FOR CONSTRUCTION WORKERS

A. The staff of the State of Iowa has a responsibility to protect the public by providing a secure environment. All work site rules must be followed to the letter, at all times.

B. All construction workers must have a background check completed prior to entering the campus to perform work.
C. Hot Work Permit Processes and Fire Watch, when necessary, will be adhered to for this project.
D. All State properties are tobacco free. No smoking will be permitted or tolerated on campus unless in designated areas.
E. You are permitted access only to the work site and no other area of the institution.
F. No drugs, alcohol, or firearms are allowed on the work site.
G. Do not leave money, drugs, alcohol, or firearms in your personal vehicle.
H. Company and personal vehicles are to be parked and locked in designated or authorized area of the work.
I. Secure all tools at the end of the day.
J. Maintain control of all tools, supplies, and debris at all times during the work.
K. Never leave keys in any vehicle. If a security officer finds keys in a vehicle, they are under orders to turn them in to a security supervisor.
L. Do not give anything to residents or take anything from residents; if they offer, inform your supervisor.
M. Secure all tools at the end of each day. Never leave tools unattended. All tools shall be checked in at the beginning of the day and checked out at the end of the day. If security officers find loose tools, they are under orders to turn them in to their supervisor.
N. All delivery vehicles must go directly to the job site. Extra time should be anticipated for all deliveries. Provide 24-hour notice to the facility of deliveries.
O. During an emergency, follow the instructions of the security staff.
P. Each person shall check in and check out at the Administration Building switchboard each time entering or exiting the Training School, including breaks and lunch.
Q. All persons shall wear hardhats, safety glasses, work boots, full-length pants and shirts with a minimum of 4-inch sleeves while onsite.
R. COVID-19 protocols are that the contractors must check in at the Medical Center while wearing a mask to report any symptoms and pass a temperature check before working. COVID-19 protocols change based on current information and case counts. Contractors shall follow COVID-19 protocols that are in place at the time when on site.

1.09 BID PACKAGE INSTRUCTIONS

A. **Bid Package #09-1** – General Construction: Trade Contractor shall include all of the following, but not limited to, as part of the contract:
   1. Specifications:
      a. Division 00 – Procurement and Contracting Requirements
      b. Division 01 – General Requirements
      c. Division 02 – Existing Conditions
         1) Specification 02 41 00 Demolition. Complete all demo work associated with work corresponding with BP #09-1
      d. Division 03 – Concrete
         1) Complete.
      e. Division 04 – Masonry
         1) Complete.
      f. Division 05 – Metals
         1) Complete.
      g. Division 06 – Wood, Plastics, and Composites
         1) Complete.
      h. Division 07 – Thermal and Moisture Protection
         1) Specification 07 01 55 Patching of Existing Roofing – for adjacent work completed by BP #09-1.
         2) Specification 07 84 00 Firestopping – for adjacent work completed by BP #09-1.
         3) Specification 07 92 00 Joint Sealants – for adjacent work completed by BP #09-1.

i. Division 08 – Openings
   1) Complete.
j. Division 09 – Finishes
   1) Complete.
k. Division 10 – Specialties
   1) Complete.
l. Division 12 – Furnishings
   1) Complete.

2. Drawings:
   a. Drawing Set Titled, “Project #9216.00 State of Iowa – STS Cottage Dorm Conversion” and dated 1/7/2022.
3. **BP 09-1 Alternate #02** – First Floor Existing Window Replacement: BP #09-1 shall include all of the following, but not limited to, as part of the contract:
   a. Price reduction to keep all existing windows as indicated by W-1A and W-2A and only add new windows where it is currently in-filled as shown by W1.
   b. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   c. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
   d. Execute accepted alternates under the same conditions as other work of the Contract.
4. **BP 09-1 Alternate #03** – Dorm Room Gypsum Wall Board Ceilings: BP #09-1 shall include all of the following, but not limited to, as part of the contract:
   a. Price reduction install abuse resistant gypsum board ceiling in lieu of type C metal ceiling panel system at first floor dorm rooms.
   b. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   c. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
   d. Execute accepted alternates under the same conditions as other work of the Contract.

B. **Bid Package #23-1** – Plumbing/Mechanical: Trade Contractor shall include all of the following, but not limited to, as part of the contract:
1. Specifications:
   a. Division 02 – Existing Conditions
      1) Specification 02 41 00 Demolition. Complete all demo work associated with work corresponding with BP #23-1. Work includes but may not be limited to
      a) Cut and remove existing Terrazzo for floor drains.
      b) Cut and remove existing Terrazzo and supporting floor structure for new ductwork locations.

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   b. Division 07 – Thermal and Moisture Protection
      1) Specification 07 01 55 Patching of Existing Roofing – for adjacent work completed by BP #23-1.
      2) Specification 07 05 53 Fire and Smoke Assembly Identification - Complete.
      3) Specification 07 84 00 Firestopping – for adjacent work completed by BP #23-1.
      4) Specification 07 92 00 Joint Sealants – for adjacent work completed by BP #23-1.
   c. Division 21 – Fire Suppression
      1) Complete.
   d. Division 22 – Plumbing
      1) Complete.

e. Division 23 – HVAC
   1) Complete.

2. Drawings:
   a. Drawing Set Titled, “Project #9216.00 State of Iowa – STS Cottage Dorm Conversion” and dated 1/7/2022.

C. **Bid Package #26-1** – Electrical: Trade Contractor shall include all of the following, but not limited to, as part of the contract.

1. Specifications:
   a. Division 00 – Procurement and Contracting Requirements
   b. Division 01 – General Requirements
   c. Division 02 – Existing Conditions
      1) Specification 02 41 00 Demolition. Complete all demo work associated with work corresponding with BP #26-1.
   d. Division 07 – Thermal and Moisture Protection
      1) Specification 07 01 55 Patching of Existing Roofing – for adjacent work completed by BP #26-1.
      2) Specification 07 84 00 Firestopping – for adjacent work completed by BP #26-1.
      3) Specification 07 92 00 Joint Sealants – for adjacent work completed by BP #26-1.
   e. Division 26 – Electrical
      1) Complete.
   f. Division 28 – Electronic Safety and Security
      1) Specification 28 31 00 Fire Detection and Alarm – Complete.

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2. Drawings:
   a. Drawing Set Titled, “Project #9216.00 State of Iowa – STS Cottage Dorm Conversion” and dated 1/7/2022.

3. **BP 26-1 Alternate #01** – Ground Floor Light Fixtures: BP #26-1 shall include all of the following, but not limited to, as part of the contract:
   a. Price reduction to salvage, protect, and re-install existing light fixtures in lieu of installing new light fixtures on the ground floor of Cottage 5, Cottage 6 and Cottage 7.
   b. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   c. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
   d. Execute accepted alternates under the same conditions as other work of the Contract.

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4. **BP 26-1 Alternate #04** – Add to perform Bid Package #27-1 work under Bid Package #26-1: BP #26-1 shall include all of the following, but not limited to, as part of the contract:
   a. Price addition to include all work associated with Bid Package #27-1.
   b. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   c. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
   d. Execute accepted alternates under the same conditions as other work of the Contract.

D. **Bid Package #27-1** – Cameras: Trade Contractor shall include all of the following, but not limited to, as part of the contract:

1. Specifications:
   a. Division 00 – Procurement and Contracting Requirements
   b. Division 01 – General Requirements
   c. Division 02 – Existing Conditions
      1) Specification 02 41 00 Demolition. Complete all demo work associated with work corresponding with BP #27-1.
   d. Division 07 – Thermal and Moisture Protection
      1) Specification 07 84 00 Firestopping – for adjacent work completed by BP #27-1.
      2) Specification 07 92 00 Joint Sealants – for adjacent work completed by BP #27-1.
   e. Division 27 – Communications
      1) Complete.
   f. Division 28 – Electronic Safety and Security
      1) Specification 28 13 00 Access Control Database Management – Complete.
      2) Specification 28 23 00 Fire Detection and Alarm – Complete.

2 ADDM

2. Drawings:
   a. Drawing Set Titled, "Project #9216.00 State of Iowa – STS Cottage Dorm Conversion" and dated 1/7/2022.
      1) Technology Demo Drawings (TD Sheet(s)) – Complete.
      2) Technology Drawings (TS Sheet(s))(T Sheets) – Complete.

E. **Work Performed by Owner:** The Owner will perform the following work items:

1. Relocate all moveable furniture, fixtures and equipment (FF&E), including window treatments; and personal materials from each sequenced work area prior to demolition and construction activities and after new construction is completed. The schedule allows for the Owner to complete the moving of items within one weeks' time for each move.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

SECTION 06 20 00
FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish carpentry items.

B. Wood casings, base and trim.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.

B. Section 06 41 00 - Architectural Wood Casework: Shop fabricated custom cabinet work.

C. Section 09 91 13 - Exterior Painting: Painting of finish carpentry items.

D. Section 09 91 23 - Interior Painting: Painting of finish carpentry items.

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition 2014, with Errata (2016).

B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.1 2017, with Errata (2019).

1.04 SUBMITTALS

A. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.

1. Indicate fastening patterns for finish carpentry items with exposed fasteners.
2. ~~Include certification program label.~~

2 ADDM

B. Samples Submit two samples of wood planks, 12 inches long.

1.05 ~~QUALITY ASSURANCE~~

A. ~~Fabricator Qualifications: Company that follows AWI's "Architectural Woodwork Quality Standards" specializing in fabricating products specified in this section.~~

1. ~~Fabricator of this section must also provide work specified in Division 6 and 12 Sections "Architectural Wood Casework, Wood Veneer Paneling and Countertops".~~
2. ~~Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.~~

B. ~~Quality Certification:~~

1. ~~Provide designated labels on shop drawings as required by certification program.~~
2. ~~Provide designated labels on installed products as required by certification program.~~
3. ~~Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.~~

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver factory-fabricated units to project site in original packages, containers or bundles bearing brand name and identification.

B. Store finish carpentry items under cover, elevated above grade, and in a dry, well-ventilated area not exposed to heat or sunlight.

C. Protect from moisture damage.

D. Handle materials and products to prevent damage to edges, ends, or surfaces.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

B. Interior Woodwork Items:

1. Chairrail: Clear fir or poplar; prepare for a painted finish.
2. Window Opening Head, Jambs and Sills: Species as indicated on Finish Specifications on drawing sheets; prepare for painted finish.

2.02 FASTENINGS

A. Fasteners for Interior Wall Planks and Base: Finishing nails with painted finish to match color of wood, of size and length required for installation.

2.03 ACCESSORIES

A. Wood filler:: Tinted to match surface finish color.

2.04 SITE FINISHING MATERIALS

A. Finishing: Field finished as specified in Section 09 91 23.

2.05 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.06 SHOP FINISHING

A. Sand work smooth and set exposed nails.

B. Apply wood filler in exposed nail indentations.

C. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
   1. Transparent:
      a. System - 5 Varnish Conversion.
      b. Stain: As selected by Architect.
      c. Sheen: Satin.
   2. Opaque:
      a. System - 1, Lacquer, Nitrocellulose.
      b. Color: As selected by Architect.
      c. Sheen: Flat.

D. Back prime woodwork items to be field finished, prior to installation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

A. Install custom fabrications in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

D. Install exposed fasteners in a precise pattern pre-approved by Architect.

E. Install trim with nails at 12 inch on center..

3.03 PREPARATION FOR SITE FINISHING

A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.

B. Site Finishing: See Section 09 91 13 and 09 91 23.

3.04 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch.

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

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SECTION 10 26 00
WALL AND DOOR PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Corner guards.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Blocking for wall and corner guard anchors.

B. Section 09 21 16 - Gypsum Board Assemblies: Placement of supports in stud wall construction.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Indicate physical dimensions, anchorage details, and rough-in measurements.

C. Shop Drawings: Include plans, elevation, sections, and attachment details.

D. Samples: Submit samples illustrating component design, configurations, joinery, color and finish.

1. Submit two sections of corner guards, 12 inches long.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver wall and door protection items in original, undamaged protective packaging. Label items to designate installation locations.

B. Store products in either horizontal or vertical position, in compliance with manufacturer's instructions.

1.05 WARRANTY

A. See Section 01 77 00-Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Corner Guards:

1. Babcock-Davis: www.babcockdavis.com/#sle.
2. Inpro: www.inprocorp.com/#sle.
3. Koroseal Interior Products: www.koroseal.com/#sle.
4. Nystrom, Inc: www.nystrom.com/#sle.
5. Trim-Tex, Inc: www.trim-tex.com/#sle.
6. Substitutions: As approved by Architect prior to bid..

2.02 PRODUCT TYPES

A. Corner Guards - Surface Mounted:

1. Material: Type 304 stainless steel, No. 4 finish, 16 gauge thick.
2. Width of Wings: 1 inches.
3. Corner: Square.
4. Length: One piece.
5. Preformed end caps.

2 ADDM

B. Mounting Brackets and Attachment Hardware: Appropriate to component and substrate.

2.03 FABRICATION

A. Fabricate components with tight joints, corners and seams.

B. Pre-drill holes for attachment.

C. Form end trim closure by capping and finishing smooth.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that rough openings, concealed blocking, and anchors are correctly sized and located.

B. Verify that field measurements are as indicated on drawings.

3.02 INSTALLATION

A. Position corner guard 4 inches above finished floor to ceiling.

3.03 TOLERANCES

A. Maximum Variation From Required Height: 1/4 inch.

3.04 CLEANING

A. Clean wall and door protection items of excess adhesive, dust, dirt, and other contaminants.

END OF SECTION

SECTION 10 44 00
FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire extinguishers.

2 ADDM

B. ~~Fire extinguisher cabinets.~~

C. Accessories.

1.02 REFERENCE STANDARDS

A. NFPA 10 - Standard for Portable Fire Extinguishers 2013.

1.03 QUALITY ASSURANCE

A. Confirm keying for emergency key cabinet with fire department having jurisdiction prior to final purchase of unit.

1.04 SUBMITTALS

A. Product Data: Provide extinguisher operational features.

B. Shop Drawings: Indicate locations of cabinets and cabinet physical dimensions.

C. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.

D. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

1.05 FIELD CONDITIONS

A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Fire Extinguisher, Cabinets and Accessories:
1. Activar Construction Products Group: www.activarcpg.com/#sle.
2. Larsen's Manufacturing Co: www.larsensmfg.com.
3. Potter-Roemer: www.potterroemer.com.
4. Substitutions: As approved by Architect prior to bidding.

2.02 FIRE EXTINGUISHERS

A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.

2 ADDM

1. Provide one Fire Extinguisher in each Cottage Control area. Install in locked casework cabinet, location coordinated with Owner.

B. Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gauge.
1. Class: A:B:C type.
2. Size: 5 pound.
3. Finish: Baked polyester powder coat, color as selected.

2 ADDM

2.03 ~~FIRE EXTINGUISHER CABINETS~~

A. ~~Cabinet Construction: Detention series, heavy duty, tamper resistant.~~

B. ~~Cabinet Configuration: Recessed type.~~
1. ~~Size to accommodate accessories.~~
2. ~~Trim: Flat square edge, with 1/2 inch projection.~~

C. ~~Door: 0.11 inch metal thickness, reinforced for flatness and rigidity with lock. Hinge doors for 180 degree opening with continuous piano hinge.~~

D. ~~Finish of Cabinet Exterior Trim and Door: Baked enamel, color as selected.~~

2 ADDM

E. ~~Finish of Cabinet Interior: White colored enamel.~~

2.04 ACCESSORIES

A. Extinguisher Brackets: Formed steel, chrome-plated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify rough openings for cabinet are correctly sized and located.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Secure rigidly in place.

2 ADDM

C. Place extinguishers and accessories in locked casework cabinets.

END OF SECTION

SECTION 23 05 93
CLEANING AND TESTING

PART 1 - GENERAL

1.1 SCOPE

A. Cleaning of systems to remove construction debris and prepare for testing and operation.

B. Perform testing on systems and equipment to confirm they can withstand normal operating and design conditions as outlined in various equipment sections.

C. Equipment Included in This Section

1. Domestic water piping

1.2 REFERENCES

A. Balancing of Systems: Section 23 05 94.

1.3 SUBMITTALS

A. Quality Control Submittals

1. Submit Field Test Reports for all systems to be tested.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements

1. Perform factory testing of factory fabricated equipment in complete accordance with the agencies having jurisdiction.

2. Perform field testing of piping systems in complete accordance with the local utilities and other agencies having jurisdiction and as specified.

1.5 PROJECT CONDITIONS

A. Protection: During test Work, protect controls, gages and accessories which are not designed to withstand test pressures. Do not utilize permanently installed gauges for field testing of systems.

1.6 SEQUENCING AND SCHEDULING

A. Transmit written notification of proposed date and time of operational tests to the Architect / Engineer at least five (5) days in advance of such tests.

B. Perform cleaning and testing Work in the presence of the Owner’s Representative.

C. Pressure test piping systems inside buildings, at the roughing-in stage of installation, before piping is enclosed by construction Work, and at other times as directed. Perform test operations in sections as required and directed, to progress the Work in a satisfactory manner and not delay the general construction of the building. Valve or cap-off sections of piping to be tested, utilizing valves required to be installed in the permanent piping systems or temporary valves or caps as required to perform the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Test Equipment and Instruments: Type and kind as required for the particular system under test.

B. Test Media (air, gas, refrigerant, dry nitrogen, vacuum, water): As specified for the particular piping or system under test.

C. Cleaning Agent (chemical solution, steam, water): As specified for the particular piping, apparatus or system being cleaned.

2 ADDM

D. ~~Propylene Glycol: Permanent type anti-freeze solution as manufactured by Dow Chemical Co. or Union Carbide.~~

PART 3 - EXECUTION

3.1 PRELIMINARY WORK

A. Thoroughly clean pipe and tubing prior to installation. During installation, prevent foreign matter from entering systems. Prevent if possible and remove stoppages or obstructions from piping and systems.

3.2 PRESSURE TESTING OF PIPING

A. Piping shall be tight under test and shall not show loss in pressure or visible leaks, during test operations or after the minimum duration of time as specified. Remove piping which is not tight under test; remake joints and repeat test until no leaks occur.

B. Water Systems

1. Domestic water (potable cold, domestic hot and recirculation) inside buildings:
   a. Before fixtures, faucets, trim and accessories are connected, perform hydrostatic test at 125 psig minimum for four (4) hours.
   b. After fixtures, faucets, trim and accessories are connected, perform hydrostatic retest at 75 psig for four (4) hours.

2 ADDM

2. ~~Circulating water systems, including propylene glycol solution systems and cold water make-up piping connections to heating, ventilating, air conditioning and refrigeration systems, unless otherwise specified:~~
   a. ~~Before final connections are made perform hydrostatic test at 1-1/2 times the maximum working pressure, but not less than 125 psig, for four (4) hours.~~

2 ADDM

~~b. After final connections are made perform hydrostatic retest at a pressure equal to maximum operating system design pressure, but not less than 30 psig, for four (4) hours.~~

3.3 DISINFECTION OF POTABLE WATER SYSTEMS

A. Disinfect potable water pipe and equipment installed in the Work of this Contract.

1. Completely fill the piping, including water storage equipment if installed, with a water solution containing 50 mg/L available chlorine, and allow stand for twenty-four (24) hours.

2. Operate all valves during this period to assure their proper disinfection.

3. After the retention period, discharge the solution to an approved waste and flush the system thoroughly with water until substantially all traces of chlorine are removed.

4. Drain and flush water storage equipment if installed.

B. Connect plumbing fixtures and equipment and place the system into service. Prevent recontamination of the piping during this phase of the Work.

END OF SECTION

DIV 28 –BASIC SAFETY AND SECURITY SYSTEMS TABLE OF CONTENTS

SECTION 28 13 00
ACCESS CONTROL SOFTWARE AND DATABASE MANAGEMENT

PART 1 - GENERAL

1.1 RELATED WORK

A. Division 08 – Door Hardware

B. Division 14 – General Elevator Requirements

C. Section 282300 – Video Surveillance

1.2 DEFINITIONS

A. ACS – Access Control System

B. CSA – Client Software Application

C. DGM – Dynamic Graphical Maps

D. ALPR – Automatic License Plate Recognition

E. SDK – Software Development Kit

F. GLM – Genetec Lifecycle Management

G. SSM – Server Software Module

H. UI – User Interface

I. USP – Unified Security Platform

J. USW – Unified Web Client

K. VMS – Video Management System

1.3 QUALIFICATIONS

A. The system programmer shall have attended manufacturer training and obtained certification in Genetec™ Security Center - Synergis™ Technical Certification.

B. Optionally, the system programmer shall have attended manufacturer training and obtained certification in Genetec Security Center - Enterprise Technical Certification.

C. The system programmer shall be a Genetec certified partner with the following level of qualification:

1. Certified Reseller or up

2. Elite Reseller or up

3. Unified Elite Reseller

D. The system programmer shall submit proof of certifications.

PART 2 - PRODUCTS

2.1 ELECTRONIC ACCESS CONTROL SYSTEM GENERAL REQUIREMENTS

A. The ACS shall be an enterprise class IP access control software solution. It shall be fully embedded within a Unified Security Platform (USP). The USP shall allow the seamless unification 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 (Unit) management, door management, elevator management, and area management.

E. Manufacturer:

1. Genetec Security Center

a. Basis of Design: Synergis Enterprise
b. Acceptable Manufacturer: Milestone
c. S2 Access Control
d. Avigilon Access Control Manager

F. Certification

1. The ACS shall be certified

a. UL-294
b. ULC-S319
c. EN-60839-11-1

2. ACS shall consist of security door control panels, server/workstation hardware and door contacts.

2.2 FAILOVER AND STANDBY REQUIREMENTS

A. The USP shall support native and off-the-shelf failover options.

B. Failover Directory

1. The Standby Directory shall act as a replacement SSM on hot standby, ready to take over as the acting Directory in case the primary Directory fails. The failover shall occur in less than 1 minute. No action from the user shall be required.

2. The USP shall support up to five (5) Directories on standby, lined up to take over as the acting Directory in a cascading fashion.

3. The Standby Directory shall keep its configuration database synchronized with the primary Directory.

4. The Standby Directory shall support disaster recovery scenarios where a server can be located in another geographic area (or building) and only take over if all other Directories become offline.

5. The Standby Directory shall support synchronization of the configuration databases using a backup and restore mechanism. The synchronization period shall be configurable from 15 minutes to one week.

6. The Standby Directory shall support real-time synchronization of the configuration databases using SQL Mirroring or SQL Always On.

C. Off-the-shelf standby/failover options (excluding the VMS Archiver) shall include:

1. Native role failover across multiple servers

2. Windows Clustering

3. NEC ExpressCluster X LAN

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/Omodules. It shall also be able to validate and log all access activities and events when the door controllers and I/Omodules 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 HARDWARE COMPATIBILITY LIST

A. The ACS shall have an open architecture that supports the integration of third party IP-based door controllers and I/O modules. The ACS shall simultaneously support mixed configurations of access control hardware from multiple vendors.

B. The ACS shall support multiple types of hardware devices: single-reader controllers, 2-reader controllers, 1- to 64-reader controllers, integrated readers and door controllers, and Power-over-Ethernet (PoE) enabled door controllers.

C. The ACS shall support most industry standard card readers that output card data using the Wiegand protocol and Clock-and-Data.

D. The ACS shall support the following IP-enabled controllers. For a description of the capabilities of the controller, refer to the specific controller's A&E specifications and design:

1. Synergis Master Controller
2. Synergis Cloud Link
3. SharpV
4. HID VertX
5. HID VertX EVO
6. HID Edge
7. HID Edge EVO
8. Mercury controllers and SIO modules
9. Mercury M5 Bridge
10. Mercury MS Bridge
11. Assa Abloy Aperio RS485 8 to 1 hub
12. Assa Abloy IP Locks (no DSR required)
    a. Corbin Russwin
    b. Sargent Passport
    c. Sargent Profile
    d. IN220
13. Salto Sallis RS485 and PoE routers
14. Schlage AD-300 and AD-400 electronic locks
15. Axis A1001
16. STid RS485 readers
17. DDS AS34/TPL4
18. SimonsVoss Smart Intego

2.5 SEAMLESS UNIFICATION WITH VMS

A. Through the USP, the ACS shall support integration with an IP Video Surveillance System or MVS. Integration with an IP video surveillance system shall permit the user to view live and

recorded video.

B. Users shall be able to associate one or more video cameras to the following entity types: doors, elevator, and hardware zone (input points) and more.

C. The Monitoring UI shall present a true Unified Security Interface for access control and video surveillance. Advanced live video viewing and playback of archived video shall be available through the Monitoring UI.

D. It shall be possible to view video associated with access control events when viewing a report.

2.6 ACS CONTROLLER (UNIT) MANAGEMENT

A. The ACS shall support the discovery, configuration, and management of IP enabled controllers and I/O modules (hardware units). A user shall be permitted to add, delete, or modify a controller if he or she has the appropriate privileges.

B. The ACS shall support automatic unit discovery. The user shall establish the settings for discovery ports and for the types of unit discovery and the ACS shall automatically detect all connected devices.

C. The ACS shall support a unit swap utility for swapping out an existing controller with a new controller. The unit swap utility shall avoid the reprogramming of the system whenever a unit is replaced. All logs and events from the old unit shall be maintained.

D. The ACS shall support pre-configuration of the system prior to the physical hardware installation.

E. The ACS shall support Firmware upgrade in bulk from the application.

2.7 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 solely with a lock, a REX, and a door contact but without readers.

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.

ACS CUSTOM FIELDS (USER-DEFINED FIELDS)

L. The ACS shall permit the creation of custom fields. Up to 1,000 custom fields shall be supported.

M. Custom fields shall be supported for the following entities: cardholders, cardholder groups, credentials, and visitors.

N. Supported custom fields shall include: text, integers, decimal numbers, dates, Boolean, and images (graphics).

O. Users shall be able to define a default value for a custom field.

P. The creation of new custom field types shall be possible. New custom field types shall be based on the standard custom fields supported. They shall support user- defined values from which an operator must make a selection.

Q. Administrators have the ability to define which users can view and modify specific custom fields. This shall limit the access to custom field data to users with pre- defined privileges. The ACS shall support querying and report generation using custom fields.

R. Custom fields can be grouped and ordered within these groups as defined by the user.

S. Values for custom fields can be imported using the Import Tool.

2.8 GENERAL CLIENT SOFTWARE REQUIREMENTS

A. The Client Software Applications (CSA) shall provide the user interface for USP configuration and monitoring over any network and be accessible locally or from a remote connection.

B. The CSA shall consist of the Configuration UI for system configuration and the Monitoring UI for monitoring. The CSA shall be Windows-based and provide an easy-to-use graphical user interface (UI).

C. The CSA for monitoring shall support running in 64-bit mode.

D. The Server Administrator shall be used to configure the server database(s). It shall be web-based and accessible locally on the SSM or across the network.

E. The CSA shall seamlessly merge access control, license plate recognition (ALPR), and video functionalities within the same user application.

F. The USP shall use the latest user interface (UI) development and programming technologies such as Microsoft WPF (Windows Presentation Foundation), the XAML markup language, and the .NET software framework.

G. All applications shall provide an authentication mechanism, which verifies the validity of the user. As such, the administrator (who has all rights and privileges) can define specific access rights and privileges for each user in the system.

H. Logging on to a CSA shall be done either through locally stored USP user accounts and passwords or using the operators Windows credentials when Active Directory integration is enabled. (NTS: PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED FOR ACTIVE DIRECTORY)

I. When integrated with Microsoft's Active Directory, the CSA and USP shall authenticate users using their Windows credentials. As a result, the USP will benefit from Active Directory password authentication and strong security features. *(NTS: PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED)*

J. The CSA shall support multiple languages, including but not limited to the following: English, French, Arabic, Czech, Dutch, German, Hebrew, Hungarian, Italian,

Japanese, Korean, Norwegian, Persian (Farsi), Polish, Portuguese (Brazilian), Simplified and Traditional Chinese, Russian, Spanish, Swedish, Thai, Turkish and Vietnamese.

K. To enhance usability and operator efficiency, the Configuration UI and Monitoring UI shall support many of the latest UI such as:

1. A customizable Home Page that includes favorite and recently used tasks.

2. Task-oriented approach for administrator/operator activities where each type of activity (surveillance, visitor management, individual reports, and more) is an operator task.

3. Consolidated and consistent workflows for video, ALPR, and access control.

4. Single click functionality for reporting and tracking. The Monitoring UI shall support both single-click reporting for access control, ALPR, and video, as well as single-click tracking of areas, cameras, doors, zones, cardholders, elevators, ALPR entities, and more. Single-click reporting or tracking shall create a new task with the selected entities to report on or track.

L. Configuration UI and Monitoring UI Home Page and Tasks

1. The Configuration UI and Monitoring UI shall be task-oriented.

2. A task shall be user interface design patterns whose goal is to simplify the user interface by grouping related features from different systems such as video and access, in the same display window. Features shall be grouped together in a task based on their shared ability to help the user perform a specific task.

3. Tasks shall be accessible via the Home Page of either the Configuration or the Surveillance CSA.

4. Newly created tasks shall be accessible via the Configuration UI or the Monitoring UI taskbar.

5. Similar tasks shall be grouped into the following categories:

   a. Operation: Access control management, LRP management, and more.
   b. Investigation: access control activity reports, visitor activity reports, alarm reports, and more.
   c. Maintenance: Access control and, troubleshooters, audit trails, health-related reports, and more.

6. An operator shall be able to launch a specific task only if he or she has the appropriate privileges.

7. The Home Page content shall be customizable through the use of privileges to hide tasks that an operator should not have access to and through a list of favorite and recently used tasks. In addition, editing a USP XML file to add new tasks on the fly shall also be possible.

M. The Contractor shall provide up to Eight (8) number of simultaneous Clients. (NTS:CLIENT CONNECTIONS ARE CONCURRENT, THE FIRST 5 CLIENT CONNECTIONS ARE INCLUDED, SPECIFY A SITE LICENSE AFTER 40 CLIENT CONNECTIONS (ENTERPRISE ONLY))

2.9

2.10 CONFIGURATION USER INTERFACE (UI)

A. General

1. The Configuration UI application shall allow the administrator or users with appropriate privileges to change the system configuration. The Configuration UI shall provide decentralized configuration and administration of the USP system from anywhere on the IP network.

2. The configuration of all embedded ACS, VMS, and ALPR systems shall be accessible via the Configuration UI.

3. The Configuration UI shall have a home page with single-click access to various tasks.

4. The Configuration UI shall include a variety of tools such as troubleshooting utilities, import tools, and a unit discover tool, amongst many more.

5. The Configuration UI shall include a static reporting interface to:

   a. View historical events based on entity activity. The user shall be able to perform such actions as printing a report and troubleshooting a specific access event from the reporting view.
   b. View audit trails that show a history of user/administrator changes to an entity.

6. Common entities such as users, schedules, alarms and many more, can be reused by all embedded systems (ACS, VMS, and ALPR).

2.11 ACS CLIENT USER INTERFACE (UI)

A. The Monitoring UI shall fulfill the role of a Unified Security Interface that is able to monitor video, ALPR, and access control events and alarms, as well as view live and recorded video.

B. The Monitoring UI shall provide a graphical user interface to control and monitor the USP over any IP network. It shall allow administrators and operators with appropriate privileges to monitor their unified security platform, run reports, and manage alarms.

