AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF	PAGES

2. AMENDMENT/MODIFICATION NUMBER	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQUISITION NUMBER	5. PROJECT NUMBER *(If applicable)*
Amendment No. 0001	02/21/2019		

6. ISSUED BY	CODE	7. ADMINISTERED BY *(If other than Item 6)*	CODE
U.S ARMY CORPS OF ENGINEERS, OMAHA DISTRICT CONTRACTING OFFICE 1616 CAPITOL AVE. OMAHA, NE 68102-4901	W9128F	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR *(Number, street, county, State and ZIP Code)*	(X)	9A. AMENDMENT OF SOLICITATION NUMBER / 9B. DATED *(SEE ITEM 11)*	10A. MODIFICATION OF CONTRACT/ORDER NUMBER / 10B. DATED *(SEE ITEM 13)*
	☒	W9128F-18-R-0048 01/25/2019	
	☐		

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 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or electronic communication which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT 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 letter or electronic communication, provided each letter or electronic communication 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 NUMBER AS DESCRIBED IN ITEM 14.

CHECK ONE	
☐	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NUMBER IN ITEM 10A.
☐	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation data, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE 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.)*

INDOOR FIRING RANGE, MINOT AIR FORCE BASE, NORTH DAKOTA

See attached documentation for content of the changes to RFP

Date for receipt of proposals is 4 MAR 2019 at 1400 hours

Government Point of Contact: Lauren Levy, Contract Specialist (402) 995-2049

Except as provided herein, all terms and conditions of the document referenced 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 OFFICER *(Type or print)*	
15B. CONTRACTOR/OFFEROR *(Signature of person authorized to sign)*	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA *(Signature of Contracting Officer)*	16C. DATE SIGNED 02/21/2019

DEPARTMENT OF THE ARMY
Omaha District, Corps of Engineers
1616 Capitol Avenue
Omaha, Nebraska 68102-4901

:NOTICE: Failure to acknowledge : :all amendments may cause rejec-: :tion of the offer. See FAR : :52.215-1 of Section 00 21 00. :	Solicitation No. W9128F-18-R-0048 Date of Issue: 25 JAN 2019 Date of Receiving Proposals: 4 MAR 2019 Amendment No. 0001 21 FEB 2019

SUBJECT: Amendment No. 0001 to Request for Proposal Solicitation Package for Design and Construction of Indoor Firing Range at Minot AFB, ND

TO: Prospective Offerors and Others Concerned

1. The specifications and drawings for subject project are hereby modified as follows (revise all specification indices, attachment lists, and drawing indices accordingly).

a. Specifications (New and/or Revised and Reissued). Delete and substitute or add specification pages as noted below. The substituted pages are revised and reissued with this amendment. For convenience, in sections marked with asterisks, changes have been identified with underlined (additions) and strikethrough (deletions) text. All portions of reissued specification pages shall apply whether or not changes have been indicated in this manner.

Pages Deleted	Pages Substituted or Added
00 21 00*	00 21 00*
00 22 00	00 22 00
01 30 00.24	01 30 00.24*
01 33 00.36	01 33 00.36*
01 33 00.38	01 33 00.38*
01 86 13	01 86 13*
01 86 26	01 86 26*
** ** **	Appendix G

2. This amendment is a part of the proposing papers and its receipt shall be acknowledged on the Standard Form 1442. All other conditions and requirements of the request for proposal remain unchanged.

3. Offers will be received until 2:00 p.m, local time at place of receiving proposals, 4 MAR 2019.

Attachments:
Specification pages listed in 1.a., above (except for the appendix, which has been provided under separate cover)
Site Visit Sign-in Sheet

U.S. Army Corps of Engineers, Omaha District
1616 Capitol Avenue
Omaha, Nebraska 68102-4901

19 FEB 2019
jlb/2099

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SECTION 00 21 00

INSTRUCTIONS TO OFFERORS (RFP)
01/18

PART 1 GENERAL

Attachments:

Site Visit Map

1.1 (FAR 52.204-7) SYSTEM FOR AWARD MANAGEMENT (OCT 2016)

(a) Definitions. As used in this provision-

"Electronic Funds Transfer (EFT) indicator" means a fourcharacter suffix to the unique entity identifier. The suffix is assigned at the discretion of the commercial, nonprofit, or Government entity to establish additional System for Award Management records for identifying alternative EFT accounts (see subpart 32.11) for the same entity.

