

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE		PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. W9127826R1AYP-0007		3. EFFECTIVE 27 JULY 2026		4. REQUISITION/PURCHASE	
5. PROJECT NO. (If applicable) SBH25001		6. ISSUED BY CODE		7. ADMINISTERED BY (If other than item 6) CODE	
Corps of Engineers 100 Canal Street Mobile, AL 36602		8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP code)		☒ 9A. AMENDMENT OF SOLICITATION NO. W9127826R1AYP	
				9B. DATED (SEE ITEM 11) 04 MARCH 2026	
				☐ 10A. MODIFICATION OF CONTRACT/ORDER NO. 10B. DATED (SEE ITEM 13)	
CODE		FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS					
☒ The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers ☐ is extended, ☒ is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing items 8 and 15, and returning copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.					
12. ACCOUNTING AND APPROPRIATION DATA (if required)					
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.					
☐	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A				
☐	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO AUTHORITY OF FAR 43.103(b)				
☐	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:				
☐	D. OTHER (Specify type of modification and authority)				
E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return copies to the issuing office.					
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible) The subject solicitation DHS COBRA INCINERATOR DISPOSAL AND FACILITY REUTILIZATION - ANNISTON, ALABAMA (CALHOUN COUNTY) Is modified in the following: REFER TO THE ENCLOSED REVISED SPECIFICATION/DRAWING REVISIONS FOR AMENDMENT NO. 0007. Except as provided herein, all terms and conditions of the document reference in item 9A or 10A, as Heretofore changed, remains unchanged and in full force and effect.					
15A. NAME AND TITLE OF SIGNER (Type or print)			16A. NAME AND TITLE OF CONTRACTING OFFICE (Type or print)		
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED		16B. UNITED STATES OF AMERICA BY	
(Signature of person authorized to sign)				(Signature of contracting officer)	
				16C. DATE SIGNED	

PART I-REVISIONS MADE BY ADDED AND/OR REPLACEMENT PARAGRAPHS/PAGES/SECTIONS

The items listed below are to be replaced by the corresponding added and/or revised paragraphs/pages or sections. Added and/or revised paragraphs/pages or sections are indicated by a note in bottom right hand corner of each paragraph or page. Added sections are hereby made a part of the contract and are to be inserted in the specification in the proper numerical/alphabetical sequence.

Within the specifications, deletions from the specifications are indicated by strikethrough, e.g.: ~~deletions are marked with strikethrough~~ and additions to the specifications including revisions/substitutions are indicated in bold, italic and underlined, e.g.: **additions are indicated thus.**

<u>SECTION</u>	<u>Corresponding Added or Revised Paragraph Page, and/or Section</u>
Explanation of Bid Items	Revised Bid item 3 and 4 as indicated herein.
01 10 10	Revised paragraph 3.9 as indicated herein.

PART II - NOTE: Revised, replacement and added drawings are listed below. These revised, replacement and added drawings are to be inserted into the folio in the proper numerical sequence. Drawings that have been revised or replaced by this amendment shall be deleted from the folio. All drawings listed below are revised unless indicated otherwise.

<u>Sheet Reference Number</u>	<u>Title</u>
G-001	AM05 COVER SHEET
E-101	ELECTRICAL NEW WORK FLOOR PLAN

Encl as stated
Revised pages of the specifications as indicated in Part I.
2 Revised drawings as indicated in Part II.

EXPLANATION OF BID ITEMS

GENERAL:

This section comprises an explanation of the bid items identified in the bid schedule for each item of work. The bid schedule and the contract drawings shall be worked together to identify the various items of work to which each bid item will apply. The Contractor shall bid the work under the applicable bid item for the specific areas identified in the bid schedule. All work specified herein shall be accomplished in accordance with the requirements of the technical provisions of the specifications and the contract drawings. Payment described for the various bid items will be full compensation for all labor, materials, and equipment required to complete the work. Compensation for any item of work described in the contract but not listed in the bid schedule shall be included in the payment for the item of work to which it is made subsidiary.

BASE BID

1. Payment under Bid Item No. 1 will be at the contract lump-sum price and will constitute full compensation for the work associated with, **"DHS COBRA Incinerator Disposal and Facility Reutilization"**.

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BID OPTIONS

2. Payment under **Bid Option No. 1** (Bid Item No. 2) will be at the contract lump-sum price and will constitute full compensation for the work associated with, "All Solar Components". Pricing for this option shall be good for a period of 90 days after the proposal due date.

3. Payment under **Bid Option No. 2** (Bid Item No. 3) will be at the contract lump-sum price and will constitute full compensation for the work associated with, **"Incinerator Canopy"**. Pricing for this option shall be good for a period of 90 days after the proposal due date.

4. Payment under **Bid Option No. 3** (Bid Item No. 4) will be at the contract lump-sum price and will constitute full compensation for the work associated with, **"Training Props (Equipment Only)"**. Pricing for this option shall be good for a period of 90 days after the proposal due date.

5. Payment under **Bid Option No. 4** (Bid Item No. 5) will be at the contract lump-sum price and will constitute full compensation for the work associated with, "Connection to Panel PPM (250A) Load for Microgrid System". Pricing for this option shall be good for a period of 90 days after the proposal due date.

6. Payment under **Bid Option No. 5** (Bid Item No. 6) will be at the contract lump-sum price and will constitute full compensation for the work associated with, "Connection to Panel CCI (100A) Load for Microgrid System". Pricing for this option shall be good for a period of 90 days after the proposal due date.

EXPLANATION OF BID ITEMS

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-End Explanation of Bid Items-

SECTION 01 10 10
DESIGN REQUIREMENTS

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PART 1 DESCRIPTION OF FACILITY

1.1 GENERAL

The Contractor shall design and construct the "DHS COBRA Incinerator Disposal and Facility Reutilization, DHS Center for Domestic Preparedness, Anniston, AL" to result in complete and useable facilities including all site work and utilities. Refer to Bid Schedule and Explanation of Bid Items. All work will be designed and constructed in conformance with the RFP Documents.

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1.2 BUILDING SCOPE - GENERAL DESCRIPTION

All construction personnel are required to be U.S. Citizens to perform on the project.

The scope generally includes renovation and repair of 801D (Incinerator Building at DHS Center for Domestic Preparedness, Anniston, AL).

Building 801D was constructed in 1983 as an incinerator facility. The current total area of the facility is approximately 7,042 square feet. The scope of work generally includes the removal and disposal of inoperable incinerator equipment and repurposing the structure as a ventilated indoor training facility using renewable solar energy systems to improve facility operational resilience and reduce environmental impact. Specific additional work includes the purchase and installation of training equipment props (Bid Option #3), removal of a caustic liquid storage tank and associated piping, site improvements to accommodate an Energy Storage System (ESS), and construction of a free standing canopy structures (Bid Options).

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1.3 SUSTAINABLE DESIGN

The Contractor shall document sustainability goals in narrative form. The square footage of the building is less than 10,000 square feet and will not require tracking and reporting using an HPSB Checklist. Additionally, Third Party Certification is not required.

PART 2 GENERAL CRITERIA AND REQUIREMENTS

2.1 DESIGN CRITERIA AND BASE STANDARDS

Design criteria is contained within this Request for Proposal including this Specification Section 01 10 10 with additional project requirements provided in the drawings and the Appendices. This data is intended to guide the completion of the design by establishing the desired character, appearance, function, and other requirements of the construction. The following Appendices are included and shall be used in completing the design of the project.

APPENDICES:

APPENDIX A HAZARDOUS MATERIAL SURVEY REPORT
APPENDIX B HYDRANT FLOW TEST REPORT
APPENDIX C RFP DRAWINGS
APPENDIX D EXISTING CONDITIONS DRAWINGS

In addition to the Appendices, the following criteria apply and are included by reference:

- a. Mobile District Design Manual, current version. Except as noted otherwise, this project shall be designed in accordance with the applicable references and publications listed in the Design Manual. It is the responsibility of the A/E for this project to determine what information is required from the Design Manual, extract it from the Design Manual and place it in the RFP. The Design Manual may be found on the Internet at:
<https://www.sam.usace.army.mil/Portals/46/docs/military/engineering/Design%20Manual/Mobile%20District%20Design%20Manual%202024.pdf>
- b. FAR Case No. 92-54 requires the Solicitation Package for all construction projects to reflect the government's preference for "acquisition of environmentally sound and energy efficient products and services, and an affirmative procurement program favoring items containing the maximum practicable content of recovered materials".
- c. Architectural Barriers Act (ABA) Standards; The ABA may be found at <https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-aba-standards/aba-standards>
- d. Federal Green Construction Guide for specifiers. This guide can be found at: <http://www.wbdg.org/design/greenspec.php>
- e. USACE Engineering Manual EM-385-1-1

2.2 UNIFIED FACILITIES CRITERIA (UFC)

As the site and facilities in the project scope are part of Department of Homeland Security, DoD requirements and UFC requirements do not apply to site and building design and construction.

2.3 LIFE SAFETY

The D/B Contractor (DBC) will provide designs and construction in compliance with the Design Criteria presented herein. The DBC will fully develop Life Safety plans and analysis for each facility noting compliance with regulations and codes.

2.4 APPLICABLE BUILDING CODES AND STANDARDS

The following codes and standards shall be used for building construction and design. Where there is a conflict between the RFP and building codes, notify the COR immediately. When codes are in conflict, the most stringent shall apply. This list is not intended to be a complete list. All work shall be designed and constructed to meet all applicable state and federal codes, standards and laws. Refer to the technical specifications for other standards and references not listed below.

40 CFR 68	Title 40 Code of Federal Regulations, Chemical Accident Prevention Provisions
40 CFR 152-186	Title 40 Code of Federal Regulations, Pesticide Programs
40 CFR 260	Title 40 Code of Federal Regulations, Hazardous Waste Management Systems; General
40 CFR 261	Title 40 Code of Federal Regulations, Identification and Listing of Hazardous Waste
40 CFR 262	Title 40 Code of Federal Regulations, Standards Applicable to Generators of Hazardous Waste
40 CFR 279	Title 40 Code of Federal Regulations, Standards for the Management of Used Oil
40 CFR 302	Title 40 Code of Federal Regulations, Designation, Reportable Quantities, and Notification
40 CFR 355	Title 40 Code of Federal Regulations, Emergency Management Planning and Notification
49 CFR 171-178	Title 49 Code of Federal Regulations, Hazardous Materials Regulations
ABAS	Architectural Barriers Act Standards
ACI 318	American Concrete Institute, Building Code Requirements for Structural Concrete and Commentary
ACI 350-06	American Concrete Institute, Code Requirements for Environmental Engineering Concrete Structure
AISC SCM	American Institute of Steel Construction, Steel Construction Manual, 15 th Edition
AISI CFSDM	American Iron and Steel Institute, Cold-Formed Steel Design Manual
ANSI	American National Standards Institute Standards current editions
ASCE 7	American Society of Civil Engineers, Minimum Design Loads for Buildings and other Structures, latest edition
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASHREA 62.1	Ventilation of Acceptable Indoor Air Quality
AWS D1.1	American Welding Society, Structural Welding Code-Steel
IBC	International Building Code, 2021
IEBC	International Existing Building Code, 2021
IES	Illuminating Engineering Society Lighting Handbook
IMC	International Mechanical Code, 2021
IPC	International Plumbing Code, 2021
NEMA	National Electrical Manufacturer's Association
NESC	National Electrical Safety Code current edition
NFPA 70	National Electrical Code (NEC), current edition

NFPA 90A	National Fire Protection Association Standard for the Installation of Heating and Air Conditioning Systems
NFPA 101	Life Safety Code
NFPA 241	National Fire Protection Association Standard for Aircraft Interior Fire Protection Systems
NFPA 780	National Fire Protection Association Standard for Installation Lightning Protection Systems
SMACNA	Guides Sheet Metal & Air Conditioning Contractors' National Association
UFAS	Uniform Federal Accessibility Standards current edition
UL	Underwriter's Laboratories

2.5 CONFLICTS IN RFP CRITERIA

In the event of conflict or inconsistency between any of the criteria below, precedence shall be given in the following descending order:

- (1) Public Law
- (2) Building Codes and Life Safety Codes
- (3) RFP Requirements

PART 3 PROJECT REQUIREMENTS

3.1 GENERAL

The D/B Contractor (DBC) shall prepare complete construction documents for all work to be constructed. The construction documents to be prepared include, but are not limited to construction drawings, specifications, submittals, and a design analysis with calculations, in conformance with this Request for Proposal and as required in Section 01 10 12 DESIGN AFTER AWARD. Materials and equipment shall be limited to those specified except that where no specific material and equipment is specified or no basis of design is identified, the Contractor shall use materials and equipment as identified in the standard unedited Unified Facilities Guide Specifications (UFGS). If specific materials are not identified in the UFGS then the Contractor will use materials accepted within the construction industry and in compliance with Design Criteria.

3.2 DESIGN

The project shall be designed in accordance with the RFP. The design of the renovation and the materials selected shall be high quality, durable and easily maintained. The Contractor shall be responsible for the professional quality, code compliance, technical accuracy, and coordination of all designs, drawings, specifications, and other documents or publications upon which the design and construction are based.

New exterior materials shall be compatible with those existing at the DHS Center for Domestic Preparedness. Final selection of exterior and interior materials, finishes, and colors shall be submitted for Government approval as prescribed in Section 01 10 12 DESIGN AFTER AWARD.

3.2.1 Life Safety

The DBC's Designer of Record (DOR) is responsible for conducting a complete analysis of the design using life safety and building codes, and other requirements referenced in this RFP in order to provide a fully code and regulation compliant final design. The DBC's DOR shall be solely responsible for interpreting the applicable requirements and providing a code compliant final design approach. None of the documentation included in this RFP alters the DBC's DOR responsibilities and liabilities. The design-build contractor's Qualified Fire Protection Engineer (QFPE) shall review all interior finishes (ceiling, wall, and floor finishes) for compliance with the fire performance classifications of NFPA 101.

In addition to the construction indicated in this RFP, additional smoke/fire rated construction may be required depending on the final design approach proposed by the DOR. Material changes to the design require Government approval prior to acceptance and inclusion into the design.

It is the intent of the RFP to allow the DBC optional approaches to achieving conformance with the requirements of the various life safety related codes and regulations. By submission of an offer to the Government, the DBC acknowledges compliance with the conditions above and that all costs associated with compliance are reflected in the offered proposal.

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3.2.2 Design Occupant Load

The renovated facility will be used as a training facility. When training occurs, sessions will be a full day for 2 to 3 days a week with 5 to 12 people per training session. The facility may be vacant for 2 to 3 weeks at a time.

3.2.3 Commissioning

Commissioning will only be for the PV array system. The Contractor's DOR is responsible for editing Section 01 91 00.15 BUILDING COMMISSIONING with requirements for PV array system commissioning. Tailor for non-building systems. The PV array system to be commissioned will include the PV solar arrays, mounting systems, inverters, micro-grid control panels, battery storage system (ESS), charge controllers, and all required electrical safety equipment per NFPA 70.

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3.3 SPECIFICATIONS

3.3.1 Section 01 10 10 DESIGN REQUIREMENTS

This specification Section 01 10 10 DESIGN REQUIREMENTS defines the design and performance criteria to be used for developing the project design and construction documents. The building codes and standards noted shall be used as the minimum criteria to develop the construction documents. Further, this Specification Section 01 10 10 describes the requirements for appearance, function, materials, and types of construction in sufficient detail to enable engineering and design to be completed by the Contractor. In this specification section, each discipline describes design intent and outlines the parameters to which the Contractor shall design. When a material or procedure is noted within the 01 10 10, the D/B Contractor will follow that direction unless prior approval from the Government is obtained.

3.3.2 Technical Specifications

Technical specification Section 26 31 00 FACILITY-SCALE SOLAR PHOTOVOLTAIC (PV) SYSTEMS is provided with this RFP. All other technical specifications have not been provided. The D/B Contractor's Designer of Record shall develop construction document technical specifications for all areas of work using the UFGS system in accordance with the Mobile District Design Manual and in conformance with the RFP. When references are made in this RFP to specification sections not included in this RFP, it will be the responsibility of the Contractor's DOR to provide these sections.