C. To enhance usability and operator efficiency, the Monitoring UI shall support the following UI concepts:

1. Dynamically adaptive interface that adjusts in real-time to what the operator is doing.

2. A dynamic dashboard loaded with entity-specific widgets (e.g. door and camera widgets).

3. Use of transparent overlays that can display multiple types of data in a seamless fashion.

4. Consolidated and consistent workflows.

5. Tile menus and quick commands easily accessible within every display tile of the user workspace.

6. Single click functionality for reporting and tracking. The Monitoring UI shall support both single-click reporting for access control, ALPR, and video, as well as single-click tracking of areas, cameras, doors, zones, cardholders, elevators, ALPR entities, and more. Single-click reporting or tracking shall create a new task with the selected entities to report on or to track.

D. Monitoring UI Home Page and Tasks

1. Similar tasks shall be grouped into the following categories:

a. Operation: Access control/LRP/video surveillance, visitor management, mustering, access control and video alarm monitoring, and more.
b. Investigation: Video bookmark/motion/archive reports, access control activity reports, visitor activity reports, alarm reports, ALPR activity reports, and more.
c. Maintenance: Access control and video configuration reports, troubleshooters, audit trails, and more.

E. Dynamically Adaptive UI, Dashboard, and Widgets

1. The Monitoring UI shall dynamically adapt to what the operator is doing. This shall be accomplished through the concept of widgets that are grouped in the Monitoring UI dashboard.

2. Widgets shall be mini-applications or mini-groupings in the Monitoring UI dashboard that let the operator perform common tasks and provide them with fast access to information and actions.

3. With a single click on an entity (e.g. door or camera) the specific widgets associated to that entity appear and other non-relevant widgets disappear dynamically (instantly). Widgets shall bring the operator information such as door status and camera stream information, as well as user actions, such as door unlock, PTZ controls, and more.

4. Specific widgets include those for a door, camera, alarm, zone, display tile, video stream (statistics), PTZ camera, and more.

F. Operator Workflows

1. A workflow shall be a sequence of operations an operator or administrator shall execute to complete an activity. The “flow” relates to a clearly defined timeline or sequence for executing the activity.

2. The Monitoring UI shall be equipped with consistent workflows for the ALPR, video, and access control systems that it unifies.

3. Generating or printing a report, setting up or acknowledging an alarm, or creating an incident report shall follow the same process (workflow) whether the operator is working with video, ALPR, or access control, or with both video and access control.

G. Each task within the Monitoring UI shall consist of one or more of the following items:

1. Event list.

2. Logical tree. Doors, cameras, zones, ALPR units, and elevators shall be grouped under Areas in a hierarchical fashion.

3. Entities list of all entities being tracked.

4. Display tiles with various patterns (1 x 1, 2 x 2, and more).

5. Display tile menu with various commands related to cameras, doors, PTZ, and tile controls.

6. Dashboard with widgets.

H. The Monitoring UI shall support multiple event lists and display tile patterns, including:

1. Event/alarm list layout only

2. Display tile layout only

3. Display tile and alarm/event list combination

4. ALPR map and alarm/event list combination

I. User workspace customization

1. The user shall have full control over the user workspace through a variety of user-selectable customization options. Administrators shall also be able to limit what users and operators can modify in their workspace through privileges.

2. Once customized, the user shall be able to save his or her workspace.

3. The user workspace shall be accessible by a specific user from any client application on the network.

4. Display tile patterns shall be customizable.

5. Event or alarm lists shall span anywhere from a portion of the screen up to the entire screen and shall be resizable by the user. The length of event or alarm lists shall be

user-defined. Scroll bars shall enable the user to navigate through lengthy lists of events and alarms.

6. The Monitoring UI shall support multiple display tile patterns (e.g. 1 display tile (1x1 matrix), 16 tiles (8x8 matrix), and multiple additional variations).

7. The Monitoring UI shall support as many monitors as the PC video adapters and Windows Operating System are capable of accepting.

8. Additional customization options include: show/hide window panes, show/hide menus/toolbars, show/hide overlaid information on video, resize different window panes, and choice of tile display pattern on a per task basis.

J. The Monitoring UI shall provide an interface to support the following tasks and activities common to access control, ALPR, and video:

1. Monitoring the events from a live security system (ACS and/or VMS and/or ALPR).

2. Generating reports, including custom reports.

3. Monitoring and acknowledging alarms.

4. Creating and editing incidents and generating incident reports.

5. Displaying dynamic graphical maps and floor plans as well as executing actions from dynamic graphical maps and floor plans.

6. Management and execution of hot actions and macros.

K. The Monitoring UI shall be able to monitor the activity of the following entities in real- time: areas, ALPR entities, doors, elevators, cameras, cardholders, cardholder groups, zones (input points), and more. The Monitoring UI shall provide an interface to support the following access control tasks and capabilities:

1. Monitoring and management of access events and alarms.

2. Viewing of cardholder picture or badge IDs.

3. Verification of cardholder picture IDs against live video.

4. Visitor management.

5. People counting or mustering, including resetting the people count in an area.

6. Door control, including remotely unlocking doors, overriding a door’s unlocking schedules, and enabling door maintenance mode.

7. Forgiving antipassback.

8. Generation of ACS configuration and activity reports.

9. Viewing of HTML files including alarm instructions.

L. Entity Monitoring

1. The USP shall permit the user to select multiple entities to monitor from the Monitoring UI by adding the entities one by one to the tracking list.

2. The Monitoring UI shall provide the option to filter which events shall be displayed in the display tile layout and/or event list layout.

3. It shall be possible to lock a Monitoring UI display tile so that it only tracks the activity of a specific entity (e.g. specific door or camera).

4. The user shall be able to drag and drop an event from an event list (or an alarm from an alarm list) onto a display tile to view a license plate read, cardholder picture ID, badge ID, or live/archived video, among other options.

5. Event, alarm, monitoring/tracking, and report lists shall contain cardholder pictures where applicable.

6. The user shall be permitted to start or pause the viewing of events within each display tile.

M. Display Tile Packing and Unpacking

1. The Monitoring UI shall support single-click unpacking and packing for, areas, doors, zones, and alarms.

2. The packing and unpacking of entities shall allow operators to quickly obtain additional information and camera views of a specific entity.

3. The unpacking of an entity shall display associated entities. For example, unpacking a door with multiple associated cameras shall display all cameras associated with that door. Unpacking shall reconfigure the display tiles to be able to display all associated entities. For example, unpacking a door (or a zone or alarm) that is currently in a 1 x 1 tile configuration and that has 3 cameras tied to it will create a 1 x 3 display tile arrangement for viewing all associated entities.

4. Packing will return the display to the original tile pattern.

N. The following additional tools or utilities shall be available from the Monitoring UI: create credentials, create cardholders, and access control troubleshooter.

2.12 SERVER ADMINISTRATOR USER INTERFACE REQUIREMENTS

A. The Server Administrator shall be used to configure the SSM and the Directory Role (main configuration) and its database(s), to apply the license, and more.

B. The Server Administrator shall be a web-based application. Through the Server Administrator, it shall be possible to access the SSM across the network or locally on the server.

C. Access to the Server Administrator shall be protected via login name, password, and encrypted communications.

D. The Server Administrator shall allow the administrator (user) to perform the following functions:

1. Manage the system license.

2. Configure the database(s) and database server for the Directory Role,

3. Activate/Deactivate the Directory Role.

4. Manually back up the Directory Role database(s) and/or restore the server database(s), as well as configure scheduled backups of the databases.

5. Define the client-to-server communications security settings.

6. Configure the network communications hardware, including connection addresses and ports.

2.13 UNIFIED WEB CLIENT (UWC) GENERAL REQUIREMENTS

A. The USP shall support a unified web client (UWC) for access control and video.

B. The UWC shall be a truly thin client with no download required other than an internet web browser or standard web browser plugins.

C. The UWC shall be platform independent and run within Microsoft Internet Explorer, Firefox, Safari, and Google Chrome.

D. The UWC shall be designed as an HTML5 application.

E. The UWC will support native H.264 video in the web client.

F. Web pages for the web client shall be managed and pushed by the Web Client Server. Microsoft IIS or any other web hosting service shall not be required given that all the web pages shall be hosted by the Mobile Server.

G. The Web Client Server shall provide the ability to define a unique URL to access the web client, to ensure the security of the application.

H. The UWC shall provide the ability to configure, save, and reload camera layouts.

I. The UWC shall provide the ability to control PTZ cameras.

J. Functionalities:

1. Login using name and password or Active Directory support shall be available. (NTS: PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED FOR ACTIVE 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. Access Control
   a. Unlock door.
   b. Door Activities report.

6. Alarms

    a. Alarm report.

2.14 SMARTPHONE AND TABLET APP GENERAL REQUIREMENTS

A. The USP shall 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 USP via a Mobile Server (same as the Unified Web Client or UWC). 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. Functionalities:

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.

F. Access Control

1. View cardholder picture with access-related events.

2. Monitor door status.

3. Unlock door.

4. Override unlocking or locking schedule.

5. Set door in maintenance mode.

2.24 HEALTH MONITOR

A. The USP shall monitor the health of the system, log health-related events, and calculate statistics.

B. USP services, roles, agents, units, and client apps will trigger health events.

C. The USP shall populate the Windows Event Log with health events related to USP roles, services, and client apps.

D. A dedicated role, the Health Monitoring Role, shall perform the following actions:

1. Monitor the health of the entire system and log events.

2. Calculate statistics within a specified time frame (hours, days, months).

3. Calculates availability for clients, servers and video/access/ALPR units.

E. A Health Monitoring task and Health History reporting task shall be available for live and historical reporting.

F. A web-based, centralized health dashboard shall be available to remotely view unit and role health events of the USP.

G. Detailed system care statistics will be available through a web-based dashboard providing health metrics of USP entities and roles, including Uptime and mean-time- between-failures.

H. Health events shall be accessible via the SDK (can be used to create SNMP traps).

2.25 USP GENERAL REQUIREMENTS

A. The Unified Security Platform (USP) shall be an enterprise class IP-enabled security and safety software solution.

B. The USP shall support the seamless unification of IP access control system (ACS), IP video management system (VMS), and IP automatic license plate recognition system (ALPR) under a single platform. The USP user interface (UI) applications shall present a unified security interface for the management, configuration, monitoring, and reporting of embedded ACS, VMS, and ALPR systems and associated edge devices.

C. Functionalities available with the USP shall include:

1. Configuration of embedded systems, such as ACS, ALPR, and VMS systems.

2. Live event monitoring.

3. Live video monitoring and playback of archived video.

4. Alarm management.

5. Reporting, including creating custom report templates and incident reports.

6. The Federation™ feature for global monitoring, reporting, and alarm management of multiple remote and independent ACS, VMS, and or ALPR systems spread across multiple facilities and geographic areas. (NTS: ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED)

7. Global cardholder management across multiple facilities and geographic areas each with their own independent ACS system. (NTS: ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED FOR EACH SITE)

8. Microsoft Active Directory integration for synchronizing USP user accounts and ACS cardholder accounts. (NTS: PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED)

9. Intrusion device and panel integration (live monitoring, reporting, and arming/disarming). (NTS: PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED)

10. SIP Intercom device integration for bi-directional communication. (NTS: ALL VERSIONS, ADDITIONAL LICENSE REQUIRED)

11. Integration with third party systems and databases via plug-ins (access control, video analytics, point of sale, and more). (NTS: PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED)

12. Dynamic graphical map viewing.

13. Asset management system integration. (NTS: PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED)

D. The USP shall be deployed in one or more of the following types of installations:

1. Unified access, ALPR, video platform, and any combination thereof.

2. Standalone access control, video, or ALPR platform.

3. Unified access and video platform that federates multiple remote ACS, VMS, and ALPR.

4. Standalone access control that federates multiple independent remote ACS.

E. Licensing

1. A single central license shall be applied centrally on the configuration server.

2. There shall be no requirement to apply a license at every server computer or client workstation.

3. Based on selected options, one or more embedded systems shall be enabled or disabled.

F. Hardware and Software Requirements

1. The USP and embedded systems (video, license plate recognition, and access control) shall be designed to run on a standard PC-based platform loaded with a Windows operating system. The preferred operating system shall be coordinated with the Owner following the manufacturer supported operating systems.

2. The core client/server software shall be built in its entirety using the Microsoft. NET software framework and the C# (C-Sharp) programming language.

3. The USP database server(s) shall be built on Microsoft's SQL Server. The preferred SQL version shall be coordinated with the Owner and compatible with the USP.

4. The USP shall be compatible with virtual environments, including VMware and Microsoft Hyper-V.

5. The USP shall use the latest user interface (UI) development and programming technologies such as Microsoft WPF (Windows Presentation Foundation), the XAML markup language, and .NET software framework.

2.26 USP ARCHITECTURE

A. The USP shall be based on a client/server model. The USP shall consist of a standard Server Software Module (SSM) and Client Software Applications (CSA).

B. The USP 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.

C. The SSM shall be a Windows service that can be configured to start when the operating system is booted and run in the background. The SSM shall automatically launch at computer startup, regardless of whether or not a user is logged on the machine.

D. Users shall be able to deploy the SSM on a single server or across several servers for a distributed architecture. The USP shall not be restricted in the number of SSM deployed.

E. The USP shall support the concept of The Federation feature whereby multiple independent ACS, VMS, and ALPR installations can be merged into a single large virtual system for centralized monitoring, reporting, and alarm management. (NTS: ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED)

F. The USP shall protect against potential database server failure and continue to run through standard off-the-shelf solutions.

G. The USP shall support up to one thousand instances of CSA connected at the same time. However, an unrestricted number of CSA can be installed at any time. (NTS: MAXIMUM 5 WITH STANDARD; MAXIMUM 10 WITH PROFESSIONAL; UNRESTRICTED WITH ENTERPRISE)

H. The USP 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.

I. Roles-Based Architecture

1. The USP shall consist of a role-based architecture, with each SSM hosting one or more roles.

2. Each role shall execute a specific set of tasks related to either core system, automatic

license plate recognition (ALPR), video (VMS), or access control (ACS) functionalities, among many others. Installation shall be streamlined through the ability of the USP to allow administrators to:

a. Deploy one or several SSM across the network prior to activating roles.
b. Activate and deactivate roles as needed on each and every SSM.
c. Centralize role configuration and management.
d. Support remote configuration.
e. Move roles over from one SSM to another.

3. Each role, where needed, shall have its own database to store events and role- specific configuration information.

4. Roles without databases, such as The Federation feature, Active Directory, and Global Cardholder Management, shall support near real-time standby without any third party failover software being required.

5. Directory Role

a. The Directory Role shall manage the central database that contains all the system information and component configuration of the USP.
b. The Directory Role shall authenticate users and give access to the USP based on predefined user access rights or privileges, and security partition settings.
c. The Directory Role shall support the configuration/management of the following components common to the ACS, ALPR, and VMS sub-systems:

i. Security Partitions, users and user groups.
ii. Areas.
iii. Zones, input/output (IO) linking rules, and custom output behavior.
iv. Alarms. Schedules, and scheduled tasks.
v. Custom events.
vi. Macros or custom scripts.

d. The Directory Role shall support the configuration/management of the following components specific to VMS:

i. Video servers and their peripherals (e.g. audio, IOs, and serial ports).
ii. PTZ.
iii. Camera sequences.
iv. Recording and archiving schedules.

e. The Directory Role shall support the configuration/management of the following components specific to ACS:

i. Door controllers, and input and output (IO) modules.
ii. Doors, Elevators, and Access rules.
iii. Cardholders and cardholder groups, credentials, and badge templates.

f. The Directory Role shall support the configuration/management of the following components specific to ALPR:

i. ALPR units and cameras.
ii. Hotlists, permit lists, and overtime rules.

6. The Video Archiver Role shall be responsible for managing cameras and encoders under its control and archiving

7. The Media Router Role shall be responsible for routing video and audio streams across local and wide area networks from the source (e.g. DVS) to the destination (e.g. CSA).

8. The Access Manager Role shall be responsible for synchronizing access control

hardware units under its control, such as door controllers and I/O modules. This role shall also be responsible for validating and logging all access activities and events when the door controllers and I/O modules are online.

9. The Automatic License Plate Recognition (ALPR) Role shall be responsible for synchronizing fixed ALPR units (cameras) and mobile ALPR applications under its control. The ALPR Role shall also be responsible for logging all ALPR activities and events.

10. The Zone Manager Role shall be responsible for managing all software zones (collection of inputs) and logging associated zone events. Zones shall consist of inputs from both access control and video devices.

11. The Health Monitoring Role shall be responsible for monitoring and logging health events and warnings from the various client applications, roles, and services that are part of the USP. This role shall also be responsible for logging events within the Windows Event Log and for generating reports on health statistics and health history.

12. Optional Roles

    a. The Federation Role shall be responsible for creating a large virtual system consisting of hundreds or thousands of independent and remote ACS, VMS, and/or ALPR systems. (NTS: ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED)
    b. The Global Cardholder Synchronizer Role shall be responsible for synchronizing cardholder and credential data between the local site and a central site. Synchronization between remote sites shall also be supported. (NTS: ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED)
    c. The Active Directory Role shall be responsible for synchronizing user accounts and cardholder accounts with a Microsoft Active Directory server. (NTS: PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED)
    d. The Intrusion Manager Role shall be responsible for managing third party intrusion devices such as alarm panels and perimeter detection devices. This role shall also be responsible for logging all intrusion events in a database. (NTS: PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED)
    e. The Asset Manager Role shall be responsible for integrating and synchronizing with third party asset management systems and logging asset related events. This role shall also be responsible for supporting the execution of asset-related reports such as inventory reports and asset activity reports. (NTS: PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED)
    f. The Plug-in Manager Role shall be responsible for the communication between the USP and third party systems such as video analytics, access control, video, ALPR, and building management systems. (NTS: PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED)
    g. The Web SDK Role shall be responsible for connecting the USP to any application or interface developed with the Web Service SDK. Applications developed with the Web Service SDK shall be platform independent and rely on the REST protocol for communications. (NTS: PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED)
    h. The Communication Management Role shall be responsible for registering the SIP communication endpoints and for managing the call routing. (NTS: ALL PACKAGES, ADDITIONAL LICENSE REQUIRED)

J. Server Monitoring Service (Watchdog)

1. The USP shall include a Server Monitoring Service that continuously monitors the state of the Server Software Module (SSM) service.

2. The Server Monitoring Service shall be a Windows service that automatically launches at system startup, regardless of whether or not a user is logged into his account.

3. The Server Monitoring Service shall be installed on all PCs/servers running an SSM. In the event of a malfunction or failure, the Server Monitoring Service shall restart the failed service. As a last resort, the Server Monitoring Service shall reboot the PC/server should it be unable to restart the service.

2.27 USP ACCESS CONTROL, VIDEO AND ALPR UNIFICATION

A. The Monitoring UI shall present a true Unified Security Interface for live monitoring and reporting of the ACS, VMS, and ALPR. Advanced live video viewing and playback of archived video shall be available through the Monitoring UI.

B. The Configuration UI shall present a true Unified Security Interface for the configuration and management of the ACS, VMS, and ALPR.

C. The user shall be able to associate one or more video cameras to the following entity types: areas, doors, elevators, zones, alarms, intrusion panels, ALPR cameras, and more.

D. It shall be possible to view video associated to access control events when viewing a report.

E. It shall be possible to view video associated to intrusion panel events when viewing a report.

F. It shall be possible to view video associated to ALPR events when viewing a report.

2.28 USP ALARM MANAGEMENT

A. The USP shall support the following Alarm Management functionality:

1. Create and modify user-defined alarms. An unrestricted number of user-defined alarms shall be supported.

2. Assign a time schedule or a coverage period to an alarm. An alarm shall be triggered only if it is a valid alarm for the current time period.

3. Set the priority level of an alarm and its reactivation threshold.

4. Define whether to display live or recorded video, still frames or a mix once the alarm is triggered.

5. Provide the ability to display live and recorded video within the same video tile using picture-in-picture (PiP) mode.

6. Provide the ability to group alarms by source and by type.

7. Define the time period after which the alarm is automatically acknowledged.

8. Define the recipients of an alarm. Alarm notifications shall be routed to one or more recipients. Recipients shall be assigned a priority level that prioritizes the order of reception of an alarm.

9. Define the alarm broadcast mode. Alarm notifications shall be sent using either a sequential or an all-at-once broadcast mode.

10. Define whether to display the source of the alarm, one or more entities, or an HTML page.

11. Specify whether an incident report is mandatory during acknowledgment.

B. The workflows to create, modify, add instructions and procedures, and acknowledge an alarm shall be consistent for access control, ALPR, and video alarms.

C. Alarms shall be federated, allowing global alarm management across multiple independent USP, ACS, and VMS systems.

D. The USP shall also support alarm notification to an email address or any device using the SMTP protocol.

E. The ability to create alarm-related instructions shall be supported through the display of one or more HTML pages following an alarm event. The HTML pages shall be user-defined and can be interlinked.

F. Alarm unpacking and packing shall be supported where all the entities associated to an alarm can be display in the Monitoring UI with the single click of a button.

G. The user shall have the ability to acknowledge alarms, create an incident upon alarm acknowledgement, and put an alarm to snooze.

H. The user shall be able to spontaneously trigger alarms based on something he or she sees in the system.

I. An alarm shall be configured in such a way that it remains visible until the source condition has been acknowledged.

J. The user shall be able to investigate an alarm without acknowledging it.

2.29 USP THREAT LEVELS (NTS: SPECIFIER, ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED)

A. The USP shall support Threat Levels to dynamically change the system behavior to respond to critical events.

B. Threat Levels shall be activated and deactivated by the CSA operator with the right privilege.

C. Threat Levels shall be set on an area or on the entire system.

D. Threat Levels shall affect the system behavior by executing any action available in the USP such as: trigger output, start recording, block camera, override recording quality, arm zone, set a door in maintenance mode, and more.

E. The following specific actions shall be available with Threat Level:

1. Set minimum security clearance to restrict or permit access to cardholders on specific areas on top of the restrictions imposed by the access rules.

2. Set minimum user level to automatically log out user from the USP.

3. Set reader mode to change how the doors are accessed (e.g. card and PIN, or card or PIN).

F. A visible notification shall be displayed in all operator CSA when a Threat Level is

activated.

2.30 USP ADVANCED TASK MANAGEMENT

A. USP shall support an infrastructure for managing Monitoring UI tasks used for live monitoring, day to day activities, and reporting.

B. Administrators shall be able to assign tasks and lock the operator`s workspace. The user management of their workspace shall be limited by their assigned privileges.

C. Operators shall be able save their tasks as either Public Tasks or Private Tasks and in a specific partition. Public tasks shall be available to all users. Private tasks shall only be available to the owner of the task.

D. Operators shall be able to share their tasks by sending them to one or more online users. Recipients shall have the option to accept the sent task.

2.31 USP REPORTING

A. The USP shall support report generation (database reporting) for access control, ALPR, video, and intrusion.

B. Each and every report in the system shall be a USP task, each associated with its own privilege. A user shall have access to a specific report task if he or she has the appropriate privilege.

C. The workflows to create, modify, and run a report shall be consistent for access control, ALPR, and video reports.

D. Reports shall be federated, allowing global consolidated reporting across multiple independent USP, ACS, VMS, and ALPR systems.

E. Access control and ALPR reports shall support cardholder pictures and license plate pictures, respectively.

F. The USP shall support the following types of reports:

1. Alarm reports.

2. Video-specific reports (archive, bookmark, motion, and more).

3. Configuration reports (cardholders, credentials, units, access rules, readers/inputs/outputs, and more).

4. Activity reports (cardholder, cardholder group, visitor, credential, door, unit, area, zone, elevator, and more).

5. ALPR-specific reports (mobile ALPR playback, hits, plate reads, reads/hits per day, reads/hits per ALPR zone, and more).

6. Health activity and health statistics reports.

7. Other types of reports, including visitor reports, audit trail reports, incident reports, and time and attendance reports.

G. Generic Reports, Custom Reports and Report Templates

1. The user shall the option of generating generic reports from an existing list, generating reports from a list of user-defined templates, or creating a new report or report template.

2. The user shall be able to customize the predefined reports and save them as new report templates. There shall be no need for an external reporting tool to create custom reports and report templates. Customization options shall include setting filters, report lengths, and timeout period. The user shall also be able to set which columns shall be visible in a report. The sorting of reported data shall be available by clicking on the appropriate column and selecting a sort order (ascending or descending).
3. All report templates shall be created within the Monitoring UI.
4. These templates can be used to generate reports on a schedule in PDF or Excel formats.
5. An unrestricted number of custom reports and templates shall be supported.

H. A reporting task layout shall consist of panes with settings (report length, filters, go and reset commands, etc.), the actual report data in column format, and a pane with display tiles. The user shall be able to drag and drop individual records in a report onto one or more display tiles to view a cardholder's picture ID, playback a video sequence, or an ALPR event.

I. The USP shall support comprehensive data filtering for most reports based on entity type, event type, event timestamp, custom fields, and more.

J. The reporting task shall have the ability to display results through graphics such as pie charts and bar graphs.

K. The user shall be able to click on an entity within an existing report to generate additional reports from the Monitoring UI.

L. The USP shall support the following actions on a report: print report, export report to a PDF/Microsoft Excel/CSV file, and automatically email a report based on a schedule and a list of one or more recipients.

2.32 USP FEDERATION FEATURE: MONITORING OF REMOTE SYSTEMS (NTS: SPECIFIER, ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED FOR EACH FEDERATED SITES AND ENTITIES)

A. The USP shall support the concept of a Federation feature for access control, video, and ALPR.

B. The Federation feature shall allow multiple independent USP systems (Federated systems) to be unified into a larger virtual system (the Federation feature). This shall facilitate the global monitoring of multiple independent USP systems.

C. The Federation feature shall support the unification of multiple independent video surveillance systems or VMS.

D. The Federation feature shall support the unification of multiple independent access control systems or ACS.

E. The Federation feature shall support the unification of multiple independent license plate recognition systems or ALPR.

F. Entities that shall federated and monitored centrally from the Federation feature shall include: alarms, areas, cameras, cardholders and cardholder groups, credentials, doors, elevators, ALPR events, and zones (monitored inputs).

G. The Federation feature shall support a cloud-based deployment, whereby the service and

infrastructure will be updated automatically and provisioned by the service provider, without need for on-site hardware.

H. The Federation feature shall support Global Alarm Management from the Monitoring UI for access control, video, and ALPR.

I. The Federation feature shall support Global Report Generation from the Monitoring UI for access control, video, and ALPR.

J. The Federation feature shall support dozens of operator actions on remote (federated) entities from the Monitoring UI (e.g. generating a global report taking into account events from multiple independent sites or acknowledging remote alarms).

2.33 USP ZONE MANAGEMENT

A. The USP shall support the configuration and management of zones for input point monitoring via the Zone Manager Role. A user shall be able to add, delete, or modify a zone if he or she has the appropriate privileges.

B. A zone shall monitor the status of one or more inputs points. Zone monitoring or input point monitoring shall be possible through the use of a controller and one or more input modules. Inputs from video cameras or video encoders shall also be accessible via a zone.

C. Depending on the hardware installed, supervised inputs shall be supported. Depending on the input module used, both 3-state and 4-state supervision shall be available.

D. A schedule shall be defined for a zone, indicating when the zone will be monitored.

E. Custom Events shall provide full flexibility in creating custom events tailored to a zone. Users shall be able to associate custom events to state changes in monitored inputs.

F. The ACS shall support one or more cameras per zone. Video shall then be associated to zone state changes.

G. Input/Output (IO) Linking

1. Zone management shall support Input/Output (IO) Linking. I/O Linking shall allow one or more inputs to trigger one or more outputs.

2. I/O Linking shall be available in offline mode when communication between the server and hardware is not available.

3. Custom Output Behaviors shall provide full flexibility in creating a variety of complex output signal patterns: simple pulses, periodic pulses, variable duty- cycle pulses, and state changes.

4. Through the “trigger an output” action, the ACS shall support the triggering of outputs with custom output behaviors.

2.34 USP USER AND USER GROUP SECURITY, PARTITIONS AND PRIVILEGES MANAGEMENT

A. The USP shall support the configuration and management of users and user groups. A user shall be able to add, delete, or modify a user or user group if he or she has the appropriate

privileges.

B. The USP shall support user authentication with claims-based authentication using external providers. External providers shall include:

1. ADFS (Active Directory Federation Services)

C. Common access rights and privileges shared by multiple users shall be defined as User Groups. Individual group members shall inherit the rights and privileges from their parent user groups. User group nesting shall be allowed.

D. User privileges shall be extensive in the USP. All configurable entities for the USP, including access control, video, and ALPR, shall have associated privileges.

E. Specific entities, such as cardholders, cardholder groups, and credentials shall include a more granular set of privileges, such as the right to access custom fields and change the activation or profile status of an entity.

F. Partitions

1. The USP shall limit what users can view in the configuration database via security partitions (database segments). The administrator, who has all rights and privileges, shall be allowed to segment a system into multiple security partitions.

2. All entities that are part of the USP can be assigned to one or more partitions.

3. A user who is given access to a specific partition shall only be able to view entities (components) within the partition to which he or she has been assigned. Access is given by assigning the user as an accepted user to view the entities that are members of a particular partition.

4. A user or user group can be assigned administrator rights over the partition.

G. It shall be possible to specify user and user group privileges on a per partition basis.

H. Advanced logon options shall be available such as dual logon and more.

I. It shall be possible to specify an inactive period for the Monitoring UI after which time the application shall automatically lock, while still preserving access to currently displayed camera feeds.

2.35 USP EVENT/ACTION MANAGEMENT

A. The USP shall support the configuration and management of events for video and ALPR. A user shall be able to add, delete, or modify an action tied to an event if he has the appropriate privileges.

B. The USP shall receive all incoming events from one or more ACS, VMS, and/or ALPR. The USP shall take the appropriate actions based on user-define event/action relationships.

C. The USP shall receive and log the following events:

1. System-wide events

2. Application events (clients and servers)

3. Area, camera, door, elevator, and ALPR events (reads and hits)

4. Cardholder and credential events

5. Unit events

6. Zone events

7. Alarm events

8. ALPR events

9. First Person In and Last Person Out events and antipassback events

10. Intrusion events

11. Asset management events

D. The USP shall allow the creation of custom events.

E. The USP shall have the capability to execute an action in response to an access control, video, and ALPR event.

F. The USP shall allow a schedule to be associated with an action. The action shall be executed only if it is an appropriate action for the current time period.

2.36 USP SCHEDULES AND SCHEDULED TASKS

A. Schedules

1. The USP shall support the configuration and management of complex schedules. A user shall be able to add, delete, or modify a schedule if he or she has the appropriate privileges.

2. The USP shall provide full flexibility and granularity in creating a schedule. The user shall be able to define a schedule in 1-minute or 15-minute increments.

3. Daily, weekly, ordinal, and specific schedules shall be supported.

B. Scheduled Tasks

1. The USP shall support scheduled tasks for access control, video, and ALPR.

2. Scheduled tasks shall be executed on a user-defined schedule at a specific day and time. Recurring or periodic scheduled tasks shall also be supported.

3. Scheduled tasks shall support all standard actions available within the USP, such as sending an email or emailing a report.

2.37 USP MACROS AND CUSTOM SCRIPTS

A. The USP shall enable users to automate and extend the functionalities of the system through the use of macros or custom scripts for access control, video, and ALPR.

B. Custom macros shall be created with the USP Software Development Kit (SDK).

C. A macro shall be executed either automatically or manually.

D. In the Monitoring UI, a macro shall be launched through hot actions.

2.38 USP DYNAMIC GRAPHICAL MAPS (DGM)

A. The USP shall support mapping functionality for access control, video surveillance, intrusion detection, ALPR, and external applications.

B. The USP shall provide a map centric interface with the ability to command and control all the USP capabilities from a full screen map interface.

C. It shall be possible to span the map over all screens of the USP client station. In the scenario where the map is spanned over all the screens of the USP client station it shall be possible to navigate the map including pan and zoom, and the map's moves shall be synchronized between all screens. Spanning the map over multiple screen must provide the same command and control capabilities than in a single screen display.