"Registered in the System for Award Management database" means that-

(1) The Offeror has entered all mandatory information, including the unique entity identifier and the EFT indicator, if applicable, the Commercial and Government Entity (CAGE) code, as well as data required by the Federal Funding Accountability and Transparency Act of 2006 (see subpart 4.14) into the SAM database;

(2) The offeror has completed the Core, Assertions, and Representations and Certifications, and Points of Contact sections of the registration in the SAM database;

(3) The Government has validated all mandatory data fields, to include validation of the Taxpayer Identification Number (TIN) with the Internal Revenue Service (IRS). The offeror will be required to provide TIN validation to the Government as a part of the SAM registration process; and

(4) The Government has marked the record "Active".

(b)(1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee shall be registered in the SAM database prior to award, during performance, and through final payment of any contract, basic agreement, basic ordering agreement, or blanket purchasing agreement resulting from this solicitation.

(2) The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation "DUNS" or "DUNS +4" followed by the DUNS or DUNS +4 number that identifies the offeror's name and address exactly as stated in the offer. The DUNS number will be used by the Contracting Officer to verify that the offeror is registered in the SAM database.

(c) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one.

(1) An offeror may obtain a DUNS number-

(i) Via the Internet at http://fedgov.dnb.com/webform or if the offeror does not have internet access, it may call Dun and Bradstreet at 1-866-705-5711 if located within the United States; or

(ii) If located outside the United States, by contacting the local Dun and Bradstreet office. The offeror should indicate that it is an offeror for a U.S. Government contract when contacting the local Dun and Bradstreet office.

(2) The offeror should be prepared to provide the following information:

(i) Company legal business.

(ii) Tradestyle, doing business, or other name by which your entity is commonly recognized.

(iii) Company Physical Street Address, City, State, and Zip Code.

(iv) Company Mailing Address, City, State and Zip Code (if separate from physical).

(v) Company Telephone Number.

(vi) Date the company was started.

(vii) Number of employees at your location.

(viii) Chief executive officer/key manager.

(ix) Line of business (industry).

(x) Company Headquarters name and address (reporting relationship within your entity).

(d) If the Offeror does not become registered in the SAM database in the time prescribed by the Contracting Officer, the Contracting Officer will proceed to award to the next otherwise successful registered Offeror.

(e) Processing time, which normally takes 48 hours, should be taken into consideration when registering. Offerors who are not registered should consider applying for registration immediately upon receipt of this solicitation.

(f) Offerors may obtain information on registration at https://www.acquisition.gov.

(End of provision)

1.2 (FAR 52.204-16) COMMERCIAL AND GOVERNMENT ENTITY CODE REPORTING (JUL 2016)

(a) Definition. As used in this provision –

"Commercial and Government Entity (CAGE) code" means –

(1) An identifier assigned to entities located in the United States or its outlying areas by the Defense Logistics Agency (DLA) Commercial and Government Entity (CAGE) Branch to identify a commercial or government entity; or

(2) An identifier assigned by a member of the North Atlantic Treaty Organization (NATO) or by the NATO Support and Procurement Agency (NSPA) to entities located outside the United States and its outlying areas that the DLA Commercial and Government Entity (CAGE) Branch records and maintains in the CAGE master file. This type of code is known as a NATO CAGE (NCAGE) code..

(b) The Offeror shall enter its CAGE code in its offer with its name and address or otherwise include it prominently in its proposal. The CAGE code entered must be for that name and address. Enter "CAGE" before the number. The CAGE code is required prior to award.

(c) CAGE codes may be obtained via-

(1) Registration in the System for Award Management (SAM) at www.sam.gov. If the Offeror is located in the United States or its outlying areas and does not already have a CAGE code assigned, the DLA Commercial and Government Entity (CAGE) Branch will assign a CAGE code as a part of the SAM registration process. SAM registrants located outside the United States and its outlying areas shall obtain a NCAGE code prior to registration in SAM (see paragraph (c)(3) of this provision).

(2) The DLA Contractor and Government Entity (CAGE) Branch. If registration in SAM is not required for the subject procurement, and the offeror does not otherwise register in SAM, an offeror located in the United States or its outlying areas may request that a CAGE code be assigned by submitting a request at https://cage.dla.mil.

(3) The appropriate country codification bureau. Entities located outside the United States and its outlying areas may obtain an NCAGE code by contacting the Codification Bureau in the foreign entity's country if that country is a member of NATO or a sponsored nation. NCAGE codes may be obtained from the NSPA at https://eportal.nspa.nato.int/AC135Public/scage/CageList.aspx if the foreign entity's country is not a member of NATO or a sponsored nation. Points of contact for codification bureaus, as well as additional information on obtaining NCAGE codes, are available at http://www.nato.int/structur/AC/135/main/links/contacts.htm.

(d) Additional guidance for establishing and maintaining CAGE codes is available at https://cage.dla.mil.

(e) When a CAGE Code is required for the immediate owner and/or the highest-level owner by 52.204-17 or 52.212-3(p), the Offeror shall obtain the respective CAGE Code from that entity to supply the CAGE Code to the Government.