Unless otherwise noted or required in this Request for Proposal, materials and methods allowed by the unedited UFGS specifications will be allowed to be incorporated into the project when in compliance with other listed criteria. The DBC shall not materially revise the specifications such that the specification does not reflect the intent of the unedited specification without prior approval from the Government. The DBC will edit the specifications for completeness and project applicability. The specification will be edited to remove all materials that will not be used such that the edited specification

reflects only those products intended to be used on the project. This editing process must be completed prior to first submission of the specification. Unless a more stringent warranty is identified in the RFP include warranties as described in the UFGS Specification. Do not reduce warranty requirements recommended in the guide specification. If no UFGS Specification exists for a component to be incorporated into the design the Contractor will develop a product specific specification using the UFGS format to describe in detail the item to be incorporated into the design. All custom specifications will be developed in the coded format of the UFGS standard system, including Parts 1, 2 and 3.

All specifications will be submitted per Section 01 10 12 DESIGN AFTER AWARD. The current version of the UFGS at the time of award will be used.

Anticipated specifications to be required as part of the facility design are indicated in various Parts of this Section 01 10 10. Additional specifications sections may be required.

3.4 SECTION 01 10 12 DESIGN AFTER AWARD

Specification Section 01 10 12 DESIGN AFTER AWARD defines the format and submittal requirements the Contractor will follow for submission of the design and the construction documents.

3.5 COORDINATION BETWEEN THE VARIOUS DISCIPLINES

The DBC and their DOR shall be responsible for the coordination between disciplines in order to fulfill the requirements of this contract and to provide for a complete, integrated, and functional design.

3.6 QUALITY OF WORK

Construction documents shall be of sufficient detail to afford a clear understanding of the construction work required. The work shall be organized in a manner that will assure thorough coordination between the various details on the drawings and the specifications. The Contractor shall crosscheck all work until all conflicts have been reconciled. The US Army Corps of Engineers, Mobile District Design Manual, 2024 edition, available on the Internet at <https://www.sam.usace.army.mil/Portals/46/docs/military/engineering/Design%20Manual/mobile%20District%20Design%20Manual%202024.pdf> shall be used as the basis for format and preparation of construction documents. The Government may reject incomplete or uncoordinated submittals.

3.7 RFP DESIGN AND TECHNICAL CRITERIA

All designs and construction document drawings and specifications shall be prepared to comply with the RFP. Unless otherwise specifically noted, the RFP describes the design work that shall not be changed without Government approval and shall be included in the construction documents. All remaining design work shall be performed by the Contractor based on the design criteria identified in the RFP. No deviations from the criteria will be allowed unless prior approval is obtained from the Contracting Officer's Representative. All questions or problems encountered by the Contractor shall be promptly submitted with recommendations for resolution to the Contracting Officer's Representative for

approval. Contents of this RFP shall not be construed as limiting in any way the responsibilities of the DOR to comply with all code requirements.

3.8 FUNCTIONAL REQUIREMENTS

The functional requirements of the project are indicated in the drawings, appendices, this RFP, and further explained in the Functional Area / Room Summary sheets included in PART 7 and Appendices. Unless otherwise noted, the floor plan included has been approved by the Government and should not be changed without prior discussion with and approval by the Government. Deviations to the orientation, square footage areas, and/or functional adjacencies must be submitted for approval.

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3.9 BID OPTIONS REQUIREMENTS

This DB RFP requires several Bid Options to be priced separately in the Bid Schedule. The Government, at its discretion, may award any of the Bid Options. The Bid Options are described as follows:

Bid Option 1: Provide a new photovoltaic (PV) solar system located on the roof of the existing Incinerator Building 801D with off-grid battery power system.

Bid Option 2: Canopy addition ~~with solar panels~~ at Incinerator Building 801D

Bid Option 3: Provide training props (Equipment only). Utilities for training props will be provided in the Base Bid.

Bid Option 4: Connection to Panel PPM (250A) load for Microgrid system.

Bid Option 5: Connection to Panel CCI (100A) load for Microgrid system.

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3.10 DESIGN UNITS

The design shall be developed using English units.

PART 4 PERMIT REQUIREMENTS

4.1 PERMITS

No stormwater permit will be required from the City of Anniston since the installation is not included in their MS4. The anticipated scope of work does not disturb more than one acre of developable land. Per EISA 438, a storm water management plan will not be required since the project does not add more than 5,000 SF. The DB contractor will be required to submit an NOI/General Construction NPDES permit through the Alabama Department of Environmental Management (ADEM). The DB Contractor shall comply with all permitting requirements based on the DOR's final design.

PART 5 ANTI-TERRORISM FORCE PROTECTION REQUIREMENTS

5.1 FORCE PROTECTION DESIGN

5.1.1 Codes and References

This project is being designed and constructed for the Department of Homeland Security (DHS) and, as such, the Standards of UFC 4-010-01 Department of Defense Minimum Antiterrorism Standards for Buildings do not apply to this project.

PART 6 SITEWORK, GEOTECHNICAL and LANDSCAPING

6.1 CIVIL DESIGN CRITERIA

The engineering design requirements and criteria for the Site work section herein, shall be in accordance with the requirements specified within Part 2 of this Specification section. All criteria documents shall be the current edition, where there is a conflict in criteria, the most stringent shall apply. Refer to Section 01 10 12 for Geotechnical requirements.

6.2 GENERAL CIVIL DESIGN REQUIREMENTS

The site work design required for this project shall include but may not necessarily be limited to the items listed within this section.

6.2.1 Demolition and Removal

The Contractor shall provide layout surveying as necessary to locate the new work items prior to initiating demolition work. Erosion and sediment control Best Management Practices (BMP's) shall be in place and approved by the Contracting Officer's Representative prior to initiating demolition work. The RFP drawings present existing topographic conditions and locations of existing structures and utilities. The Contractor may utilize the utilities during construction operations as approved by the Contracting Officer's Representative and may incorporate the utilities as part of the final project. All demolition debris shall be removed from the limits of DHS COBRA Incinerator Disposal and Facility Reutilization, DHS Center for Domestic Preparedness and disposed of in a manner as required by law and Alabama Department of Environmental Management regulations. The Contractor shall be responsible for all disposal permits and regulations requirements. If at any time during or after the performance of this contract, it is determined by the Contracting Officer or their authorized representative that the Contractor has not complied with the requirements of the contract pertaining to the disposal of waste material, the Contractor shall be required to take any corrective action directed by the Contracting Officer or other competent authority at no additional cost to the government. Any fine, fee, or penalty assessed by the regulating authority as a result of the Contractor's failure to comply with this provision shall be paid by the Contractor. If any part of the performance of this contract is subcontracted, a provision substantially similar to the above shall be included in all such subcontracts. Such provision does not, however, relieve the prime Contractor from ultimate responsibility under the contract.

6.3 CIVIL DESIGN REQUIREMENTS

6.3.1 Project Location

The project site is located east of Old Fort McClellan at the end of Walter Phillips Road. The COBRA complex is housed inside a secure fence line. The Incinerator building is located in the northeast portion of the secured complex.

6.3.2 Constraints

The Contractor is advised that the concept site layout and requirements shown on the criteria drawings shall be observed. Any proposed changes from the

concept site layout shall be submitted for review and approval in accordance with the requirements set forth in Section 01 10 12 DESIGN AFTER AWARD.

No stormwater permit will be required from the City of Anniston since the installation is not included in their Municipal Separate Storm Sewer System (MS4). The anticipated scope of work does not disturb more than one acre of developable land. No storm water management plan will be required since the project does not add more than 5,000 SF according to EISA 438. The DB contractor is required to submit an NOI/General Construction NPDES permit through the Alabama Department of Environmental Management (ADEM).

6.3.3 Fencing

Provide fencing along the construction site and at all open excavations and tunnels to control access by unauthorized personnel. Safety fencing must be highly visible to be seen by pedestrians and vehicular traffic. All fencing must meet the requirements of EM-385-1-1. Remove the fence upon completion and acceptance of the work.

6.3.3.1 Polyethylene Mesh Safety Fencing

Temporary safety fencing must be a high visibility orange colored, high density polyethylene grid, a minimum of 48 inches high and maximum mesh size of 2 inches. Fencing must extend from the grade to a minimum of 48 inches above the grade and be tightly secured to T-posts spaced as necessary to maintain a rigid and taut fence. Fencing must remain rigid and taut with a minimum of 200 pounds of force exerted on it from any direction with less than 4 inches of deflection.

6.3.4 Contractors Use of Site

The Contractor shall coordinate with Contracting Officer's Representative for laydown area, offices, and parking and storage facilities. Any damage to existing improvements adjacent to or on the project site due to construction activity under this contract shall be replaced/repared at the Contractor's expense. All Contractor POV parking areas shall be coordinated and approved in advance by the Contracting Officer's Representative.

6.4 NEW SITE DESIGN AND CONSTRUCTION

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6.4.1 Conceptual Site Plans

The concept site geometry plan presents the general geometric layout for the site work. The Contractor shall design horizontal and vertical control, drainage, concrete paving, and minimal site grading for the Energy Storage System Pad.

- 1) New Concrete Pad: Concrete work in this scope consists of the construction of a new concrete pad for the Energy Storage System (ESS) equipment. The concrete equipment pad thickness will be determined by the structural engineer based on equipment loading. Any jointing for the equipment pad ~~shall be~~ shall be specified by the structural engineer. An expansion joint will be required between the new concrete and asphalt. The existing

asphalt, adjacent to the new ESS pad, will require minimal cutting and removal to accommodate the concrete formwork.

- 2) ~~New Water Main for Solar Wash Systems: The main parking lot will require water main utility work for this project, within bid options 4 and 5. The main parking lot which will have three new canopies constructed with solar panels mounted on top. There is an existing water main running west to east along the access drive and the southern portion of the lot. The main trunk line will be tapped with a 4-inch PVC main and will loop around the parking lot to a secondary 4-inch tap, for redundancy. There will be seven 1.5-inch service taps, with backflow preventers, connected to the 4-inch loop. These services will be utilized for the solar panel wash down system.~~ **Not Used**

6.5 STORM DRAINAGE

The storm drainage for the ESS equipment pad shall consist of grading the new disturbed areas, around the ESS pad, towards the existing drainage ditch to the northeast. This will ensure that the new drainage pattern will match the current existing drainage pattern, which diverts runoff away from the buildings and asphalt access road. The equipment pad shall be a minimum of 6-inches above the finished grade.

The storm drainage for the bid option 2 canopy adjacent north of the Incinerator building will be piped to downspouts and discharge on grade, as it currently does. The existing area slopes to the drainage ditch to the northeast.

~~The storm drainage for the bid option 4 & 5 canopies over the existing parking lot will vary. The bid option 4 canopies on the edge of the parking lot will have gutters installed conveying water to downspouts at each column. This will ensure that the point discharge from each down spout will be distributed across the canopy. The bid option 5 canopy over the center of the parking lot will drain from the roof onto the existing pavement. All drainage from the new canopies will be routed within the existing parking lot to match the current drainage system.~~

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6.6 Sodding

Graded and scarred areas around the ESS equipment pad shall be sodded. If disturbed areas will be left for more than ten calendar days without construction activity, the Contractor shall install temporary seeding and mulching.

- a. Prior to sodding, loosen existing soil to a minimum depth of 4-inches. Top 4-inches shall be mixed with soil amendments including 2-inches topsoil.
- b. Provide 2-inch offsite topsoil for all sodded areas. Amendments and fertilizer to existing soil shall be determined onsite based on soil conditions at the time of construction. Sodding shall be specified in Section 32 92 23 SODDING.
- c. The sod shall be firm, tough texture, having compacted growth of grass with good root development. It shall contain no noxious weeds, or any

other objectionable vegetation, fungus, insects, or disease. The soil embedded in the sod shall be good clean earth, free from stones and debris.

- d. Before being cut and lifted the sod shall have been mowed at least three times with a lawn mower, with the final mowing not more than 7 days before the sod is cut.
- e. Solid sod shall be laid with closely abutted joints with a tamped or rolled, even surface.
- f. The finish level of all sod areas after settlement shall be 2 inches below the top of abutting curbs, walks, paving and wood borders to allow for building turf.

PART 7 ROOM DESCRIPTIONS AND FUNCTIONAL REQUIREMENTS

7.1 GENERAL

This section is included to aid the Contractor in understanding the requirements of the functional areas within the renovated facility. Refer to RFP CRITERIA DRAWINGS for additional requirements. Refer to other portions of this RFP for additional requirements and criteria that apply to these functions.

All materials and equipment are Contractor Furnished and Contractor Installed (CFCI) unless otherwise indicated.

Miscellaneous Information:

- Hours of operation for the facility are sporadic and not on a regular schedule. When used, the facility will be occupied 8 hours a day for 2 to 3 days per week.
Weekend hours are expected to be minimal.

Room(s) :	Training 101
Description:	Training Room
Functional Requirements:	Training Room space for Students
Special Requirements	Water and Compressed air connections to training equipment.

Room(s) :	Maintenance 102
Description:	Maintenance Room
Functional Requirements:	Space for existing boiler and autoclave
Special Requirements	None

Room(s) :	Electrical 103
Description:	Electrical Room
Functional Requirements:	Electrical room
Special Requirements	

PART 8 ARCHITECTURAL DESIGN

8.1 GENERAL

Architectural design shall be in accordance with the criteria identified in this RFP. All portions of the site and facilities shall meet the ABA Accessibility Standard for DoD Facilities unless otherwise noted.

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8.1.1 Building Scope - General Description

Building 801D was constructed in 1983 as an incinerator building. The current total area of the facility is approximately 7,042 SF. The existing building construction type is Type IIB. The scope of work generally includes the removal and disposal of inoperable incinerator equipment and repurposing the structure as a ventilated indoor training facility using renewable solar energy systems to improve facility operational resilience and reduce environmental impact. Specific additional work includes the removal of a caustic liquid storage tank and associated piping, site improvements to accommodate an Energy Storage System (ESS), and construction of free standing canopy structure ~~structures~~ (Bid Options ~~Option #2~~).

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8.1.2 Asbestos Materials and Lead Based Paint

Per the attached Hazardous Materials Survey Report included in the appendices, lead and asbestos containing materials are present in the existing facility. The D/B Contractor shall carefully review the entire Hazardous Materials Survey Report and shall follow all recommendations included therein. The D/B Contractor shall also adhere to all State, Federal, and OSHA regulations governing work with hazardous materials.

The D/B Contractor shall not use lead-based paint or materials containing Asbestos in the renovation of this facility. Upon completion of the construction, the Contractor shall submit two copies of a Certified Letter to the Contracting Officer's Representative (COR) stating that no lead based paints or materials containing asbestos were used in the construction of the new facilities.

8.1.3 Demolition

The drawings do not indicate all required demolition. The scope of demolition work is that required to comply with the RFP requirements. Demolition extent can be determined by review of the Existing Conditions drawings provided as compared to the New Work drawings. Section 01 10 10 and appendices further define required demolition. Remove and/or modify existing finishes to accommodate new work. Patch and repair existing construction as required to match proposed new construction or existing adjacent construction. Demolition and/or removal and replacement of existing walls, finishes, and slabs may be

required to install new utilities required by Section 01 10 10 and appendices. Demolition may also include abatement of asbestos as identified in the Hazardous Materials Survey Report. The scope also includes removal of all incinerator equipment that remains in the building at the time of turn over of the building to the D/B contractor. Demolition of the Caustic Tank located west of the O&M building, and its associated piping to the incinerator is also included in the project scope. The D/B contractor is responsible for all demolition required to complete the project.

8.1.4 Architectural Drawings

The drawings and information provided in the RFP describe the general configuration of the proposed scope of work. Changes to the information illustrated in the drawings will require Government approval.

8.2 EXTERIOR CONSTRUCTION

Exterior Building Components and Cladding shall comply with Part 10 STRUCTURAL DESIGN REQUIREMENTS and the requirements of this section. All new exterior work shall match existing materials in style and color.

8.2.1 Exterior Wall Cladding

Exterior wall cladding will be as described herein, on the drawings, and as required in the design criteria. The exterior wall cladding will be removed and replaced with metal wall panels where shown. Metal Panels shall be prefinished, and color shall match the existing wall panels. See RFP drawings for locations.