D. The DGM shall support the following file format and protocol for importing map background:

1. PDF
2. JPG
3. PNG
4. Web Tile Map Service (WMTS) and Web Map Service (WMS) defined by the Open Geospatial Consortium (OGC)
5. BeNomad

E. The DGM shall provide the following online map providers for use as map background and provide the ability to manage their service license if they require one:

1. Google Map, aerial, terrain (Licensed)
2. Bing Map, aerial, satellite, hybrid (Licensed)
3. ESRI ArcGIS (Licensed)
4. OpenStreet Map aerial
5. OVI hybrid

F. It shall be possible to configure a mixed set of maps made of GIS, online providers and private imported files and link them together.

G. The DGM shall provide the ability to display all native entities of the USP including:

1. Cameras, fix, and PTZ
2. Doors
3. Camera sequences
4. Areas
5. Intrusion areas

6. Intrusion zones

7. License Plate Recognition cameras

8. Digital inputs

9. Digital outputs

10. Intercoms

11. Alarms

12. Macros

13. Police Car Patrollers

H. The DGM shall provide the ability to draw and display information over the map in the form of:

1. Vectoriel shapes: line, rectangles, polygones, ellipse

2. Pictures

3. Text

I. The DGM shall provide the ability to display any type of third party entities integrated through an SDK. (SPECIFIER, PLAN MANAGER STANDARD AND UP, ADDITIONAL LICENSE REQUIRED)

J. The DGM shall provide the ability to display layer of information in Keyhole Markup Language (KML) format.

K. The DGM shall provide the ability to the operator to manage layers of entities displayed over the map, being able to turn them on and off and changing the superposition order.

L. The DGM shall provide the ability to import data layers from one or more ESRI ArcGIS servers.

M. The DGM shall provide the operators with the ability to manage layers that are imported from ESRI ArcGIS. The operators shall be able to turn the layers on and off, as well as sort the layers.

N. The DGM shall offer built-in map data backup and restore for both map backgrounds and layers of entities.

O. The DGM shall offer failover capabilities.

P. The DGM shall scale up to several thousands of entities on a single map and hundreds of maps.

Q. The DGM shall provide a means to update a map background without affecting the map object configuration.

R. The DGM shall offer a user friendly graphical map designer to configure the maps.

S. The DGM shall provide a user friendly and intuitive navigation that includes:

1. The ability to create hierarchies of maps to facilitate navigation within and between various sites and buildings.

2. The ability to define favorites for recurrent position recall.

3. The possibility to create links between maps. The map links shall allow the link from one map to multiple maps representing the floors of a building.

4. A common user experience regarding navigation into the map for both GIS and private maps. *(SPECIFIER, PLAN MANAGER ADVANCED REQUIRED FOR GIS)*

5. A history log of positions.

T. It shall be possible to monitor the state of entities on the map. It shall be possible to customize the icons of any entities represented on the map.

U. The DGM shall offer the ability to optionally set a graphical display notification of the motion detection.

V. The DGM shall offer a smart selection tool to access the video. By clicking the location the user wants to see, the DGM will automatically select the cameras that can see this location and move the PTZ towards that location. This smart selection tool shall take obstacles into consideration and not display cameras that cannot see the location because of a wall.

W. It shall be possible to select a location by drawing a zone of interest on the DGM, and to display all the entities that are part of that zone of interest at once.

X. The user shall be able to select and display the content of multiple USP entities on the map in pop-up windows.

Y. The user shall be able to move, resize, and pin the USP entity pop-up windows to the map.

Z. It shall be possible to access live and playback video from the map.

AA. It shall be possible to monitor all entity event notifications from the DGM. Users shall be able to turn notifications on and off per entity.

BB. The DGM shall offer the ability to fully operate alarm monitoring. It shall be possible to:

1. Center the map on entities related to the alarm.

2. Visualize the Alarm notifications on the map, and access the related videos from the map.

3. Trigger and receive alarms.

4. Act on the alarm from the DGM, including acknowledgements, forwarding, and investigation.

5. Visualize that an alarm occurred in an underlying linked map.

CC. The DGM shall provide the following search capabilities:

1. Search and center by entity name.

2. From the Display of an entity in the USP, locate the entity on the map and offer the ability

to select another one close-by.

DD. Any update of map content by an administrator shall be immediately and dynamically pushed to all DGM users.

EE. The DGM shall support the use of GIS maps or private maps or a combination of both for map background. *(SPECIFIER, PLAN MANAGER ADVANCED REQUIRED FOR GIS)*

FF. The DGM shall be compatible with any GIS compliant maps with the OGC and supporting WMTS and WMS. This includes, but is not limited to, ESRI maps. The DGM shall allow the selection of the appropriate GIS layers. *(SPECIFIER, PLAN MANAGER ADVANCED REQUIRED FOR GIS)*

GG. The DGM shall provide an intuitive built-in map designer for entity positioning on the map using drag and drop. Any configuration shall be graphic.

HH. It shall be possible to edit and configure multiple map objects at once.

II. All map design modifications shall be logged in an audit trail.

JJ. Various actions shall be available within maps for execution through simple and intuitive double-click, right-click, or drag-and-drop functionality. Examples of actions available through maps shall include unlocking a door and acknowledging an alarm.

KK. Through the following functionality, the DGM shall allow the management of USP alarms from the map: (SPECIFIER, PLAN MANAGER STANDARD AND UP, ADDITIONAL LICENSE REQUIRED)

1. Locate on the map entities related to the alarm.

2. Display entities of the alarm with a specific icon, color, transparency level, and blinking rate.

3. List, select, and locate alarms.

4. Auto center the map on the highest priority alarm.

5. Handle the alarm from the map, including acknowledgement, forwarding and investigation.

6. All map containers, such as hotspots or map links shall reflect the alarm status of the contained entities.

LL. It shall be possible to add advanced functionality to maps object using the SDK. Any functionality available through the USP SDK shall be available within maps. (SPECIFIER, PLAN MANAGER STANDARD AND UP, ADDITIONAL LICENSE REQUIRED)

MM. The DGM shall offer lasso tools for:

1. Displaying entities at one location through a single action.

2. Triggering an action on all entities at one a location in a single click.

3. Editing multiple entities at one location simultaneously.

NN. The DGM shall allow the display of USP entities selected from the map on a remote monitor

(video wall) (SPECIFIER, PLAN MANAGER STANDARD AND UP, ADDITIONAL LICENSE REQUIRED)

OO. The DGM shall provide the following search capabilities:

1. 1. Search within the map by entity name, street name, or point of interest.

PP. The DGM shall allow the use of KML overlay map information for both GIS and private maps. Movable objects shall be supported through the use of KML. (SPECIFIER, PLAN MANAGER ADVANCED ONLY, ADDITIONAL LICENSE REQUIRED)

QQ. Any updating of map content by an administrator shall be immediately and dynamically pushed to all operators displaying the map.

RR. The Contractor shall provide licenses for each entity that is required to be shown on the graphical maps. (SPECIFIER, LICENSES ARE SOLD IN PACKS BASED ON QUANTITY OF ENTITIES, SPECIFY A SITE LICENSE OR UNLIMITED AFTER 1,000 ENTITIES)

2.39 USP AUDIT AND USER ACTIVITY TRAILS (LOGS)

A. The USP shall support the generation of audit trails. Audit trails shall consist of logs of operator/administrator additions, deletions, and modifications.

B. Audit trails shall be generated as reports. They shall be able to track changes made within specific time periods. Querying on specific users, changes, affected entities, and time periods shall also be possible.

C. For entity configuration changes, the audit trail report shall include detailed information of the value before and after the changes.

D. The USP shall support the generation of user activity trails. User activity trails shall consist of logs of operator activity on the USP such as login, camera viewed, ALPR event viewed, badge printing, video export, and more.

E. The ACS shall support the following actions on an audit and activity trail report: print report and export report to a PDF/ Microsoft Excel/CSV file.

2.40 USP INCIDENT REPORTS

A. Incident reports shall allow the security operator to create reports on incidents that occurred during a shift. Both video-related and access control-related incident reports shall be supported.

B. The operator shall be able to create standalone incident reports or incident reports tied to alarms.

C. The operator shall be able to link multiple video sequences to an incident, access them in an incident report, and change the date or time of the sequences later on.

D. It shall be possible to create a list of Incident categories, tag a category to an incident, and filter the search with the category as a parameter.

E. Incident reports shall allow the creation of a custom form on which to input information on an incident.

F. Incident reports shall allow entities, events, and alarms to be added to support at the report's conclusions.

2.41 USP THIRD PARTY INTEGRATION

A. Microsoft Active Directory Integration (SPECIFIER, PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED)

1. The USP shall support a direct connection to one or multiple Microsoft Active Directory server via the Active Directory Role(s). Active Directory integration shall enable the synchronization of information from the Active Directory server to the USP.

2. Active Directory integration shall permit the central management of the USP users, user groups, cardholders, and cardholder groups.

3. The USP shall be able to connect to and synchronize data from multiple Active Directory servers (up to 10).

4. The USP shall support synchronizing Active Directory Universal Groups as well as security groups belonging to other domains within the same forest.

5. The USP shall support Microsoft Active Directory encryption using LDAP SSL.

6. When enabled, Active Directory shall manage user logon to the USP client applications through the user's Windows credentials. Logging to the USP shall utilize native Active Directory password management and authentication features.

7. It shall be possible to synchronize the following USP entities and their information from Active Directory with the USP:

   a. Users (username, first and last names, email address, and more).
   b. User groups (user group name, description, and group email address).
   c. Cardholders (first and last names, description, email, picture and more).
   d. Cardholder groups (cardholder group name, description, and group email address).
   e. Active Directory attributes to USP custom fields.

8. When enabled, the addition, removal, or suspension of a user's Windows account in Active Directory shall result in the creation, deletion, or disabling of the equivalent user account in the USP.

9. When enabled, the addition, removal, or suspension of a user's Windows account in Active Directory shall result in the creation, deletion, or disabling of the equivalent cardholder account in the USP.

10. Supported synchronization methods for additions, modification, and deletions of synchronized entities shall include: on first logon (users only), manual synchronization, and scheduled synchronization.

11. The USP shall support user connections across independent organizations by connecting to an external ADFS (Active Directory Federation Services) service using claims-based authentication.

B. Intrusion Detection Integration (SPECIFIER, PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED - FOR AN EXTENDED LIST, REFER TO THE SUPPORTED PLUGINS IN SECURITY CENTER DOCUMENT)

1. The USP shall integrate with third party intrusion panels and devices via an Intrusion SDK. The Intrusion Manager Role shall manage communications with the intrusion panels. Communications with intrusion devices shall be over serial communications and/or an IP network.

2. Integration with intrusion panels shall be possible outside the release cycle of the USP. It shall be possible to add new integrations at any point in time.

3. Functionality available via the integration of intrusion devices with the USP shall include the following (where supported by the intrusion panel):

    a. Arm and disarm intrusion devices (manually, on schedule, or following a USP event).
    b. Activate or trigger intrusion device outputs.
    c. View intrusion events and alarms.
    d. Monitor the status, including arming status, of the intrusion devices.
    e. Video verification of intrusion events and alarms with video panels.
    f. Create USP zones using intrusion device inputs.

4. Currently supported intrusion panels include:

    a. Bosch G Series panels.
    b. DSC Power Series panels.
    c. DMP XR Series panels.
    d. Honeywell Galaxy Dimension panels.

C. Third Party Access Control Systems (SPECIFIER, PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED, FOR EXTENDED LIST PLEASE REFER TO THE SECURITY CENTER SUPPORTED PLUGINS GUIDE)

1. The USP shall integrate with third party access control software via the SDK. Communications with access control software shall be over an IP network, and should not support administrative tasks such as cardholder management.

2. Integration with access control software shall be possible outside the release cycle of the USP. It shall be possible to add new integrations at any point in time.

3. Functionality available via the integration of access control software with the USP shall include the following (where supported by the access control solution):

    a. Synchronize access control entities and receive associated events and states within the USP, including:
        1) Cardholders and access rights
        2) Visitors
        3) Readers and doors
        4) Alarms
    b. Monitor access control events
    c. Monitor and acknowledge access control alarms
    d. Trigger actions and outputs in the access control software using hot actions and event-to-actions
    e. Lock and unlock doors in the access control software
    f. Configure event-to-actions using the access control events and alarms
    g. Generate Security Center reports using the access control data
    h. View and monitor states of door entities in the USP maps

D. Asset Management Integration (SPECIFIER, REQUIRES AN ADDITIONAL LICENSE, PROFESSIONAL AND UP)

1. The USP shall integrate with third party asset management systems via the Asset Management Role.

2. Communications with asset management solutions shall be over an IP network (via software communications).

3. Functionality available via the integration of asset management systems with the USP shall include the following (where supported by the asset management systems):

    a. Synchronize asset management system assets with USP asset entities.
    b. Live monitoring of asset-related activity events, health events, and activity (asset online, asset offline, asset moves, or low battery).
    c. Synchronization of asset management alarms with Security Center alarms.
    d. Viewing video tied to asset-related activity and alerts within monitoring and reporting tasks.
    e. Acknowledging alarms in Security Center which acknowledges alerts in the asset management system and vice versa.
    f. Real-time tracking of asset locations on a per area basis.
    g. Asset Management Inventory reporting task that details the current location (area) of an asset.
    h. Asset Activity reporting task that provides a historical review of asset-related events and activity.

4. Currently supported asset management systems include:

    a. RF Code Asset Manager

E. Additional Third Party Integrations

1. The USP shall support multiple approaches to integrating third party systems. These shall include: Software Development Kits (SDKs), REST-based Web Service SDKs, RTSP Service SDKs, and more. (SPECIFIER, PROFESSIONAL AND UP, SDK PACKAGE AND LICENSE REQUIRED)

2. The USP architecture shall support the addition of new connectors to integrate to third party system integration, such as: (SPECIFIER, REFER TO THE WEBSITE FOR HOW THESE ARE LICENSED)

    a. Third party video systems.
    b. Third party access control systems.
    c. ALPR integrations with pay stations, permit vendors, pay-by-phone vendors, and ticketing vendors.
    d. Building management systems.
    e. Human resource management systems (HRMS).

2.42 USP SOFTWARE DEVELOPMENT KIT (SDK) (NTS: PROFESSIONAL AND UP, ADDITONAL LICENSE REQUIRED) (SPECIFIER, PLAN MANAGER STANDARD AND UP, ADDITIONAL LICENSE REQUIRED)

A.

A. A USP SDK shall be available to support custom development for the platform.

B. The SDK shall include functionalities specific to the embedded automatic license plate recognition (ALPR), access control (ACS), and video (VMS) systems.

C. Integration with external applications and databases shall be possible with the SDK.

D. The SDK shall enable end-users to develop new functionality (user interface, standalone applications, or services) to link the USP to third party business systems

and applications such as Badging Systems, Human Resources Management Systems (HRMS), and Enterprise Resource Planning (ERP) systems.

E. The SDK shall be based on the .NET framework.

F. The SDK shall support dynamic or transactional updates to the USP configuration. It shall also support change notification of USP entity configuration.

G. The SDK shall provide an extensive list of programming functions to view and/or configure core entities such as: users and user groups, alarms, custom events, and schedules, and more.

H. The SDK shall provide an extensive list of programming functions to view and configure ACS, VMS, and ALPR.

I. The SDK shall provide an extensive list of programming functions to view and configure most ACS entities such as: cardholders, cardholder groups, visitors, credentials, access rules (modify only), and custom fields.

J. The SDK shall be able to receive real time events from the following USP entities: users and user groups, areas, zones, cameras, video units, doors, door controllers (units), elevators, cardholders, cardholder groups, and credentials.

K. The SDK shall be able to query the history of events for areas, cameras, zones, alarms, cardholders, credentials, visitors, doors, query license plate read events, license plate hit events, generate a license plate hits report, generate a license plate reads report.

L. The SDK shall support the following alarm functions: view alarms in real time, acknowledge alarms, change priority, and change recipient.

PART 3 - EXECUTION

3.1 WARRANTY

A. The product shall perform in all material respects in accordance with the accompanying user manual, and the media on which the Software Product resides will be free from defects in materials and workmanship under normal use. Software defects are covered through Service Releases and Cumulative Updates which are available for a period of 1 year from the date of the software purchase.

B. Extended warranty, up to 5 years, shall be available through the purchase of the Genetec Advantage support service which includes the following additional services over the standard warranty:

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)*

3.2 DEPLOYMENT SERVICES AND SYSTEM COMMISSIONING (NTS: THIS IS A PER DAY CHARGE PLUS TRAVEL, CONSULT GENETEC ON NUMBER OF RECOMMENDED DAYS TO SPECIFY)

A. General Requirements

1. The contractor shall engage the services of the USP vendor to assist in the management of the deployment of the USP at the end-user site on projects that involve:
   a. Multiple contractors or subcontractors that will be responsible for deploying the USP at multiple client sites in different geographical regions.
   b. Complex enterprise installations involving advanced functionality (e.g. The Federation feature, failover, plugins) and/or multiple systems (e.g. access control, video, ALPR) and/or third party integrations.
   c. Extensive use of customized solutions/plugins developed by the vendor that will be integrated into the USP.

2. The USP vendor services shall include Deployment Management and System Configuration and Commissioning.

B. Deployment Management Service

1. The Deployment Management service from the vendor shall include a Project Manager acting as the single point of contact for all communications between the contractor and the vendor organization and who will be responsible for:
   a. Conducting a Risk Assessment of the impact of potential risk factors on the operation of the vendor's USP.
   b. Providing a project plan for the deployment of the vendor's USP.
   c. Managing the development and deployment of the custom solution components that will be integrated into the vendor's USP (if applicable).
   d. Providing a scope of work detailing the services to be provided by the vendor to assist in the deployment of the vendor’s USP.
   e. Coordinating and scheduling the vendor field services with the contractor to assist with the deployment of the vendor’s USP.
   f. Providing regular project status updates to the contractor regarding the development of custom solutions (if applicable) and the deployment of the vendor’s USP.

C. Solution Architect Service

1. The Solution Architect service from the vendor shall include a Solutions Architect Engineer acting as a single technical point of contact throughout the deployment of the USP, and who will be responsible for:
   a. Assisting the contractor/subcontractor with the design and architecture of the vendor’s USP.
   b. Conducting technical consultation activities that may include fit/gap analysis, system design reviews, device compatibility assessments, functional and technical design reviews, as well as performance reviews of the vendor’s USP.
   c. Conducting a system assessment and ensuring best practices of the vendor’s

USP are followed.

d. Providing upgrade and migration strategy for the vendor's USP where applicable.
e. Providing documentation regarding the system architecture, system design, hardware specifications and compatibility requirements, camera bandwidth calculations, and best practices as they relate to the vendor's USP.

D. System Configuration and Commissioning Service

1. The System Configuration and Commissioning service from the vendor shall include a Field Engineer who will be responsible for:

a. Assisting the contractor's or subcontractor's onsite/remote technicians with the configuration and commissioning of the vendor's USP at the client site.
b. Conducting a test of the USP following the deployment of the system using real-world operator scenarios to ensure optimal system performance.
c. Providing the contractor with a Service Report detailing the tasks completed during the deployment of the USP at the client site, as well as any recommendations for improving the performance of the USP that must be implemented by the contractor.
d. Providing a knowledge transfer of the vendor's USP to the contractor following the deployment of the USP at the client site.

3.3 MANUFACTURER END USER OPERATOR TRAINING (NTS: THIS IS A PER HALF-DAY CHARGE PLUS EXPENSES)

A.

A. The contractor shall engage the services of the USP vendor to assist in the end user training of the USP at the end-user site.

END OF SECTION 28 13 00

SECTION 28 23 00
VIDEO MANAGEMENT SYSTEM

PART 1 - GENERAL

1.1 SCOPE

A. Perform all Work required to provide and install the following video management system indicated by the Contract Documents with supplementary items necessary for proper installation.

1.2 REFERENCES

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within the following references:

1.3 SUBMITTALS

A. Product Data

1.4 RELATED WORK

A. Division 14 – General Elevator Requirements

B. Section 28 13 00 – Electronic Access Control System

1.5 DEFINITIONS

A. ACS – Access Control System

B. CSA – Client Software Application

C. DGM – Dynamic Graphical Maps

D. DVS – Digital Video Server

E. ALPR – Automatic License Plate Recognition

F. SDK – Software Development Kit

G. GLM – Genetec Lifecycle Management

H. SSM – Server Software Module

I. UI – User Interface

J. USP – Unified Security Platform

K. USW – Unified Web Client

L. VMS – Video Management System

PART 2 - PRODUCTS

2.1 VMS GENERAL REQUIREMENTS

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 digital video servers (DVS). The VMS shall support DVS from various manufacturers.

D. The VMS shall integrate DVS using the DVS native SDK or using the following industry standards to interface to the DVS:

1. ONVIF

E. 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.

F. 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.

G. 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.

H. The VMS shall allow for the configuration of a time zone for each camera connected to a DVS. For playback review, users shall have the ability to search for video based on the following options:

1. Local time of the camera

2. Local time of the SSM

3. Local time of user's workstation

4. GMT Time

5. Other time zone

I. VMS shall consist of VMS software, cameras, storage server for 60 days at 15 FPS, camera licenses, camera switches, workstation hardware, and fiber converters for exterior cameras. Recording at 100% motion.

J. Audio and Video storage configuration for the SSM shall either 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)

K. The SSM shall not limit the actual storage capacity configured per server.

L. Contactor to provide and size server storage for 60 days at recording 15 FPS. Storage to be located in the MDF and not be located on the cloud.

M. Manufacturer:

1. Genetec Security Center: SELECT ONE OF THE FOLLOWING

   a. Basis of Design: Omnicast Enterprise

   b. Approved equal to Milestone

   c. S2

   d. Avigilon Control Center 7

2.2 CYBER SECURITY REQUIREMENTS

A. The USP 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 USP shall support user authentication with claims-based authentication using external providers. External providers shall include:

1. ADFS (Active Directory Federation Services)

C. The USP shall limit the IP ports in use and shall provide the Administrator with the ability to configure these ports.

D. 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.

E. 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.

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

2.3 FAILOVER AND STANDBY REQUIREMENTS

A. The USP shall support native and off-the-shelf failover options.

B. Failover Directory ADDITIONAL LICENSE REQUIRED PER SERVER THAT WILL FAILOVER, ENTERPRISE ONLY

1. The Standby Directory shall act as a replacement SSM on hot standby, ready to take over as the acting Directory in case the primary Directory fails. The failover shall occur in less than 1 minute. No action from the user shall be required.

2. The USP shall support up to five (5) Directories on standby, lined up to take over as the acting Directory in a cascading fashion.

3. The Standby Directory shall keep its configuration database synchronized with the primary Directory.

4. The Standby Directory shall support disaster recovery scenarios where a server can be located in another geographic area (or building) and only take over if all other Directories become offline.

5. The Standby Directory shall support synchronization of the configuration databases using a backup and restore mechanism. The synchronization period shall be configurable from 15 minutes to 1 week.

6. The Standby Directory shall support real-time synchronization of the configuration databases using SQL Mirroring or SQL Always On.

C. Standby Archiver. Refer to section 2.05 Standby Archiver for more information.

D. Off-the-shelf standby/failover options (excluding the VMS Archiver) shall include: ADDITIONAL LICENSE REQUIRED PER SERVER THAT WILL FAILOVER, ENTERPRISE ONLY

1. Windows Clustering.

2. NEC ExpressCluster X LAN.

2.4 ARCHIVING

A. The Archiver (role) shall use an event and timestamp database for the advanced search of audio/video archives. This database shall use Microsoft SQL.

B. The Archiver shall protect archived audio/video files and the system database against network access and non-administrative user access.

C. The Archiver shall digitally sign recorded video using 248-bit RSA public/private key cryptography.

D. The Archiver shall offer a plug and play type hardware discovery service with the following functionalities:

1. Automatically discover DVS units as they are attached to the network.

2. Discover DVS units on different network segments, including the Internet, and across routers with or without network address translation (NAT) capabilities.

D. The Archiver shall have the capacity to configure the key frame interval (I-frame) in seconds or number of frames.

E. The Archiver shall provide a pre-alarm and post-alarm recording option that can be set between one second and 5 minutes on a per camera basis.

F. The Archiver shall provide the functionality of storing of video and audio streams based on triggering events, such as:

1. Digital motion detection

2. Digital input activation

3. Macros

4. Through SDK application recording

G. The Archiver shall perform video motion detection on each individual camera based on a grid of 1320 motion detection blocks. All of the video motion detection settings are configurable on schedule. A global sensitivity threshold is available to reduce motion detection sensitivity when the video signal is noisy or when a lot of false hits are incurred. Video motion detection itself can be set into four different modes:

1. Full Screen: All 1320 blocks on screen are activated, and a general threshold for the overall motion in the entire image can be set, and when it is reached, it can trigger recording and a motion event or a custom event.

2. Full Screen Unit: This is the same as the Full Screen but the motion detection takes place in the DVS.

3. Detection Zone: Six overlapping zones can be defined in the 1320 blocks on screen with each of these zones having its own threshold, and, when that threshold is reached, each one of them can trigger recording and a motion event or a custom event. Each zone triggering its own event allows for the configuration of directional motion detection events and other complex motion detection logic.

4. Detection Zone Unit: This is the same as the Detection Zone, but the motion detection takes place in the DVS and only one zone is supported.

5. Disabled: No motion detection is performed on this camera.

H. The Archiver shall be able to detect motion in video within 200 milliseconds and not only on key frames.

I. The Archiver shall allow for multiple recording schedules to be assigned to a single camera. Each schedule shall be created with the following parameters:

1. Recording mode:

a. Continuous
b. On Motion/Manual
c. Manual
d. Disabled

2. Recurrence pattern:

a. Once on specific days
b. Specific days on a yearly basis
c. Specific days on a monthly basis
d. Specific days on a weekly basis
e. Daily

J. Time coverage:

a. All day
b. Specific time range(s)
c. Daytime or nighttime based on the times of sunrise and sunset that are automatically calculated from the time of year and a geographical location. Provision shall be given to offset the calculated sunrise or sunset time by plus or minus 3 hours.

K. The Archiver shall allow each camera (video source) to be encoded multiple times in the same or different video formats (H.265, H.264, MPEG-4, MPEG-2, MJPEG, MxPEG, Wavelet, or JPEG2000),), limited only by the capabilities of each DVS.

L. Whenever multiple video streams are available from the same camera, users shall be free to use any one of them based on their assigned usage. The standard video stream usages are:

1. Live

2. Recording

3. Remote

4. Low resolution

5. High resolution

M. The Archiver shall allow the video quality to vary according to predefined schedules. Such schedules shall have the same configuration flexibility as the recording schedules mentioned earlier. The video quality shall be based on, but not limited to, the following parameters:

1. Maximum bit rate.

2. Maximum frame rate.

3. Image quality.

4. Key frame interval.

N. The Archiver shall have the ability to dynamically boost the quality of the "recording stream" (see previous bullet) based on specific events:

1. When recording is started manually by a user.

2. When recording is triggered by a macro, an alarm or detected motion.

O. The Archiver shall have the capacity to communicate with the DVS using 128 bits SSL encryption.

P. The Archiver shall have the capacity to communicate with the DVS using HTTPS secure protocol.

Q. The Archiver shall have the capacity to receive multicast UDP streams directly from the DVS.

R. For network topologies that restrict the DVS from sending multicast UDP streams, the Archiver shall redirect audio/video streams to active viewing clients on the network using multicast UDP.

S. The Archiver shall have the capacity to redirect audio/video streams to active viewing clients on the network using unicast UDP or TCP.

T. The Archiver shall empower the administrator with a full range of disk management options:

1. The Archiver shall allow the administrator to choose which disks to use for archiving and to set a maximum quota for each.

2. The Archiver shall allow the administrator to spread the archiving of different cameras on different disk groups (groups of disks controlled by the same controller) so that archiving could be carried out in parallel on multiple disks.

3. The Archiver shall have the capacity to move video archives to the Azure Cloud. The archives will be moved after a preset number of days.

U. The Archiver shall offer the following options to clean up old archives, on a camera by camera basis:

1. After a preset number of days.

2. Deleting oldest archives first when disks run out of space.

3. Stop archiving when disks are full.

V. The Archiver shall allow important video sequences to be protected against normal disk cleanup routines.

W. Users shall have the following options when protecting a video sequence:

1. Until a specified date.

2. For a specified number of days.

3. Indefinitely (until the protection is explicitly removed).

X. The Archiver shall allow the administrator to put a cap on the percentage of storage space occupied by protected video.

Y. The Archiver shall keep a log and compile statistics on disk space usage.

1. The statistics shall be available by disk group or for the whole Archiver.

2. The statistics shall show the percentage of protected video over the total used disk space.

Z. The Archiver shall have the capacity to down-sample video streams for storage saving purposes. The down-sampling options available are the following:

1. For H.264, MPEG-4, and H.265, streams the down-sampling options are: all key frames, 1 fps, 2 sec.,/frame, 5 sec./frame, 10 sec./frame, 15 sec./frame, 30 sec./frame, 60 sec./frame, 120 sec./frame.

2. For MJPEG streams the down-sampling options are: 15 fps, 10 fps, 5 fps, 2 fps, 1 fps, 2 sec./frame, 5 sec./frame, 10 sec./frame, 15 sec./frame, 30 sec./frame, 60 sec./frame, 120 sec./frame.

AA. The Archiver shall support DVS with edge recording capabilities and offer the following capacity:

1. The ability to playback the video recorded on the DVS at different speeds.

2. The ability to offload (video trickling) the video recorded on the DVS on schedule on event, or manually to store it on the Archiver.

3. It shall be possible to filter the video that is being offloaded using one or multiple of the following filters:

a. Time interval
b. Playback request
c. Video analytic events
d. Motion events
e. Bookmarks
f. Alarms
g. Input pin events
h. Unit offline events

BB. The Archiver shall be provided with proven performance and scalability figures:

1. The Archiver’s performance shall be guaranteed during the rebuild of a disk from a raid 5 disk group. The rebuild process shall not affect the recording and playback capabilities.

2. The recommended server specification from the Genetec Security Center Hardware Requirement shall allow Archiver to perform up to 300 cameras or 300Mbs throughout first limit reached.

3. The high-performance archiver specification from the Genetec Security Center Hardware Requirement shall allow Archiver to perform:

a. Up to 500 cameras or 500Mbs throughput first limit reached with a 1Gbps NIC.
b. Up to 700 cameras or 1300Mbs throughput first limit reached with a 10Gbps NIC.

CC. The Archiver shall provide the ability to encrypt the media stream coming from the DVS including the video, audio and metadata. ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED

1. Media encryption shall be optional and can be activated on a per DVS basis.

2. Media encryption shall be performed with AES 128-bits.

3. Media encryption shall encrypt all video, audio and metadata at rest in transit. Once media encryption is turned on for a DVS all media stored or redirected by the Archiver shall be encrypted and shall require the private key to be decoded.

4. It shall be possible to export the encrypted media into a non-crypted ASF file.

2.5 AUXILIARY ARCHIVER

A. The Auxiliary Archiver shall be used to produce redundant archives (video, events, or bookmarks) for any camera in the system, on a case by case basis.

B. The Auxiliary Archiver shall have the ability to record a camera on a different schedule than the Archiver.

C. The Auxiliary Archiver shall have the ability to archive any of the standard video streams for archiving. The standard video stream usages are: Live, Recording, Remote, Low Resolution, and High Resolution.

D. The Auxiliary Archiver shall have the capacity to move video archives to the Azure Cloud.

2.6 STANDBY ARCHIVER ENTERPRISE ONLY, REQUIRES AN ADDITIONAL LICENSE PER DVS THAT WILL FAILOVER

A. The Standby Archiver shall act as a replacement Archiver role on hot standby, ready to take over the functions of the primary Archiver role. The failover will occur in less than one (1) minute. No action from the user will be required.

B. The Standby Archiver assigned to an Archiver role entity shall automatically provide protection for all DVS connected to that Archiver role.

C. The Standby Archiver shall protect the primary Archiver role against the following failures:

1. Server failure (hardware or software)

2. Storage failure, such as Archiver Role detects that it cannot read or write to any of its allocated disks.

D. It shall be possible for a single USP server to act as the standby server of multiple Archiver roles.

1. Each Archiver role shall have priority value if multiple Archiver Roles fail at the same time on the same standby server.

E. It shall be possible for any Archiver role in the system to be designated as another’s standby and vice-versa.

F. For each Archiver role it shall be possible to set up to two (2) Standby Archivers so that if the first failover Archiver fails the failover will automatically occur to a third server.

G. The Standby Archiver shall have the ability to act as a Redundant Archiver.

H. It shall be possible to set a different retention period for the Archiver and the Redundant Archiver.

I. The Redundant Archiver shall maintain an exact copy of everything recorded by the default Archiver, i.e. audio/video archives, events, and bookmarks.

J. Redundancy shall be configured on a camera by camera basis.

K. The Redundant Archiver shall have the ability to use a multicast video stream from the DVS and shall not require an additional connection to any DVS.

2.7 VMS MEDIA STREAMING

A. The Media Router Role shall be responsible for routing video and audio streams across local and wide are networks from the source (e.g. DVS) to the destination (e.g. CSA).

B. The Media Router Role shall support multiple transport protocols, such as unicast TCP, unicast UDP, and multicast UDP.

C. The Media Router shall support IGMP (Internet Group Management Protocol) to establish multicast group memberships:

1. IGMP v3, including SSM (Source-Specific Multicast) shall be supported.

D. The Media Router Role using Redirector Agents shall be responsible for redirecting a stream from a source IP endpoint to a destination IP endpoint.

E. The Redirector Agents shall be capable of converting a stream from and to any supported transport protocols:

1. Multicast UDP to Unicast TCP.

2. Multicast UDP to Unicast UDP.

3. Unicast TCP to Multicast UDP.

4. Unicast UDP to Multicast UDP.

F. It shall be possible to limit the number of concurrent live and playback video redirections for each Redirector Agent in order to better control the bandwidth across multiple sites.

G. It shall be possible to limit the bandwidth consumed by live and playback video from the CSA to better control the bandwidth across multiple sites. The SSM shall be able to prioritize video streaming to the CSA based on user level.

H. It shall be possible to protect the Media Router Role against hardware or software unavailability by configuring another Media Router Role to act as a hot standby server.

I. Multiple Redirector Agents shall be used on a large VMS installation to increase the service availability and to provide automatic load balancing.

2.8 VMS VIDEO ARCHIVES TRANSFER CAPABILITIES

A. Archive transfer shall provide the ability to:

1. Transfer video from a server to another server in the same system.

2. Transfer video from a federated server to another server.

3. Transfer video from camera storage to a server.

B. It shall be possible to program video transfers either on a recurrent schedule, or to trigger them manually or upon connection.

C. It shall be possible to filter the video of interest for a transfer. The video of interest shall be defined with the following filters:

1. All archives when the camera was offline

2. Alarms

3. Playback request from the edge

4. Video analytics events

5. Motion events

6. Bookmarks

7. Input triggers

8. Time range

D. It shall be possible to define the length of video before and after the event used as a filter to determine the video of interest.

E. The USP shall offer an interface for displaying all video archive transfer requests. This interface shall display all the current, requested and schedule video transfer requests. It shall be possible to edit, trigger, and cancel video archive transfers from this interface.

2.9 VMS ANALYTICS

A. Perimeter Protection

1. The analytics shall automatically detect the intrusion of persons or vehicles in critical areas.

2. The analytics shall be completely unified with the Video Management System.

3. Configuration shall natively be performed in the configuration interface of the Video Management System.

4. The analytics shall feature rain and haze filters to filter out disturbances.

5. The analytics shall feature two different detection variants:

   a. Trigger an alarm if a motion pattern moves from Zone A (source) through zone B into zone C (sink).
   b. Trigger an alarm if a motion pattern moves anywhere inside a specified zone.

6. The analytics shall support an unlimited number of detection areas (each with its own zones and settings).

7. The analytics shall employ feature-point-based tracking algorithms to detect and analyze motion.

8. The analytics shall not employ pixel-based object tracking but shall employ grid-based analysis (using cues at multiple scales for analytics).

9. The analytics shall offer the possibility to configure object movement paths.

10. The analytics shall not employ tripwires or cross-lines.

11. Areas and the scenes perspective (near & far object size) shall be configured on screen using a point-and-click interface.

12. The analytics shall feature filters for movement speed, distance, and direction to detect events.

13. The analytics shall be fully server-based, with no calculation on cameras necessary.

14. The analytics shall operate with color, thermal and infrared cameras.

2.10 PRIVACY PROTECTOR

A. Description:

1. Automatically obscures all movement in surveillance videos in real-time.

2. Live privacy masking of moving objects (such as people and vehicles).

3. Completely unified with the video management system.

4. Native configuration in the configuration interface of the video management system.

B. Details:

1. Certified with a valid EuroPriSe certification seal.

2. Indoor/outdoor modes using flexible background modeling:

   a. Indoor: Learning model with up to 10 different illumination states – this allows to adapt to fast lighting changes such as lights switching on and off.

b. Outdoor: Foreground detection based on edge detection rather than color – this allows to adapt to heavily changing lighting conditions such as clouds temporarily blocking sunlight.

3. Detects movements using an absolute difference image, calculated by subtracting the current frame from a calculated background model.

4. Masks movements using blocks, thus obscuring the outline of an object or person.

5. Eight (8) different scrambling methods: Average, Average Ghost, Colorize, Colorize Difference, Colorize Ghost, Icon, Image and Blur.

6. Masking grids can be configured in a point-and-click interface.

7. Option to set analysis resolution to optimize performance.

8. No calculation on the camera necessary, completely server-based.

2.11 GENERAL CLIENT SOFTWARE REQUIREMENTS

A. The Client Software Applications (CSA) shall provide the user interface for USP configuration and monitoring over any network and be accessible locally or from a remote connection.

B. The CSA shall consist of the Configuration UI for system configuration and the Monitoring UI for monitoring. The CSA shall be Windows-based and provide an easy-to-use graphical user interface (UI).

C. The CSA for monitoring shall support running in 64-bit mode.

D. The Service Administrator shall be used to configure the server database(s). it shall be web-based and accessible locally on the SSM or across the network.

E. The CSA shall seamlessly merge access control, license plate recognition (ALPR), and video functionalities within the same user application.

F. The USP shall use the latest user interface (UI) development and programming technologies such as Microsoft WPF (Windows Presentation Foundation), the XAML markup language, and the .NET software framework.

G. All applications shall provide an authentication mechanism, which verifies the validity of the user. As such, the administrator (who has all rights and privileges) can define specific access rights and privileges for each user in the system.

H. Logging on to a CSA shall be done either through locally stored USP user accounts and passwords or using the operators Windows credentials when Active Directory integration is enabled. PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED FOR ACTIVE DIRECTORY

I. When integrated with Microsoft's Active Directory, the CSA and USP shall authenticate users using their Windows credentials. As a result, the USP will benefit from Active Directory password authentication and strong security features.

J. The CSA shall support multiple languages, including but not limited to the following: English, French, Arabic, Czech, Dutch, German, Hebrew, Hungarian, Italian, Japanese, Korean,

Norwegian, Persian (Farsi), Polish, Portuguese (Brazilian), Simplified and Traditional Chinese, Russian, Spanish, Swedish, Thai, Turkish and Vietnamese.

K. To enhance usability and operator efficiency, the Configuration UI and Monitoring UI shall support many of the latest UI such as:

1. A customizable Home Page that includes favorite and recently used tasks.

2. Task-oriented approach for administrator/operator activities where each type of activity (surveillance, visitor management, individual reports, and more) is an operator task.

3. Consolidated and consistent workflows for video, ALPR, and access control.

4. Single click functionality for reporting and tracking. The Monitoring UI shall support both single-click reporting for access control, ALPR, and video, as well as single-click tracking of areas, cameras, doors, zones, cardholders and elevators, ALPR entities, and more. Single-click reporting or tracking shall create a new task with the selected entities to report on or track.

L. Configuration UI and Monitoring UI Home Page and Tasks

1. The Configuration UI and Monitoring UI shall be task-oriented.

2. A task shall be user interface design patterns whose goal is to simplify the user interface by grouping related features from different systems such as video and access, in the same display window. Features shall be grouped together in a task based on their shared ability to help the user perform a specific task.

3. Tasks shall be accessible via the Home Page of either the Configuration or the Surveillance CSA.

4. Newly created tasks shall be accessible via the Configuration UI or the Monitoring UI taskbar.

5. Similar tasks shall be grouped into the following categories:

   a. Operation: Access control management, LRP management, and more.

   b. Investigation: Video bookmark/motion/archive reports, access control activity reports, visitor activity reports, alarm reports, ALPR activity reports, and more.

   c. Maintenance: Access control and video configuration reports, troubleshooters, audit trails, health-related reports and more.

6. An operator shall be able to launch a specific task only if he or she has the appropriate privileges.

7. The Home Page content shall be customizable through the use of privileges to hide tasks that an operator should not have access to and through a list of favorite and recently used tasks. In addition, editing a USP XML file to add new tasks on the fly shall also be possible.

M. The contractor shall provide up to XX number of simultaneous Clients. CLIENT CONNECTIONS ARE CONCURRENT, THE FIRST 5 CLIENT CONNECTIONS ARE INCLUDED, SPECIFY A SITE LICENSE AFTER 40 CLIENT CONNECTIONS (ENTERPRISE ONLY).

2.12 CONFIGURATION USER INTERFACE (UI)

A. General

1. The Configuration UI application shall allow the administrator or users with appropriate privileges to change the system configuration. The Configuration UI shall provide decentralized configuration and administration of the USP system from anywhere on the IP network.

2. The configuration of all embedded ACS, VMS, and ALPR systems shall be accessible via the Configuration UI.

3. The Configuration UI shall have a home page with single-click access to various tasks.

4. The Configuration UI shall include a variety of tools such as troubleshooting utilities, import tools, and a unit discover tool, amongst many more.

5. The Configuration UI shall include a static reporting interface to:

   a. View historical events based on entity activity. The user shall be able to perform such actions as printing a report and troubleshooting a specific access event from the reporting view.
   b. View audit trails that show a history of user/administrator changes to an entity.

6. Common entities such as users, schedules, alarms and many more, can be reused by all embedded systems (ACS, VMS, and ALPR).

B. Video Management System

1. The Configuration UI shall allow the administrator or users with appropriate privileges to change video configuration.

2. The Configuration UI shall provide the ability to change video quality, bandwidth, and frame rate parameters on a per camera (stream) basis for both live and recorded video.

3. The Configuration UI shall provide the ability to change video quality by a selection of predefined video quality template.

4. The Configuration UI shall provide the ability to configure brightness, contrast, and hue settings for each camera on the same DVS.

5. The Configuration UI shall provide the capability to enable audio recording on DVS units that support audio.

6. The Configuration UI shall provide the ability to change the audio parameters, serial port and I/O configuration of individual DVS units.

7. The Configuration UI shall provide the capability to rename all DVS units based on system topology and to add descriptive information to each DVS.

8. The Configuration UI shall provide the ability to set recording schedules and

modes for each individual camera. The recording mode can be:

a. Continuous
b. On motion and Manual
c. Manual only
d. Disabled

9. The Configuration UI shall support the creation of schedules to which any of the following functional aspects can be attached:

a. Video quality (for each video stream per camera).
b. Recording (for each camera).
c. Motion detection (for each detection zone per camera).
d. Brightness, Contrast, and Hue (for each camera)
e. Camera sequence execution

10. The Configuration UI shall support the creation of unlimited recording schedules and the assigning of any camera to any schedule.

11. The Configuration UI shall detect and warn user of any conflict within assigned schedules.

12. The Configuration UI shall provide the capability to set a PTZ protocol to a specific DVS serial port and shall allow mixing domes of various manufacturers within a system.

13. User shall have the ability to configure a return to home function after a predefined time of inactivity for PTZ cameras. This period of inactivity time shall be configurable from 1 to 7200 seconds.

2.13 VMS CLIENT USER INTERFACE (UI)

A. The Monitoring UI shall fulfill the role of a Unified Security Interface that is able to monitor video, ALPR, and access control events and alarms, as well as view live and recorded video.

B. The Monitoring UI shall provide a graphical user interface to control and monitor the USP over any IP network. It shall allow administrators and operators with appropriate privileges to monitor their unified security platform, run reports, and manage alarms.

C. To enhance usability and operator efficiency, the Monitoring UI shall support the following UI concepts:

1. Dynamically adaptive interface that adjusts in real-time to what the operator is doing.

2. A dynamic dashboard loaded with entity-specific widgets (e.g. door and camera widgets).

3. Use of transparent overlays that can display multiple types of data in a seamless fashion.

4. Display tile menus and quick commands.

5. Consolidated and consistent workflows.

6. Tile menus and quick commands easily accessible within every display tile of the user workspace.

7. Single click functionality for reporting and tracking. The Monitoring UI shall support both single-click reporting for access control, ALPR, and video, as well as single-click tracking of areas, cameras, doors, zones, cardholders, elevators, ALPR entities, and more. Single-click reporting or tracking shall create a new task with the selected entities to report on or to track.

D. Monitoring UI Home Page and Tasks

1. Similar tasks shall be grouped into the following categories:

   a. Operation: Access control/LRP/video surveillance, visitor management, mustering, access control and video alarm monitoring, and more.
   b. Investigation: Video bookmark/motion/archive reports, access control activity reports, visitor activity reports, alarm reports, ALPR activity reports, and more.
   c. Maintenance: Access control and video configuration reports, troubleshooters, audit trails, and more.

E. Dynamically Adaptive UI, Dashboard, and Widgets

1. The Monitoring UI shall dynamically adapt to what the operator is doing. This shall be accomplished through the concept of widgets that are grouped in the Monitoring UI dashboard.

2. Widgets shall be mini-applications or mini-groupings in the Monitoring UI dashboard that let the operator perform common tasks and provide them with fast access to information and actions.

3. With a single click on an entity (e.g. door or camera) the specific widgets associated to that entity appear and other non-relevant widgets disappear dynamically (instantly). Widgets shall bring the operator information such as door status and camera stream information, as well as user actions, such as door unlock, PTZ controls, and more.

4. Specific widgets include those for a door, camera, alarm, zone, display tile, video stream (statistics), PTZ camera, and more.

F. Operator Workflows

1. A workflow shall be a sequence of operations an operator or administrator shall execute to complete an activity. The “flow” relates to a clearly defined timeline or sequence for executing the activity.

2. The Monitoring UI shall be equipped with consistent workflows for the ALPR, video, and access control systems that it unifies.

3. Generating or printing a report, setting up or acknowledging an alarm, or creating an incident report shall follow the same process (workflow) whether the operator is working with video, ALPR, or access control, or with both video and access control.

G. Each task within the Monitoring UI shall consist of one or more of the following items:

1. Event list.

2. Logical tree. Doors, cameras, zones, ALPR units, and elevators shall be

grouped under Areas in a hierarchical fashion.

3. Entities list of all entities being tracked.

4. Display tiles with various patterns (1 x 1, 2 x 2, and more).

5. Display tile menu with various commands related to cameras, doors, PTZ, and tile controls.

6. Dashboard with widgets.

H. The Monitoring UI shall support multiple event lists and display tile patterns, including:

1. Event/alarm list layout only

2. Display tile layout only

3. Display tile and alarm/event list combination

4. ALPR map and alarm/event list combination

I. User workspace customization

1. The user shall have full control over the user workspace through a variety of user-selectable customization options. Administrators shall also be able to limit what users and operators can modify in their workspace through privileges.

2. Once customized, the user shall be able to save his or her workspace.

3. The user workspace shall be accessible by a specific user from any client application on the network.

4. Display tile patterns shall be customizable.

5. Event or alarm lists shall span anywhere from a portion of the screen up to the entire screen and shall be resizable by the user. The length of event or alarm lists shall be user-defined. Scroll bars shall enable the user to navigate through lengthy lists of events and alarms.

6. The Monitoring UI shall support multiple display tile patterns (e.g. 1 display tile (1x1 matrix), 16 tiles (8x8 matrix), and multiple additional variations).

7. The Monitoring UI shall support as many monitors as the PC video adapters and Windows Operating System are capable of accepting.

8. Additional customization options include: show/hide window panes, show/hide menus/toolbars, show/hide overlaid information on video, resize different window panes, and choice of tile display pattern on a per task basis.

J. The Monitoring UI shall provide an interface to support the following tasks and activities common to access control, ALPR, and video:

1. Monitoring the events from a live security system (ACS and/or VMS and/or ALPR).

2. Generating reports, including custom reports.

3. Monitoring and acknowledging alarms.

4. Creating and editing incidents and generating incident reports.

5. Displaying dynamic graphical maps and floor plans as well as executing actions from dynamic graphical maps and floor plans.

6. Management and execution of hot actions and macros.

K. The Monitoring UI shall be able to monitor the activity of the following entities in real- time: areas, ALPR entities, doors, elevators, cameras, cardholders, cardholder groups, zones (input points), and more.

L. The Monitoring UI shall include advanced video capabilities, including:

1. Advanced live video viewing functionality.

2. Advanced archive playing and video playback functionality.

3. Monitoring and management of video system events and alarms.

4. Intercom or duplex audio.

5. Generation of video reports.

6. Control of PTZ cameras.

7. Creating and monitoring archive transfer requests.

M. Display metadata overlaid on live or playback video.

1. The following GPU technologies shall be supported:

a. NVidia CUDA
b. Intel Quick Sync

2. The Monitoring UI shall have the ability to decode video through the optimal simultaneous use of the GPU and Computer Processing Units (CPU).

N. The live video viewing capabilities of the Monitoring UI shall include:

1. The ability to display all cameras attached to the USP and all cameras attached to federated systems.

2. Support for live video monitoring on each and every display tile within a task in the user's workspace.

3. The USP shall support uninterrupted video streaming. The CSA shall keep existing video connections active in the event that an SSM (except Archiver) becomes unavailable.

4. The ability to drag and drop a camera into a display tile for live viewing.

5. The ability to drag and drop a camera into a display tile for live viewing on an analog monitor connected to an IP hardware decoder (converting an IP encoded stream into an analog video signal).

6. The ability to drag and drop a camera from a map into a display tile for live viewing.

7. Support for digital zoom on live camera video streams.

8. The ability for audio communication with video units with audio input and output.

9. The ability to control pan-tilt-zoom, iris, focus, and presets.

10. The ability to bookmark important events for later retrieval on any archiving camera and to uniquely name each bookmark in order to facilitate future searches.

11. The ability to start/stop recording on any camera in the system that is configured to allow manual recording by clicking on a single button.

12. The ability to activate or de-activate viewing of all system events as they occur.

13. The ability to switch to instant replay of the video for any archiving camera with the simple click of button.

14. The ability to take snapshots of live video and be able to save or print the snapshots.

15. The ability to view the same camera multiple times in different tiles.

O. The video playback (archive playing) capabilities of the Monitoring UI shall include:

1. Support for audio and video playback for any time span.

2. Support for video playback on each and every display tile.

3. The ability to instantly replay the video for any archiving camera with the simple click of a button.

4. The ability to select between instant synch of all video streams in playback mode, allowing operators to view events from multiple angles or across several camera fields, or non-synchronous playback.

5. The ability to simultaneously view the same camera in multiple tiles at different time intervals.

6. The ability to control playback with:

   a. Pause.
   b. Lock Speed.
   c. Forward and Reverse Playback at: 1x, 2x, 4x, 6x, 8x, 10x, 20x, 40x, 100x.
   d. Forward and Reverse Playback frame by frame.
   e. Slow Forward and Reverse Playback at: 1/8x, 1/4x, 1/3x, 1/2x.
   f. Loop playback between two time markers.

P. The ability to display a single timeline or one timeline for each selected video stream, which would allow the operator to navigate through the video sequence by simply clicking on any point in the timeline.

2.14 SMARTPHONE AND TABLET APP GENERAL REQUIREMENTS

A. The USP shall 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 USP via a Mobile Server (same as the Unified Web Client or UWC). 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. Functionalities

1. Live monitoring and command and control of the USP.

2. Receive alarm push notifications from the Apple Push Notification Server or from the Google Android push server.

3. Alarm management (view and acknowledge alarms, video tied to alarms).

4. View USP hierarchy and search for entities.

5. Stream video from the mobile device using the built-in camera.

   a. Video streams from mobile devices shall be available in the USP to be viewed in live and recorded on the Archiver.

6. Video

   a. View live and playback video at 320 x 240, 640 x 480 or 1280 x 1024 @ 15 fps.
   b. Monitor camera status.
   c. View up to 6 video feeds.
   d. Control PTZ functionality of a camera, including access to PTZ presets.
   e. Save snapshots locally on the device.

F. View video tied to access control events, and alarms.

2.15 HEALTH MONITOR

A. The USP shall monitor the health of the system, log health-related events, and calculate statistics.

B. USP services, roles, agents, units, and client apps will trigger health events.

C. The USP shall populate the Windows Event Log with health events related to USP roles, services, and client apps.

D. A dedicated role, the Health Monitoring Role, shall perform the following actions:

1. Monitor the health of the entire system and log events.

2. Calculate statistics within a specified time frame (hours, days, months).

3. Calculates availability for clients, servers and video/access/ALPR units.

E. A Health Monitoring task and Health History reporting task shall be available for live and historical reporting.

F. A web-based, centralized health dashboard shall be available to remotely view unit and role health events of the USP.

G. Detailed system care statistics will be available through a web-based dashboard providing health metrics of USP entities and roles, including Uptime and mean-time- between-failures.

H. Health events shall be accessible via the SDK (can be used to create SNMP traps).

2.16 SESSION INITIATION PROTOCOL (SIP) COMMUNICATION MANAGEMENT (CM)

A. An operator of the USP shall be able to, within the USP Monitoring UI, initiate calls to and answer calls from other operator and edge voice devices such as intercoms, emergency call stations, information desks, softphones, or phone devices.

B. The USP shall support CM between the USP client User Interface and SIP endpoint devices.

C. SIP endpoints shall be able to register to the USP using a standard SIP protocol.

D. The USP shall support CM between two SIP endpoint devices.

E. The USP shall allow the configuration of SIP trunk connections to multiple SIP Servers supporting SIP Trunks. REQUIRES SIPELIA™ TRUNK LICENSE

F. The CM shall support the management of calls to and from other SIP Servers connected though SIP Trunks. REQUIRES SIPELIA TRUNK LICENSE

G. The CM is a service of the USP and shall not require the addition of any third party software.

H. The CM shall support the following video codecs:

1. H.264

2. H.263

3. H.263+ (1998)

I. The CM shall support the following audio codecs:

1. PCMA (G.711 aLaw)
2. PCMU (G.711 uLaw)
3. G.722
4. G.729
5. iLBC
6. GSM
7. Telephone event
8. Speex (Narrowband)
9. Speex (Wideband)
10. Speex (Ultrawideband)
11. L.16
12. L.16-44-1
13. G.728
14. G.726-16
15. G.726-24
16. G.726-32
17. G.726-40

J. The CM shall certify SIP devices from the following manufacturers:

1. 2N Telekomunikace
2. Axis
3. Cisco
4. Code Blue
5. Commend
6. EMCOM
7. Jacques
8. Siedle
9. TalkaPhone
10. TOA Corporation

11. Vingtor-Stentofon

12. Zenitel

K. The CM shall allow bidirectional audio and video recording of call sessions. The USP shall offer the following recording capabilities: REQUIRES SIPELIA ADVANCED LICENSE

1. Automatic cleanup of call session files after a programmable number of days

2. Deactivation of call recording between operators

3. Deactivation of call recording with specific operators

4. Deactivation of call recording with specific voice devices

5. Selection of the storage path for call session recordings

L. The CM shall provide the flexibility for the administrator to define the network ports used to communicate between the USP servers and the following:

1. USP Operator Client User Interfaces

2. SIP devices

3. SIP servers

M. The CM shall provide the capability to create Ring Groups. A Ring Group is a group of call numbers grouped under a single call number. It shall be possible to set a Ring Group to simultaneously or sequentially call the members of the group. Dwell time for sequence mode shall be configurable.

N. The CM shall allow the automatic routing of calls through the configuration of a collection of rules (Dial Plan). Dial Plans shall support the following capabilities:

1. Match a phone number with regular expression.

2. Route calls based on matching the phone numbers from which calls are made.

3. Route calls based on matching the destination phone numbers to which calls are made.

4. Change the phone extension from which calls are received.

5. Change the phone extensions to which calls are sent.

6. A combination of any of the above capabilities in a configured priority and based on a schedule.

O. Dial Plans shall be applicable to calls between SIP entities registered to the USP as well as to and from external SIP servers.

P. The USP shall unify, within a simple user interface, the workflow between the associated security entities of a call session, including the call box, cameras, doors, intrusion zones and outputs.

Q. The USP shall support video and audio calls:

1. Between USP Client User Interfaces

2. To and from USP Client User Interfaces and SIP devices

3. Between SIP devices

R. The USP shall provide and advanced and friendly call management user interface that allows operators to:

1. Connect standard USB headsets and webcams to USP Client User Interface workstations so that USP users can make voice and video calls through the USP Client User Interface.

2. Display the video associated with the call and switch between multiple video sources.

3. Receive incoming call notifications directly through a notification tray.

4. Initiate, answer, forward, place on hold, or cancel calls from a dedicated call dialog box.

5. Control cameras, doors, zones, and device outputs during a call.

6. Create a customizable list of contacts, so that user can quickly call their contacts. Contact lists shall include other USP users, as well as SIP devices.

7. Dial a phone number to make a call.

8. Dial a DTMF sequence during a call.

9. Monitor the availability status of a user and set its own availability status.

10. Access a history log of calls that the operator both initiated and received. This log shall show the time of the call, duration, direction and the reason for its ending. It shall be possible to redial one of the entries in the log.

S. The USP shall allow an operator to manage up to 10 calls simultaneously. The call queue shall show the status of each call: incoming, in call, or on hold. It shall be possible to hold and resume a call directly from the call queue.

T. The USP shall offer a call window. It shall be possible within the call windows to:

1. Switch between cameras associated with the call participant.

2. Open and lock doors associated with the call participant.

3. Arm and disarm zones associated with the call participant.

4. Trigger outputs associated with the call participant.

5. Put on hold, resume, forward, and end a call.

6. Mute the microphone.

7. Hide the webcam video feed.

U. The USP shall have a built-in address book. The address book shall be available in the call dialog box, in which users can view and manage their list of contacts. From the address book, users shall be able to do the following:

1. Call a contact by simply double-clicking the contact name.

2. See the availability status of their contacts (users and SIP Devices).

3. Quickly display a contact's information, such as photo, name, and number.

4. Filter their contacts by type (SIP Device or User).

5. Create a list of favorites by adding and removing contacts.

6. Search for and call numbers that appear in the contact list.

V. The USP shall provide a graphical dial pad to allow the operator to make calls and dial DTMF tones during a call.

W. The USP shall provide call reporting capabilities to allow for the investigation of the activities during specific call sessions. The report shall provide the capability to replay audio recordings and watch call sessions that have associated video. The Call report shall provide filters to query the call records by:

1. Date and time.

2. Call session duration.

3. Involved users and call stations.

4. Call events and actions.

5. Actions taken by a user on doors, intrusion zones and outputs during the call session.

X. The USP shall give the capability to export a call session, including bidirectional audio, associated video, and log journal of the call session.

Y. It shall be possible to place the voice devices as icons on a map that shall display the call status of the voice device with a color code. A right-click on the voice device map icon shall allow the user to:

1. Answer or reject an incoming call

2. Initiate a call to the device

3. Put on hold and resume a call with the device.

Z. It shall be possible for an operator to select and broadcast his or her availability status, with the possible statuses being Available, Away and Busy. This status will appear with a color code in the call dialog box of other operators.

AA. The contractor shall provide up to XX number of SIP connections. SIP STATIONS ARE A PER CONNECTION LICENSE.

BB. The contractor shall provide up to XX number of SIP trunks. SIP TRUNKS ARE A PER TRUNK

LICENSE, 1 IS TYPICAL

CC. The contractor shall provide a failover and bi-directional audio and video recording license for each SIP device. EACH DEVICE THAT WILL FAILOVER REQUIRES A LICENSE

2.11 USP GENERAL REQUIREMENTS

A. The Unified Security Platform (USP) shall be an enterprise class IP-enabled security and safety software solution.

B. The USP shall support the seamless unification of IP access control system (ACS), IP video management system (VMS), and IP automatic license plate recognition system (ALPR) under a single platform. The USP user interface (UI) applications shall present a unified security interface for the management, configuration, monitoring, and reporting of embedded ACS, VMS, and ALPR systems and associated edge devices.

C. Functionalities available with the USP shall include:

1. Configuration of embedded systems, such as ACS, ALPR, and VMS systems.

2. Live event monitoring

3. Live video monitoring and playback of archived video.

4. Alarm management

5. Reporting, including creating custom report templates and incident reports.

6. The Federation feature for global monitoring, reporting and alarm management of multiple remote and independent ACS, VMS, and/or ALPR systems spread across multiple facilities and geographic areas. ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED

7. Global cardholder management across multiple facilities and geographic areas each with their own independent ACS system. ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED FOR EACH SITE.

8. Microsoft Active Directory integration for synchronizing USP user accounts and ACS cardholder accounts. PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED.

9. Intrusion device and panel integration (live monitoring, reporting, and arming/disarming). PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED

10. SIP Intercom device integration for bi-directional communication. ALL VERSIONS, ADDITIONAL LICENSE REQUIRED

11. Integration and third party systems and databases via plug-ins (access control, video analytics, point of sale and more). PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED

12. Dynamic graphical map viewing.

13. Asset management system integration. PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED

D. The USP shall be deployed in one or more of the following types of installations:

1. Unified access, ALPR, video platform and any combination thereof.

2. Standalone access control, ALPR, or video platform.

3. Unified access and video platform that federates multiple remote ACS, VMS and ALPR.

4. Standalone video platform that federates multiple independent remote VMS.

5. Standalone video platform that federates multiple independent remote ACS.

6. Standalone video platform that federates multiple independent remote ALPR.

E. Licensing

1. A single central license shall be applied centrally on the configuration server.

2. There shall be no requirement to apply a license at every server computer or client workstation.

3. Based on selected options, one or more embedded systems shall be enabled or disabled.

F. Hardware and Software Requirements

1. The USP and embedded systems (video, license plate recognition, and access control) shall be designed to run on a standard PC-based platform loaded with a Windows operating system. The preferred operating system shall be coordinated with the Owner following the manufacturer supported operating systems.

2. The core client/server software shall be built in its entirety using the Microsoft .NET software framework and the C# (C-Sharp) programming language.

3. The USP database server(s) shall be built on Microsoft's SQL Server. The preferred SQL version shall be coordinated with the Owner and compatible with the USP.

4. The USP shall be compatible with virtual environments, including VMware and Microsoft Hyper-V.

5. The USP shall use the latest user interface (UI) development and programming technologies such as Microsoft WPF (Windows Presentation Foundation), the XAML markup language, and .NET software framework.