8.2.1.1 Metal Wall Panel

Metal wall panels shall be prefinished galvalume of gauge, panel width, and thickness to match existing wall panels to remain. Panel assemblies shall be continuous, unbroken panels from top to bottom with concealed clip attachment and meet the following performance criteria:

- a. Fire and Smoke: The panel shall meet ASTM 4480 and ASTM 4482 with a flame spread rating or 25 or less, and smoke of 50 or less.
- b. Structural loading: FM 4481 and comply with part 10 STRUCTURAL DESIGN REQUIREMENTS.
- c. Water Infiltration: Comply with ASTM E331 with no uncontrolled water penetration at 20 PSF of differential pressure, and AAMA 501.1 with no sign of water leakage at 15 PSF.

8.2.1.2 Flashings

Provide lead-free flashing and closures at transitions and joints. Long-lasting flashings, such as stainless steel, are to be used. Exterior use of flashing materials such as copper and zinc that can contribute to stormwater pollution are to be minimized.

Provide flashings at head, jambs and sills at all louver openings and all terminations. Install with sealed lap joints. Flashing will be solid material to match the wall panel. Provide details of all flashings in the construction documents.

As a minimum, provide on-site mock-ups of corner condition, louver with head, jamb and sill flashing, and transition flashing at roof to wall flashing. The mock-up may be part of the final construction when approved by the Government.

8.2.1.3 Sealants

Comply with: A Professionals Guide from the Sealant, Waterproofing and Restoration Institute (SWI). All sealants must conform to ASTM C920. Provide backer rod and tooled sealant joints. Provide primer unless not recommended.

Provide joint sealants in conformance with UFGS 07 92 00 JOINT SEALANTS and use materials and Installation in conformance with the requirement for a minimum 10-year warranty.

Provide Exterior and interior sealants as well as acoustical sealants. Provide sealant colors in exposed applications that blend aesthetically with surrounding materials.

8.2.2 Roofing

Roof systems will be as described below, on the drawings and in the attached appendices. The components of the new roof assembly shall be part of one tested assembly. The assembly shall be designed with 2x safety factor the calculated wind loads.

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8.2.2.1 Metal Roofing

New metal roofs will be installed on the new canopy ~~structures~~ structure. The canopy roof at the Incinerator Building 801D will be Bid Option 2. ~~The canopy roofs at the perimeter parking in the parking lots will be Bid Option 4. The canopy roofs at the middle double loaded parking lot will be Bid Option 5.~~ Install metal roofing in accordance with requirements specified in 07 61 14.00 STEEL STANDING SEAM ROOFING.

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8.2.2.1.1 Standing Seam Metal Roofing

Roof panels to be installed over ~~all canopies~~ the canopy shall be a standing seam metal roof (SSMR) with minimum 22-gauge steel panels with concealed fasteners. If a pre-engineered canopy system is provided, the canopy manufacturer's standard roofing system is acceptable in lieu of standing seam roof system, provided it meets wind loading requirements of ASCE-7. Provide continuous clips and fasteners as required to meet wind loading requirements of ASCE-7. All roof penetrations, gutters, and flashing will be of material provided by the roofing manufacturer. The manufacturer supplying the system shall be responsible for its design, fabrication, erection, and quality control. The manufacturer shall have its representative inspect the installation of the roof system at appropriate intervals during construction and shall furnish a warranty assuring the structural integrity and water tightness of the system for a period of twenty (20) years and against damage by wind regardless of cause. The roof shall be factory finished. Gutters and downspouts shall be

surface mounted outboard of exterior and discharge at grade on splash blocks. Roof slope shall be 2:12. Provide new storm collars at all pipe penetrations. All exposed roof penetrations, and sheet metal including flashing and gutters shall be shop painted or fabricated from sheet metal to match the metal roof color. Paint coating shall provide 20-year color fastness warranty.

Hold a pre-roofing conference with subcontractors and the Government. Provide a Roof Quality Assurance Plan to include design review and on-site quality control during construction. All exposed flashing will match the roof material color and coating specification.

~~The Contractor shall hire an independent Registered Roofing Consultant, registered with the International Institute of Building Enclosure Consultants (IIBEC, formerly RCI - Roof Consultants Institute) to review and approve both the design document submittals and shop drawings prior to submission of construction submittals. This individual or his representative shall also inspect each building roof installation once during roof construction and once after completion of roof construction for conformance with the CONTRACT DOCUMENTS AND APPROVED SHOP DRAWINGS. Site visits shall be coordinated with the COR a minimum of 3 days prior to visit. The inspector will issue reports with copies to the Contracting Officer's Representative.~~

Specifications for standing seam metal roofs will require the following:

- a. All laps will be in the direction of flow. Roofs with a dimension in slope direction of 60 feet or less will be constructed without a joint. Any sealant used shall match the roof material and will only be used in compression and where shown by the roofing manufacturer.
- b. All roof mounted components shall be painted to match metal roof color. Paint shall be polyvinylidene fluoride equal to Kynar 500 products or approved equal.
- c. Roof will be designed in conformance with the International Building Code and ASCE-7.
- d. The roof will also be warranted against leaks by both the General Contractor with a 20 year no dollar limit (NDL) water-tightness warranty and the Roof Installer with an NDL water-tightness warranty for 5 years. The warranty will cover all costs and materials to make additional repairs at no cost to the Government.

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8.2.2.2 Flashing and Sheet Metal

In general, follow recommendations of SMACNA, National Roofing Contractors Association, and recommendations and guidance in the unedited UFGS Section 07 60 00 FLASHING AND SHEET METAL. For facilities to receive metal standing seam roof, provide flashing materials from the same manufacturer as the roof including gutters and downspouts. Provide prefinished flashings with a 20-year

manufacturer finish warranty. Exposed fasteners should be kept to an absolute minimum with concealed fasteners and cleats used wherever possible. Provide attachments based upon wind loads as determined in accordance with ASCE-7. Do not use lead flashings.

Provide adequately designed gutters and downspouts per IBC to handle anticipated rainfall for the location. Provide external and internal brackets for gutters spaced no more 36 inches for each type. Space downspout support brackets no more than 4 feet on center with maximum 1-inch standoff. Gutters and downspouts will be of the same material and finish as the metal roof and or fascia.

8.2.3 Fenestration

Windstorm Resistant Exterior Openings: Provide exterior galvanized hollow metal doors and frames, and overhead coiling doors as complete and tested assemblies, including approved hardware, to meet the wind loads, design pressures, and glass and glazing requirements to comply with ASCE-7.

- a. Each unit to bear a permanent label with manufacturer's name, city, and state.

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8.2.3.1 Exterior Flush Doors

Exterior flush doors and frames must be hot dipped galvanized steel and meet the required criteria for force protection, wind loading, fire ratings, or other requirements. Exterior hollow metal steel doors must be grade IV, extra heavy-duty, Model 2, insulated, seamless design. All door frames shall be welded. No Knock-down frame shall be allowed. Minimum thickness for hollow metal doors shall be 1-3/4 inches. Door frames not located under protective overhangs shall have Type 316 stainless steel drips with hooks. All doors shall include thresholds and weather seals. Exterior flush doors shall be factory primed and field painted. Doors will be minimum 14-gauge face panel. Frames will be minimum 14-gauge.

Steel doors and frames must comply with ANSI/SDI 100 and SDI 105. Steel doors must be fabricated from galvanized steel sheets that comply with ASTM A 653/A 653M, commercial steel, or ASTM A 642/A 642M, drawing quality, with ~~A69~~ **A60** or G60 coating designation, mill phosphatized.

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8.2.3.2 Overhead Coiling Doors

Provide overhead roll-up doors, 14'-0" high by 14'-0" wide. Provide powder coat painted finish with color for the door and accessories to match facility color scheme. Design the steel overhead roll-up slats and door width to withstanding the design wind loading of American Society of Civil Engineers (ASCE) 7 and operate normally.

Accomplish door operation by UL Listed electric motor operation with electric controller and an auxiliary hand chain operation. Provide slat panel profile to match existing overhead doors on the facility. Also provide counterbalance, heavy duty springs, wear strips, full perimeter weather-stripping, continuous

button pressures safety operation, electric or infrared safety edge, galvanized hardware, and manufactured trims and closures pieces. Protect the wall door jamb opening with bollards designed to resist abuse from the type of material and vehicles that are transported through the opening.

8.2.4 Wall Louvers

Provide aluminum fixed blade, 50% (minimum) free area, wall louvers with insect screen to prevent the infiltration of wind-driven rain and pests into the building interior. Inset screens shall be stainless steel mesh. Louver color selection shall be approved by the COR. All hardware, brackets, and similar, must be Type 316 stainless steel. Wall louvers are to meet wind loads as defined in accordance with ASCE 7 and be AMCA certified for expected wind driven rain.

8.2.5 Metal Ladders

Provide vertical ladder conforming to Section 7 of 29 CFR 1910.27. Ladder must be provided to access solar panels on roof of Building 801D.

8.3 INTERIOR CONSTRUCTION

8.3.1 Interior Walls

8.3.1.1 Typical Interior Wall Construction

Interior wall shall be constructed using CMU to 10 feet above finish floor with metal liner panels on metal studs above 10 feet to structure above. Wall shall be designed for liner panels on both sides of metal stud framing. Where studs are noted to extend to the underside of the structure, studs shall be braced. 20-gauge minimum metal studs will be used to support metal liner panels. Except as otherwise noted, Contractor shall determine stud gage and spacing required to achieve a maximum deflection of L/240 based on a uniform load of 10psf. Maximum stud spacing shall be 16 inches on center.

8.3.1.2 Interior Walls Adjacent to Structural Modifications

The DB Contractor is responsible for designing and constructing the structural modifications as described in Part 10 of this 01 10 10. The DB Contractor shall also design and construct modifications to adjacent architectural construction in order to perform the structural upgrades.

8.4 INTERIOR DOORS AND FRAMES

Standard interior doors shall be flush hollow metal. Conform to SDI/DOOR A250.8, Level 1, physical performance Level C. Door frames shall be welded 16-gauge steel for SDI/DOOR A250.8 Level 2 doors

All door frames shall be welded unless otherwise noted. Knock-down frames are not allowed.

Unless otherwise indicated all interior doors will be 3-foot by 7-foot.

8.4.1 Door Hardware - General Requirements

All exterior and interior doors shall be provided with hardware. Provide hardware in a brushed stainless finish. Hardware components and keying shall be provided and shall meet ABA requirements for accessibility, and NFPA requirements for life safety. All lock hardware must match DHS master lock system.

- a. Provide the services of an Architectural Hardware Consultant (AHC) or equivalent. The Consultant will review and approve the Hardware submittal.
- b. All doors providing exterior egress from corridors and occupied spaces, shall be provided with panic hardware. All hardware shall be exit-only, except for doors indicated on the RFP drawings.
- c. Provide minimum 3 hinges per door of 7-feet high or less.
- d. Provide lever handles with breakaway features in lieu of knobs in conformance with ABAS.
- e. Provide silencers on all doors not receiving soundseals or weatherstripping.
- f. Provide hardware in compliance with required STC ratings, IBC and ATFP loading requirements.
- g. Door Closers are required for:
 1. All Doors
- h. All doors will be reinforced as needed to accommodate hardware.

8.4.1.1 Exterior Doors Requirements

Doors and associated hardware shall comply with ASCE 7 requirements. Provide door closers, and exterior hinges with non-removable pins, threshold and weather-stripping. At single doors, provide door closers including hold-open features.

Exterior swing doors must swing out to allow the frame rabbet to act as a stop that will prevent doors from blowing in during high-velocity winds. Having door seals compress by the door against the door frame side allows the rabbets to resist water. Exterior doors must have seals and automatic door bottoms that prevent wind-driven rain from entering facility spaces. Hardware must include threshold, door bottom, and weather seal.

Exterior doors must have Architectural Barrier Act (ABA)-compliant weather-sealed thresholds and automatic door bottoms. Door thresholds must have Type 316 stainless steel doorsill pan flashing with end dams, rear leg, and turned-down front leg. Provide surface-mounted neoprene sweeps with beveled edges that seal against the threshold. Provide thresholds with metal members that have compressible vinyl seals that seal against the door. The threshold base metal must be aluminum.

Provide nonferrous metal and UV-resistant vinyl weather stripping, including on thresholds. Weather stripping must be factory applied, and limit infiltration to 0.25 cfm/ft² in accordance with ASTM E283. Provide continuous weather-strip gasketing on exterior doors. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

8.4.1.2 Interior Doors

Service and Utility Room Doors: Provide mortise store room F07 function lockset, closers, hinges, silencers and mop plates.

8.4.1.3 Keying Requirements

Locksets and cores must be purchased by the contractor. Provide a master key system for the facility compatible with the existing DHS master keying system. The contractor must provide construction cores.

The DBC shall coordinate a keying system meeting DHS and User requirements. The DBC's Project Manager, Superintendent, Hardware Subcontractor, Designer of Record, Contracting Officer's Representative, DHS Hardware Specialist, and the Using Activity's Representative shall attend a meeting to establish the keying systems for all facilities included in the project. This meeting is intended to verify requirements, the necessary security, and access control within the facility. The meeting shall produce a marked-up copy of the floor plan and any master keying or grand master keying requirements.

8.5 INTERIOR FINISHES

The D/B Contractor will provide finishes consistent with the criteria as outlined in the RFP. Finishes will not be changed without prior approval of the Government. Refer to Section 9 INTERIOR DESIGN of this specification for additional SID requirements.

8.5.1 Ceilings

All rooms shall have painted exposed structure ceilings. Rooms without ceilings shall have the structure and all exposed elements painted as specified in this RFP. Refer to Section 9 INTERIOR FINISHES of this specification for additional ceiling requirements.

8.5.2 Flooring

8.5.2.1 Sealed Concrete Floor Slabs

All indicated concrete floor slabs shall be sealed with a water-based sealer to prevent dusting and maintainability. Areas include: Training space.

8.5.3 Paint

All new and existing walls, exposed structure, piping, doors, and frames shall be painted. Comply with the recommendations of UFGS 09 90 00 PAINTS AND COATINGS for materials and preparation of surfaces to be coated. Comply with Master Painter Institute (MPI) standards for commercial quality coatings. As a minimum, SSPC PA Method 1 will apply to all surfaces, follow MPI Architectural Painting Specification - recommendations noted are considered to be required.

8.6 MISCELLANEOUS METALS

Provide miscellaneous metal components as noted or as required to design and construct the facilities. All exterior steel items shall be hot dipped galvanized before painting including items specified under site work. Comply with the recommendations of Section 05 50 13 MISCELLANEOUS METAL FABRICATIONS.

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8.7 ~~MISCELLANEOUS STRUCTURAL AND UTILITY REQUIREMENTS~~ NOT USED

~~All existing storage enclosures which are to be removed and stored during construction and reinstalled upon completion of work are the responsibility of the DBC DOR to fully identify, design, and install the required infrastructure, structural support, and other support for the final as shown in the RFP drawings.~~

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8.8 SPECIFICATIONS

The following list of specifications is anticipated for this project. The list is not comprehensive, and the Design/Build Contractor will provide all specifications required to adequately describe the project and all materials to be used.

01 33 00	SUBMITTAL PROCEDURES
01 42 00	SOURCES FOR REFERENCE PUBLICATIONS
02 41 00	DEMOLITION
05 51 33	METAL LADDERS
07 42 63	FABRICATED WALL PANEL ASSEMBLIES
07 60 00	FLASHING AND SHEET METAL
07 61 14.00 20	STEEL STANDING SEAM ROOFING
07 92 00	JOINT SEALANTS
08 11 13	STEEL DOORS AND FRAMES
08 71 00	DOOR HARDWARE
08 81 00	GLAZING
08 91 00	METAL WALL AND DOOR LOUVERS
09 90 00	PAINTS AND COATINGS
32 16 19	CONCRETE CURBS, GUTTERS AND SIDEWALKS
32 92 23	SODDING

PART 9 INTERIOR DESIGN

9.1 STRUCTURAL INTERIOR DESIGN (SID)

The SID includes the selection and sampling of all applied finishes to complete the building exterior and interior architectural features.

9.2 DESIGN REQUIREMENTS

The Contractor shall use this criterion and the drawings for the development of the SID exterior and interior finishes, materials, and colors. The SID submittals shall run concurrent with the architectural submittals. The Contractor shall update the color boards and the UFGS to reflect any of the Government comments or discontinued manufacturer colors indicated. The SID finishes accepted at the Final design phase (defined in Section 01 10 12) shall be the SID finishes installed during the construction phase of the project.