2.12 USP ARCHITECTURE

A. The USP shall be based on a client/server model. The USP shall consist of a standard Server Software Module (SSM) and Client Software Applications (CSA).

B. The USP 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.

C. The SSM shall be a Windows service that can be configured to start when the operating system is booted and run in the background. The SSM shall automatically

launch at computer startup, regardless of whether or not a user is logged on the machine.

D. Users shall be able to deploy the SSM on a single server or across several servers for a distributed architecture. The USP shall not be restricted in the number of SSM deployed.

E. The USP shall support the concept of The Federation feature whereby multiple independent ACS, VMS, and ALPR installations can be merged into a single large virtual system for centralized monitoring, reporting, and alarm management. ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED

F. The USP shall protect against potential database server failure and continue to run through standard off-the-shelf solutions.

G. The USP shall support up to one thousand instances of CSA connected at the same time. However, an unrestricted number of CSA can be installed at any time. MAXIMUM 5 WITH STANDARD; MAXIMUM 10 WITH PROFESSIONAL; UNRESTRICTED WITH ENTERPRISE

H. The USP 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.

I. The USP shall support uninterrupted video streaming. The CSA shall keep existing video connections active in the event that an SSM (except Archiver) becomes unavailable.

J. Directory Role

1. The Directory Role shall manage the central database that contains all the system information and component configuration of the USP.

2. The Directory Role shall authenticate users and give access to the USP based on predefined user access rights or privileges, and security partition settings.

3. The Directory Role shall support the configuration/management of the following components common to the ACS, ALPR, and VMS sub-systems.

    a. Security Partitions, users and user groups
    b. Areas
    c. Zones, input/output (IO) linking rules, and custom output behavior
    d. Alarms. Schedules and scheduled tasks.
    e. Custom events
    f. Macros or custom scripts

4. The Directory Role shall support the configuration/management of the following components specific to VMS:

    a. Video servers and their peripherals (e.g. audio, IOs and serial ports).
    b. PTZ
    c. Camera sequences
    d. Recording and archiving schedules

5. The Directory Role shall support the configuration/management of the following components specific to ACS:

    a. Door controllers, and input and output (IO) modules
    b. Doors, Elevators and Access rules
    c. Cardholders and cardholder groups, credentials, and badge templates

6. The Video Archiver Role shall be responsible for managing cameras and encoders under its control and archiving.

7. The Media Router Role shall be responsible for routing video and audio streams across local and wide area networks from the source (e.g. DVS) to the destination (e.g. CSA).

8. The Access Manager Role shall be responsible for synchronizing access control hardware units under its control, such as door controllers and I/O modules. This role shall also be responsible for validating and logging all access activities and events when the door controllers and I/O modules are online.

9. The Automatic License Plate Recognition (ALPR) Role shall be responsible for synchronizing fixed ALPR units (cameras) and mobile ALPR applications under its control. The ALPR Role shall also be responsible for logging all ALPR activities and events.

10. The Zone Manager Role shall be responsible for managing all software zones (collection of inputs) and logging associated zone events. Zones shall consist of inputs from both access control and video devices.

11. The Health Monitoring Role shall be responsible for monitoring and logging health events and warnings from the various client applications, roles, and services that are part of the USP. This role shall also be responsible for logging events within the Windows Event Log and for generating reports on health statistics and health history.

K. Optional Roles

1. The Federation Role shall be responsible for creating a large virtual system consisting of hundreds or thousands of independent and remote ACS, VMS, and/or ALPR systems. ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED

2. The Global Cardholder Synchronizer Role shall be responsible for synchronizing cardholder and credential data between the local site and a central site. Synchronization between remote sites shall also be supported. ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED

3. The Active Directory Role shall be responsible for synchronizing user accounts and cardholder accounts with a Microsoft Active Directory server. PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED

4. The Intrusion Manager Role shall be responsible for managing third party intrusion devices such as alarm panels and perimeter detection devices. This role shall also be responsible for logging all intrusion events in a database. PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED

5. The Asset Manager Role shall be responsible for integrating and synchronizing with third party asset management systems and logging asset related events. This role shall also be responsible for supporting the execution of asset-related reports such as inventory reports and asset activity reports. PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED

6. The Plug-in Manager Role shall be responsible for the communication between the USP and third party systems such as video analytics, access control, ALPR, video, and building management systems. PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED

7. The Point of Sale (POS) Manager Role shall be responsible for integrating the USP with third party POS systems and for logging transactions. PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED

8. The Web SDK Role shall be responsible for connecting the USP to any application or interface developed with the Web Service SDK. Applications developed with the Web Service SDK shall be platform independent and rely on the REST protocol for communications. PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED

9. The Communication Management Role shall be responsible for registering the SIP communication endpoints and for managing the call routing. ALL PACKAGES, ADDITIONAL LICENSE REQUIRED

10. The Web Server Role shall be responsible for managing incoming Web Client connection and hosting the web pages for the Web Client. The Web Server Role acts as a proxy for the client connections and can be installed in a DMZ for additional security.

11. The Media Gateway Role shall be responsible for connecting any video stream to a third party system using standard RTSP protocol. This role shall provide access to live video. PROFESSIONAL AND UP, REQUIRES THE SDK PACKAGES, ADDITIONAL LICENSE REQUIRED

2.13 USP ZONE MANAGEMENT

A. The USP shall support the configuration and management of zones for input point monitoring via the Zone Manager Role. A user shall be able to add, delete, or modify a zone if he or she has the appropriate privileges.

B. A zone shall monitor the status of one or more inputs points. Zone monitoring or input point monitoring shall be possible through the use of a controller and one or more input modules. Inputs from video cameras or video encoders shall also be accessible via a zone.

C. Depending on the hardware installed, supervised inputs shall be supported. Depending on the input module used, both 3-state and 4-state supervision shall be available.

D. Custom Events shall provide full flexibility in creating custom events tailored to a zone. Users shall be able to associate custom events to state changes in monitored inputs.

E. The ACS shall support one or more cameras per zone. Video shall then be associated to zone state changes.

2.14 USP USERS AND USER GROUP SECURITY, PARTITIONS, AND PRIVILEGES MANAGEMENT

A. The USP shall support the configuration and management of users and user groups. A user shall be able to add, delete, or modify a user or user group if he or she has the appropriate privileges.

B. The USP shall support user authentication with claims-based authentication using external providers. External providers shall include:

1. ADFS (Active Directory Federation Services)

C. Common access rights and privileges shared by multiple users shall be defined as User Groups. Individual group members shall inherit the rights and privileges from their parent user groups. User group nesting shall be allowed.

2.15 USP EVENT/ACTION MANAGEMENT

A. The USP shall support the configuration and management of events for video and ALPR. A user shall be able to add, delete, or modify an action tied to an event if he has the appropriate privileges.

B. The USP shall receive all incoming events from one or more ACS, VMS, and/or ALPR. The USP shall take the appropriate actions based on user-define event/action relationships.

C. The USP shall receive and log the following events:

1. System-wide events

2.16 USP SCHEDULES AND SCHEDULED TASKS

A. Schedules

1. The USP shall support the configuration and management of complex schedules. A user shall be able to add, delete, or modify a schedule if he or she has the appropriate privileges.

2. The USP shall provide full flexibility and granularity in creating a schedule. The user shall be able to define a schedule in 1-minute or 15-minute increments.

3. Daily, weekly, ordinal, and specific schedules shall be supported.

B. Scheduled Tasks

1. The USP shall support scheduled tasks for video and ALPR.

2. Scheduled tasks shall be executed on a user-defined schedule at a specific day and time. Recurring or periodic scheduled tasks shall also be supported.

2.17 USP DYNAMIC GRAPHICAL MAPS (DGM)

A. The USP shall support mapping functionality for access control, video surveillance, intrusion detection, ALPR, and external applications.

B. The USP shall provide a map centric interface with the ability to command and control all the USP capabilities from a full screen map interface.

2.18 USP AUDIT AND USER ACTIVITY TRAILS (LOGS)

A. The USP shall support the generation of audit trails. Audit trails shall consist of logs of operator/administrator additions, deletions, or modifications.

B. Audit trails shall be generated as reports. They shall be able to track changes made within specific time periods. Querying on specific users, changes, affected entities, and time periods shall also be possible.

2.19 USP INCIDENT REPORTS

A. Incident reports shall allow the security operator to create reports on incidents that occurred during a shift. Both video-related and access control-related incident reports shall be supported.

B. The operator shall be able to create standalone incident reports or incident reports tied to alarms.

2.20 USP THIRD PARTY INTEGRATION

A. Microsoft Active Directory Integration PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED

1. The USP shall support a direct connection to one or multiple Microsoft Active Directory server via the Active Directory Role(s). Active Directory integration shall enable the synchronization of information from the Active Directory server to the USP.

2. Active Directory integration shall permit the central management of the USP users, user groups, cardholders, and cardholder groups.

3. The USP shall be able to connect to and synchronize data from multiple Active Directory servers (up to 10).

4. The USP shall support synchronizing Active Directory Universal Groups as well as security groups belonging to other domains within the same forest.

5. The USP shall support Microsoft Active Directory encryption using LDAP SSL.

6. When enabled, Active Directory shall manage user logon to the USP client applications through the user's Windows credentials. Logging to the USP shall utilize native Active Directory password management and authentication features.

7. It shall be possible to synchronize the following USP entities and their information from Active Directory with the USP:

   a. Users (username, first and last names, email address, and more).
   b. User groups (user group name, description, and group email address).
   c. Active Directory attributes to USP custom fields.

8. When enabled, the addition, removal, or suspension of a user's Windows account in Active Directory shall result in the creation, deletion, or disabling of the equivalent user account in the USP.

9. Supported synchronization methods for additions, modification, and deletions of synchronized entities shall include: on first logon (users only), manual synchronization, and scheduled synchronization.

10. The USP shall support user connections across independent organizations by connecting to an external ADFS (Active Directory Federation Services) service using claims-based authentication.

B. Intrusion Detection Integration PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED - FOR AN EXTENDED LIST, REFER TO THE SUPPORTED PLUGINS IN SECURITY CENTER DOCUMENT

1. The USP shall integrate with third party intrusion panels and devices via an Intrusion SDK. The Intrusion Manager Role shall manage communications with the intrusion panels. Communications with intrusion devices shall be over serial communications and/or an IP network.

2. Integration with intrusion panels shall be possible outside the release cycle of the USP. It shall be possible to add new integrations at any point in time.

3. Functionality available via the integration of intrusion devices with the USP shall include the following (where supported by the intrusion panel):

   a. Arm and disarm intrusion devices (manually, on schedule, or following a USP event).
   b. Activate or trigger intrusion device outputs.
   c. View intrusion events and alarms.
   d. Monitor the status, including arming status, of the intrusion devices.
   e. Video verification of intrusion events and alarms with video panels.
   f. Create USP zones using intrusion device inputs.

4. Currently supported intrusion panels include:

   a. Bosch G Series panels.
   b. DSC Power Series panels
   c. DMP XR Series panels
   d. Honeywell Galaxy Dimension panels

C. Third Party Access Control Systems PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED, FOR AN EXTENDED LIST REFER TO THE SECURITY CENTER SUPPORTED PLUGINS GUIDE

1. The USP shall integrate with third party access control software via the SDK. Communications with access control software shall be over an IP network, and should not support administrative tasks such as cardholder management.

2. Integration with access control software shall be possible outside the release cycle of the USP. It shall be possible to add new integrations at any point in time.

3. Functionality available via the integration of access control software with the USP shall include the following (where supported by the access control solution):
   a. Synchronize access control entities and receive associated events and states within the USP, including:
      1) Cardholders and access rights
      2) Visitors
      3) Readers and doors
      4) Alarms
   b. Monitor access control events
   c. Monitor and acknowledge access control alarms
   d. Trigger actions and outputs in the access control software using hot actions and event-to-actions.
   e. Lock and unlock doors in the access control software
   f. Configure event-to-actions using the access control events and alarms.
   g. Generate Security Center reports using from the in the access control data
   h. View and monitor states of door entities in the USP maps.

D. Asset Management Integration PROFESSIONAL AND UP, ADDITIONAL LICENSE REQUIRED

1. The USP shall integrate with third party asset management systems via the Asset Management Role.

2. Communications with asset management solutions shall be over an IP network (via software communications).

3. Functionality available via the integration of asset management systems with the USP shall include the following (where supported by the asset management systems):

   a. Synchronize asset management system assets with USP asset entities.
   b. Live monitoring of asset-related activity events, health events, and activity (asset online, asset offline, asset moves, or low battery).
   c. Synchronization of asset management alarms with Security Center alarms.
   d. Viewing video tied to asset-related activity and alerts within monitoring and reporting tasks.
   e. Acknowledging alarms in Security Center which acknowledges alerts in the asset management system and vice versa.
   f. Real-time tracking of asset locations on a per area basis.
   g. Asset Management Inventory reporting task that details the current location (area) of an asset.
   h. Asset Activity reporting task that provides a historical review of asset-related events and activity.

4. Currently supported asset management systems include:

   a. RF Code Asset Manager

E. Additional Third Party Integrations

1. The USP shall support multiple approaches to integrating third party systems. These shall include: Software Development Kits (SDKs), REST-based Web Service SDKs, RTSP Service SDKs, and more. PROFESSIONAL AND UP, SDK PACKAGE AND LICENSE REQUIRED

2. The USP architecture shall support the addition of new connectors to integrate to third party system integration, such as: REFER TO THE WEBSITE FOR HOW THESE ARE LICENSED

   a. Video analytics.
   b. Third party video systems.
   c. Third party access control systems.
   d. ALPR integrations with pay stations, permit vendors, pay-by-phone vendors, and ticketing vendors.
   e. Point-of-sale (POS) systems.
   f. Building management systems.
   g. Human resource management systems (HRMS)

2.21 USP SOFTWARE DEVELOPMENT KIT (SDK)

A. A USP SDK shall be available to support custom development for the platform.

B. The SDK shall include functionalities specific to the embedded automatic license plate recognition (ALPR), access control (ACS), and video (VMS) systems.

C. Integration with external applications and databases shall be possible with the SDK.

D. The SDK shall enable end-users to develop new functionality (user interface, standalone applications or services) to link the USP to third party business systems and applications, such as Badging Systems, Human Resources Management Systems (HRMS), and Enterprise Resource Planning (ERP) systems.

E. The SDK shall be based on the .NET framework.

F. The SDK shall support dynamic or transactional updates to the USP configuration. It shall also support change notification of USP entity configuration.

G. The SDK shall provide an extensive list of programming functions to view and/or configure core entities such as: users and user groups, alarms, custom events, and schedules, and more.

H. The SDK shall provide an extensive list of programming functions to view and configure ACS, VMS, and ALPR.

I. The SDK shall provide an extensive list of programming functions to view and configure most ACS entities such as: cardholders, cardholder groups, visitors, credentials, access rules (modify only), and custom fields.

J. The SDK shall be able to receive real time events from the following USP entities: users and user groups, areas, zones, cameras, video units, doors, door controllers (units), elevators, cardholders, cardholder groups, and credentials.

K. The SDK shall be able to query the history of events for areas, cameras, zones, alarms, cardholders, credentials, visitors, doors, query license plate read events, license plate hit events, generate a license plate hits report, generate a license plate reads report.

L. The SDK shall support the following alarm functions: view alarms in real time, acknowledge alarms, change priority, and change recipient.

2.22 IP CAMERAS/NETWORK CAMERAS

A. AXIS Q9216-SLV Network Camera (Interior Cameras)

1. Impact-resistant, Anti-ligerature corner mount camera

2. Resolution: (2304 x 1728 to 320 x 2400)

3. Video compression: H.264 baseline, main and high profiles (MPEG-4 Part 10/AVC) Motion JPEG.

4. Lens Fixed focus, 2.4mm, F2.0 – angle of view 125 degrees.

5. Frame Rate: up to 30/25 fps with power line frequency 50/60 Hz.

6. Power Source: PoE IEEE 802.3af/802.3at Type 1 Class 3 Typical: 6.1 W, Max 9.5W

7. Cabling Type: CAT6

8. Or Approved Equal

B. AXIS Q1786-LE Network Camera (Exterior Cameras)

1. Robust, first class 4 MP video with 32x optical zoom

2. Resolution: 2560 x 1440 to 160 x 120

3. Frame rate: With WDR: up to 25/30 fps 50/60hz in all resolutions

4. Lens: 4.3-137mm, F1.4-4.0 Horizontal field of view 60 degrees – 2.3", Vertical field of view 39 degrees – 1.3", autofocus, auto-iris, automatic day/night. Threaded for 62 mm filters, max filter thinckness 5 mm.

5. Power Source: PoE IEEE 802.3af/802.3at Type 1 Class 3. Typical 4.6 W, max 8.1 W.

6. Video compression: H.264 (MPEG-4 Part 10/AVC) Main and High Profiles H.265 (MPEG-H Part 2/HEVC) Main and High Profiles Motion JPEG

7. Cabling Type: CAT6

8. Or approved equal

C. Camera Switches

1. To be provide by Owner

D. Cabling:

1. Category 6A plenum, 23 AWG copper VTP.

2. Cabling shall be provided under specification Section 271500.

3. Exterior pole mount cameras are single mode 6 fibers.

PART 3 - EXECUTION

3.1 WARRANTY

A. The product shall perform in all material respects in accordance with the accompanying user manual, and the media on which the Software Product resides will be free from defects in materials and workmanship under normal use. Software defects are covered through Service Releases and Cumulative Updates which are available for a period of one (1) year from the date of the software purchase.

B. Extended warranty, up to five (5) years, shall be available through the purchase of the Genetec Advantage support service which includes the following additional services over the standard warranty.

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

3.2 DEPLOYMENT SERVICES AND SYSTEM COMMISSIONING

A. General Requirements

1. The contractor shall engage the services of the USP vendor to assist in the management of the deployment of the USP at the end-user site on projects that involve:
    a. Multiple contractors or subcontractors that will be responsible for deploying the USP at multiple client sites in different geographical regions.
    b. Complex enterprise installations involving advanced functionality (e.g. the Federation feature, failover, plugins) and/or multiple systems (e.g. access control, video, ALPR) and/or third party integrations.
    c. Extensive use of customized solutions/plugins developed b the vendor that will be integrated into the USP.
2. The USP vendor services shall include Deployment Management and System Configuration and Commissioning.

B. Deployment Management Services

1. The Deployment Management service from the vendor shall include a Project Manager acting as the single point of contact for all communications between the contractor and the vendor organization and who will be responsible for:
    a. Conducting a Risk Assessment of the impact of potential risk factors on the operation of the vendor's USP.
    b. Providing a project plan for the deployment of the vendor's USP.
    c. Managing the development and deployment of the custom solution components that will be integrated into the vendor's USP (if applicable).
    d. Providing a scope of work detailing the services to be provided by the vendor to assist in the deployment of the vendor's USP.
    e. Coordinating and scheduling the vendor field services with the contractor to assist with the deployment of the vendor's USP.
    f. Providing regular project status updates to the contractor regarding the development of custom solutions (if applicable) and the deployment of the vendor's USP.

C. Solution Architect Service

1. The Solution Architect service from the vendor shall include a Solutions Architect Engineer acting as a single technical point of contact throughout the deployment of the USP, and who will be responsible for:
    a. Assisting the contractor/subcontractor with the design and architecture of the vendor's USP.
    b. Conducting technical consultation activities that may include fit/gap analysis, system design reviews, device compatibility assessments, functional and technical design reviews as well as performance reviews of the vendor's USP.
    c. Conducting a system assessment and ensuring best practices of the vendor's USP are followed.
    d. Providing upgrade and migration strategy for the vendor's USP where applicable.
    e. Providing documentation regarding the system architecture, system design, hardware specifications and compatibility requirements, camera bandwidth calculations, and best practices as they relate to the vendor's USP.

D. System Configuration and Commissioning Service

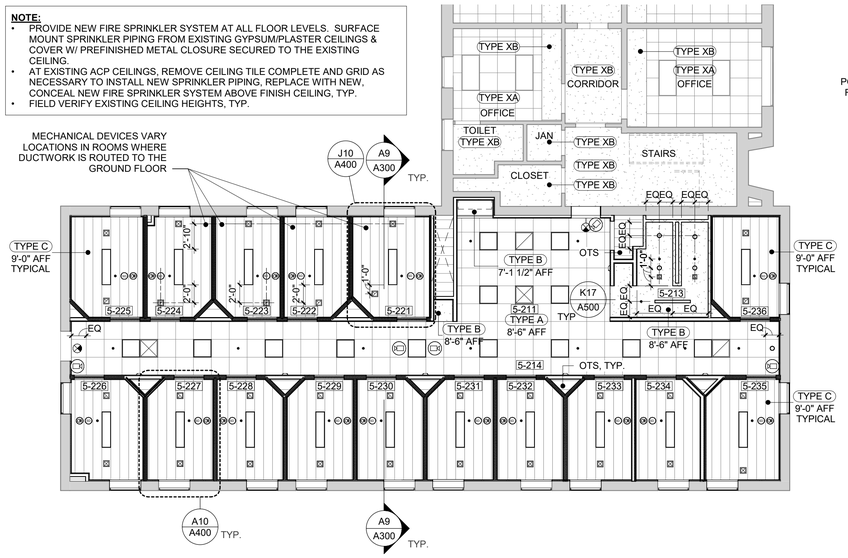
1. The System Configuration and Commissioning service from the vendor shall include a Field Engineer who is responsible for:

   a. Assisting the contractor's or subcontractor's onsite/remote technicians with the configuration and commissioning of the vendor's USP at the client site.
   b. Conducting a test of the USP following the deployment of the system using real-world operator scenarios to ensure optimal system performance.
   c. Providing the contractor with a Service Report detailing the tasks completed during the deployment of the USP at the client site, as well as any recommendations for improving the performance of the USP that must be implemented by the contractor.
   d. Providing a knowledge transfer of the vendor's USP to the contractor following the deployment of the USP at the client site.

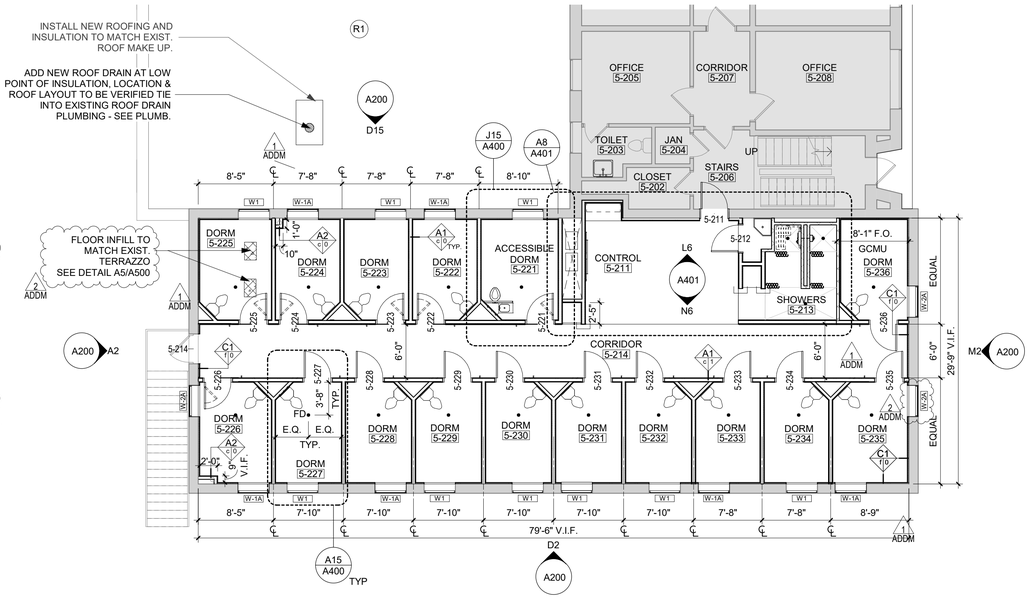
3.3 MANUFACTURER END USER OPERATOR TRAINING

A. The contractor shall engage the services of the USP vendor to assist in the end user training of the USP at the end-user site.

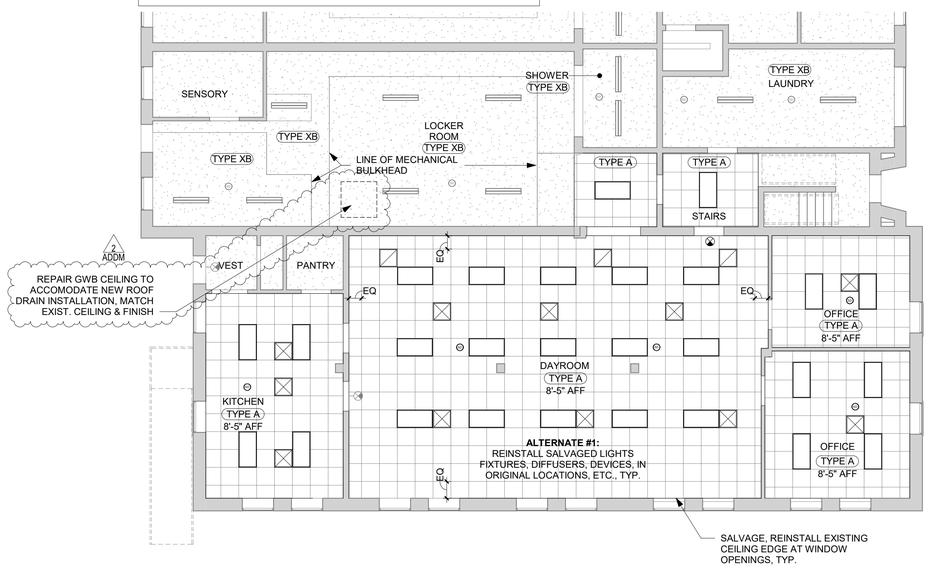
END OF SECTION 28 23 00



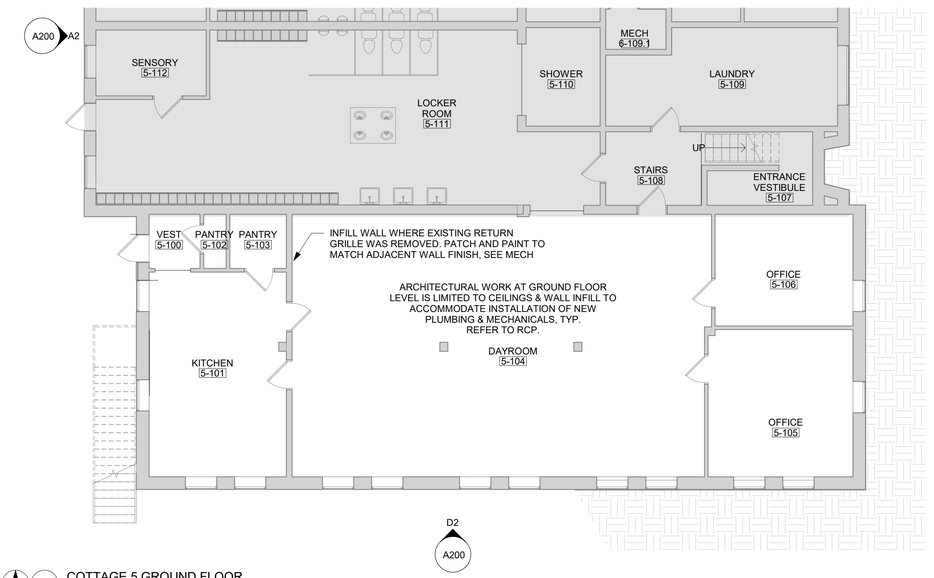
J2 COTTAGE 5 FIRST FLOOR RCP
1/8" = 1'-0"



J11 COTTAGE 5 FIRST FLOOR PLAN
1/8" = 1'-0"



B2 COTTAGE 5 GROUND LEVEL RCP
1/8" = 1'-0"



B11 COTTAGE 5 GROUND FLOOR
1/8" = 1'-0"

GENERAL NOTES

1. PHASING FOR DEMOLITION AND NEW WORK SCOPE IS DEFINED ON THE FLOOR PLANS AND RCPS WITHIN THE PHASING BOUNDARIES. WORK IN AREAS OUTSIDE THE CURRENT PHASE BOUNDARY THAT IS NECESSARY TO COMPLETION OF THAT PHASE SHOULD BE COORDINATED WITH OWNER.
2. DIMENSIONS ARE MEASURED FACE-OF-FINISH TO FACE-OF-FINISH OR ROUGH MASONRY OPENING UNLESS NOTED OTHERWISE - TYPICAL FOR ALL DRAWINGS.
3. FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS - TYPICAL FOR ALL DRAWINGS.
4. IN THE EVENT OF A DISCREPANCY BETWEEN ARCHITECTURAL AND CONSULTANT DRAWINGS, NOTIFY ARCHITECT IMMEDIATELY PRIOR TO COMMENCING WORK - TYPICAL FOR ALL DRAWINGS.
5. PROTECT EXISTING SURFACES DURING CONSTRUCTION.
6. REFER TO ENLARGED PLANS FOR ADDITIONAL WALL TYPE LOCATIONS, DIMENSIONS, AND KEYNOTES.
7. WALL TYPES ARE INDICATED ON THE PLANS. IF A WALL TYPE HAS NOT BEEN PROVIDED DEFAULT TO TYPE A1. VERIFY WITH ARCHITECT PRIOR TO CONSTRUCTION.
8. WALLS ARE NOT TO EXTEND FULL HEIGHT UNLESS NOTED OTHERWISE.
9. PROVIDE CONCEALED WOOD BLOCKING AT ALL ACCESSORIES AND CASEWORK LOCATIONS. EXTEND BLOCKING A MINIMUM OF 6" BEYOND EACH END AND 6" ABOVE AND BELOW ALL ACCESSORY ITEMS.
10. ALL PENETRATIONS IN FIRE RATED FLOORS AND WALLS MUST BE SEALED WITH FIRESTOPPING SYSTEM TO ACHIEVE RATING INDICATED ON CODE SHEETS.
11. PATCH AND REPAIR EXISTING FLOOR SLABS AND WALL SURFACES DAMAGED FROM DEMOLITION.
12. ACOUSTIC PARTITIONS: REFER TO REFLECTED CEILING PLANS FOR ACOUSTIC PARTITIONS TO RECEIVE ACOUSTICAL BATT INSULATION AND SOUND SEALANT

CEILING LEGEND

BATTING LINE DENOTES LOCATIONS OF ACOUSTIC PARTITIONS TO RECEIVE ACOUSTICAL BATT INSULATION AND SOUND SEALANT AT PERIMETER AND PENETRATIONS. REFER TO FLOOR PLANS FOR WALL TYPES.

- ACCESS PANEL
- RECTANGULAR FIXTURE
- LINEAR FIXTURE
- DOWN LIGHTS
- UTILITY LIGHTS
- CEILING & WALL MOUNT EXIT SIGNS
- HVAC SUPPLY DIFFUSER
- HVAC RETURN DIFFUSER
- HVAC EXHAUST DIFFUSER
- HVAC ROUND DIFFUSER
- OCCUPANCY SENSOR
- SPEAKER
- MICROPHONE
- WIRELESS ACCESS POINT
- SMOKE DETECTOR
- CEILING & WALL MOUNT CAMERA
- DATA & POWER
- SPRINKLER

CEILING TYPES

A. ACP-1
MANUFACTURER: USG
STYLE: CLIMA PLUS FROST TEGULAR
EDGE TRIM: COMPASSO (TYPICAL)
SIZE: 2' X 2'
GRID: 9/16" CENTRICITEE DXT
COLOR: WHITE
GRID COLOR: WHITE
APPLICATION: SEE RCP

B. GYPSUM BOARD CEILING ON METAL STUD FRAMING

C. STEEL CEILING
MANUFACTURER: ARMSTRONG
STYLE: METALWORKS SURELOCK PLUS
ATTACHMENT: SCREW-IN
SIZE: 12" WIDTH
COLOR: WHITE
GRID COLOR: WHITE
APPLICATION: SEE RCP

XA. EXISTING ACP CEILING. GRID TO REMAIN. INSTALL NEW ACP TILES TO MATCH ACP-1. VERIFY GRID SIZE.

XB. EXISTING GYPSUM/PLASTER CEILING TO REMAIN. VERIFY HEIGHT IN FIELD.

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Project #9216.00 State of Iowa

Project
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Story Construction
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AMES, IA 50010
P. 515-232-4358

Mechanical Engineer
Bluestone Engineering
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JOHNSTON, IA 50131
P. 515-727-0700

Electrical Engineer
Bluestone Engineering
5518 NW 88TH ST
JOHNSTON, IA 50131
P. 515-727-0700

Structural Engineer
Raker Rhodes Eng.
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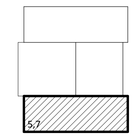
DES MOINES, IA 50312
P. 515-277-0275

Civil Engineer
Larson Engineering, INC.
1001 OFFICE PARK ROAD, SUITE 120
WEST DES MOINES, IA 50265
P. 515-225-4377

Key Plan



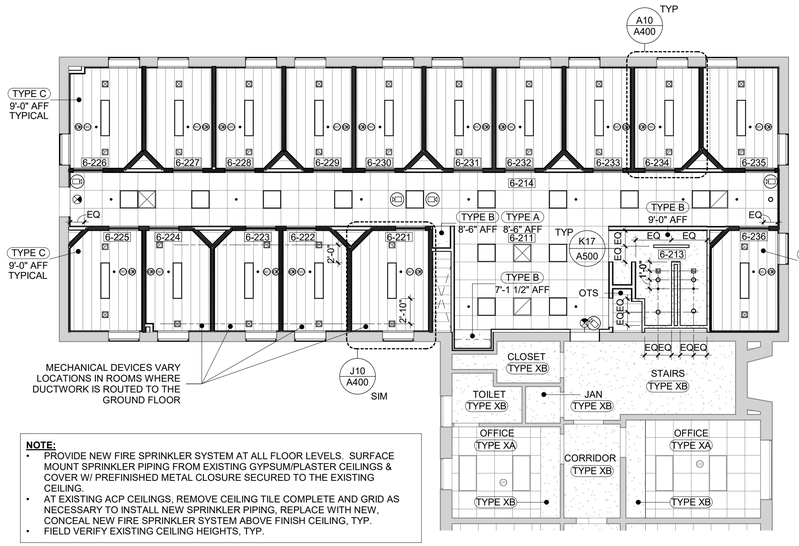
Revision	Description	Date
ADDM 1	ADDENDUM 1	2/1/22
ADDM 2	ADDENDUM 2	2/11/22

OPN Project No.
21830000

Sheet Issue Date
BID SET **01/07/2022**

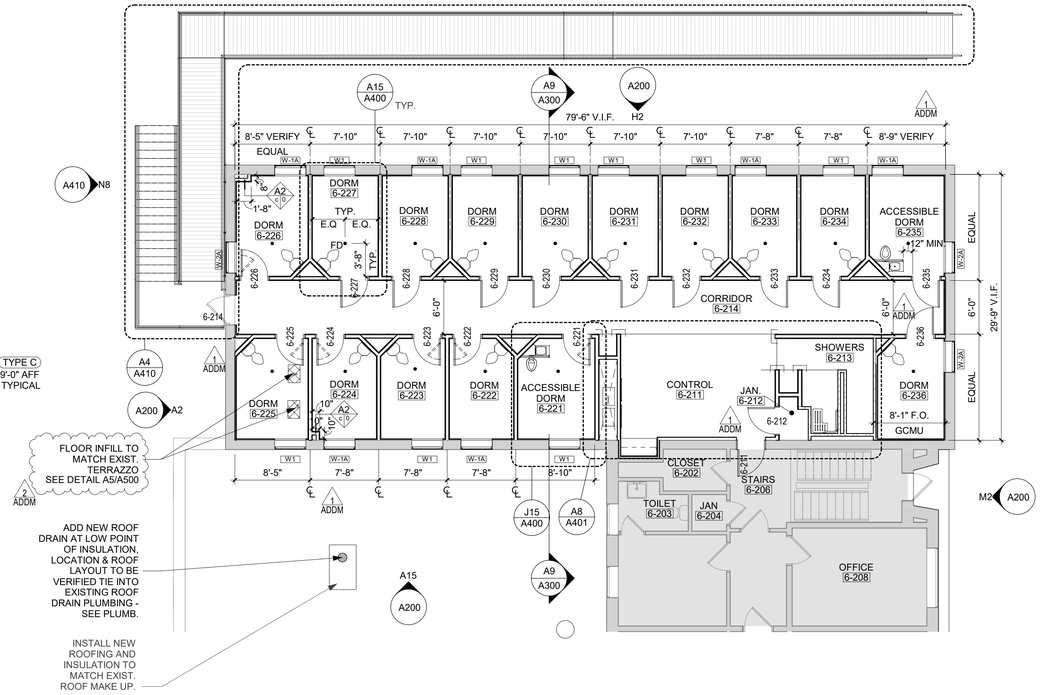
Sheet Name
COTTAGE 5 PLANS & RCPS

Sheet Number
A151



NOTE:
- PROVIDE NEW FIRE SPRINKLER SYSTEM AT ALL FLOOR LEVELS. SURFACE MOUNT SPRINKLER PIPING FROM EXISTING GYPSUM/PLASTER CEILINGS & COVER W/ PREFINISHED METAL CLOSURE SECURED TO THE EXISTING CEILING.
- AT EXISTING ACP CEILINGS, REMOVE CEILING TILE COMPLETE AND GRID AS NECESSARY TO INSTALL NEW SPRINKLER PIPING, REPLACE WITH NEW, CONCEAL NEW FIRE SPRINKLER SYSTEM ABOVE FINISH CEILING, TYP.
- FIELD VERIFY EXISTING CEILING HEIGHTS, TYP.

J2 COTTAGE 6 FIRST FLOOR RCP
1/8" = 1'-0"



J11 COTTAGE 6 FIRST FLOOR PLAN
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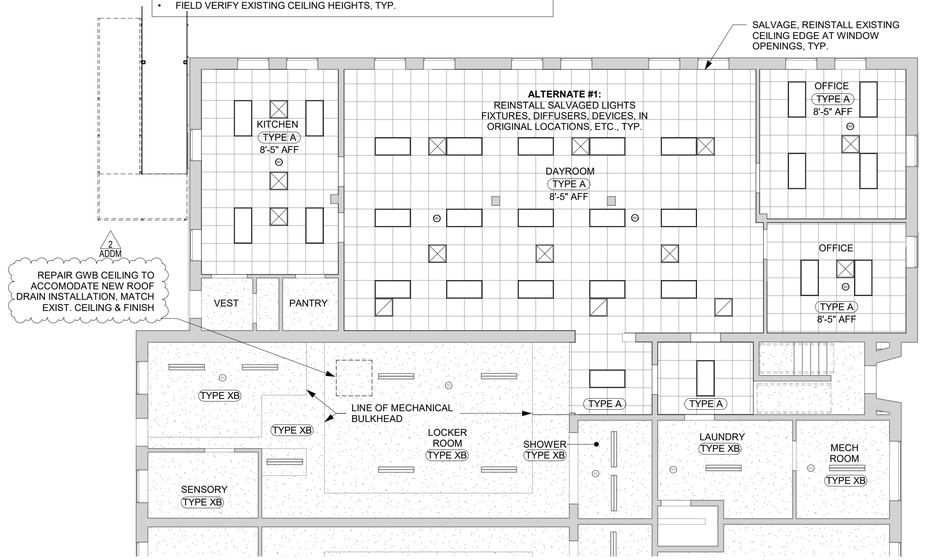

B2 COTTAGE 6 GROUND FLOOR RCP
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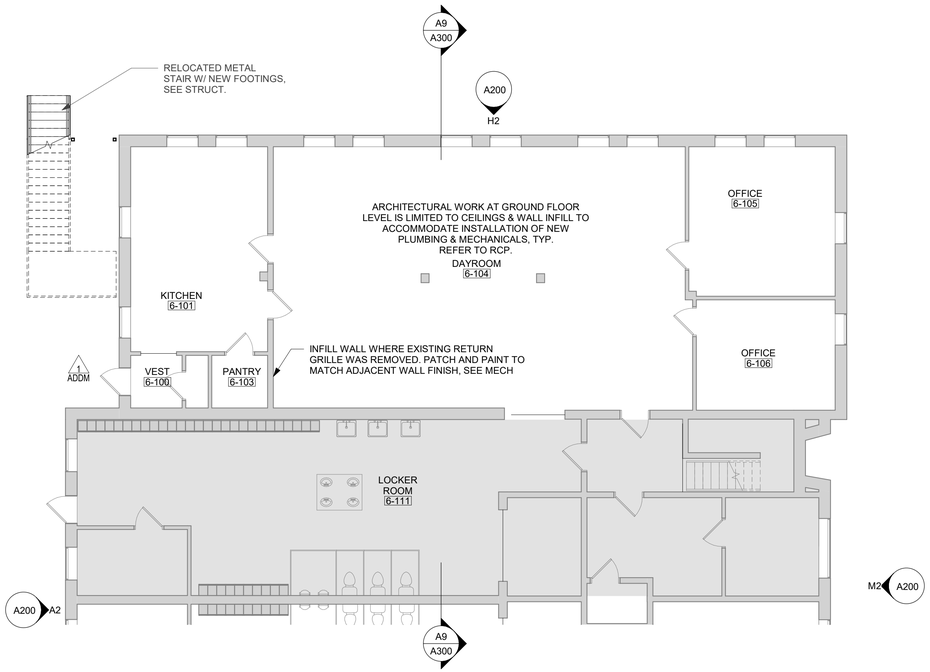

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C. STEEL CEILING
MANUFACTURER: ARMSTRONG METALWORKS
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ATTACHMENT: SCREW-IN
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Owner
Project #9216.00 State of Iowa

Project
STS Cottage Dorm Conversion

Constuction Manager
Story Construction
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Bluestone Engineering
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Electrical Engineer
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Structural Engineer
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P. 515-277-0275

Civil Engineer
Larson Engineering, INC.
1001 OFFICE PARK ROAD, SUITE 120
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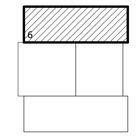
P. 515-225-4377

Key Plan



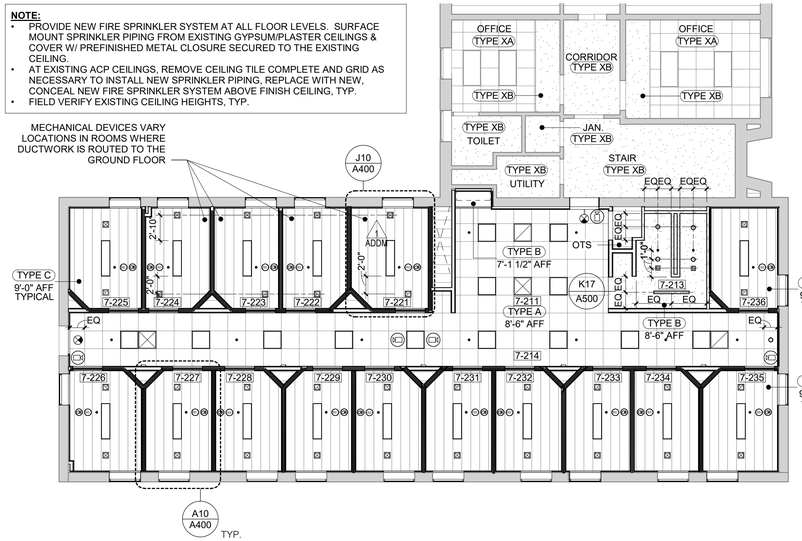
Revision	Description	Date
ADDM 1	ADDENDUM 1	2/1/22
ADDM 2	ADDENDUM 2	2/11/22

OPN Project No.
21830000

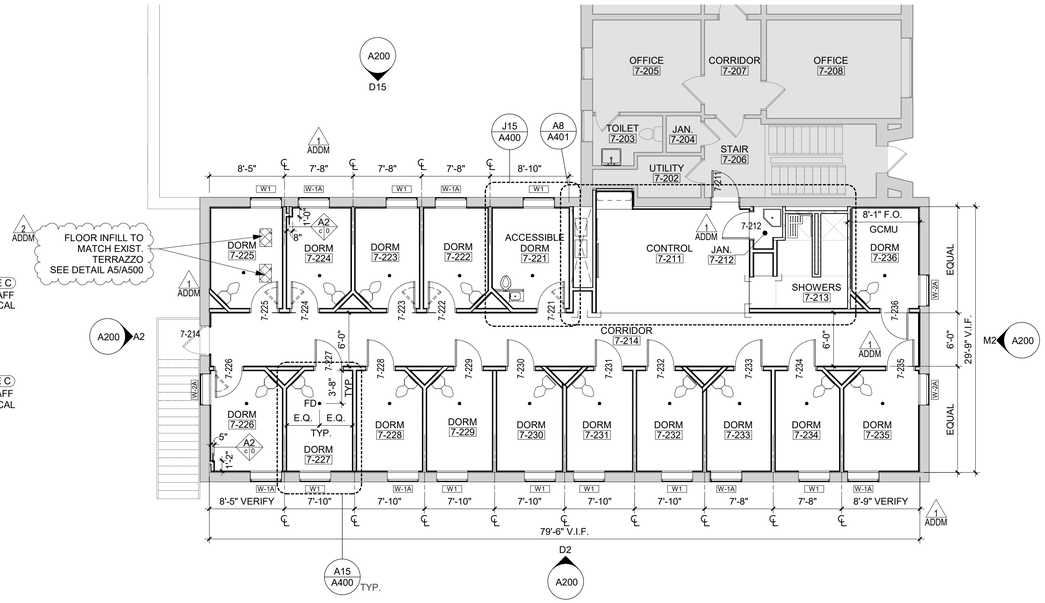
Sheet Issue Date
BID SET **01/07/2022**

Sheet Name
COTTAGE 6 PLANS & RCPS

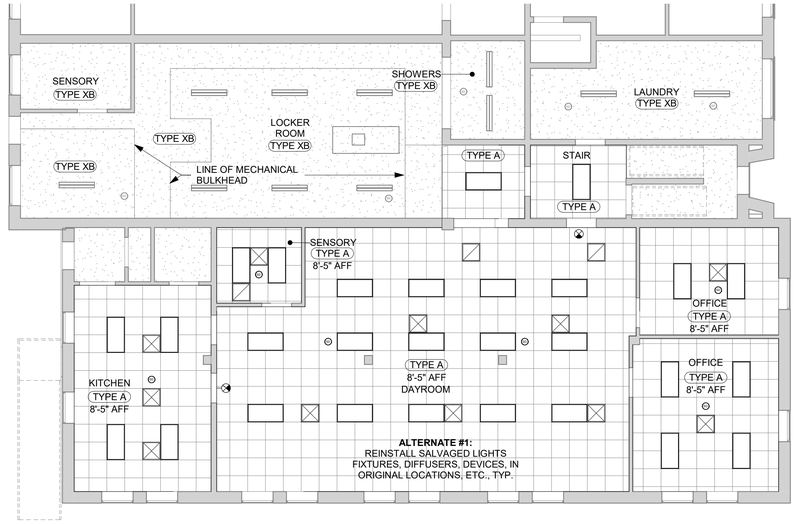
Sheet Number
A161



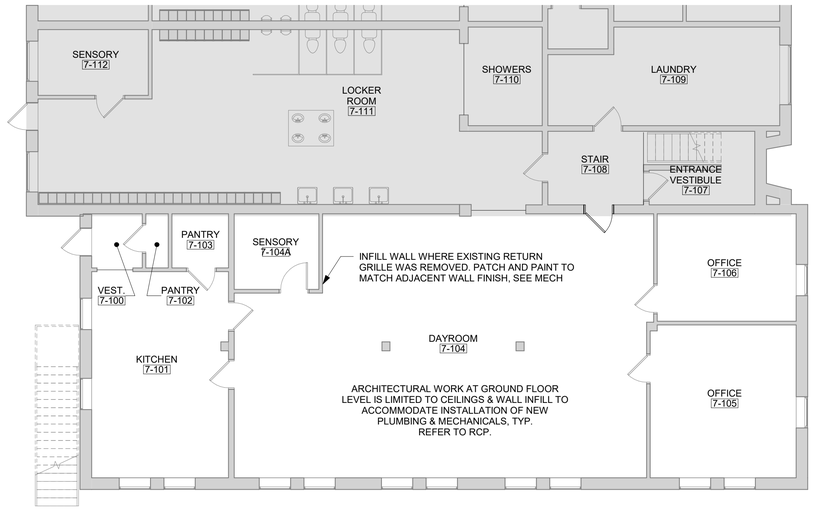
J2 COTTAGE 7 FIRST FLOOR RCP
1/8" = 1'-0"



J11 COTTAGE 7 FIRST FLOOR PLAN
1/8" = 1'-0"



B2 COTTAGE 7 GROUND LEVEL RCP
1/8" = 1'-0"



B11 COTTAGE 7 GROUND FLOOR
1/8" = 1'-0"

GENERAL NOTES

1. PHASING FOR DEMOLITION AND NEW WORK SCOPE IS DEFINED ON THE FLOOR PLANS AND RCPS WITHIN THE PHASING BOUNDARIES. WORK IN AREAS OUTSIDE THE CURRENT PHASE BOUNDARY THAT IS NECESSARY TO COMPLETION OF THAT PHASE SHOULD BE COORDINATED WITH OWNER.
2. DIMENSIONS ARE MEASURED FACE-OF-FINISH TO FACE-OF-FINISH OR ROUGH MASONRY OPENING UNLESS NOTED OTHERWISE - TYPICAL FOR ALL DRAWINGS.
3. FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS - TYPICAL FOR ALL DRAWINGS.
4. IN THE EVENT OF A DISCREPANCY BETWEEN ARCHITECTURAL AND CONSULTANT DRAWINGS, NOTIFY ARCHITECT IMMEDIATELY PRIOR TO COMMENCING WORK - TYPICAL FOR ALL DRAWINGS.
5. PROTECT EXISTING SURFACES DURING CONSTRUCTION.
6. REFER TO ENLARGED PLANS FOR ADDITIONAL WALL TYPE LOCATIONS, DIMENSIONS, AND KEYNOTES.
7. WALL TYPES ARE INDICATED ON THE PLANS. IF A WALL TYPE HAS NOT BEEN PROVIDED DEFAULT TO TYPE A1. VERIFY WITH ARCHITECT PRIOR TO CONSTRUCTION.
8. WALLS ARE NOT TO EXTEND FULL HEIGHT UNLESS NOTED OTHERWISE.
9. PROVIDE CONCEALED WOOD BLOCKING AT ALL ACCESSORIES AND CASEWORK LOCATIONS. EXTEND BLOKING A MINIMUM OF 6" BEYOND EACH END AND 6" ABOVE AND BELOW ALL ACCESSORY ITEMS.
10. ALL PENETRATIONS IN FIRE RATED FLOORS AND WALLS MUST BE SEALED WITH FIRESTOPPING SYSTEM TO ACHIEVE RATING INDICATED ON CODE SHEETS.
11. PATCH AND REPAIR EXISTING FLOOR SLABS AND WALL SURFACES DAMAGED FROM DEMOLITION.
12. ACOUSTIC PARTITIONS: REFER TO REFLECTED CEILING PLANS FOR ACOUSTIC PARTITIONS TO RECEIVE ACOUSTICAL BATT INSULATION AND SOUND SEALANT

CEILING LEGEND

- BATTING LINE DENOTES LOCATIONS OF ACOUSTIC PARTITIONS TO RECEIVE ACOUSTICAL BATT INSULATION AND SOUND SEALANT AT PERIMETER AND PENETRATIONS. REFER TO FLOOR PLANS FOR WALL TYPES.
- ACCESS PANEL
- RECTANGULAR FIXTURE
- LINEAR FIXTURE
- DOWN LIGHTS
- UTILITY LIGHTS
- CEILING & WALL MOUNT EXIT SIGNS
- HVAC SUPPLY DIFFUSER
- HVAC RETURN DIFFUSER
- HVAC EXHAUST DIFFUSER
- HVAC ROUND DIFFUSER
- OCCUPANCY SENSOR
- SPEAKER
- MICROPHONE
- WIRELESS ACCESS POINT
- SMOKE DETECTOR
- CEILING & WALL MOUNT CAMERA
- DATA & POWER
- SPRINKLER

CEILING TYPES

A. ACP-1
MANUFACTURER: USG
STYLE: CLIMA PLUS FROST TEGULAR
EDGE TRIM: COMPASSO (TYPICAL)
SIZE: 2' X 2'
GRID: 9/16" CENTRICITEE DXT
COLOR: WHITE
GRID COLOR: WHITE
APPLICATION: SEE RCP

B. GYPSUM BOARD CEILING ON METAL STUD FRAMING

C. STEEL CEILING
MANUFACTURER: ARMSTRONG
STYLE: METALWORKS SURELOCK PLUS
ATTACHMENT: SCREW-IN
SIZE: 12" WIDTH
COLOR: WHITE
GRID COLOR: WHITE
APPLICATION: SEE RCP

XA. EXISTING ACP CEILING. GRID TO REMAIN. INSTALL NEW ACP TILES TO MATCH ACP-1. VERIFY GRID SIZE.

XB. EXISTING GYPSUM/PLASTER CEILING TO REMAIN. VERIFY HEIGHT IN FIELD.

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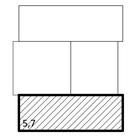
Key Plan



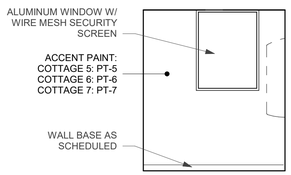
Revision	Description	Date
ADDM 1	ADDENDUM 1	2/1/22
ADDM 2	ADDENDUM 2	2/11/22

OPN Project No.
21830000

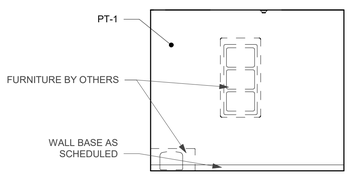
Sheet Issue Date
BID SET **01/07/2022**

Sheet Name
COTTAGE 7 PLANS & RCPS

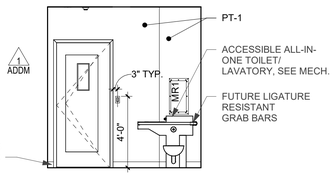
Sheet Number
A171



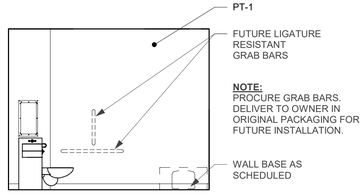
M2 INT. ELEV. A - ACCESSIBLE DORM
1/4" = 1'-0"



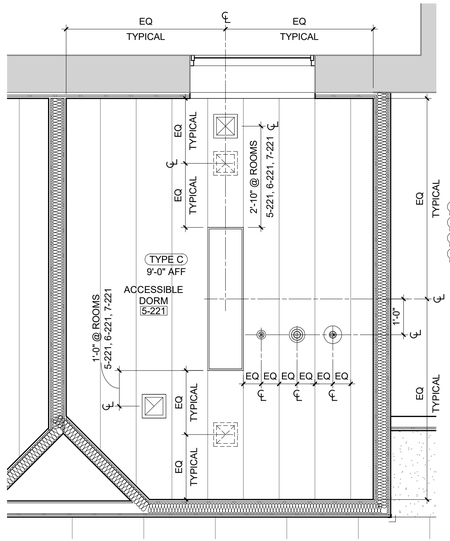
M6 INT. ELEV. B - ACCESSIBLE DORM
1/4" = 1'-0"



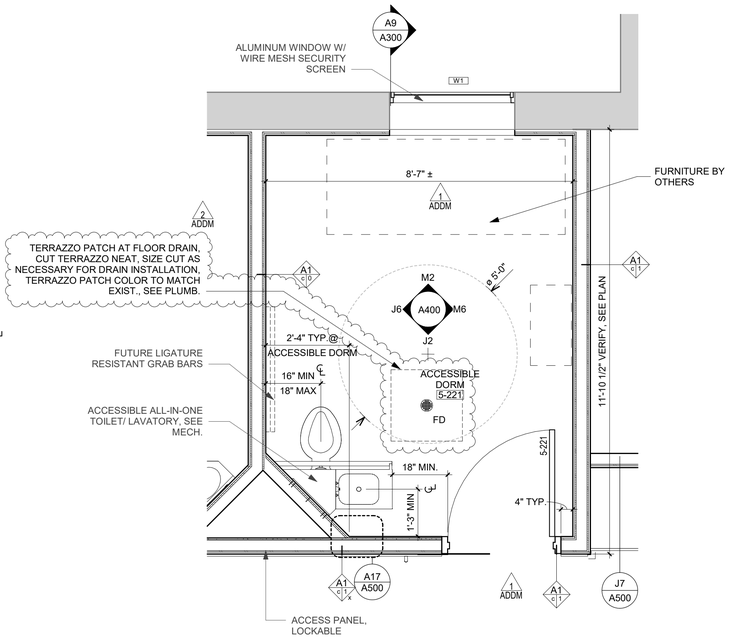
J2 INT. ELEV. C - ACCESSIBLE DORM
1/4" = 1'-0"



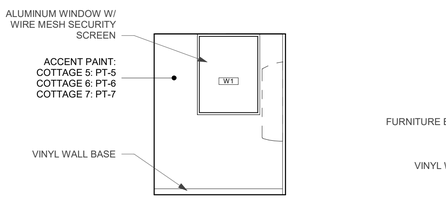
J6 INT. ELEV. D - ACCESSIBLE DORM
1/4" = 1'-0"



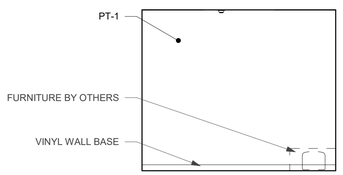
J10 ENLARGED RCP - ACCESSIBLE DORM
1/2" = 1'-0"



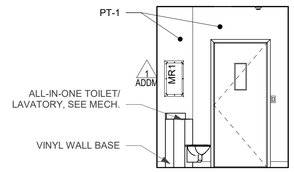
J15 ENLARGED PLAN - ACCESSIBLE DORM
1/2" = 1'-0"



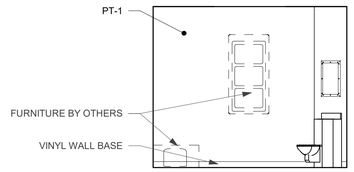
D2 INT. ELEV. A - TYPICAL ROOM
1/4" = 1'-0"



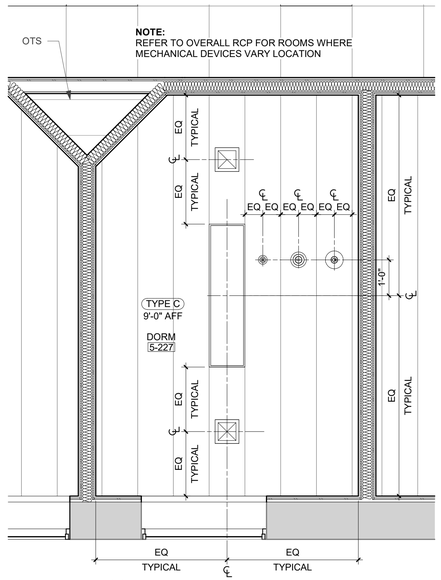
D6 INT. ELEV. B - TYPICAL ROOM
1/4" = 1'-0"



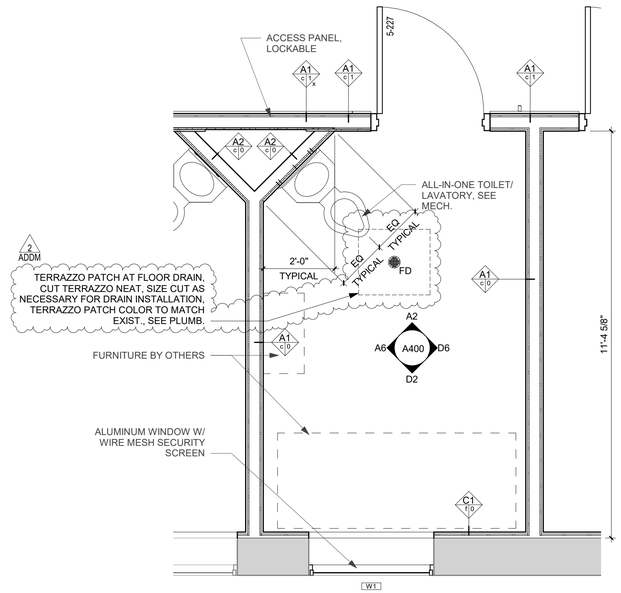
A2 INT. ELEV. C - TYPICAL ROOM
1/4" = 1'-0"



A6 INT. ELEV. D - TYPICAL ROOM
1/4" = 1'-0"



A10 ENLARGED RCP - TYPICAL ROOM
1/2" = 1'-0"



A15 TYPICAL ROOM
1/2" = 1'-0"

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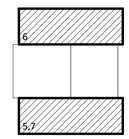


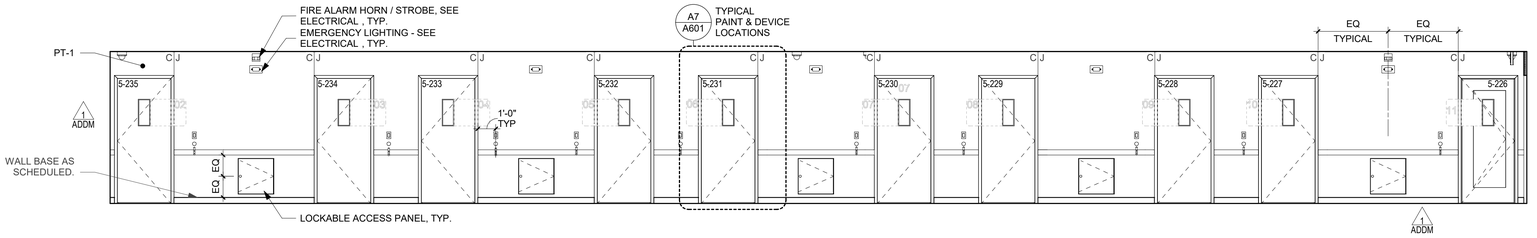
Revision	Description	Date
ADDM 1	ADDENDUM 1	2/1/22
ADDM 2	ADDENDUM 2	2/11/22

OPN Project No.
21830000

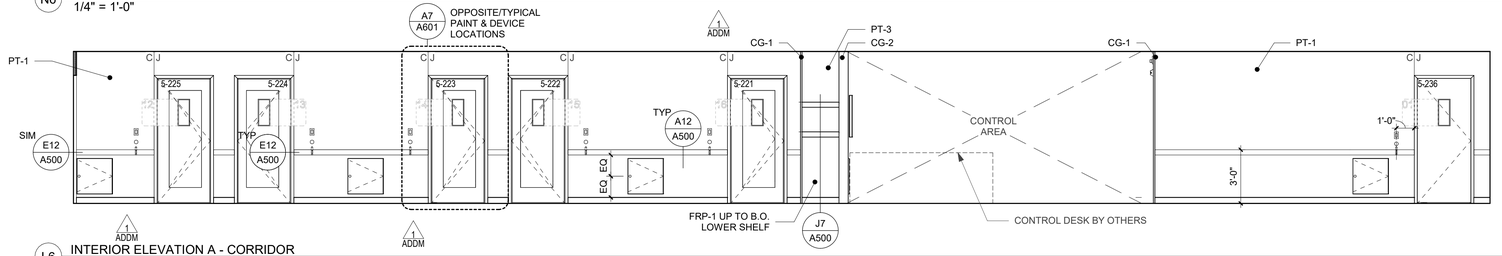
Sheet Issue Date
BID SET **01/07/2022**

Sheet Name
ENLARGED PLANS AND ELEVATIONS

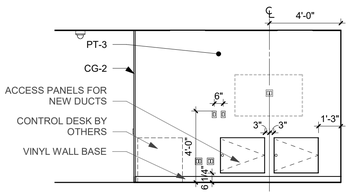
Sheet Number
A400



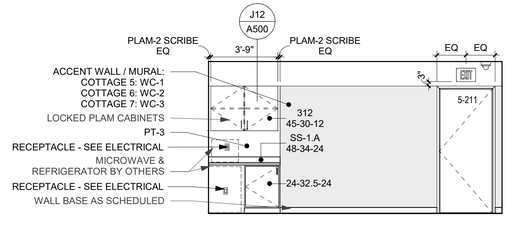
N6 INTERIOR ELEVATION B - CORRIDOR
1/4" = 1'-0"



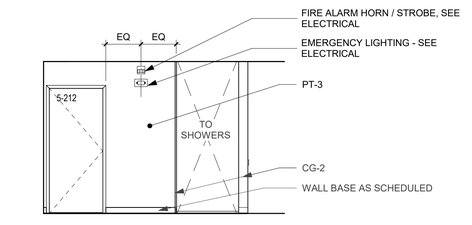
L6 INTERIOR ELEVATION A - CORRIDOR
1/4" = 1'-0"



H4 INT. ELEV. A - CONTROL SPACE
1/4" = 1'-0"

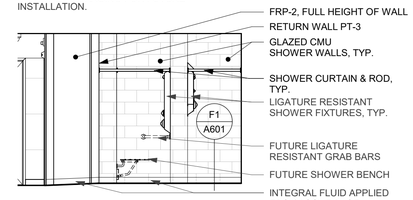


H8 INT. ELEV. B - CONTROL SPACE
1/4" = 1'-0"

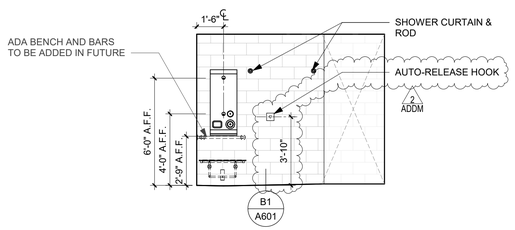


H13 INT. ELEV. C - CONTROL SPACE
1/4" = 1'-0"

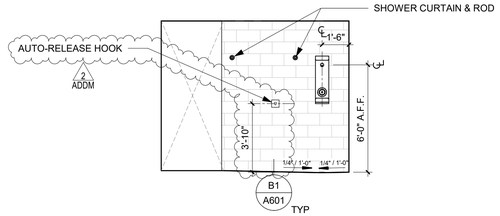
NOTE:
PROCURE GRAB BARS AND SHOWER BENCHES. DELIVER TO OWNER IN ORIGINAL PACKAGING FOR FUTURE INSTALLATION.