9.3 SID ROOM FINISH NARRATIVE

Each interior space shall be finished in accordance with this narrative. This narrative provides initial guidance only. As the design becomes more defined after award of the contract, the Contractor shall provide a comprehensive room finish schedule, finish plans and elevations and details to further define all aspects of the SID. Definitions: (GFGI) shall mean Government Furnished, Government Installed. (CFCI) shall mean Contractor Furnished, Contractor Installed

9.4 NEW FACILITY FUNCTION AREA/ROOM SUMMARY REQUIREMENTS

Room(s) :	Training 101
Summary:	Training area
Finish Requirements:	Floor: Sealed concrete Base: None Walls: Paint new CMU and existing exposed structure Ceiling: Paint exposed structure.
FF&E	None
(GFGI)	None

Room(s) :	Maintenance 102
Summary:	Maintenance area
Finish Requirements:	Floor: Sealed concrete Base: None Walls: Paint new CMU and existing exposed structure Ceiling: Paint exposed structure.
FF&E	None
(GFGI)	None

Room(s) :	Electrical 103
Summary:	Electrical Room
Finish Requirements:	Floor: Existing to remain Base: Existing to remain Walls: Paint existing walls Ceiling: Existing to remain.
FF&E	None
(GFGI)	None

9.5 INTERIOR FINISHES AND COLOR SCHEDULE

Product and color are shown as being specific to one manufacturer to establish design intent. These finishes have been reviewed and approved by the end user and the Government. Acceptance by the COR is required before the substituted product may be used. Product substitutions shall be permissible only when an item has been discontinued or colors/patterns have been changed in the indicated product line. As the design becomes more defined after award of the contract, the Contractor shall provide a comprehensive room finish and color schedule, and associated guide specifications to further define all aspects of the SID.

9.5.1 INTERIOR WALL FINISHES

9.5.1.1 Paint (P)

Architectural Grade Semi-Gloss Finish Paint (HM doors, frames and CMU walls).

9.5.1.2 High Performance Coating (HPC)

Architectural Grade, Semi-Gloss Finish (Exposed Structure including columns, decking, trusses, beams, etc.)

9.5.2 INTERIOR CEILING FINISHES

9.5.2.1 Paint (P)

Architectural Grade Semi-Gloss Finish Ceilings (Exposed structure).

AMENDMENT 0003

9.6 ~~STORAGE EQUIPMENT (BID OPTION 2)~~ **NOT USED**

~~As part of Bid Option 2, the D/B Contractor will be responsible for removal and storage two existing storage sheds and contents to allow for the construction work. The D/B Contractor shall also return and reinstall existing storage sheds and contents upon construction completion. Removal, storage, and reinstallation of storage sheds and contents shall be incorporated into the D/B Contractor's construction phasing plan, for Government approval.~~

~~The D/B Contractor shall be responsible for the inventory confirmation, removal, and storage of all items indicated in the RFP drawings for re-use. Storage Shall be in a secured space. Storage facilities shall protect and maintain the equipment and provide protection from insects, pests, and animals.~~

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9.7 TRAINING EQUIPMENT

The Contractor shall be responsible for the procurement and installation of hazmat training prop equipment (Bid Option #3) ~~including utility connection to the moveable equipment.~~ The Contractor will be responsible for coordination and provision of all utilities necessary for operation of all training equipment (Base Bid).

Basis of Design criteria and products data for the training equipment is included as an appendix to this RFP and under SECTION 01 10 12 DESIGN AFTER AWARD, Par 6.3 FURNITURE, FIXTURES AND EQUIPMENT (FF&E)

AMENDMENT 0005

9.8 SPECIFICATIONS

Refer to Part 8 for a listing of Specifications.

PART 10 STRUCTURAL DESIGN

10.1 Reference Part 2 for applicable codes and standards.

10.2 General Design Requirements

The engineering design requirements and criteria for the Structural Requirements section herein shall be in accordance with the requirements specified within this section and the criteria documents listed. All criteria documents shall be the current edition, where there is a conflict in criteria, the most stringent shall apply.

10.2.1 The D/B Contractor shall have on staff a licensed Structural Engineer. This engineer shall be responsible for the structural design of any building enhancements, new building structures or modifications to the existing structural systems. The structural system for the building shall include foundations, exterior and load bearing walls, roof framing, roof diaphragms, lateral stability system, framing and connection of any architectural features, and the support of mechanical and electrical equipment and stationary solar array panels. In addition, the Structural Engineer is responsible for the design of all lesser related structures such as utility vaults, pits, retaining walls, etc., although they may be shown on other disciplines' drawings. Structural design of the building modifications shall be compatible with the architectural design. Structural design shall be in accordance with the criteria, requirements, and guidance provided in the U.S. Army Corps of Engineers, Mobile District Design Manual, the International Building Code, 2021, and the following requirements. In event of a conflict, the most stringent shall govern design.

10.2.2 The Contractor's DOR is solely responsible for the determination and complete design of all modifications to the structural system. The final structural system design decisions shall not reduce the net square footage requirement as defined in this document.

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10.2.3 The existing structure of the incinerator building is a structural steel superstructure on shallow foundations. The existing slab is 18 inches thick and is anticipated to be adequate to handle equipment loads and training props. The Contractor's DOR must verify the existing slab capacity through structural analysis. The roof framing is open web bar joists bearing on structural steel wide flange girders. The girders span between structural steel wide flange columns bearing on a monolithically poured continuous footing at the slab edge. Lateral stability is provided with structural steel knee braces in both directions. The lateral load is transferred to the lateral stability systems through structural steel bracing in the plane of the roof structure. Reference Appendix for existing structural drawings associated with the incinerator building.

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10.2.4 The project will remove the existing end wall metal panels, structural steel channel wind columns, and cold formed zee girts as shown on AD200 and AD201 for the incinerator building. This project will also install new metal wall panels, cold formed girts, and support framing for the new end

wall layout with new door openings as per A-200 and A-201 for the incinerator building. It is the responsibility of the D/B Contractor that all necessary framing be provided for new overhead coiling door openings and metal wall panels meet components and cladding pressure requirements. This modification will result in an increase of the lateral forces more than that allowed per IEBC 806.3. Enhancements to the lateral stability system are expected to be required. All analysis and design of all enhancements are the responsibility of the DOR for the D/B Contractor. Enhancements shall include additional framing and foundation upgrades as necessary to resist the lateral forces.

10.2.5 The existing roof system for the incinerator building is standing seam metal roof attached to structural steel bar joists that are supported on structural steel wide flange girders. The existing structural roof system is to remain. The addition of solar panels to the existing standing seam roofing is not expected to exceed a dead load of 12 psf to avoid evaluation of the existing roofing framing based on IEBC 805.2. Design for strengthening of the roof framing to support the addition of any rooftop mechanical equipment, electrical equipment or PV loads in an excess of a total of 12 psf shall be the responsibility of the D/B Contractor. Solar panel attachments to the existing roof shall not exceed a spacing of 8 ft o.c. Reference Appendix for existing structural drawings associated with the incinerator building.

10.2.6 The Contractor is responsible for infilling slab where current pits exist. Reference mechanical demolition drawing MD101 in Appendix C for infill of mechanical pads. Contractor to make slab level with existing slab, including backfilling pit and pouring new slab.

10.2.7 This project will install new louvers on the north face of the incinerator building above where existing metal wall panels and wall framing terminate. The existing framing is not sufficient to support new louvers. The DOR shall provide all necessary framing to support new louvers. Reference Drawing in Appendix for elevation view.

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10.2.8 ~~Not Used Additional solar panels shall be supported by the Operations and Maintenance Building (Bid Option 3) and additional canopy structures (Bid Option 2, Bid Option 4, and Bid Option 5).~~

10.2.9 The D/B Contractor is responsible for the design of ~~all new~~ the canopy structures in ~~the Base Bid, Bid Option 2, Bid Option 4, and Bid Option 5. All canopy structures shall be designed to support stationary solar panels and are required to meet architectural geometry requirements as shown on A-140, A-142, and A-143. All~~ The canopy structures ~~are~~ is required to be designed to withstand gravity and lateral loads as determined by ASCE 7-16 and IBC 2021. ~~All~~ The new canopy structures ~~are~~ is anticipated to have metal roofing as defined by 8.2.2.1.

10.2.10 ~~All~~ The new canopy structures will be supported on shallow foundations. The D/B Contractor is responsible for ensuring that ~~all~~ the canopy structure foundations can withstand all lateral and gravity loads and foundations do not exceed the bearing pressure of the soil. For bid purposes assume an allowable bearing pressure of 1500 psf.

10.2.11 ~~**Not Used.** The addition of solar panels to the Operations and Maintenance building is not expected to exceed a dead load of 12 psf. The original design roof live loads of the O&M building are 20 psf, reference S-7 in Existing Conditions Drawings Appendix. According to IBC 2021 1607.14.4.1, the existing roof structure shall not have to be reinforced if solar panel weight is limited to the original live load reduction design load of 12 psf. The D/B Contractor is responsible for supporting the addition of new solar panels and ensuring panels do not exceed this weight. Solar panel attachments to the existing roof shall not exceed a spacing of 8 ft o.c.~~

10.2.12 Wood shall not be used for any structural members. Plywood shall not be used for wall sheathing, structural roof sheathing, or floor decking.

10.2.13 The D/B Contractor is responsible for the addition of bollards at all new column locations **(Bid Option #2)**.

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10.2.14 The D/B Contractor is responsible for the addition of an OSHA compliant roof access ladder on the existing incinerator building. Reference architectural drawings on A-200 for reference in the appendices.

10.2.15 The D/B Contractor is responsible for coordinating and controlling the tolerances between the structural systems. Prior to commencement of erection, the D/B Contractor shall perform a field check of the project to determine that the members can be erected in their proper locations and as detailed in the drawings.

10.2.16 Special Inspections are required for this project. Per IBC 2021, a SIOR is not required. It is not required for a structural DOR to complete structural observations for this project.

10.2.17 Where dissimilar metals are in contact, or where aluminum is in contact with concrete, mortar, masonry, wet or pressure-treated wood, or absorptive materials subject to wetting, the surfaces shall be protected with a coat of bituminous paint or asphalt varnish.

10.2.18 The D/B Contractor shall determine structural system, whether structural steel or pre-engineered metal building to meet building requirements and dimensions as defined in the architectural drawings provided in Appendix.

10.2.19 10.2.20 It is the D/B Contractor's responsibility to add OSHA approved fall protection and to determine the method in which it is provided. The determined fall protection system is required to not exceed the height of the solar panels.

10.2.21 The D/B Contractor is responsible for providing structural supports for reinstalled gas line shown on A-200 for the incinerator building. The D/B Contractor is responsible for coordinating with new side wall framing and supports are to connect to structural framing. Ground-supported vertical support is not acceptable. It is the responsibility of the D/B Contractor to determine method of supporting the reinstallation of the gas pipe.

10.3 Design Loads

10.3.1 Design dead, live, wind and seismic loads, and load combinations shall be in accordance with the IBC 2021, unless specified otherwise herein.

10.3.2 Live loads, not given, shall be in accordance with ASCE 7-16. The following floor areas shall be designed using the stated loads, as a minimum:

	Uniform	Concentrated
Roof		20 psf

10.3.3 Wind design criteria shall be based on a 108 miles/hr 3 second gust speed for a Building Risk Category II per ASCE 7-16. The Exposure Category shall be C. Wind loads shall be computed and applied in accordance with the ASCE 7-16. All parts of all structures shall be designed for the specified wind velocity and shall be tied together to provide an integrated resistance to high wind effects.

10.3.4 Seismic loads shall be in accordance with ASCE 7-16, Building Risk Category II; Importance Factor $I = 1.0$; Seismic Design Category C. The short period spectral acceleration value (S_s) and the one second period spectral acceleration value (S_1) shall be per the DA. Seismic Site Classification D shall be used. Seismic loads shall be computed and applied in accordance with the IBC 2021 and ASCE 7-16.

10.4 Concrete

10.4.1 Reference Part 2 applicable codes and standards.

10.4.2 Specified minimum compressive strength f'_c shall be 4000 psi at 28 days for all concrete, unless noted otherwise.

10.4.3 All detailing and materials used for concrete reinforcement shall be in accordance with ACI 315 and ACI 318.

10.4.4 All exposed concrete shall be assigned an exposure class C2 for the Corrosion Protection of Reinforcement Category per ACI 318 Table 19.3.1.1.

10.5 Steel

10.5.1 Reference Part 2 for applicable codes and standards.

10.5.2 Shop connections for structural steel shall be welded. Field connections shall generally be made with high strength bolts (ASTM F3125 A325) in bearing type connections. All connections other than standard AISC shear connections shall be designed by the structural engineer of record and detailed on the final plans. Connection angles shall be a minimum of 5/16 inches thick and bolts shall be a minimum of 3/4-inch in diameter. Per IBC 2021 section 1603.2 connections, including steel connections, of the primary lateral resisting system shall be designed and detailed by the Structural Engineer of Record.

10.5.3 An erection plan shall be provided by the contractor. The erection plan shall be reviewed, stamped and sealed by a licensed structural engineer. The erection plan shall also be approved by the engineer of record.

10.5.4 Exterior steel embedded in concrete for such purposes as exterior railing, handrails, fence, base plates, anchor bolts, etc. shall be hot-dipped galvanized unless otherwise directed.

10.5.5 Where dissimilar metals are in contact, or where aluminum is in contact with concrete, mortar, masonry, wet or pressure-treated wood, or absorptive materials subject to wetting, the surfaces shall be protected with a coat of bituminous paint or asphalt varnish.

10.5.6 Metal roof deck material shall be galvanized steel and have a minimum thickness of 0.0358-inches (20 gage).

10.5.7 Structural metal roof decks shall be attached to structural supports and to adjoining units using mechanical fasteners, such as screws, powder actuated or pneumatically driven fasteners. Welding shall not be used to attach roof decks.

10.5.8 Where galvanized metal deck is to be exposed and painted in finished work, the surface to be exposed will be cleaned and primed in accordance with the contract specifications in the fabrication plant prior to shipment

10.5.9 Net uplift resistance required will be specified in the Metal Deck specification in keeping with project design computations.

10.6 Masonry

10.6.1 Reference Part 2 for applicable codes and standards.

10.6.2 Concrete Masonry Units

10.6.2.1 New interior CMU walls are expected in the existing incinerator building. Walls are to be non-load bearing partition walls intended to break up the new training space from mechanical equipment. Any modifications shall be completed in accordance with ACI 530. Masonry detailing and materials used shall be in accordance with TMS 402/602.

10.7 Specifications

As a minimum, the Contractor shall edit and submit the following UFGS as defined in Section 01 10 12, Design After Award:

01 45 35 Special Inspections with attachments including Statement of Special Inspections, Schedule of Special Inspections, and Contractor Statement of Responsibility

03 30 00	Cast-In-Place Concrete
04 20 00	Unit Masonry
05 12 00	Structural Steel
05 30 00	Steel Decks

05 40 00	Cold-Formed Metal Framing
05 50 13	Miscellaneous Metal Fabrications
13 34 19	Metal Building Systems

PART 11 HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

11.1 CODES AND REFERENCES.

Design facilities in accordance with all Government requirements, regional, and national applicable codes effective at issue date of RFP, unless otherwise noted, including, but not limited to those listed in Part 2 of this specification section.

The design of the Heating, Ventilating, and Air Conditioning (HVAC) systems will conform to the Mobile District Design Manual 2024 and the applicable codes, standards, and requirements included in this RFP.

11.2 DESIGN CRITERIA

11.2.1 Verify occupancy and heat loads from all Government furnished equipment prior to commencing work.

11.2.2 Provide ventilation calculations, as a minimum, in accordance with the ASHRAE Handbook of Fundamentals.

- a. Design the HVAC systems to industry standards, codes, Government regulations, including the Guiding Principles for Sustainable Federal Buildings and Associated Installations in effect when this RFP is issued including those listed above and to the specifications included in this solicitation.
- b. Submit design documents and obtain approval prior to commencing work on the HVAC system. Ensure the professional quality and technical accuracy of all HVAC design documents and ensure construction meets all requirements of the approved design. Coordinate drawings, specifications, and other design documents upon which construction is based with other disciplines to ensure compatibility of all building systems.
- c. Use equipment that meets or exceeds the minimum equipment requirements set forth in ASHRAE 90.1 or as required to achieve the required building energy efficiency.
- d. Perform final design calculations for the design efforts.
- e. Consider proper maintenance clearances around all equipment including pull space and observance of the "dedicated electrical space" around electrical equipment as required by the National Electrical Code, as well as the minimum clearance requirements set forth in the International Mechanical Code, and the manufacturer's minimum recommended clearances.