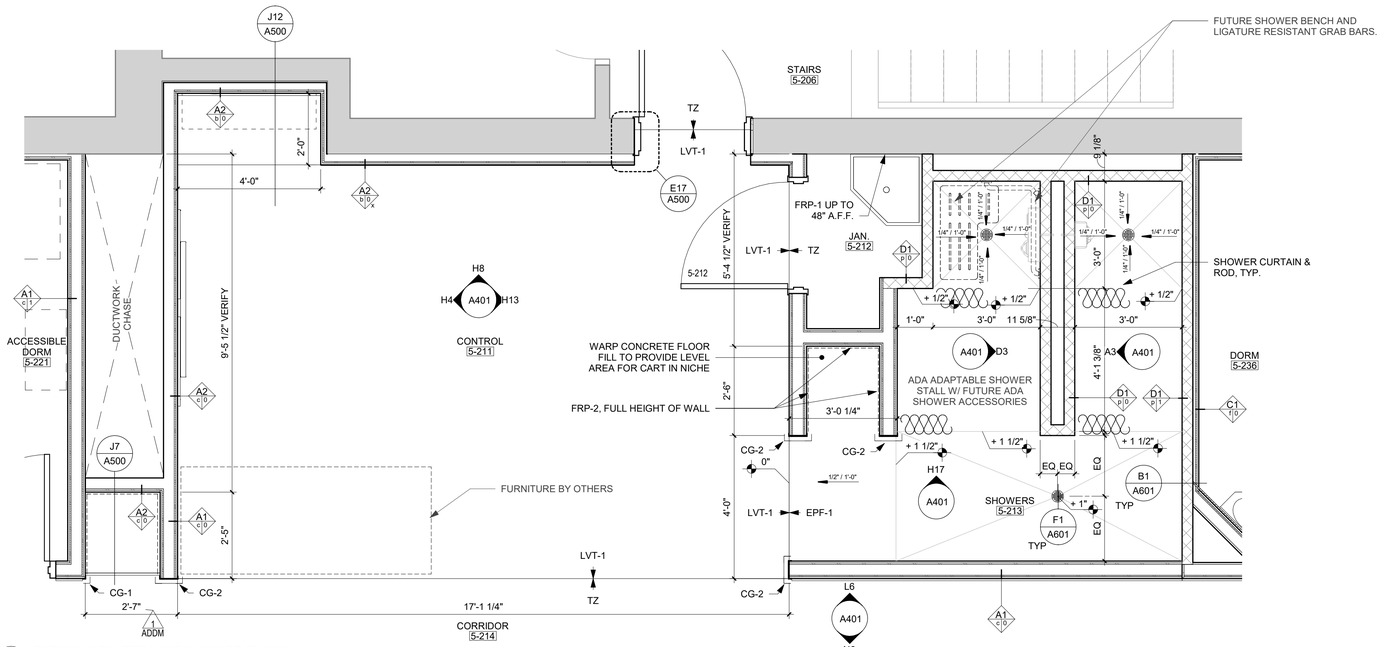
H17 INT. ELEV. - SHOWER
1/4" = 1'-0"



D3 ADA SHOWER ELEVATION - WET WALL
1/4" = 1'-0"



A3 STANDARD SHOWER ELEVATION - WET WALL
1/4" = 1'-0"



A8 TYPICAL SECURITY AND SHOWER BLOCK
1/2" = 1'-0"

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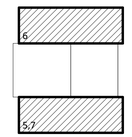
Key Plan



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ADDM 1	ADDENDUM 1	2/1/22
ADDM 2	ADDENDUM 2	2/11/22

OPN Project No.
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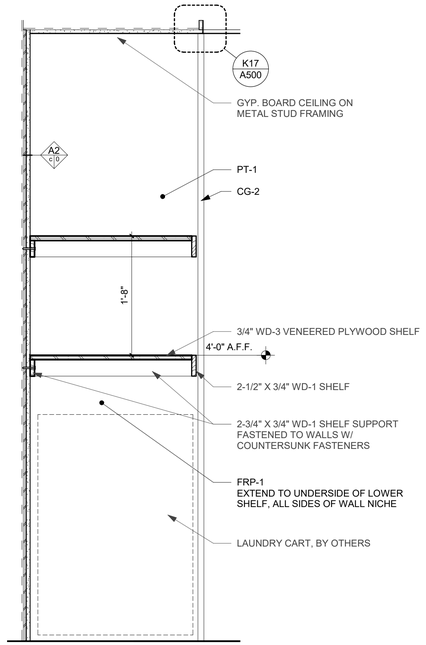
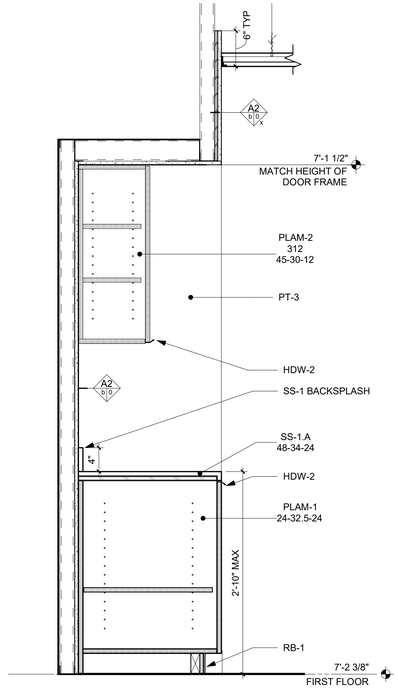
Sheet Issue Date
BID SET **01/07/2022**

Sheet Name
ENLARGED PLANS AND ELEVATIONS

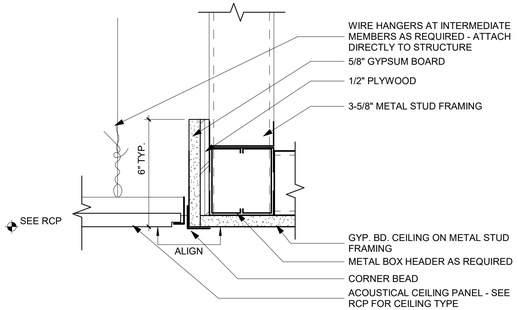
Sheet Number
A401



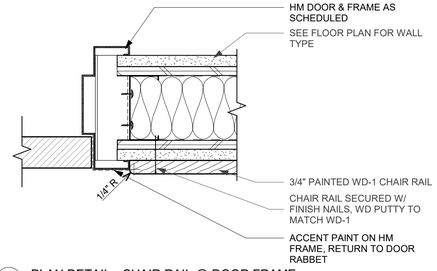
J7 SHELF SECTION
1" = 1'-0"



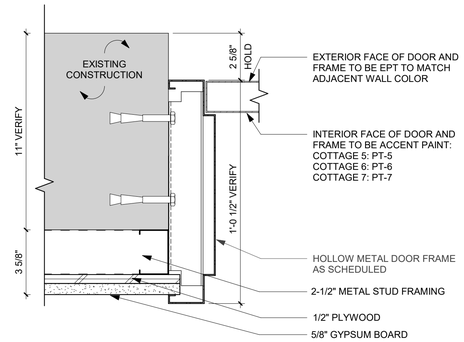
J12 CASEWORK SECTION - CONTROL AREA CASEWORK
1" = 1'-0"



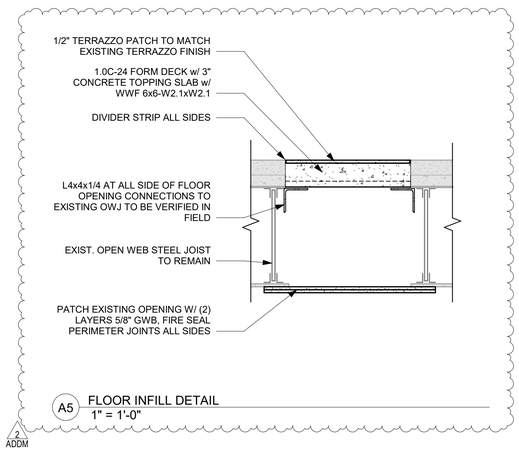
K17 SECTION DETAIL - CEILING TRANSITION @ SHOWERS
3" = 1'-0"



E12 PLAN DETAIL - CHAIR RAIL @ DOOR FRAME
3" = 1'-0"

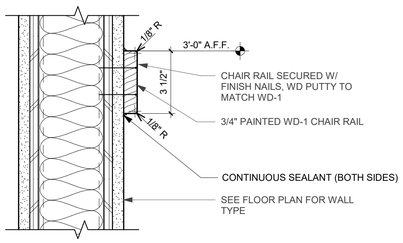


E17 COTTAGE ACCESS STAIRWELL DOOR
3" = 1'-0"

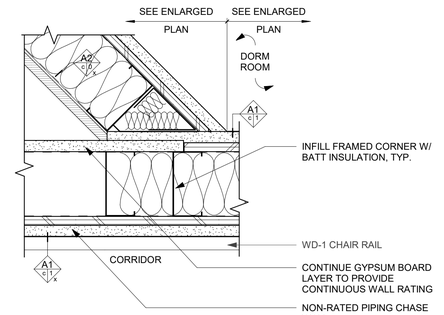


A5 FLOOR INFILL DETAIL
1" = 1'-0"

2
ADDM



A12 SECTION DETAIL - CHAIR RAIL
3" = 1'-0"



A17 PLAN DETAIL - TYPICAL CONTINUOUS RATING @ ANGLED WALL
3" = 1'-0"

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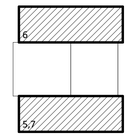

Revision	Description	Date
ADDM 2	ADDENDUM 2	2/11/22

OPN Project No.
21830000

Sheet Issue Date
BID SET **01/07/2022**

Sheet Name
INTERIOR DETAILS

Sheet Number
A500

NESHAP PRE-RENOVATION ASBESTOS SURVEY

PREPARED FOR:

Story Construction
2810 Wakefield Circle
Ames, Iowa 50010

PROJECT LOCATION:

Cottages 5 and 6 ACM Survey
3211 Edgington Avenue
Eldora, Iowa 50627

Project Date(s): November 8 and 10, 2021

Report Date: November 19, 2021

Atlas Project ID: 204BS04293

Atlas Technical Consultants
4503 East 50th Street, Suite 800
Des Moines, IA 50317

November 19, 2021

Sam Vorrie
Senior Project Manager
Story Construction
2810 Wakefield Circle
Ames, Iowa 50010

Re: NESHAP Pre-Renovation Asbestos Survey
Cottages 5 and 6 ACM Survey
3211 Edgington Avenue
Eldora, Iowa 50627
Atlas Project Number: 204BS04293

Atlas Technical Consultants, LLC (Atlas) is pleased to submit the attached NESHAP Pre-Renovation Asbestos Survey conducted at the above-referenced site. This report includes procedures, methodologies and analytical laboratory results of only in select areas via a site construction plan provided by Story Construction.

Atlas appreciates the opportunity to perform these services for Story Construction, and we look forward to working with you in the future. If you need any assistance with the implementation of the recommendations contained in this report, please feel free to give us a call at (515) 981-4528 and we will respond promptly to your needs.

Sincerely,

Atlas Technical Consultants, LLC

Eric Brown
Iowa Inspector
(515) 981-4528

Eric J. Mueggenberg
Operations Manager
(515) 981-4528

T A B L E O F C O N T E N T S

N E S H A P P R E - R E N O V A T I O N
A S B E S T O S S U R V E Y

Cottages 5 and 6 ACM Survey
3211 Edgington Avenue
Eldora, Iowa 50627
Atlas Project Number: 204BS04293

1.0 SCOPE OF SERVICES

The purpose of this project was to perform a NESHAP Pre-Renovation Asbestos Survey at the above-referenced property.

Atlas provided a representative asbestos survey at the identified building in accordance with the referenced agreement and as outlined below:

1. Review any existing asbestos reports relating to the site, if available.
2. Survey the site building(s) of only the building materials that make up the building and immediate surrounding areas.
3. Identify accessible suspect asbestos-containing materials (ACM) in accordance with the USEPA National Emission Standard for Hazardous Air Pollutants (NESHAP), (ref.: 40 CFR, Part 61) of only the building materials that make up the building and immediate surrounding areas.
4. Collect and analyze bulk samples of suspect materials of only the building materials that make up the building and immediate surrounding areas.
5. Quantify any asbestos-containing materials and record location.

2.0 GENERAL SITE CONDITIONS

The survey was conducted at Cottages 5 and 6 at 3211 Edgington Avenue, Eldora, Iowa. The cottages consisted of a three story brick building, with a dorm room, kitchen, laundry room, and offices. The survey area was limited to the interior of the buildings and the immediate surrounding areas that might be disturbed during the demolition.

3.0 ASBESTOS SURVEY REPORT

On November 8 and 10, 2021, the site located at Cottages 5 and 6 in select areas via a site construction plan provided by Story Construction at 3211 Edgington Avenue, Eldora, Iowa 50627, was inspected for asbestos-containing building materials by inspector Eric Brown of Atlas. Mr. Brown has completed the requisite training for asbestos accreditation as an inspector at a state approved training provider under TSCA Title II. Mr. Brown's AHERA accreditation number is MTITB9349IR and his State of Iowa Inspector number is 21-5779.

The site was visually inspected for the presence of only the building materials that make up the interior of the buildings, and immediate surrounding areas as suspect asbestos-containing materials (ACM). Materials that were hidden, not accessible, or when sampled would damage

the integrity of the structure, were not sampled as part of this survey. Materials visibly identified as non-asbestos (fibrous glass, foam rubber, wood, etc.) were not sampled. The asbestos survey consisted of three basic steps: **1)** a visual inspection of the proposed site; **2)** a determination of homogeneous areas with suspect surfacing, thermal system insulation, and miscellaneous materials; and **3)** sampling accessible, friable and non-friable, suspect materials.

3.1 Regulation Review

The U.S. EPA qualifies asbestos-containing materials (ACM) as materials with an asbestos content greater than 1%. According to Iowa OSHA, ACM is any material found to contain asbestos, regardless of its concentration, and shall be regulated as hazardous waste. The following definitions are taken from Section 61.141 of Subpart M, Part 61 of Title 40: Protection of Environment of the Code of Federal Regulations (CFR).

- "Category I non-friable asbestos-containing material (ACM)" is defined as asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1% asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy (PLM).

- "Category II non-friable ACM" is defined as any material, excluding Category I non-friable ACM, containing more than 1% asbestos as determined using the methods specified in appendix E, subpart E, 40 CFR part 763, section 1, PLM that, when dry, ***cannot*** be crumbled, pulverized, or reduced to powder by hand pressure.

- "Friable asbestos material" is defined as any material containing more than 1% asbestos as determined using the methods specified in appendix E, subpart E, 40 CFR part 763, section 1, PLM that when dry, ***can*** be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10% as determined by a method other than point counting by PLM, verify the asbestos content by point counting using PLM.

3.2 Homogeneous Areas

Prior to sampling, homogeneous areas were identified in order to facilitate a sampling strategy. A homogeneous sampling area can be described as one or more areas with suspect material similar in appearance and texture that have the same installation date and function. The actual number of samples collected from each homogeneous sampling area may vary, dependent upon material type and the professional judgment of the inspector.

3.3 Sampling Strategy

The sampling strategy incorporated AHERA requirements, quantities of suspect material, and the inspector's judgment to aid in the identification of suspect asbestos-containing materials. If the analytical results indicated that all the samples collected per homogeneous area did not

contain asbestos, then the homogeneous area (material) was considered non-asbestos-containing. However, if the analytical results of one or more of the samples collected per homogeneous area indicated that asbestos was present in quantities greater than one percent asbestos (as defined by EPA), all of the homogeneous area (material) was treated as an asbestos-containing material regardless of any other analytical results. Materials which were visually determined to be non-asbestos (i.e. fibrous glass, foam rubber, etc.) by the accredited inspector were not required to be sampled. Actual collection of a bulk asbestos sample involves physically removing approximately one square inch (1 in^2) of material and placing it in an airtight sample container. Sample containers were marked with a unique identification number, which was documented in the field notes.

3.4 Suspect Asbestos-Containing Materials

The following table contains a list of thirty-three (33) sampled accessible building materials suspected of containing asbestos:

TABLE 1: SUSPECT BUILDING MATERIALS		
MATERIAL	**LOCATION**	**SAMPLE NUMBER**
White Caulk, Brittle	5/6 Locker Rooms	5/6-1
Drywall Mud	5/6 Throughout	5/6-2A,B,C
Drywall	5/6 Throughout	5/6-3
Gray 4" Cove Base	6 Locker Room	5/6-4
Tan Cove Base Mastic	5/6 Ground and 1st Floor	5/6-5
2'x2' Ceiling Tile	5/6 Ground Floor Offices and Day Rooms	5/6-6
1'x1' Ceiling Tile	5/6 Ground Floor Ceiling	5/6-7
Plaster	5/6 Ceilings	5/6-8A,B,C
Pink Caulk	5/6 Throughout	5/6-9
2'x2' Ceiling Tile	5/6 Kitchens	5/6-10
Red Terrazzo	5/6 Floors	5/6-11
White Caulk	5/6 Sink Islands	5/6-12
White Caulk	5/6 Wall Sinks	5/6-13
Black Caulk	5/6 Windows and Doors	5/6-14
Brick Mortar	Throughout 5/6	5/6-15
Gray Terrazzo	5/6 Floors	5/6-16
Brown Puck	5/6 1st Floor Ceiling	5/6-17

TABLE 1: SUSPECT BUILDING MATERIALS		
MATERIAL	**LOCATION**	**SAMPLE NUMBER**
Gray Duct Sealant	5/6 Ductwork	5/6-18
Red Caulk	5 1st Floor Furnace Room	5/6-19
2'x4' Ceiling Tile	5/6 Dorms	5/6-20
1'x1' Ceiling Tile	5/6 Dorm Ceilings	5/6-21
Felt Paper	5/6 Dorm Ceilings	5/6-22
Black 4" Cove Base	5 Dorm	5/6-23
Ceiling Texture	5/6 1st and 2nd Floor Ceiling	5/6-24A,B,C
Tile Grout	5 2nd Floor Furnace Closet	5/6-25
Light Gray Paper	5 2nd Floor Furnace Closet	5/6-26
Brown 4" Cove Base	6 Dorm	5/6-27

The following table is a summary of the suspect asbestos-containing materials that have been determined, through laboratory analysis, to contain asbestos:

TABLE 2: ASBESTOS-CONTAINING MATERIALS				
MATERIAL	**LOCATION**	**SAMPLE NUMBER**	**APPROX. QUANTITY**	**ASBESTOS CONTENT**
Brown Puck	Day Room and Offices' Ceiling	5/6-17	4,240 SQFT	5% Anthophyllite
Light Gray Paper	Old Ducts in 2nd Floor Furnace Room	5/6-26	1 SQFT	65% Chrysotile
SQFT = Square Feet, LF = Linear Feet				

3.5 Laboratory Analytical Results

Bulk samples were analyzed by EMSL Analytical, Inc. located at 490 Rowley Road, Depew, NY. Polarized Light Microscope analysis, utilizing dispersion staining techniques (ref.: EPA Method 600/M4-82-020), was performed to determine the asbestos content of the bulk samples collected at the site. This laboratory is currently a proficient participant in the American Industrial Hygiene Association (AIHA) Bulk Asbestos Proficiency Analytical Testing Program; a quality assurance program for polarized light microscopy analysis. Any material that contains greater than one percent asbestos is considered an ACM and must be handled according to Occupational Safety and Health Administration (OSHA), EPA, and all applicable state and local regulations.

Details of sample analysis are included in Appendix A, which contains a listing of all analyzed samples, sample locations, and analytical results relating to the site. Asbestos analytical results are reported as percentage and type. Other common non-asbestos components may also be noted in the analytical report.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are summarized as follows:

- Asbestos was detected in the brown ceiling pucks on ground floors of cottages 5 and 6, and light gray paper in the original duct work in the furnace room on 2nd floor of Cottage 5. Based on the results of the data collected during the assessment, these building requires further action prior to renovation.

Atlas recommends the abatement of all ACM-containing materials located within the inspection area if those building materials are to be disturbed during any future renovation activities. All abatement work shall be completed in accordance with local, state, and federal regulation. A visual inspection is recommended upon completion of abatement work to document that all ACMs within the scope of abatement have been removed.

5.0 ASSUMPTIONS AND LIMITATIONS

The results, findings, conclusions, and recommendations expressed in this report are based solely on conditions noted during the November 8 and 10, 2021 Atlas inspection of the site located at Cottages 5 and 6 at 3211 Edgington Avenue, Eldora, Iowa.

Atlas's selection of sample locations and frequency of sampling was based on the inspector's assumption that like materials in the same area are homogeneous in content.

The report is designed to aid the building owner, architect, construction manager, general contractor, and potential asbestos abatement contractor in locating ACM. Under no circumstances is the report to be utilized as a bidding document or as a project specification document since it does not have all the components required to serve as an Asbestos Project Design document or an Abatement Work plan.

Our professional services have been performed, our findings obtained, and our conclusions and recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This statement is in lieu of other statements either expressed or implied. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

This report is intended for the sole use of Story Construction. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said user.

APPENDIX A

LABORATORY ANALYTICAL REPORT

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 042128347
Customer ID: ATC55
Customer PO:
Project ID:

Attention: Eric Mueggenberg
Atlas Technical
11117 Mockingbird Drive
Omaha, NE 68137

Project: Eldora Cottage Dorm - 204BS04293

Phone: (515) 689-3216
Fax: (402) 597-8532
Received Date: 11/12/2021 9:30 AM
Analysis Date: 11/15/2021 - 11/16/2021
Collected Date: 11/08/2021

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
5/6-1 *042128347-0001*	6 Locker Room - White Caulk Brittle	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-2A *042128347-0002*	6 Locker Room - Drywall Mud	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-2B *042128347-0003*	5 Kitchen - Drywall Mud	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-2C *042128347-0004*	6 Kitchen - Drywall Mud	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-3 *042128347-0005*	6 Kitchen - Drywall	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
5/6-4 *042128347-0006*	6 Locker Room - 4" Gray Cove Base	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-5 *042128347-0007*	6 Locker Room - Cove Base Mastic Tan	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-6 *042128347-0008*	6 Office - 2' x 2' Ceiling Tile	Gray Fibrous Homogeneous	45% Cellulose 30% Glass	25% Non-fibrous (Other)	None Detected
5/6-7 *042128347-0009*	6 Office - 1' x 1' Ceiling Tile	White Fibrous Homogeneous	80% Glass	20% Non-fibrous (Other)	None Detected
5/6-8A *042128347-0010*	6 Office - Plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-9 *042128347-0011*	6 Office - pink Caulk	Pink Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-10 *042128347-0012*	6 Kitchen - 2' x 2' Ceiling Tile	White Fibrous Homogeneous	80% Glass	20% Non-fibrous (Other)	None Detected
5/6-11 *042128347-0013*	6 Kitchen - Terrazzo Red	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-12 *042128347-0014*	5 Locker Room - White Sink Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-13 *042128347-0015*	5 Locker Room - White Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-14 *042128347-0016*	5 Locker Room - Black Caulk	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 11/16/2021 10:41:39

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 042128347
Customer ID: ATC55
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
5/6-15 *042128347-0017*	5 Locker Room - Brick Mortar	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-16 *042128347-0018*	5 Locker Room - Terrazzo Gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-17 *042128347-0019*	5 Day Room - Puck Brown	Brown Fibrous Homogeneous		95% Non-fibrous (Other)	5% Anthophyllite
5/6-18 *042128347-0020*	5 Kitchen - Gray Duct Sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-8B-Skim Coat *042128347-0021*	5 Kitchen - Plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-8B-Base Coat *042128347-0021A*	5 Kitchen - Plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-8C-Skim Coat *042128347-0022*	6 Kitchen - Plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-8C-Base Coat *042128347-0022A*	6 Kitchen - Plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-19 *042128347-0023*	5 Furnace - Red Caulk	Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-20 *042128347-0024*	5 Dorm - 2' x 4' Ceiling Tile	Gray/White Fibrous Homogeneous	20% Cellulose 30% Glass	50% Non-fibrous (Other)	None Detected
5/6-21 *042128347-0025*	5 Dorm - 1' x 1' Ceiling Tile	Brown/White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
5/6-22 *042128347-0026*	5 Dorm - Felt Paper	Black Fibrous Homogeneous	75% Cellulose	25% Non-fibrous (Other)	None Detected
5/6-23 *042128347-0027*	5 Dorm - 4" Black Cove Base	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-24A *042128347-0028*	5 NE Office - Ceiling Texture	Brown/White Non-Fibrous Homogeneous		35% Vermiculite 65% Non-fibrous (Other)	None Detected
5/6-24B *042128347-0029*	5 NW Office - Ceiling Texture	Tan/White Non-Fibrous Homogeneous		35% Vermiculite 65% Non-fibrous (Other)	None Detected
5/6-24C *042128347-0030*	6 2nd Floor W Office - Ceiling Texture	Gray/White Non-Fibrous Homogeneous		45% Vermiculite 55% Non-fibrous (Other)	None Detected
5/6-25 *042128347-0031*	5 2nd Floor NW Office - Tile Grout	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5/6-26 *042128347-0032*	5 2nd Floor Furnace - Light Gray Paper	Gray Fibrous Homogeneous		35% Non-fibrous (Other)	65% Chrysotile
5/6-27 *042128347-0033*	6 Dorm - Brown 4" Cove Base	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 11/16/2021 10:41:39

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	042128347
Customer ID:	ATC55
Customer PO:	
Project ID:	

Analyst(s)

Margo Burgio (31)
Shauna LaValley (4)

Samantha Rundstrom, Laboratory Manager
or Other Approved Signatory

Initial report from: 11/16/2021 10:41:39

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL Order Number / Lab Use Only: 042128347

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
EMAIL: ...@emsl.com

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

Customer Information		Billing Information	
Customer ID:	ATC55	Billing ID:	ATC55
Company Name:	Atlas Technical Consultants, LLC	Company Name:	Atlas Technical Consultants, LLC
Contact Name:	Eric Mueggenberg	Billing Contact:	Sally Schmitz
Street Address:	11117 Mockingbird Drive	Street Address:	11117 Mockingbird Drive
City, State, Zip:	Omaha NE 68137	City, State, Zip:	Omaha
Country:	US	Country:	US
Phone:	515-981-4528	Phone:	402-697-9747
Email(s) for Report:	Eric.Mueggenberg@oneatlas.com	Email(s) for Invoice:	sally.schmitz@oneatlas.com

Project Information

Project Name/No: ELDORA COTTAGE DORM 204B504293
Purchase Order:
EMSL LIMS Project ID: (if applicable, EMSL will provide)
US State where samples collected: IA
State of Connecticut (CT) must select project location: ☐ Commercial (Taxable) ☐ Residential (Non-Taxable)
Sampled By Name: ERIC BROWN
Sampled By Signature: Eric Brown
No. of Samples in Shipment: 33

Turn-Around-Time (TAT)

☐ 3 Hour ☐ 4-4.5 Hour ☐ 6 Hour ☐ 24 Hour ☐ 32 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

TEM Air 3-6 Hour, please call ahead to schedule. 32 Hour TAT available for select tests only; samples must be submitted by 11:30 am.

Test Selection

PCM Air
- ☐ NIOSH 7400
- ☐ NIOSH 7400 w/ 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)
- ☐ POINT COUNT
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- POINT COUNT w/ GRAVIMETRIC
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- ☐ NIOSH 9002 (<1%)
- ☐ NYS 198.1 (Friable - NY)
- ☐ NYS 198.6 NOB (Non-Friable - NY)
- ☐ NYS 198.8 (Vermiculite SM-V)

TEM - Air
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312*

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (Non-Friable-NY)
- ☐ TEM EPA 600/R-93/116 w Milling Prep (0.1%)

Other Test (please specify)

TEM - Settled Dust
- ☐ Microvac - ASTM D5755
- ☐ Wipe - ASTM D6480
- ☐ Qualitative via Filtration Prep
- ☐ Qualitative via Drop Mount Prep

Soil - Rock - Vermiculite (reporting limit)* PLM
- ☐ EPA 600/R-93/116 with milling prep (<0.25%) PLM
- ☐ EPA 600/R-93/116 with milling prep (<0.1%) TEM
- ☐ EPA 600/R-93/116 with milling prep (<0.1%) TEM
- ☐ Qualitative via Filtration Prep
- ☐ TEM Qualitative via Drop Mount Prep

*Please call with your project-specific requirements.

☒ Positive Stop - Clearly Identified Homogeneous Areas (HA) | Filter Pore Size (Air Samples) ☐ 0.8um ☐ 0.45um

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
5/6 - 1	WHITE CAULK BRITTLE 6 LOCKERROOM		11/8/21
5/6 - 2A	DRYWALL MUD 6 LOCKERROOM		
5/6 - 2B	DRYWALL MUD 5 KITCHEN		
5/6 - 2C	DRYWALL MUD 6 KITCHEN		
5/6 - 3	DRYWALL 6 KITCHEN		
5/6 - 4	4" GRAY COVE BASE 6 LOCKERROOM		
5/6 - 5	COVE BASE MASTIC TAN 6 LOCKERROOM		
5/6 - 6	2'x2' CEILING TILE 6 OFFICE		

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

5/6-2B & 2C DO NOT ANALYZE CERAMIC TILE

RECEIVED EMSL CINNAMINSON, N.J. NOV 11 AM 11:02

RECEIVED NOV 15 2021 10:05AM FedX BY: Hanna LaValley

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by: Eric Brown	Date/Time: 11/10/21 1700	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time: 11-11-21 930A

Controlled Document - COC-05 Asbestos R13 2/26/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

Page 1 of 2

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL Order Number / Lab Use Only: 042128347

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
EMAIL: cc@emsl.com

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
5/6 - 7	1'x1' CEILING TILE 6 OFFICE		11/8/21
5/6 - 8A	PLASTER 6 OFFICE		
5/6 - 9	PINK CAULK 6 OFFICE		
5/6 - 10	2'x2' CEILING TILE 6 KITCHEN		
5/6 - 11	TERRAZZO RED 6 KITCHEN		
5/6 - 12	WHITE SINK CAULK 5 LOCKERROOM		
5/6 - 13	WHITE CAULK 5 LOCKERROOM		
5/6 - 14	BLACK CAULK 5 LOCKERROOM		
5/6 - 15	BRICK MORTAR 5 LOCKERROOM		
5/6 - 16	TERRAZZO GRAY 5 LOCKERROOM		
5/6 - 17	MUCK BROWN 5 DAY ROOM		
5/6 - 18	GRAY DUCT SEALANT 5 KITCHEN		
5/6 - 8B	PLASTER 5 KITCHEN		11/8/21
5/6 - 8C	PLASTER 6 KITCHEN		11/8/21
5/6 - 19	RED CAULK 5 FURNACE		11/10/21
5/6 - 20	2'x4' CEILING TILE 5 DORM		
5/6 - 21	1'x1' CEILING TILE 5 DORM		
5/6 - 22	FELT PAPER 5 DORM		
5/6 - 23	4" BLACK COVE BASE 5 DORM		
5/6 - 24A	CEILING TEXTURE 5 NE OFFICE		
5/6 - 24B	CEILING TEXTURE 5 NW OFFICE		
5/6 - 24C	CEILING TEXTURE 6 2nd FLOOR W OFFICE		
5/6 - 25	TILE GROUT 5 2nd FLOOR NW FURNACE		
5/6 - 26	LIGHT GRAY PAPER 5 2nd FLOOR FURNACE	1 SQFT	
5/6 - 27	BROWN 4" COVE BASE 6 DORM		

RECEIVED EMSL CINNAMINSON, NJ 2021 NOV 11 AM 11:02

RECEIVED NOV 15 2021 10:05AM FedX BY: Shawna LaValley

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by: Eric Brown	Date/Time: 11/10/21 1100	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - COC-05 Asbestos R13 2/26/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

Page 2 of 2

APPENDIX B

INSPECTOR ACCREDITATIONS

ERIC BROWN

DOB: 05-07-1970

Issued: 02-19-2021

This person is licensed to perform asbestos work in the State of Iowa. ID card is intended for official use only and must be present on jobsite.

License Type	Number	Expires
INSPECTOR	21-5779	02-16-2022

DIVISION OF IOWA LABOR

Asbestos

Rod A. Roberts

Rod A. Roberts
Labor Commissioner

Midwest Training Institute

"A Higher Standard of Training"

An ATC Company

This is to **certifies that**

Eric Brown

has completed the requisite training for asbestos accreditation under TSCA Title II, 15 U.S.C. 2646 and the State of Nebraska Asbestos Regulations and passed the associated examination with a score of 70% or better.

EPA AHERA/Nebraska Asbestos Inspector Refresher Course

Course Location:
Des Moines, IA

Midwest Training Institute, Inc.
11117 Mockingbird Drive
Omaha, NE 68137
(402) 505-2940
(402) 515-0585
www.midwesttrainingsite.com

Todd Brown

Instructor

Course Date:	**02/16/2021**
Examination Date:	**02/16/2021**
Expiration Date:	**02/16/2022**
Certificate #	**MTITB9349 IR**
Course Length	**4 Hours**

APPENDIX C

PHOTOS

View of Cottages 5 and 6 from the east.	**1**

View of asbestos containing Brown Puck (Sample 5/6-17 – 5% Anthophyllite).	**2**

Photograph Log Cottages 5 and 6 3211 Edgington Avenue Eldora, Iowa 50627 ACM Survey	**Atlas** 4503 East 50th Street, Suite 800, Des Moines, IA 50317 (515) 981-4528 Project No. 204BS04293

View asbestos containing light gray paper on old duct. (5/6-26 – 65% Chrysotile)	3

Photograph Log Cottages 5 and 6 3211 Edgington Avenue Eldora, Iowa 50627 ACM Survey	**Atlas** 4503 East 50th Street, Suite 800, Des Moines, IA 50317 (515) 981-4528 Project No. 204BS04293

N E S H A P P R E - R E N O V A T I O N A S B E S T O S S U R V E Y

PREPARED FOR:

Story Construction
2810 Wakefield Circle
Ames, Iowa 50010

PROJECT LOCATION:

Cottage 7 ACM Survey
3211 Edgington Avenue
Eldora, Iowa 50627

Project Date(s): November 8 and 10, 2021

Report Date: November 19, 2021

Atlas Project ID: 204BS04293

Atlas Technical Consultants
4503 East 50th Street, Suite 800
Des Moines, IA 50317

November 19, 2021

Sam Vorrie
Senior Project Manager
Story Construction
2810 Wakefield Circle
Ames, Iowa 50010

Re: NESHAP Pre-Renovation Asbestos Survey
Cottage 7 ACM Survey
3211 Edgington Avenue
Eldora, Iowa 50627
Atlas Project Number: 204BS04293

Atlas Technical Consultants, LLC (Atlas) is pleased to submit the attached NESHAP Pre-Renovation Asbestos Survey conducted at the above-referenced site. This report includes procedures, methodologies and analytical laboratory results of only in select areas via a site construction plan provided by Story Construction.

Atlas appreciates the opportunity to perform these services for Story Construction, and we look forward to working with you in the future. If you need any assistance with the implementation of the recommendations contained in this report, please feel free to give us a call at (515) 981-4528 and we will respond promptly to your needs.

Sincerely,

Atlas Technical Consultants, LLC

Eric Brown
Iowa Inspector
(515) 981-4528

Eric J. Mueggenberg
Operations Manager
(515) 981-4528

T A B L E O F C O N T E N T S

N E S H A P P R E - R E N O V A T I O N
A S B E S T O S S U R V E Y

Cottage 7 ACM Survey
3211 Edgington Avenue
Eldora, Iowa 50627
Atlas Project Number: 204BS04293

1.0 SCOPE OF SERVICES

The purpose of this project was to perform a NESHAP Pre-Renovation Asbestos Survey at the above-referenced property.

Atlas provided a representative asbestos survey at the identified building in accordance with the referenced agreement and as outlined below:

1. Review any existing asbestos reports relating to the site, if available.
2. Survey the site building(s) of only the building materials that make up the building and immediate surrounding areas.
3. Identify accessible suspect asbestos-containing materials (ACM) in accordance with the USEPA National Emission Standard for Hazardous Air Pollutants (NESHAP), (ref.: 40 CFR, Part 61) of only the building materials that make up the building and immediate surrounding areas.
4. Collect and analyze bulk samples of suspect materials of only the building materials that make up the building and immediate surrounding areas.
5. Quantify any asbestos-containing materials and record location.

2.0 GENERAL SITE CONDITIONS

The survey was conducted at Cottage 7 at 3211 Edgington Avenue, Eldora, Iowa. The building consisted of a three story brick building, with a dorm room, kitchen, laundry room, and offices. The survey area was limited to the interior of the building and the immediate surrounding areas that might be disturbed during the demolition.

3.0 ASBESTOS SURVEY REPORT

On November 8, 2021, the site located at Cottage 7 at 3211 Edgington Avenue, Eldora, Iowa 50627, was inspected for asbestos-containing building materials by inspector Eric Brown of Atlas. Mr. Brown has completed the requisite training for asbestos accreditation as an inspector at a state approved training provider under TSCA Title II. Mr. Brown's AHERA accreditation number is MTITB9349IR and his State of Iowa Inspector number is 21-5779.

The site was visually inspected for the presence of only the building materials that make up the interior of the buildings, and immediate surrounding areas as suspect asbestos-containing materials (ACM). Materials that were hidden, not accessible, or when sampled would damage

the integrity of the structure, were not sampled as part of this survey. Materials visibly identified as non-asbestos (fibrous glass, foam rubber, wood, etc.) were not sampled. The asbestos survey consisted of three basic steps: **1)** a visual inspection of the proposed site; **2)** a determination of homogeneous areas with suspect surfacing, thermal system insulation, and miscellaneous materials; and **3)** sampling accessible, friable and non-friable, suspect materials.

3.1 Regulation Review

The U.S. EPA qualifies asbestos-containing materials (ACM) as materials with an asbestos content greater than 1%. According to Iowa OSHA, ACM is any material found to contain asbestos, regardless of its concentration, and shall be regulated as hazardous waste. The following definitions are taken from Section 61.141 of Subpart M, Part 61 of Title 40: Protection of Environment of the Code of Federal Regulations (CFR).

- "Category I non-friable asbestos-containing material (ACM)" is defined as asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1% asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy (PLM).

- "Category II non-friable ACM" is defined as any material, excluding Category I non-friable ACM, containing more than 1% asbestos as determined using the methods specified in appendix E, subpart E, 40 CFR part 763, section 1, PLM that, when dry, ***cannot*** be crumbled, pulverized, or reduced to powder by hand pressure.

- "Friable asbestos material" is defined as any material containing more than 1% asbestos as determined using the methods specified in appendix E, subpart E, 40 CFR part 763, section 1, PLM that when dry, ***can*** be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10% as determined by a method other than point counting by PLM, verify the asbestos content by point counting using PLM.

3.2 Homogeneous Areas

Prior to sampling, homogeneous areas were identified in order to facilitate a sampling strategy. A homogeneous sampling area can be described as one or more areas with suspect material similar in appearance and texture that have the same installation date and function. The actual number of samples collected from each homogeneous sampling area may vary, dependent upon material type and the professional judgment of the inspector.

3.3 Sampling Strategy

The sampling strategy incorporated AHERA requirements, quantities of suspect material, and the inspector's judgment to aid in the identification of suspect asbestos-containing materials. If the analytical results indicated that all the samples collected per homogeneous area did not

contain asbestos, then the homogeneous area (material) was considered non-asbestos-containing. However, if the analytical results of one or more of the samples collected per homogeneous area indicated that asbestos was present in quantities greater than one percent asbestos (as defined by EPA), all of the homogeneous area (material) was treated as an asbestos-containing material regardless of any other analytical results. Materials which were visually determined to be non-asbestos (i.e. fibrous glass, foam rubber, etc.) by the accredited inspector were not required to be sampled. Actual collection of a bulk asbestos sample involves physically removing approximately one square inch (1 in^2) of material and placing it in an airtight sample container. Sample containers were marked with a unique identification number, which was documented in the field notes.

3.4 Suspect Asbestos-Containing Materials

The following table contains a list of twenty-three (23) sampled accessible building materials suspected of containing asbestos:

TABLE 1: SUSPECT BUILDING MATERIALS		
MATERIAL	**LOCATION**	**SAMPLE NUMBER**
Brick Mortar	7 Throughout	7-1
Gray Terrazzo	7 Floors	7-2
Dark Brown Caulk	7 Exterior Doors and Windows	7-3
White Caulk	7 Sinks	7-4
Drywall Mud	7 Throughout	7-5A, B, C
2'x2' Ceiling Tile	7 Ground Floor Ceiling	7-6
1'x1' Ceiling Tile	7 Ground Floor Ceiling	7-7
Plaster	7 Ceilings	7-8A, B, C
Brown Puck	7 1st Floor Ceiling	7-9
Pink Caulk	7 Throughout	7-10
Drywall	7 Throughout	7-11
Drywall Tape	7 Throughout	7-12
Red Terrazzo	7 Floors	7-13
Gray Duct Sealant	7 Ductwork	7-14
Black 4" Cove Base	7 Dorm	7-15
2'x4' Ceiling Tile	7 Dorm	7-16
1'x1' Ceiling Tile	7 1st Floor Ceiling	7-17

TABLE 1: SUSPECT BUILDING MATERIALS		
MATERIAL	**LOCATION**	**SAMPLE NUMBER**
Felt Paper	7 1st Floor Ceiling	7-18
Tile Grout	7 1st and 2nd Floor Bathrooms	7-19

The following table is a summary of the suspect asbestos-containing materials that have been determined, through laboratory analysis, to contain asbestos:

TABLE 2: ASBESTOS-CONTAINING MATERIALS				
MATERIAL	**LOCATION**	**SAMPLE NUMBER**	**APPROX. QUANTITY**	**ASBESTOS CONTENT**
Asbestos was not detected in the bulk material samples collected.				
SQFT = Square Feet, LF = Linear Feet				

3.5 Laboratory Analytical Results

Bulk samples were analyzed by EMSL Analytical, Inc. located at 490 Rowley Road Depew, NY. Polarized Light Microscope analysis, utilizing dispersion staining techniques (ref.: EPA Method 600/M4-82-020), was performed to determine the asbestos content of the bulk samples collected at the site. This laboratory is currently a proficient participant in the American Industrial Hygiene Association (AIHA) Bulk Asbestos Proficiency Analytical Testing Program; a quality assurance program for polarized light microscopy analysis. Any material that contains greater than one percent asbestos is considered an ACM and must be handled according to Occupational Safety and Health Administration (OSHA), EPA, and all applicable state and local regulations.

Details of sample analysis are included in Appendix A, which contains a listing of all analyzed samples, sample locations, and analytical results relating to the site. Asbestos analytical results are reported as percentage and type. Other common non-asbestos components may also be noted in the analytical report.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are summarized as follows:

- Asbestos was not detected in the bulk material samples collected from the commercial building located in Cottage 7 at 3211 Edgington Avenue in Eldora, Iowa. Based on the results of the data collected during the assessment, the building does not require further action prior to demolition.

5.0 ASSUMPTIONS AND LIMITATIONS

The results, findings, conclusions, and recommendations expressed in this report are based solely on conditions noted during the November 8 and 10, 2021 Atlas inspection of the site located at Cottage 7 at 3211 Edgington Avenue, Eldora, Iowa.

Atlas's selection of sample locations and frequency of sampling was based on the inspector's assumption that like materials in the same area are homogeneous in content.

The report is designed to aid the building owner, architect, construction manager, general contractor, and potential asbestos abatement contractor in locating ACM. Under no circumstances is the report to be utilized as a bidding document or as a project specification document since it does not have all the components required to serve as an Asbestos Project Design document or an Abatement Work plan.

Our professional services have been performed, our findings obtained, and our conclusions and recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This statement is in lieu of other statements either expressed or implied. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

This report is intended for the sole use of Story Construction. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said user.

APPENDIX A

LABORATORY ANALYTICAL REPORT

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	042128344
Customer ID:	ATC55
Customer PO:	
Project ID:	

Attention:	Eric Mueggenberg	**Phone:**	(515) 689-3216
	Atlas Technical	**Fax:**	(402) 597-8532
	11117 Mockingbird Drive	**Received Date:**	11/11/2021 9:30 AM
	Omaha, NE 68137	**Analysis Date:**	11/15/2021
		Collected Date:	11/08/2021
Project:	Eldora Cottage Dorm / 204BS04293		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
7-1 *042128344-0001*	7 Laundry - Brick Mortar	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-2 *042128344-0002*	7 Locker Room - Terrazzo Grey	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-3 *042128344-0003*	7 Door - Dark Brown Caulk	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-4 *042128344-0004*	7 Locker Room - White Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-5A *042128344-0005*	7 Locker Room - Drywall Mud	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-5B *042128344-0006*	7 - Drywall Mud	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-5C *042128344-0007*	7 Kitchen - Drywall Mud	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-6 *042128344-0008*	7 NE Room - 2'x2' Ceiling Tile	Gray/White Fibrous Homogeneous	35% Cellulose 30% Glass	35% Non-fibrous (Other)	None Detected
7-7 *042128344-0009*	7 NE Room - 1'x1' Ceiling Tile	White Fibrous Homogeneous	70% Glass	30% Non-fibrous (Other)	None Detected
7-8A *042128344-0010*	7 NE Room - Plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-8B *042128344-0011*	7 Kitchen - Plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-8C *042128344-0012*	7 Kitchen - Plaster	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-9 *042128344-0013*	7 NE Room - Puck Brown	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-10 *042128344-0014*	7 Quiet Room - Red/Pink Caulk	Pink Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-11 *042128344-0015*	7 - Drywall	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
7-12 *042128344-0016*	7 - Drywall Tape	Tan Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected

Initial report from: 11/15/2021 14:50:58

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	042128344
Customer ID:	ATC55
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
7-13 *042128344-0017*	7 Kitchen - Terrazzo Red	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-14 *042128344-0018*	7 Kitchen - Gray Duct Sealant	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-15 *042128344-0019*	7 Dorm - 4" Black Cove Base	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7-16 *042128344-0020*	7 Dorm - 2'x4' Ceiling Tile	Gray Fibrous Homogeneous	40% Cellulose 30% Glass	30% Non-fibrous (Other)	None Detected
7-17 *042128344-0021*	7 Dorm - 1'x1' Ceiling Tile	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
7-18 *042128344-0022*	7 Dorm - Felt Panel	Brown Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
7-19 *042128344-0023*	7 Furnace Closet - Tile Grout	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)

Margo Burgio (21)
Shauna LaValley (2)

Samantha Rundstrom, Laboratory Manager
or Other Approved Signatory

Initial report from: 11/15/2021 14:50:58

OrderID: 042128344

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL Order Number / Lab Use Only: 042125344

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
EMAIL: c@emsl.com

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

Customer Information

Customer ID:	ATC55
Company Name:	Atlas Technical Consultants, LLC
Contact Name:	Eric Mueggenberg
Street Address:	11117 Mockingbird Drive
City, State, Zip:	Omaha NE 68137
Country:	US
Phone:	515-981-4528
Email(s) for Report:	Eric.Mueggenberg@oneatlas.com

Billing Information

Billing ID:	ATC55
Company Name:	Atlas Technical Consultants, LLC
Billing Contact:	Sally Schmitz
Street Address:	11117 Mockingbird Drive
City, State, Zip:	Omaha
Country:	US
Phone:	402-697-9747
Email(s) for Invoice:	sally.schmitz@oneatlas.com

Project Information

Project Name/No:	ELDORA COTTAGE DORM ~~204BS04293~~ 204BS04293
Purchase Order:	
EMSL LIMS Project ID: (If applicable, EMSL will provide)	
US State where samples collected:	IA
State of Connecticut (CT) must select project location:	☐ Commercial (Taxable) ☐ Residential (Non-Taxable)
Sampled By Name:	ERIC BROWN
Sampled By Signature:	Eric Brown
No. of Samples in Shipment	23

Turn-Around-Time (TAT)

☐ 3 Hour ☐ 4-4.5 Hour ☐ 6 Hour ☐ 24 Hour ☐ 32 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

TEM Air 3-6 Hour, please call ahead to schedule. 32 Hour TAT available for select tests only; samples must be submitted by 11:30 am.

Test Selection

PCM Air
- ☐ NIOSH 7400
- ☐ NIOSH 7400 w/ 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)
- ☐ POINT COUNT
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- POINT COUNT w/ GRAVIMETRIC
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- ☐ NIOSH 9002 (<1%)
- ☐ NYS 198.1 (Friable - NY)
- ☐ NYS 198.6 NOB (Non-Friable - NY)
- ☐ NYS 198.8 (Vermiculite SM-V)

TEM - Air
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312*

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (Non-Friable-NY)
- ☐ TEM EPA 600/R-93/116 w Milling Prep (0.1%)

Other Test (please specify)

TEM - Settled Dust
- ☐ Microvac - ASTM D5755
- ☐ Wipe - ASTM D6480
- ☐ Qualitative via Filtration Prep
- ☐ Qualitative via Drop Mount Prep

Soil - Rock - Vermiculite (reporting limit)* PLM
- ☐ EPA 600/R-93/116 with milling prep (<0.25%) PLM
- ☐ EPA 600/R-93/116 with milling prep (<0.1%) TEM
- ☐ EPA 600/R-93/116 with milling prep (<0.1%) TEM
- ☐ Qualitative via Filtration Prep
- ☐ TEM Qualitative via Drop Mount Prep

*Please call with your project-specific requirements.

☒ Positive Stop - Clearly Identified Homogeneous Areas (HA) | Filter Pore Size (Air Samples) ☐ 0.8um ☐ 0.45um

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
7-1	BRICK MORTAR 7 LAUNDRY		11/8/21
7-2	TERRAZZO GRAY 7 LOCKERROOM		
7-3	DARK BROWN CAULK 7 DOOR		
7-4	WHITE CAULK 7 LOCKERROOM		
7-5A	DRYWALL MUD 7 LOCKERROOM		
7-5B	DRYWALL MUD 7		
7-5C	DRYWALL MUD 7 KITCHEN		
7-6	2'x2' CEILING TILE 7 NE ROOM		

RECEIVED EMSL CINNAMINSON, NJ 2021 NOV 11 AM 11:00

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

7-19 ANALYZE TILE GRAIN ONLY

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by: Eric Brown	Date/Time: 11/10/21 1700	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by: DNB-FX	Date/Time: 11-11-21 930A

Controlled Document - COC-05 Asbestos R13 2/26/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

Page 1 of 2

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL Order Number / Lab Use Only

042128344

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
EMAIL: c@emsl.com

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	Sample Location / Description		Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
7-7	1'x1' CEILING TILE	7 NE ROOM		11/8/21
7-8A	PLASTER	7 NE ROOM		
7-8B	PLASTER	7 KITCHEN		
7-8C	PLASTER	7 KITCHEN		
7-9	PUCK BROWN	7 NE ROOM		
7-10	RED/PINK CAULK	7 QUIET ROOM		
7-11	DRYWALL	7		
7-12	DRYWALL TAPE	7		
7-13	TERRAZZO RED	7 KITCHEN		
7-14	GRAY DUCT SEALANT	7 KITCHEN		
7-15	4" BLACK COVEBASE	7 DORM		11/10/21
7-16	2'x4' CEILING TILE	7 DORM		
7-17	1'x1' CEILING TILE	7 DORM		
7-18	FELT PAPER	7 DORM		
7-19	TILE GROUT	7 2ND FLOOR FURNACE CLOSET		

RECEIVED
EMSL
CINNAMINSON, NJ
2021 NOV 11 AM 11:00

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by: Eric Brown	Date/Time: 11/10/21 1700	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - COC-05 Asbestos R13 2/26/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

Page 2 of 2

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
EMAIL: c@emsl.com

EMSL Order Number / Lab Use Only
042128344
~~042125344~~ SD 11/15/21

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

Customer Information		Billing Information	
Customer ID:	ATC55	Billing ID:	ATC55
Company Name:	Atlas Technical Consultants, LLC	Company Name:	Atlas Technical Consultants, LLC
Contact Name:	Eric Mueggenberg	Billing Contact:	Sally Schmitz
Street Address:	11117 Mockingbird Drive	Street Address:	11117 Mockingbird Drive
City, State, Zip:	Omaha NE 68137	City, State, Zip:	Omaha
Country:	US	Country:	US
Phone:	515-981-4528	Phone:	402-697-9747
Email(s) for Report:	Eric.Mueggenberg@oneatlas.com	Email(s) for Invoice:	sally.schmitz@oneatlas.com

Project Information

Project Name/No: ELDORA COTTAGE DORM ~~20[illegible]~~ 2048504293
Purchase Order:
EMSL LIMS Project ID: (if applicable, EMSL will provide)
US State where samples collected: IA
State of Connecticut (CT) must select project location: ☐ Commercial (Taxable) ☐ Residential (Non-Taxable)
Sampled By Name: ERIC BROWN
Sampled By Signature: Eric Brown
No. of Samples in Shipment: 23 U

Turn-Around-Time (TAT)

☐ 3 Hour ☐ 4-4.5 Hour ☐ 6 Hour ☐ 24 Hour ☐ 32 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

TEM Air 3-6 Hour, please call ahead to schedule. 32 Hour TAT available for select tests only, samples must be submitted by 11:30 am.

Test Selection

PCM Air
- ☐ NIOSH 7400
- ☐ NIOSH 7400 w/ 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)
- ☐ POINT COUNT
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- POINT COUNT w/ GRAVIMETRIC
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- ☐ NIOSH 9002 (<1%)
- ☐ NYS 198.1 (Friable - NY)
- ☐ NYS 198.6 NOB (Non-Friable - NY)
- ☐ NYS 198.8 (Vermiculite SM-V)

TEM - Air
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312*

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (Non-Friable-NY)
- ☐ TEM EPA 600/R-93/116 w Milling Prep (0.1%)

Other Test (please specify)

TEM - Settled Dust
- ☐ Microvac - ASTM D5755
- ☐ Wipe - ASTM D6480
- ☐ Qualitative via Filtration Prep
- ☐ Qualitative via Drop Mount Prep

Soil - Rock - Vermiculite (reporting limit)* PLM
- ☐ EPA 600/R-93/116 with milling prep (<0.25%) PLM
- ☐ EPA 600/R-93/116 with milling prep (<0.1%) TEM
- ☐ EPA 600/R-93/116 with milling prep (<0.1%) TEM
- ☐ Qualitative via Filtration Prep
- ☐ TEM Qualitative via Drop Mount Prep

*Please call with your project-specific requirements.

☒ Positive Stop - Clearly identified Homogeneous Areas (HA) | Filter Pore Size (Air Samples) ☐ 0.8um ☐ 0.45um

Sample Number	Sample Location / Description		Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
7-1	BRICK MORTAR	7 LAUNDRY		11/8/21
7-2	TERRAZZO GRAY	7 LOCKERROOM		
7-3	DARK BROWN CAULK	7 DOOR		
7-4	WHITE CAULK	7 LOCKERROOM		
7-5A	DRYWALL MUD	7 LOCKERROOM		
7-5B	DRYWALL MUD	7		
7-5C	DRYWALL MUD	7 KITCHEN		
7-6	2'x2' CEILING TILE	7 NE ROOM		

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

7-19 ANALYZE TILE GRID ONLY

RECEIVED
NOV 15 2021
10:05AM
FedEx
BY: Laura LaValley

RECEIVED
2021 NOV 11 AM 11:35
CINNAMINSON, NJ

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by: Eric Brown	Date/Time: 11/10/21 1700	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by: DNB-FX	Date/Time: 11-11-21 930A

Controlled Document - COC-05 Asbestos R13 2/26/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL Order Number / Lab Use Only

042128344
~~042128344~~ SC 11/15/21

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
PHONE: 1-800-220-3675
EMAIL: ...@emsl.com

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	Sample Location / Description		Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
7-7	1'x1' CEILING TILE	7 NE ROOM		11/8/21
7-8A	PLASTER	7 NE ROOM		
7-8B	PLASTER	7 KITCHEN		
7-8C	PLASTER	7 KITCHEN		
7-9	PUCK BROWN	7 NE ROOM		
7-10	RED/PINK CAULK	7 QUIET ROOM		
7-11	DRYWALL	7		
7-12	DRYWALL TAPE	7		
7-13	TERRAZZO RED	7 KITCHEN		
7-14	GRAY DUCT SEALANT	7 KITCHEN		
7-15	4" BLACK COVEBASE	7 DORM		11/10/21
7-16	2'x4' CEILING TILE	7 DORM		
7-17	1'x1' CEILING TILE	7 DORM		
7-18	FELT PAPER	7 DORM		
7-19	TILE GROUT	7 2ND FLOOR FURNACE CLOSET		

RECEIVED
EMSL
CINNAMINSON, NJ
2021 NOV 11 AM 11:00

RECEIVED
NOV 15 2021
10:05AM
FedX BY: Maura LaValley

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by: Eric Dunn	Date/Time: 11/10/21 1700	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - COC-05 Asbestos R13 2/26/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

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APPENDIX B

INSPECTOR ACCREDITATIONS

ERIC BROWN

DOB: 05-07-1970

Issued: 02-19-2021

This person is licensed to perform asbestos work in the State of Iowa. ID card is intended for official use only and must be present on jobsite.

License Type	Number	Expires
INSPECTOR	21-5779	02-16-2022

DIVISION OF IOWA LABOR

Asbestos

Rod A. Roberts

Rod A. Roberts
Labor Commissioner

Midwest Training Institute

"A Higher Standard of Training"

An ATC Company

This is to **certifies that**

Eric Brown

has completed the requisite training for asbestos accreditation under TSCA Title II, 15 U.S.C. 2646 and the State of Nebraska Asbestos Regulations and passed the associated examination with a score of 70% or better.

EPA AHERA/Nebraska Asbestos Inspector Refresher Course

Course Location:
Des Moines, IA

Midwest Training Institute, Inc.
11117 Mockingbird Drive
Omaha, NE 68137
(402) 505-2940
(402) 515-0585
www.midwesttrainingsite.com

Todd Brown

Instructor

Course Date:	**02/16/2021**
Examination Date:	**02/16/2021**
Expiration Date:	**02/16/2022**
Certificate #	**MTITB9349 IR**
Course Length	**4 Hours**

APPENDIX C

PHOTOS

View of Cottage 7 from the east.	**1**

Photograph Log Cottage 7 3211 Edgington Avenue Eldora, Iowa 50627 ACM Survey	**Atlas** 4503 East 50th Street, Suite 800, Des Moines, IA 50317 (515) 981-4528 Project No. 204BS04293

STS Cottage Dorm Conversion
Pre-Bid Meeting

February 3, 2022

STORY CONSTRUCTION

Sign-in Sheet

Name	Company	Email Address	Telephone
Jeffrey Reams	Story Construction Co.	jreams@storycon.com	515-291-8185
Jennifer Kleene	DAS	jennifer.kleene@iowa.gov	515-822-8197
Jason Zagar	Bluestone Engineering	zagarj@bluestonemep.com	515-681-0549
Nathan Stieler	OPN Architects	nstieler@opnarchitects.com	515-229-2766
Jon Kies	STS	jkies@dhs.state.ia.us	641-858-5402
Joe Weeks	Bluestone	weeksj@bluestonemep.com	515-727-0700
Ryan Schrage	STS	rschrage@dhs.state.ia.us	641-858-5402
Bob Chiappone	Young P&H	rob@youngphc.com	319-234-4411
JIM HARKEN	WOOD COMPONENTS	jharken@circletrim.com	319 493 9292
Grant Reimers	Woodruff	grantr@woodruff.build	515-450-2949
David Henning	ACI MECHANICAL	dhenning@acimech.com	515-232-1236
MICHAEL McCOY	ACI MECHANICAL	MJMccoy@ACIMECH.com	515-509-5518
Allan Petersen	Winger Companies	apetersen@wingercompanies.com	641-799-0798