11.2.3 GENERAL DESIGN PARAMETERS

- a. Outside Design Conditions: Outdoor conditions are from the latest ASHRAE Handbook of Fundamentals. The values from the ASHRAE Handbook of Fundamentals, Chapter 14 for Anniston, Alabama are indicated below.

1) Outdoor design conditions for cooling are:

- a) The 1.0% dry bulb (DB) and corresponding mean coincident wet bulb (MCWB) temperature (DP calculated).

Outdoor Design Conditions for Cooling		
Condition	°F DB	°F WB
1.0% DB/ MCWB	92	75

- b. Inside Design Conditions: Design for indoor conditions:

- 1) Provide ventilation to maintain dry bulb temperature to within 10 deg. F of ambient.
- 2) Humidification and/or dehumidification is not required.

- c. Ventilation and Exhaust: Provide outdoor air for ventilation and exhaust will be in accordance with all pertinent design standards including the following:

- 1) International Mechanical Code (IMC)
- 2) ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality

- d. All equipment mounting for equipment and utilities weighing 31 pounds or more are designed to resist forces of 0.5 times the equipment weight in any horizontal direction and 1.5 times the equipment weight in the downward direction.

- e. Permitting: Be responsible for all applicable environmental permitting and testing concerning the mechanical systems, including coordination of the permitting with the Contracting Officer's Representative.

11.3 SYSTEM TYPES AND EQUIPMENT REQUIREMENTS

11.3.1 Systems Description and Requirements

The mechanical/HVAC scope is to provide ventilation only of the building spaces.

The DBC is responsible for designing adequate systems fully coordinated with the building design.

No new equipment is allowed on the roof. Include all required fittings, connections and accessories required for a complete and usable system.

11.3.2 Air Distribution Systems

Exhaust Systems: Provide new exhaust fans to ventilate facility. Provide makeup air intake louvers at exterior walls provided with gravity dampers. Exhaust fans shall operate under local thermostat control and will not be connected to a depot-wide control system or building control system.

High Volume Low Speed (HVLS) fans must be provided for additional air circulation. HVLS fans must provide at a minimum 1 cfm/ft² of airflow. Coordinate mounting location and height with hanging light fixtures.

11.4 TEST AND BALANCE

Include testing, balancing, and adjusting of HVAC systems by a certified AABC or NEBB test and balance firm. Submit all reports for approval to the COR on standard AABC or NEBB forms.

11.5 OPERATION AND MAINTENANCE MANUALS

Submit Operation and Maintenance Manuals for all new components of the HVAC systems. Submit manuals for any new equipment for approval 60 days prior to the scheduled completion date for the project.

11.6 MAINTENANCE CLEARANCES AND EQUIPMENT LAYOUT

Ensure proper maintenance clearances around all equipment and observance of the "dedicated electrical space" around electrical equipment as required by the National Electrical Code, as well as the minimum clearance requirements set forth in the International Mechanical Code, and the manufacturer's minimum recommended clearances.

11.7 SPECIFICATIONS

The following list of specifications is anticipated for this project. The list is not comprehensive. Provide all specifications required to adequately describe the project and all materials to be used and installed. Edit and submit the latest comparable UFGS version:

23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00	THERMAL INSULATION FOR MECHANICAL SYSTEMS
23 30 00	HVAC Air Distribution

PART 12 PLUMBING

12.1 CODES AND REFERENCES

Design facilities in accordance with all Government requirements, regional, and national applicable codes effective at issue date of RFP unless otherwise noted including, but not limited to:

12.2 GENERAL SYSTEM CRITERIA

The design of the plumbing system will conform to the Mobile District Design Manual 2024 and the applicable codes, standards and requirements included in this RFP.

Design and install Plumbing system in accordance with the International Plumbing Code and referenced criteria. Inspect and test the plumbing system as prescribed in the International Plumbing Code. Conform to the applicable rules of the International Plumbing Code governing venting of plumbing fixtures, sizing of waste, vents, drains, and water systems. Label all piping and indicate direction of flow. Provide accessible shutoff/isolation valves and water hammer arrestors. If installed above hard ceilings, provide access doors.

- a. Water efficiency: Select plumbing to meet the water-efficiency requirements of the International Plumbing Code.
- b. Test new soil, waste, vent, and storm drainage piping by capping or plugging and filling the system with water, allowing it to stand filled for 8 hours. If tested in sections, subject each section to not less than a 10-foot head. Test new cold water, hot water and hot water circulating piping by applying a hydrostatic pressure of 150 psig for 4 hours minimum. Test piping under floor slabs in floor fill before slabs are poured. Piping which is not tight under tests will be taken down and reassembled. Take down and reassemble, using new couplings, joints in cast iron no-hub pipe not tight under test. Test each fixture for soundness, stability of support and operation. Provide a statement certifying that piping has passed the herein specified test. Perform tests while pipe is exposed to view.
- c. Flush and disinfect all new potable water systems.

12.3 EXISTING CONDITIONS

Domestic water, sanitary sewer, vent systems, compressed air, natural gas, and steam systems are provided in the existing Incinerator Facility. Domestic Cold Water is composed of an existing 4-inch domestic water service (to remain) entering at the south wall. The autoclave bay includes an emergency shower fixture. The treatment room includes a boiler water treatment system, scullery sink with attached emergency eye wash, and a 19-gallon electric water heater. Two hose bibbs are located on the south wall. Potable water is routed to abandoned incinerator, scrubber, and blow down cooler. Trench drains, floor drains, and a cleanout are located around the incinerator. Compressed air enters the facility at the south wall and exits at the west wall. Compressed air serves the incinerator, the scrubber, pneumatic

controls, and autoclaves. Natural gas enters the facility at the north wall and serves the incinerator and autoclaves. Additional gas piping surrounds the exterior wall and is routed to other equipment not contained in the Incinerator Building. Steam is decommissioned from this facility. Abandoned steam piping is routed from the east wall to major equipment.

A large, compressed air system serves the facility and is located in the Operations & Maintenance Building (O&M Building). A 1-1/2 inch compressed air service (to remain) enters at the west wall of the Incinerator Facility and exits at the south wall to serve other areas.

Sanitary service is composed of a 4-inch main that exits the building by the existing restrooms. Sanitary is owned by the Base.

12.4 DEMOLITION

All existing plumbing systems north and east of the control room are to remain as is. Domestic water, sanitary sewer, and compressed air systems west of the control room are to be modified for new, Government provided equipment. Natural gas runouts to the incinerator, the scrubber, and the steam systems west of the control room are to be demolished complete and capped at mains. Natural gas piping in the west wall to be relocated $\pm 1'-0"$ west to the exterior of the wall. Domestic water piping west of control room shall be demolished back to mains on south wall and prepped for future construction. Compressed air piping shall be demolished to furthest extents and prepped for future construction. All hose bibbs and associated piping are to remain as is. The existing sanitary system west of the control room is anticipated to be modified according to piping array location.

12.5 GENERAL PLUMBING MATERIALS, EQUIPMENT AND FIXTURE REQUIREMENTS

12.5.1 Routing and Design

- a. Modify domestic water and waste piping system to accommodate new plumbing fixtures.
- b. Provide 1" domestic water and $\frac{3}{4}"$ compressed air for Training Props. Refer to Training Prop Information in the RFP and RFP Appendices.
- c. Conceal and properly support all piping with allowances for expansion and contraction.
- d. Do not bury interior water distribution piping under concrete floors except where no other routing options exist.
- e. All piping will be drainable.
- f. Insulated and heat trace exposed piping subject to freezing.
- g. Provide individual shutoff or stop valves on water supply lines to all plumbing fixtures. Provide individual stops at all equipment connections.
- h. Consolidate fixture vents through one common vent whenever possible. Reuse existing vent thru roof penetration whenever possible.

possible. Make any new vent penetrations through the roof through a roof jack designed for use with the roofing system furnished.

12.5.2 Materials for Waste, Vent Lines

- a. Soil, waste, and drain piping and fittings passing through and located below the slab: Schedule 40 PVC.
- b. Soil, waste, drain and vent piping and fittings above the slab: Schedule 40 PVC.
- c. Equip each fixture and piece of equipment requiring connections to the drainage system with a trap and vent all fixtures.
- d. Provide floor drains with trap primer in mechanical rooms and toilet rooms.
- e. Provide two additional 3" floor drains in the training bay near the piping array. Route the waste to the storm drainage west of the Incinerator Building. DOR to coordinate final locations with User group during design.
- f. Provide permanently accessible surface or wall cleanouts for each drainage main. Provide cleanouts at each change in direction of sanitary sewer lines, at the intervals specified in the International Plumbing Code, and at the building service entrance. Install ground cleanouts in a 1-foot by 1-foot, 4-inch thick concrete pad flush with grade.

12.5.3 Material for Domestic Water Lines

- a. Water piping: Type L copper pipe.
- b. Joints under the slabs are not permitted.
- c. Minimize supply piping located under concrete slabs and limit to trap primer piping.
- d. Material or equipment containing lead will not be used in any potable water system.
- e. Water Hammer Arrestors: PDI WH201 engineered mechanical type sized and installed to safeguard the water distribution system against destructive water hammer hazard and noise. Air chambers are not acceptable.

12.5.4 Insulation

Provide insulation on all new domestic water (cold) supply piping.
Provide vapor barrier on all cold-water piping.

12.5.5 Valves

Provide ball shutoff valves of metal construction. Plastic valves are not acceptable.

12.5.6 Domestic Water Heater

a. Existing domestic hot water heating system must remain.

12.6 GENERAL PLUMBING FIXTURES

- 12.6.1 Maintain all existing plumbing fixtures within the existing facility.
- 12.6.2 Floor Drains: Replace the two existing floor drains in the training bay area. Provide with trap seals.
- 12.6.3 Hose Bibbs: Provide additional hose bibbs along the north interior wall of the training bay area. Hose bibbs shall be freeze proof, with integral vacuum break/backflow preventer, with 3/4" hose connection.

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12.7 NOT USED. SOLAR PANEL WASHDOWN SYSTEM

- 12.7.1 NOT USED. Base Bid: Provide an automatic cleaning system for the PV solar panel array at the Incinerator Building. This system will include polyethylene tube lines, a control unit which includes a 130 micron disk filter, timer, and zone valve assemblies. A 3/4" sprinkler nozzle must be attached to each solar panel. The control unit must be located on a light gauge metal support. The nozzle shall be attached to the solar panel via a stainless steel clip. Sprinkler nozzles must provide 0.25 GPM and shall be zoned with a maximum of 20 nozzles per zone. The washdown system must be capable of being programmed to operate 15 minutes per day with a user adjustable schedule. Freeze protection must be provided through manual shut off of the water supply and the washdown system drained. Connect the solar panel wash downs system to the building's domestic water supply inside the building at the service entrance. Provide with isolation valve to isolate washdown system from building supply for maintenance purposes.
- 12.7.2 NOT USED. Bid Option 1: Expanding battery energy storage. No plumbing work required.
- 12.7.3 NOT USED. Bid Option 2: Provide an automatic cleaning system for the additional PV solar panel array at the Incinerator Building. This system will include polyethylene tube lines, a control unit which includes a 130 micron disk filter, timer, and zone valve assemblies. A 3/4" sprinkler nozzle must be attached to each solar panel. The control unit must be located on a light gauge metal support. The nozzle shall be attached to the solar panel via a stainless steel clip. Sprinkler nozzles must provide 0.25 GPM and shall be zoned with a maximum of 20 nozzles per zone. The washdown system must be capable of being programmed to operate 15 minutes per day with a user adjustable schedule. Freeze protection must be provided through manual shut off of the water supply and the washdown system drained. Connect the solar panel wash downs system to the building's domestic water supply inside the building at the service entrance. Provide

~~with isolation valve to isolate washdown system from building supply for maintenance purposes.~~

12.7.4 **NOT USED.** ~~Bid Option 3: Provide an automatic cleaning system for the PV solar panel array at the O&M Building. This system will include polyethylene tube lines, a control unit which includes a 130 micron disk filter, timer, and zone valve assemblies. A 3/4" sprinkler nozzle must be attached to each solar panel. The control unit must be located on a light gauge metal support. The nozzle shall be attached to the solar panel via a stainless steel clip. Sprinkler nozzles must provide 0.25 GPM and shall be zoned with a maximum of 20 nozzles per zone. The washdown system must be capable of being programmed to operate 15 minutes per day with a user adjustable schedule. Freeze protection must be provided through manual shut off of the water supply and the washdown system drained. Connect the solar panel wash downs system to the building's domestic water supply inside the building at the service entrance. Provide with isolation valve to isolate washdown system from building supply for maintenance purposes.~~

12.7.5 **NOT USED.** ~~Bid Option 4: Provide an automatic cleaning system for the PV solar panel array at the north and west single loaded parking lot canopies. This system will include polyethylene tube lines, a control unit which includes a 130 micron disk filter, timer, and zone valve assemblies. A 3/4" sprinkler nozzle must be attached to each solar panel. The control unit must be located on a light gauge metal support. The nozzle shall be attached to the solar panel via a stainless steel clip. Sprinkler nozzles must provide 0.25 GPM and shall be zoned with a maximum of 20 nozzles per zone. The washdown system must be capable of being programmed to operate 15 minutes per day with a user adjustable schedule. Freeze protection must be provided through manual shut off of the water supply and the washdown system drained. Connect the solar panel wash downs system to the new domestic water supply routed to the canopy.~~

12.7.6 **NOT USED.** ~~Bid Option 5: Provide an automatic cleaning system for the PV solar panel array at the double loaded parking lot canopies. This system will include polyethylene tube lines, a control unit which includes a 130 micron disk filter, timer, and zone valve assemblies. A 3/4" sprinkler nozzle must be attached to each solar panel. The control unit must be located on a light gauge metal support. The nozzle shall be attached to the solar panel via a stainless steel clip. Sprinkler nozzles must provide 0.25 GPM and shall be zoned with a maximum of 20 nozzles per zone. The washdown system must be capable of being programmed to operate 15 minutes per day with a user adjustable schedule. Freeze protection must be provided through manual shut off of the water supply and the washdown system drained. Connect the solar panel wash downs system to the new domestic water supply routed to the canopy.~~

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12.8 SPECIFICATIONS

The following list of specifications is anticipated for this project. The list is not comprehensive. provide all specifications required to adequately describe the project and all materials to be used and installed. Edit and submit the following UFGS as defined in Section 01 10 12, Design After Award, using the latest comparable UFGS version:

22 00 00 PLUMBING, GENERAL PURPOSE

PART 13 FIRE PROTECTION

13.1 FIRE PROTECTION OVERVIEW

The fire protection design requirements and criteria for the work indicated herein, shall be in accordance with the requirements of this section, applicable National Fire Protection Association (NFPA) standards and codes, USACE Engineering Manual EM-385-1-1, and Appendix exhibits. All criteria documents shall be the current edition at the time of contract award. Where there is a conflict in criteria, the most stringent shall apply.

All work associated with the fire protection system installation on this project shall be completed under the supervision of and certified by the D/B Contractor's (DBC's) Qualified Fire Protection Engineer (QFPE). The QFPE shall be an individual registered professional engineer who has passed the fire protection engineering written examination administered by the National Council of Examiners for Engineering and Surveys (NCEES).

The contractor shall engage the services of a Qualified Fire Protection Engineer for this project. The Qualified Fire Protection Engineer (QFPE) must be an integral part of the design team and shall be involved in every aspect of the design, construction, and testing/commissioning, as it relates to the fire protection systems. The QFPE shall prepare a fire protection design analysis summarizing applicable fire protection requirements and approach for the project. The design analysis shall be submitted with each design submittal.

The QFPE shall be regularly engaged in the design and installation of the type and complexity of system specified in the contract documents and shall have served in a similar capacity for at least three systems that have performed in the manner intended for a period of not less than 6 months.

All fire protection devices shall be UL Listed and Approved for the intended use.

All fire suppression and fire alarm systems shall be electronically supervised and provide a signal to the remote monitoring station.

The existing incinerator building is being converted to a training building that will be used on a periodic basis (not continuous use). A fire sprinkler system is not required in the training building.

A new Energy Storage System (ESS) battery/equipment cabinet is being provided on site. The ESS battery/equipment cabinet shall be provided with fire suppression and fire alarm/detection systems. The equipment manufacturer shall provide a fire suppression and fire alarm system integrated within the equipment enclosure.

Considering the height and size of the buildings involved on this project, standpipe systems (NFPA 14) are not required.

Provide seismic sway bracing for new fire suppression systems.

13.2 FIRE SUPPRESSION DESIGN REQUIREMENTS

The QFPE shall develop applicable fire suppression system design documents, calculations, design analysis, and specifications, for Government review and approval.

13.2.1 Fire Protection Water Supply

The fire protection water supply for this site is existing and is anticipated to remain as-is. The fire protection water supply consists of an elevated water storage tank that serves site domestic and fire protection system supply.

A waterflow test (fire hydrant flow test) was performed using the existing fire hydrants south\west of the existing incinerator building on September 11th, 2024. Results of the waterflow test can be found in the appendices. If required for fire suppression systems design, the QFPE shall perform a new waterflow test that is current with the project hydraulic calculation design submittals. Hydraulic calculations shall be based on a waterflow testing that was performed no more than 6 months prior to submission of the calculations.

13.2.2 Portable Hand-Held Fire Extinguishers

Portable hand-held fire extinguishers for personnel use shall be provided throughout the Training Building, as required by NFPA 101. A portable fire extinguisher shall be provided at the ESS canopy structure. The fire extinguisher at the ESS canopy structure shall be mounted in a weather resistant fire extinguisher cabinet. Extinguishers shall be installed in accordance with NFPA 10.

13.2.3 Fire Hydrants

Existing fire hydrants on site are to remain as-is, unless otherwise noted.

13.3 CONSTRAINTS

The Contractor is advised that the concept layout and requirements indicated in these specifications and shown on the criteria drawings are intended to describe the overall concepts and scopes of work. Any proposed changes from the concept criteria shall be submitted for review and approval.

13.4 FIRE DEPARTMENT BUILDING ACCESS

Fire Department access provisions for the buildings and vehicle access to the site are existing and shall remain as-is.

13.5 ENERGY STORAGE SYSTEM (ESS) BATTERY/EQUIPMENT CABINET FIRE PROTECTION REQUIREMENTS

The ESS battery/equipment cabinet enclosure shall be provided with all the necessary features to comply with NFPA 855 for the battery technology-specific requirements. Depending on battery technology chosen, features shall be integrated into the enclosure/equipment by the equipment supplier and may include, but are not necessary limited to, the following:

- a. Mechanical Ventilation
- b. Gas Detection
- c. Fire Suppression System
- d. Fire Alarm and Detection System
- e. Deflagration/Explosion Venting
- f. Hazardous Material & Emergency Communication Signage
- g. Emergency equipment power shutdown, de-energizing, provisions
- h. Battery Technology-Specific Requirements

13.6 DESIGN-BUILD CONTRACTOR PROVIDED SPECIFICATIONS

The DBC shall edit and submit, as applicable to the project, UFGS specifications. The list below is a summary of fire protection specifications that may be applicable on this project. The list is not considered comprehensive. The DBC will provide all specifications required to adequately describe the project and all materials to be used.

07 84 00	Firestopping
10 44 16	Fire Extinguishers

13.7 POST CONSTRUCTION GOVERNMENT PERSONNEL TRAINING

The DBC shall provide onsite training by a Fire Protection Specialist for operation and maintenance personnel as designated by the contracting officer.

The Fire Protection Specialist shall be a NICET III certified technician (in the applicable system field), or equipment manufacturer's representative.

Training shall be provided for a period of 4 hours of normal working time and shall start after the system is functionally complete and after the Final Acceptance Test. The Onsite Training shall cover all of the items contained in the approved Operating and Maintenance Instructions. Training shall at a minimum result in comprehensive training in the operation, maintenance, troubleshooting and diagnostic testing of the installed systems.

A detailed training plan shall be submitted and approved prior to scheduling any training. The training plan shall provide specific intervals for the training blocks, location of training, and a detailed breakdown of the training objectives. Once approved, the contractor shall provide a minimum 14 day notice of the proposed training date.

PART 14 ELECTRONIC, FIRE ALARM AND MASS NOTIFICATION SYSTEMS

Refer to Section 01 10 10 Part 2 for design reference criteria. Refer to appendices for the additional design requirements.

14.1 Telephone and LAN systems

Telephone and LAN systems are not included in this project scope except where required in other sections of this RFP package.

Any existing telephone or LAN systems in the existing facility must be maintained and protected during construction unless they solely serve existing equipment which is being removed as part of this project.

14.2 GROUNDING

Telephone and LAN grounding systems are not included in this project scope except where required in other sections of this RFP package.

Any existing telephone or LAN grounding systems in the existing facility must be maintained and protected during construction unless they solely serve existing equipment which is being removed as part of this project.

14.3 FIRE DETECTION AND ALARM SYSTEM

The fire alarm system design requirements and criteria for the work indicated herein, shall be in accordance with the requirements of this section, applicable National Fire Protection Association (NFPA) standards and codes, USACE Engineering Manual EM-385-1-1, and Appendix exhibits. All criteria documents shall be the current edition at the time of contract award. Where there is a conflict in criteria, the most stringent shall apply.

All work associated with the fire protection system installation on this project shall be completed under the supervision of and certified by the D/B Contractor's (DBC's) Qualified Fire Protection Engineer (QFPE). The QFPE shall be an individual registered professional engineer who has passed the fire protection engineering written examination administered by the National Council of Examiners for Engineering and Surveys (NCEES).

The DBC shall engage the services of a Qualified Fire Protection Engineer for this project. The Qualified Fire Protection Engineer (QFPE) must be an integral part of the design team and shall be involved in every aspect of the design, construction, and testing/commissioning, as it relates to the fire protection systems. The QFPE shall prepare a fire protection design analysis summarizing applicable fire protection requirements and approach for the project. The design analysis shall be submitted with each design submittal. The analysis shall be submitted with each design submittal.

The QFPE shall be regularly engaged in the design and installation of the type and complexity of system specified in the contract documents, and shall have served in a similar capacity for at least three systems that have performed in the manner intended for a period of not less than 6 months.

14.3.1 Existing Fire Alarm and Detection System

There is an existing Silent Knight 5820XL addressable Fire Alarm System (FAS) serving the existing incinerator building. The existing Silent Knight 5820XL panel is located in the adjacent Toxic Agent Training Building. Fire alarm circuits extent into the incinerator building by way of an overhead piping/conduit rack between buildings. The existing Silent Knight FAS shall remain and be modified, as required, to coordinate with renovation work associated with this project.

All existing FAS devices, wiring, and conduit, shall be removed in the existing incinerator building. Remove the existing fire alarm system back to the existing terminal cabinet located in the existing control room.

The existing communicator currently used to report FAS conditions to the remote monitoring station is anticipated to be reused to serve the system modifications.

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14.3.2 Fire Alarm and Detection System

The existing Silent Knight FAS shall remain and be modified, as required, to coordinate with renovation work associated with this project.

A new fire alarm and detection system shall be provided in the new Training Building- **as an extension of the fire alarm system in the Toxic Agent Training Building. Provide a dedicated FACP panel in the new Training Building (B801D) that reports back to the Toxic Agent Training Building FACP.**

A new fire alarm and detection system shall be provided in the Energy Storage System (ESS) battery/equipment cabinet. The ESS equipment manufacturer shall provide a fire suppression and fire alarm system integrated within the equipment enclosure. The ESS battery/equipment cabinet fire alarm system shall report alarm and trouble/supervisory conditions to the Training Building FACP/system.

The following summarizes the minimum scope of work on the project:

1. Remove the existing fire alarm initiation and notification devices in the existing incinerator building.
2. Remove all Fire Alarm System (FAS) conduit and wiring in the existing incinerator building back to the existing fire alarm terminal cabinet located in the existing control room.
3. Provide new manual pull stations at each new exterior exit as required by NFPA 101.
4. Provide a new smoke detector(s) above new fire alarm control equipment, in accordance with NFPA 72.
5. Provide a new notification device power supply panel to serve the new training building. Locate the new notification device power supply panel adjacent to the existing fire alarm terminal cabinet (or equivalent approved location).

6. Provide new notification devices (horns / strobes) throughout the new training building, as required by NFPA 72. Use Public Mode criteria for notification device layout, as defined in NFPA 72.
7. Provide a new fire alarm and detection system in the Energy Storage System (ESS) battery/equipment cabinet enclosure. The ESS equipment manufacturer shall provide a fire suppression and fire alarm system integrated within the equipment enclosure. Extend fire alarm communication circuit(s), as required, to connect the ESS battery/equipment cabinet enclosure to the Toxic Training Building FACP for monitoring of alarm and trouble/supervisory conditions.
8. Update the existing Silent Knight 5820XL system (in the toxic agent training building) programming, as required, to incorporate new system devices, as required by NFPA 72.
9. Update the offsite remote reporting communication system to incorporate new system devices, as required by NFPA 72.

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14.3.3 New System Minimum Requirements

Alarm initiating devices shall be connected to Class B signal line circuits (SLC) or Class B initiation device circuits (IDC), in accordance with NFPA 72. Alarm notification appliances shall be connected to Class B indicating appliance circuits (IAC), in accordance with NFPA 72. Locations of audible and visual appliances, for public mode operation, shall comply with NFPA 72.

All system wiring shall be provided and installed in a dedicated conduit system. The conduit system shall be factory-painted "red" color.

Provide point-to-point riser diagrams showing the control panel, all equipment, zones, devices, communicators, and interfaces to other systems (HVAC, fire suppression, access control system interface, etc., as applicable).

The locations of all system devices and components shall be shown on the submitted design documents for AHJ review.

Primary power to new fire alarm control equipment shall be provided from a lockable breaker. Backup power (secondary power source) shall be provided by batteries of sufficient size to provide the required backup power load for the required backup power duration.

All visual notification devices shall be synchronized as per ABA requirements.

Upon detection of any fire alarm system alarm, supervisory, or trouble, conditions the fire alarm system shall transmit the system signal to the remote supervising station.

All software, software locks, special tools and other proprietary equipment required to maintain, add devices to or delete devices from the system or test the system shall be furnished to the Government prior to final inspections of the system.

All original manufacturers' software for the system shall be provided with the project closeout documentation. The following requirements shall apply: all software, hardware, passwords, etc. required for the maintenance, testing, and reprogramming of the fire alarm system shall be unconditionally turned over to the Government, and the above noted software, hardware, passwords, etc. shall become the unconditional property of the Government. Software turned over to the Government shall be the original manufacturers licensed software on CD (or DVD) with jeweled case; copies of software shall not be acceptable. Software and CD, or DVD, shall be brand new and unused.

14.3.4 Mass Notification System

A mass notification system is not required in the new training.

14.3.5 Constraints

The Contractor is advised that the concept layout and requirements indicated in these specifications and shown on the criteria drawings are intended to describe the overall concepts and scopes of work. Any proposed changes from the concept criteria shall be submitted for review and approval.

14.3.6 Design-Build Contractor Provided Specifications

The DBC shall edit and submit, as applicable to the project, UFGS specifications. The list below is a summary of fire protection specifications that may be applicable on this project. The list is not considered comprehensive. The DBC shall provide all specifications required to adequately describe the project and all materials to be used:

07 84 00	Firestopping
28 31 70	Interior Fire Alarm System, Addressable

PART 15 ELECTRICAL SYSTEMS

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15.1 CODES AND REFERENCES

Electrical systems will be provided for the project based on the Statement of Work requirements and applicable codes and standards. This work shall include the demolition of select mechanical and electrical equipment in the existing Incinerator Building 801D and the installation of a new photovoltaic solar array system with the off-grid battery power source. New power devices and branch circuits will be provided for the renovated incinerator building. New lighting fixtures and associated lighting controls will also be provided for the renovated incinerator building.

A new photovoltaic solar array system with the off-grid battery power source will be configured to provide power to the renovated Incinerator building (Bid Option #1), the existing Northville training complex (Bid Option #5), and the existing O&M building (Bid Option #4), as a primary power source with the utility power as backup system. The new photovoltaic solar array system will consist of multiple solar panel arrays and associated inverters, battery storage system, microgrid controller equipment, new power distribution equipment, and the associated power protection and code required electrical equipment. The new solar power arrays will be provided as follows:

~~Base Bid:~~ Bid Option #1: Solar panel array installed on the existing roof of the existing Incinerator Building 801D. The ~~base bid~~ Bid Option #1 will also include a battery storage system comprising the installation of a battery, microgrid controller equipment, and the new power distribution equipment.

~~Bid Option #1:~~ Additional battery installation at the battery storage system.

~~Bid Option #2:~~ Additional solar panel array installed on the new roof of the Canopy addition to the existing Incinerator Building 801D.

~~Bid Option #3:~~ Additional solar panel array installed on the existing roof of the existing Maintenance Building 801E.

~~Bid Option #4:~~ Additional solar panel array installed on the roof of the new structure at the perimeter of the existing parking lot. Connection to Panel PPM (250A) load for Microgrid system.

~~Bid Option #5:~~ Additional solar panel array installed on the roof of the new structure at the center of the existing main parking lot. Connection to Panel CCI (100A) load for Microgrid system.

See Section 15.7 for additional requirements.

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15.2 DESIGN CRITERIA

15.2.1 New Electrical Panelboards

The electrical distribution and lighting panelboards will utilize circuit breaker type, group mounted equipment. Circuit breakers utilized as electrical panelboard main circuit breaker, all circuit breakers in distribution type panelboards, and all circuit breakers 100A and larger will utilize electronic trip units with field adjustable setting to ensure selective coordination (L-Long, S-Short, I-Instantaneous, and G-Ground Fault settings, as indicated on the drawings). The circuit breakers in the branch type panelboards will be thermal magnetic type.

Actual equipment electrical loads and demand factors, where known, will be used for electrical calculation purposes. Where loads are unknown, the contractor will utilize loading and demand factors outlined in NFPA 70. Branch circuits feeding receptacles of unknown loads will be limited to 1200VA per circuit. The interior electrical distribution system will be designed with a minimum of 20% excess load capacity in all switchboards, panelboards, and feeders after all load and demand factors have been applied to the electrical calculations. Additionally, all distribution panelboards will have 20% excess physical space for future use. All electrical equipment will be located in the main electrical room unless noted otherwise.

Surge protection devices will be provided at all distribution and branch circuit panelboards. Surge protection devices must not be installed inside a panelboard. All surge protection devices will be installed externally to panelboards and in separate enclosures.

15.2.2 Branch Wiring Devices

New branch circuits will be provided.

Wiring will be copper conductors. The use of 75 degree C (minimum) insulated conductors is required and will be stated on the project drawings. Branch circuits will have an individual neutral. All wiring will be provided and installed in conduit. Wiring system will consist of insulated single conductors provided and installed in raceways as follows:

- a. Galvanized rigid steel conduit in exposed areas subject to physical damage, concrete, masonry and damp or wet locations.
- b. Electric metallic tubing (EMT) in concealed areas and exposed where not subject to physical damage. All EMT conduit will have steel compression type fittings.
- c. Non-metallic conduit (Type 40 PVC) underground and below concrete slabs.

Wiring will be concealed within the walls in all areas except equipment areas. Conduit will be labeled with source and destination. Empty conduit will have nylon pull rope installed in it with 10 additional feet of pull rope coiled at each end. An equipment grounding conductor will be provided and installed with all feeders and with all branch circuit wiring to receptacles and equipment. Conductors will be a minimum size of 12 AWG. The ampacity de-rating for number of conductors in raceway and ambient temperature will be based upon the National Electrical Code. The percentage of conductor fill in conduit will be based upon National Electrical Code: one conductor maximum fill of 53 percent; two conductor maximum fill of 31 percent; and more than two conductors maximum fill of 40 percent.

Buried electrical warning tape will be provided 12-inch below grade for all new underground electrical circuits. All new underground electrical circuits will be buried at a minimum of three feet below grade.

Circuits will be sized to limit voltage drops to no more than 5% at the worst condition. The design goals will be to limit voltage drops to 2% on feeders and 3% on branch circuits. Circuits serving convenience receptacles will have not more than six receptacles per 20 Amp circuit. A maximum of four workstations will be connected to one circuit.

Provide heavy-duty, non-fused disconnect switches for local disconnecting means at mechanical equipment and other hard-wired connections. All disconnect switches will be non-fused, heavy-duty type. Exterior disconnect switches will be NEMA 3R stainless steel.

15.2.3 Receptacles

Provide new wiring devices throughout the renovated Incineration Building 801D. Wiring devices will be provided to meet the requirements of the spaces. General purpose convenience outlets that are specification grade, 20 amperes, 125V NEMA 5-20R, duplex will be provided. All circuits will be in EMT, liquid tight or rigid conduit; no MC cable is allowed except for lighting fixtures (limited to 6-feet) or UL equipment supplied with flexible conductor. In addition to the location requirements specified by NFPA 70, locate general purpose and dedicated outlets in accordance with the following:

- a. Mechanical Equipment: Provide receptacle within (15-feet) of mechanical equipment on the interior and exterior of buildings.
- b. Training Area: Provide power outlets every 12' of wall space.
- c. Building Exterior: One receptacle for each external wall and located within 25 feet of mechanical equipment, GFI protected and weatherproof in use type.
- d. Provide power connections to accommodate all other construction trades.

15.2.4 Interior Lighting

Interior lighting and lighting controls throughout the existing Incinerator Building 801D will be replaced.

Lighting levels for all areas to be provided in accordance with UFC 5-530-01 and the Illuminating Engineering Society (IES) recommended levels as average maintained levels of illumination unless noted otherwise. Lighting levels will be provided as follows:

Training Bay 50 FC at floor

Provide new luminaires as follows:

Luminaires in Training Bay will be LED source high-bay luminaires, suspended from ceiling structure. Stem mounted luminaires will be provided. Redundant support will be provided at every luminaire to ensure that the failure of a single supporting component does not result in luminaire falling.

New exit luminaires will be provided. Coordinate with Life Safety.

New dedicated emergency egress luminaires will be provided with integral battery pack.

Interior luminaires will be 4000K color temperature.

All interior LED source luminaires will be provided with 0-10V dimming capability.

All new/renovated spaces will be provided with manual ON/OFF lighting switch controls. All spaces are special occupancy areas where the occupants are operating machinery or equipment, and the automatic controls may create a health risk for the occupant.

Provide point-by-point calculations for general and egress lighting. General and egress lighting calculations for each area will utilize data from the actual fixture to be used. The engineer designing the lighting system will maintain uniformity ratios equal to or better than that recommended by the IES standards.

15.2.5 Exterior Lighting

Exterior lighting and lighting controls for the exterior of the existing Incinerator Building 801D will be replaced.

Lighting levels for all areas will be provided in accordance with Illuminating Engineering Society (IES) recommended levels as average maintained levels of illumination unless noted otherwise.

Luminaires at exterior exit doors will be LED source wall sconce, surface mounted 24-inches above the exit door. Exterior building mounted lights located at egress doors will be provided with battery backup for emergency egress lighting. Provide a minimum maintained horizontal luminance of 0.2 foot-candles measured at grade with a maximum Max:Min ratio of 20:1.

The building perimeter illumination will be provided with LED source wall mounted wall packs.

All exterior lighting fixtures will be 4000K, full cut-off type to reduce glow and glare.

The exterior lighting will be controlled by photocell in combination with a lighting contactor.

15.2.6 Grounding

Existing grounding electrode system in the existing Incinerator Building 801D will be remain. Provide additional grounding as required for installation of the new solar power systems and connect to the existing grounding system as required. Coordinate the requirements of the grounding electrode system with the lightning protection system. Grounding will meet the requirements of Article 250 of the National Electric Code and ANSI 607-A. Provide bonding jumpers at all separately derived systems and equipment grounds.

Provide grounding testing, measurements, and report.

15.3 Existing Conditions

15.3.1 Incinerator Building 801D

Electrical power is provided from the existing Toxic Agent Training Building from the existing switchboard FPEQ via 400A circuit breaker feeding the existing Motor Control Center MCC2A in the Control Office of the existing Incinerator Building. MCC2A is 480Y/277V, 600A bus, 3-phase, 4 wire system motor control center protected by 400A main circuit breaker, manufactured by Allan Bradley, 2100 series. MCC2A will remain.

Secondary electrical distribution system is fed from MCC2A and consists of lighting and branch panelboards and dry type step-down power transformers. Secondary electrical distribution equipment appears to be adequate for current use and in working order.

Existing branch power circuits are in fair condition and appear adequate for current use of spaces and in working order. Existing power receptacles layout and quantities appear adequate for current use of spaces and in working order.

Existing lighting fixtures and lighting control systems appear to meet all applicable codes and requirements.

15.3.2 Northville Complex

Electrical power is provided from the existing Toxic Agent Training Building from the existing panelboard CC1 via 100A circuit breaker feeding the existing 75 KVA dry-type power transformer in the Electrical Room of the existing Sub Shop Building. The transformer is protected by a 100A safety disconnect. The transformer then feeds 200A safety disconnect which protects electrical panelboard MDP. MDP is 208Y/120V, 225A bus, 3-phase, 4 wire system panelboard protected by 225A main circuit breaker, manufactured by EATON, PRL1X type. MDP will remain.

Secondary electrical distribution system consists of additional electrical panelboards throughout the Northville complex. Each building in the complex is served by dedicated load center served from panelboard MDP. Secondary electrical distribution equipment appears to be adequate for current use and in working order. Secondary electrical distribution equipment will remain.

Existing branch power circuits in all buildings are in fair condition and appear adequate for current use of spaces and in working order. Existing power receptacles layout and quantities in all buildings appear adequate for current use of spaces and in working order. Existing electrical devices and associated branch circuits will remain.

Existing lighting fixtures and lighting control systems appear to meet all applicable codes and requirements. Existing lighting systems will remain.

15.3.3 Maintenance Building 801E

Electrical power is provided from the existing Toxic Agent Training Building from the existing switchboard PPM via 250A circuit breaker feeding the existing Motor Control Center MCC4 in the Electrical Room of the existing Maintenance Building. MCC4 is 480Y/277V, 600A bus, 3-phase, 4 wire system motor control center protected by 250A main circuit breaker, manufactured by Square D, Model 4 control center. MCC4 will remain.

Secondary electrical distribution system is fed from MCC4 and consists of lighting and branch panelboards and dry type step-down power transformers. Secondary electrical distribution equipment appears to be adequate for current use and in working order. Secondary electrical distribution equipment will remain.

Existing branch power circuits are in fair condition and appear adequate for current use of spaces and in working order. Existing power receptacles layout and quantities appear adequate for current use of spaces and in working order. Existing electrical devices and associated branch circuits will remain.

Existing lighting fixtures and lighting control systems appear to meet all applicable codes and requirements. Existing lighting systems will remain.

15.4 Proposed Demolition - Incinerator Building 801D

Main electrical motor control center MCC2A located in the existing Control Room will remain.

All electrical distribution equipment and electrical devices located in Control Room and in Training Bay east of Control Room will remain.

Existing panelboard HTA3 and the associated 15 KVA dry-type power transformer located at the northwest corner of the existing building will remain be demolished. The existing feeder to MCC2A will be demolished.

The existing branch circuits and power receptacles in the areas of construction for this project will be removed along with all associated conduits and boxes back to serving electrical panelboards.

The existing lighting fixtures and associated lighting controls in the areas of construction for this project will be removed along with all associated conduit and boxes back to serving electrical panelboards.

15.5 Proposed Construction

15.5.1 Incinerator Building 801D

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15.5.1.1 Power

Bid Option #1: A new electrical distribution system will be provided for the renovated Training Bay. The new distribution system will be connected in such way that it can draw power from either the new photovoltaic array or the existing utility grid electrical distribution system.

Bid Option #1: A new smart panelboard SPI with branch circuit monitoring will be provided in the existing Electrical Room, 480Y/277V, 3-phase, 4-wire, 800A bus. Panelboard SPI will be the interface between the new photovoltaic array systems and power distribution equipment in the renovated Incinerator Building and the existing power distribution in Northville and the existing Maintenance Building 801E. A new external surge protection device will be provided for the panelboard SPI.

Bid Option #1: A new automatic transfer switch ATS-I will be provided in the existing Electrical Room, 480/277V, 3-phase, 4-pole, 125A, in NEMA 1 enclosure. New surface mounted feeder will be provided from the existing motor control center MCC2A, 3#6, #10G, 1"C. Provide a new 45A/3-pole circuit breaker in the existing motor control center MCC2A. New surface mounted feeder will be provided from the new panelboard SPI, 3#6, #10G, 1"C. Provide a new 45A/3-pole circuit breaker in the new panelboard SPI.

Bid Option #1: A new dry type power transformer TXI will be provided to connect new panelboard IPV. Transformer TXI will be 30 KVA, 480V - 208Y/120V, located in the existing Electrical Room. A new feeder will be provided from the new automatic transfer switch ATS-I, 3#6, #10G, 1"C.

Bid Option #1: A new electrical panelboard IPV will be provided in the existing Electrical Room, 208Y/120V, 3-phase, 4-wire, 100A main circuit breaker, fed from the new dry type power transformer TXI. New surface mounted feeder will be provided from the new transformer TXI, 4#1, #6G, 1-1/2"C. A new external surge protection device will be provided for panelboard IPV.

New power devices and branch wiring will be provided in renovated Training Bay. A dedicated duplex power receptacle will be provided every 12' on the available wall space. All new power devices will be installed at 48" minimum mounting height. **Bid Option #1:** Power receptacles will be connected to the new electrical panelboard IPV via GFCI protected circuit breakers.

Power connections will be provided for the new prop training equipment, 30A, 208V 3-phase power circuit with 30A disconnect inside NEMA 4X enclosure.

Power connections will be provided for all new mechanical fans. Provide new branch circuits and safety disconnect switches.

Power connections will be provided for all new fire alarm and mass notification system.

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15.5.1.2 Lighting

New LED source luminaires and new lighting controls will be provided throughout the renovated Training Bay.

15.5.1.3 Lightning Protection System

The lightning protection system on the existing Incinerator Building is existing and will remain.

A new conventional lightning protection system will be provided for the new covered storage addition to the existing Incinerator Building. New lightning protection addition will include new strike termination devices, new conductors, new ground terminals, new interconnecting conductors, new surge suppression devices, additional counterpoise loop, and other connectors and fittings required for a complete and usable system. New test wells for the lightning protection systems with 3/4-inch by 10-foot ground rods at each test well will be provided. Each lightning protection system grounding electrode will be bonded to the new grounding system counterpoise. The new lightning protection system addition will tie to the existing system. The entire system will meet the UL Lightning Protection Inspection Certificate requirements to meet NFPA 780 latest edition and UL 96A. Lightning Protection Systems shall not void the roof warranty. Appropriate precautions will be observed at connections with dissimilar metals. Roof mounted components of the lightning protection system will be coordinated with the roofing system manufacturer. The complete lightning protection systems for this facility will be UL inspected and provided with a UL Master Label. The lightning protection system will be bonded to the service entrance grounding electrode system.

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15.5.2 Northville Complex - **Bid Option #5**

The existing main electrical panelboard MDP serves power to the entire Northville complex. Panelboard MDP is located inside the Electrical Room at the existing Sub Shop Building. Provisions will be made to reconnect the existing panelboard MDP in such a way that it can draw power from either the new photovoltaic array or the existing utility grid electrical distribution system.

A new automatic transfer switch ATS-N will be provided in the existing Electrical Room at the existing Sub Shop Building, 480/277V, 3-phase, 4-pole, 125A, in NEMA 1 enclosure. A new feeder will be provided from the existing electrical panelboard CC1, 3#1, #6G, 1-1/2"C. Route feeder surface on the existing exterior cable tray from the existing Toxic Agent Training Building to the Northville Complex, then underground to the existing electrical Room at the existing Sub Shop Building, to the new ATS-N. Connect the new feeder to the existing 100A circuit breaker in panelboard CC1. A new feeder will be provided from the new electrical panelboard SPI in Incinerator Building, 3#1/0, #4G, 2"C. Route feeder surface on the existing exterior cable tray from the existing Incinerator Building to the Northville Complex, then underground to the existing electrical Room at the existing Sub Shop Building, to the new ATS-N. Provide new 100A/3-pole circuit breaker in the new panelboard SPI. New surface mounted feeder will be provided from the existing 100A safety disconnect in the Electrical Room at Sub Shop Building to the new ATS-N, 3#1, #6G, 1-1/2"C.

15.5.3 Maintenance Building 801E - **Bid Option #4**

The existing main electrical motor control center MCC4 serves power to the Maintenance Building 801E. MCC4 is located inside the main Electrical Room. Provisions will be made to reconnect the existing MCC4 in such a way that it can draw power from either the new photovoltaic array or the existing utility grid electrical distribution system.

A new automatic transfer switch ATS-M will be provided in the existing main Electrical Room, 480/277V, 3-phase, 4-pole, 400A, in NEMA 1 enclosure. A new feeder will be provided from the existing electrical switchboard PPM, 4#300, #3G, 3"C. Route feeder surface on the existing exterior cable tray from the existing Toxic Agent Training Building to the Northville Complex, then to the existing Electrical Room at the existing Maintenance Building, to the new ATS-M. Connect new feeder to the existing 250A circuit breaker in switchboard PPM. New feeder will be provided from the new electrical panelboard SPI in Incinerator Building, 4#250, #4G, 3"C. Route feeder surface on the existing exterior cable tray from the existing Incinerator Building to the existing Maintenance Building, then to the existing Electrical Room to the new ATS-M. Provide a new 250A/3-pole circuit breaker in the new panelboard SPI. New surface mounted feeder will be provided from the existing motor control center MCC4 in the Electrical Room to the new ATS-M, 4#250, #4G, 3"C.

15.6 Photovoltaic (PV) Solar System

A new photovoltaic (PV) solar system with the off-grid battery power system will be provided and configured to provide power to the renovated Incinerator Building 801D (**Bid Option #1**), the existing Northville training complex (**Bid Option #5**), and the existing Maintenance Building 801E (**Bid Option #4**), as a primary power source with the utility power as backup system. The new PV array system will consist of multiple PV solar arrays, mounting systems, inverters, micro-grid control panels, battery storage, charge controllers, and all required electrical safety equipment per NFPA 70. A new PV solar arrays will be installed at multiple locations as follows:

~~Base Bid~~ **Bid Option #1:** Solar panel array installed on the existing roof of the existing Incinerator Building 801D. The ~~base bid~~ **Bid Option #1** will also include a battery storage system comprising the installation of a battery, microgrid controller equipment, and the new power distribution equipment.

~~Bid Option #1:~~ Additional battery installation at the battery storage system.

~~Bid Option #2:~~ Additional solar panel array installed on the new roof of the canopy addition of the existing Incinerator Building 801D.

~~Bid Option #3:~~ Additional solar panel array installed on the existing roof of the existing Maintenance Building 801E.

~~Bid Option #4:~~ Additional solar panel array installed on the roof of the new structure at the perimeter of the existing parking lot. **Connection to Panel PPM (250A) load for Microgrid system.**

~~Bid Option #5:~~ Additional solar panel array installed on the roof of the new structure at the center of the existing main parking lot. **Connection to Panel CCI (100A) load for Microgrid system.**

The new solar system will be connected into the existing electrical service via the new smart panelboard SPI. Panelboard SPI will provide off-grid power only and feed new automatic transfer switches serving each building as

described in Section 15.6. Micro-grid controller will monitor status and charge of the new battery back-up system and direct power made by solar system to each building, as needed and as pre-programmed. The intent is to provide power to the new panelboard IPV in the Incinerator Building 801D first. If there is adequate charge at the battery bank, the power will then flow to the existing panelboard MDP in the Northville complex. If there is adequate charge at the battery bank, the power will then flow to the existing motor control center MCC4 in the Maintenance Building 801E. The new micro-grid controller will be able to shed any of three loads and allow the new solar system to recharge the battery bank. In case that any load is disconnected from the new panel SPI, the load will automatically be reconnected to the commercial grid existing electrical service. The electrical power distribution components required for the scheme are described in Section 15.6.

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15.6.1 ~~Base Bid~~ **Bid Option #1**

PV solar array will be monocrystalline type with each solar panel having capacity of minimum 500W. Basis of design uses 4' x 6' solar panels for the approximate design quantities as listed below. The array will be installed on the existing roof of the existing Incinerator Building 801D. Provide fixed roof mount installation. The installation area will accommodate approximately 162 solar panels. The total capacity of the PV array will be 81 KW producing approximately 109,673 KWH/year. See Architectural Drawings for the concept installation requirements.

PV solar array will be mounted on the existing south facing sloped roof with 2/12 pitch. The total tilt angle of each PV module will be south oriented at 24 degrees with respect to the grade. All required mounting structures will be provided for each PV array module.

A new inverter (I1) will be provided, string type, 96% efficiency, 480VAC, 125 KW, NEMA 3R enclosure. Locate new inverter exterior, adjacent to the existing Incinerator Building 801D. Provide all required connections from the inverter to the combiners and charge controllers. Provide communications and auxiliary outputs to monitor and send data. The inverter will be capable of network communication to allow for PV array performance monitoring. Provide fiberoptic connection to micro-grid controller (MCP) inside 1" conduit, routed underground. Provide new 200A/3-pole fused safety disconnect with 200A fuses, NEMA 3R, located adjacent to the inverter I1. Provide a new feeder to the new panel SPI, via new disconnect, 3#4/0, #4G, 2"C. Route feeder underground.

A new battery storage will be provided, lithium iron phosphate type, 150 KVA rated AC output, 300 KWH capacity, 480 VAC, 3-phase, 3-wire line connection, 60 Hz, <5% Harmonics, unity power factor, ModBus TCP/IP connection. Battery energy storage system will be premanufactured and self-enclosed container with minimum NEMA 3R rating, located exterior. Provide power connection feeder to the new inverter PCS-1. Provide control and monitor wiring to micro-grid controller MCP.

A charge controller will be provided to manage the charging and discharging of the new battery storage bank. Provide all required connections from the inverter and battery storage bank.

A new micro-grid controller (MCP) will be provided to manage and operate the complete system. NEMA 3R enclosure. Locate the new MCP exterior, adjacent to the new battery storage enclosure. Provide all required connections from the MCP to the inverter PCS, battery storage system, and new panelboard SPI.

A new power conversion system inverter (PCS-1) will be provided, string type, 96% efficiency, 480VAC, 125 KW, NEMA 3R enclosure. Locate the new inverter exterior, adjacent to the new battery storage enclosure. Provide all required connections from the inverter to the micro-grid controller and battery storage system. Provide a new 200A/3-pole fused safety disconnect with 200A fuses, NEMA 3R, located adjacent to the inverter PCS-1. Provide a new feeder to the new panel SPI, via new disconnect, 3#4/0, #4G, 2"C. Route feeder underground.

A communication and annunciator panel will be provided in the existing Control Room in the existing Incinerator Building. Monitoring will be string inverter based.

Provide UL 4703 listed PV wiring. Provide grounding in accordance with NFPA 70.

Provide ambient temperature sensor. The sensor will be located near the array but not on it, at the same height and exposed to the same hours of sunlight as the majority of the array panels.

Provide panel temperature sensor, located on the array, fastened directly to the back side of the solar panel, thermocouple platinum or digital, and fully encapsulated including minimum 3/8" thick insulation block.

Provide insulation sensor, located in the plane of the array, fastened directly to the front side of a solar panel frame.

Provide a wind speed sensor near the array.

Provide lightning protection system and tie to the existing lightning protection system on the building.

Provide overcurrent protection, surge protection, and grounding.

Provide system rapid shutdown equipment.

See Single Line Power Diagram for additional requirements.

15.6.2 ~~Bid Option 1~~ **Not Used**

~~An additional new battery storage will be provided, lithium iron phosphate type, 150 KVA rated AC output, 300 KWH capacity, 480 VAC, 3 phase, 3 wire line connection, 60 Hz, <5% Harmonics, unity power factor, ModBus TCP/IP connection. Battery energy storage system will be premanufactured and self-enclosed container with minimum NEMA 3R rating, located exterior adjacent to the battery storage as described in Base Bid. Provide power connection~~

~~feeder to the new inverter PCS-1. Provide control and monitor wiring to micro-grid controller MCP.~~

~~A charge controller will be provided to manage the charging and discharging of the new battery storage bank. Provide all required connections from the inverter and battery storage bank.~~

AMENDMENT 0003

15.6.3 ~~Bid Option 2~~ **Not Used**

~~PV solar array will be monocrystalline type with each solar panel having capacity of minimum 500W. Basis of design uses 4' x 6' solar panels for the approximate design quantities as listed below. The array will be installed on the new roof of the existing Incinerator Building 801D. Provide fixed roof mount installation. The installation area will accommodate approximately 135 solar panels. The total capacity of the PV array will be 67.5 KW producing approximately 91,394 KWH/year. See Architectural Drawings for the concept installation requirements.~~

~~PV solar array will be mounted on the new south facing sloped roof with 2/12 pitch. The total tilt angle of each PV module will be south oriented at 24 degrees with respect to the grade. All required mounting structures will be provided for each PV array module.~~

~~Connect the new PV array to the inverter I1 from the base bid.~~

~~See Single Line Power Diagram for additional requirements.~~

15.6.4 ~~Bid Option 3~~ **Not Used**

~~PV solar array will be monocrystalline type with each solar panel having capacity of minimum 500W. Basis of design uses 4' x 6' solar panels for the approximate design quantities as listed below. The array will be installed on the existing roof of the existing Maintenance Building 801E. Provide fixed roof mount installation. The installation area will accommodate approximately 139 solar panels. The total capacity of the PV array will be 69.5 KW producing approximately 80,892 KWH/year. See Architectural Drawings for the concept installation requirements.~~

~~PV solar array will be mounted on the existing east and west facing sloped roof with 2/12 pitch. The total tilt angle of each PV module will be east/west oriented at 24 degrees with respect to the grade. All required mounting structures will be provided for each PV array module.~~

~~A new inverter (I2) will be provided, string type, 96% efficiency, 480VAC, 60 KW, NEMA 3R enclosure. Locate new inverter exterior, adjacent to the existing Maintenance Building 801E. Provide all required connections from the inverter to the combiners and charge controllers. Provide communications and auxiliary outputs to monitor and send data. The inverter will be capable of network communication to allow for PV array performance monitoring. Provide fiberoptic connection to micro-grid controller (MCP) inside 1" conduit, routed underground. Provide a new 100A/3-pole fused safety disconnect with 100A fuses, NEMA 3R, located adjacent to the inverter I1.~~

~~Provide a new feeder to the new panel SPI, via new disconnect, 3#1, #6C, 1-1/2"C. Route feeder underground.~~

~~A charge controller will be provided to manage the charging and discharging of the new battery storage bank. Provide all required connections from the inverter and battery storage bank.~~

~~Provide UL 4703 listed PV wiring. Provide grounding in accordance with NFPA 70.~~

~~Provide ambient temperature sensor. The sensor will be located near the array but not on it, at the same height and exposed to the same hours of sunlight as the majority of the array panels.~~

~~Provide panel temperature sensor, located on the array, fastened directly to the back side of the solar panel, thermocouple platinum or digital, and fully encapsulated including minimum 3/8" thick insulation block.~~

~~Provide insulation sensor, located in the plane of the array, fastened directly to the front side of a solar panel frame.~~

~~Provide a wind speed sensor near the array.~~

~~Provide lightning protection system and tie to the existing lightning protection system on the building.~~

~~Provide overcurrent protection, surge protection, and grounding.~~

~~Provide system rapid shutdown equipment.~~

~~See Single Line Power Diagram for additional requirements.~~

15.6.5 ~~Bid Option 4~~ **Not Used**

~~PV solar array will be monocrystalline type with each solar panel having capacity of minimum 500W. Basis of design uses 4' x 6' solar panels for the approximate design quantities as listed below. The array will be installed on the new roof of the new structures at the main parking lot - north and west single-loaded portions. Provide fixed roof mount installation. The installation area will accommodate approximately 132 solar panels. The total capacity of the PV array will be 66 KW producing approximately 89,363 KWH/year. See Architectural Drawings for the concept installation requirements.~~

~~PV solar array will be mounted on the new roof with 1/12 pitch. The total tilt angle of each PV module will be oriented at 24 degrees with respect to the grade. All required mounting structures will be provided for each PV array module.~~

~~A new inverter (I3) will be provided, string type, 96% efficiency, 480VAC, 125 KW, NEMA 3R enclosure. Locate a new inverter exterior, adjacent to the new structure. Provide all required connections from the inverter to the combiners and charge controllers. Provide communications and auxiliary outputs to monitor and send data. The inverter will be capable of network communication to allow for PV array performance monitoring. Provide~~

~~fiberoptic connection to micro-grid controller (MCP) inside 1" conduit, routed underground. Provide new 200A/3-pole fused safety disconnect with 200A fuses, NEMA 3R, located adjacent to inverter I3. Provide a new feeder to the new panel SPI, via new disconnect, 3#4/0, #4G, 2"C. Route feeder underground.~~

~~Provide UL 4703 listed PV wiring. Provide grounding in accordance with NFPA 70.~~

~~Provide ambient temperature sensor. The sensor will be located near the array but not on it, at the same height and exposed to the same hours of sunlight as the majority of the array panels.~~

~~Provide panel temperature sensor, located on the array, fastened directly to the back side of the solar panel, thermocouple platinum or digital, and fully encapsulated including minimum 3/8" thick insulation block.~~

~~Provide insulation sensor, located in the plane of the array, fastened directly to the front side of a solar panel frame.~~

~~Provide a wind speed sensor near the array.~~

~~Provide lightning protection system.~~

~~Provide overcurrent protection, surge protection, and grounding.~~

~~Provide system rapid shutdown equipment.~~

~~See Single Line Power Diagram for additional requirements.~~

15.6.6 Bid Option 5 **Not Used**

~~PV solar array will be monocrystalline type with each solar panel having capacity of minimum 500W. Basis of design uses 4' x 6' solar panels for the approximate design quantities as listed below. The array will be installed on the new roof of the new structures at the main parking lot the east double loaded parking section. Provide fixed roof mount installation. The installation area will accommodate approximately 192 solar panels. The total capacity of the PV array will be 96 KW producing approximately 129,983 KWH/year. See Architectural Drawings for the concept installation requirements.~~

~~PV solar array will be mounted on the new roof with 1/12 pitch. The total tilt angle of each PV module will be oriented at 24 degrees with respect to the grade. All required mounting structures will be provided for each PV array module.~~

~~The new solar array will be connected to the Inverter I3 (Bid Option 4).~~

~~Provide UL 4703 listed PV wiring. Provide grounding in accordance with NFPA 70.~~

~~Provide ambient temperature sensor. The sensor will be located near the array but not on it, at the same height and exposed to the same hours of sunlight as the majority of the array panels.~~

~~Provide panel temperature sensor, located on the array, fastened directly to the back side of the solar panel, thermocouple platinum or digital, and fully encapsulated including minimum 3/8" thick insulation block.~~

~~Provide insulation sensor, located in the plane of the array, fastened directly to the front side of a solar panel frame.~~

~~Provide a wind speed sensor near the array.~~

~~Provide lightning protection system.~~

~~Provide overcurrent protection, surge protection, and grounding.~~

~~Provide system rapid shutdown equipment.~~

~~See Single Line Power Diagram for additional requirements.~~

AMENDMENT 0005

15.7 SPECIFICATIONS

The following list of specifications is anticipated for this project. The list is not comprehensive. Provide all specifications required to adequately describe the project and all materials to be used and installed. Edit and submit the latest comparable UFGS version:

26 08 00	APPARATUS INSPECTION AND TESTING
26 20 00	INTERIOR DISTRIBUTION SYSTEM
26 31 00	FACILITY SCALE SOLAR PHOTOVOLTAIC (PV) SYSTEMS
26 36 23	AUTOMATIC TRANSFER SWITCHES AND BY-PASS/ISOLATION SWITCH
26 37 13	MICROGRID CONTROL SYSTEM
26 41 00	LIGHTNING PROTECTION SYSTEM
26 51 00	INTERIOR LIGHTING
26 56 00	EXTERIOR LIGHTING
33 71 02	UNDERGROUND ELECTRICAL DISTRIBUTION

PART 16 CORROSION CONTROL AND CATHODIC PROTECTION

Not Applicable

PART 17 ENVIRONMENTAL CONSIDERATIONS

AMENDMENT 0003

17.1 GENERAL

A hazardous materials survey was conducted in 2024, and the resulting Hazardous Materials Assessment Report is included as an appendix to this DB RFP. Refer to the report for detailed findings, requirements, and recommendations related to hazardous materials handling and disposal.

The existing incinerator equipment and Incinerator Building 801D contain materials considered hazardous that must be handled and disposed of safely and in conformance with applicable regulations.

In addition to the incinerator equipment and Incinerator Building 801D, this project includes removal and disposal of a Caustic Tank. This tank is located north of O & M Building 801E and is illustrated and pictured on the RFP drawing sheet V-101 and pictured in the Hazardous Materials Assessment Report. The Caustic Tank shall be removed in its entirety. **The Government (DHS) shall provide a REC (Record of Environmental Consideration) prior to start of construction that will document the previous environmental review of the project.**

17.2 OVERVIEW

Per the attached Hazardous Materials Assessment Report included in the appendices, lead containing materials are present in the existing facility. The interior burn chamber waste of the incinerator equipment (refractory material, gaskets, and ash) qualifies as NORM (radionuclide) waste and must be disposed of **by a hazardous waste disposal Contractor in a Hazardous Waste Facility. Incinerator equipment and incinerator stack are shown graphically on Sheet AD120 of the RFP drawings and represent the hazardous waste work areas for RCRA 8 metals, dioxin/furans, and NORM waste. Contractor shall assume 25 gallons of caustic material remain in the caustic tank. The length of associated above ground caustic tank piping is shown graphically on Sheet C-101 of the RFP drawings.**

Multiple valves potentially containing mercury were observed in association with the incinerator equipment and the caustic tank and shall be disposed of as hazardous waste.

RCRA 8 metals and dioxin/furans were detected in the incinerator burn chambers and stack exhaust port.

The D/B Contractor shall carefully review the entire Hazardous Materials Survey Report and shall follow all recommendations included therein. The D/B Contractor shall also adhere to all State, Federal, and OSHA regulations governing work with hazardous materials.

The removal of the incinerator equipment, caustic tank and associated piping must be accomplished by a hazardous waste disposal Contractor.

AMENDMENT 0003

17.3 NORM WASTE HANDLING AND DISPOSAL

The DB Contractor shall provide an employee safety plan prior to project start detailing worker protection measures and required personal protective equipment (PPE). The plan shall be submitted to the Contracting Officer's Representative for review and approval. Concerns to be addressed in the safety plan include, but are not limited to, Naturally-Occurring Radioactive Materials (NORM) radionuclide exposure, dioxin/furan exposure, and confined space entry.

PPE requirements, at a minimum, shall include non-porous coveralls, impervious gloves, safety glasses/goggles, respiratory protection (NIOSH-approved, half-face air purifying respirator equipped with replaceable P100 HEPA filters at a minimum), and protective footwear (rubber or neoprene boots or disposable boot covers). The DB Contractor is responsible for all worker protection in accordance with OSHA and other applicable regulations.

NORM waste should be wetted and kept moist during removal and handling to minimize dust generation. No eating, drinking, or smoking will be allowed within the work area. Workers should be equipped with active personal radiation dosimeters or similar devices while in the work area or near NORM waste. Worker exposure should not exceed 1 ¼ Roentgen equivalent man (Rems) during the removal and disposal process or three-month period, whichever is less.

The Emelle Hazardous Waste Facility located in Emelle, Alabama is the closest disposal site for NORM waste for this project. Contractor will coordinate with a licensed hazardous materials disposal site prior to project start to develop a waste profile and disposal procedure.

PART 18 SUSTAINABLE DESIGN

18.1 CODES AND CRITERIA

Facility shall be designed in accordance with all Government requirements, regional, and national applicable codes effective at issue date of RFP. The following sustainable design and energy conservation criteria shall apply to this project:

- a. E.O. 14057 Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability (Dec 2021)
- b. Guiding Principles for Sustainable Federal Buildings (Feb. 2016)
- c. EPAct 2005 - Energy Policy of 2005
- d. EISA 2007 - Energy Independence Security Act of 2007

The square footage of the building is less than 10,000 square feet and will not require tracking and reporting using an HPSB Checklist and is not required to achieve Third Party Certification.

--End of Section--