(f) Do not delay submission of the offer pending receipt of a CAGE code.

(End of provision)

1.3 (FAR 52.211-2) AVAILABILITY OF SPECIFICATIONS, STANDARDS, AND DATA ITEM DESCRIPTIONS LISTED IN THE ACQUISITION STREAMLINING AND STANDARDIZATION INFORMATION SYSTEM (ASSIST) (APR 2014)

(a) Most unclassified Defense specifications and standards may be downloaded from the following ASSIST websites:

(1) ASSIST (https://assist.dla.mil/online/start/);

(2) Quick Search (http://quicksearch.dla.mil/);

(3) ASSISTdocs.com (http://assistdocs.com).

(b) Documents not available from ASSIST may be ordered from the Department of Defense Single Stock Point (DoDSSP) by-

(1) Using the ASSIST Shopping Wizard (https://assist.dla.mil/wizard/index.cfm);

(2) Phoning the DoDSSP Customer Service Desk (215) 697-2179, Mon-Fri, 0730 to 1600 EST; or

(3) Ordering from DoDSSP, Building 4, Section D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Telephone (215) 697-2667/2179, Facsimile (215) 697-1462.

(End of provision)

1.4 (FAR 52.215-1) INSTRUCTIONS TO OFFERORS--COMPETITIVE ACQUISITION (JAN 2017)

(a) Definitions. As used in this provision-

"Discussions" are negotiations that occur after establishment of the competitive range that may, at the Contracting Officer's discretion, result in the offeror being allowed to revise its proposal.

"In writing," "writing," or "written" means any worded or numbered expression that can be read, reproduced, and later communicated, and includes electronically transmitted and stored information.

"Proposal modification" is a change made to a proposal before the solicitation's closing date and time, or made in response to an amendment, or made to correct a mistake at any time before award.

"Proposal revision" is a change to a proposal made after the solicitation closing date, at the request of or as allowed by a Contracting Officer as the result of negotiations.

"Time," if stated as a number of days, is calculated using calendar days, unless otherwise specified, and will include Saturdays, Sundays, and legal holidays. However, if the last day falls on a Saturday, Sunday, or legal holiday, then the period shall include the next working day.

(b) Amendments to solicitations. If this solicitation is amended, all terms and conditions that are not amended remain unchanged. Offerors shall acknowledge receipt of any amendment to this solicitation by the date and time specified in the amendment(s).

(c) Submission, modification, revision, and withdrawal of proposals. (1) Unless other methods (e.g., electronic commerce or facsimile) are permitted in the solicitation, proposals and modifications to proposals shall be submitted in paper media in sealed envelopes or packages (i) addressed to the office specified in the solicitation, and (ii) showing the time and date specified for receipt, the solicitation number, and the name and address of the offeror. Offerors using commercial carriers should ensure that the proposal is marked on the outermost wrapper with the information in paragraphs (c)(1)(i) and (c)(1)(ii) of this provision.

(2) The first page of the proposal must show-

(i) The solicitation number;

(ii) The name, address, and telephone and facsimile numbers of the offeror (and electronic address if available);

(iii) A statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation and agreement to furnish any or all items upon which prices are offered at the price set opposite each item;

(iv) Names, titles, and telephone and facsimile numbers (and electronic addresses if available) of persons authorized to negotiate on the offeror's behalf with the Government in connection with this solicitation; and

(v) Name, title, and signature of person authorized to sign the proposal. Proposals signed by an agent shall be accompanied by evidence of that agent's authority, unless that evidence has been previously furnished to the issuing office.

(3) Submission, modification, revision, and withdrawal of proposals.

(i) Offerors are responsible for submitting proposals, and any modifications or revisions, so as to reach the Government office designated in the solicitation by the time specified in the solicitation. If no time is specified in the solicitation, the time for receipt is 4:30 p.m., local time, for the designated Government office on the date that proposal or revision is due.

(ii)(A) Any proposal, modification, or revision received at the Government office designated in the solicitation after the exact

time specified for receipt of offers is "late" and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and-

(1) If it was transmitted through an electronic commerce method authorized by the solicitation, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or

(2) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of offers and was under the Government's control prior to the time set for receipt of offers; or

(3) It is the only proposal received.

(B) However, a late modification of an otherwise successful proposal that makes its terms more favorable to the Government, will be considered at any time it is received and may be accepted.

(iii) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

(iv) If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the office designated for receipt of proposals by the exact time specified in the solicitation, and urgent Government requirements preclude amendment of the solicitation, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume.

(v) Proposals may be withdrawn by written notice received at any time before award. Oral proposals in response to oral solicitations may be withdrawn orally. If the solicitation authorizes facsimile proposals, proposals may be withdrawn via facsimile received at any time before award, subject to the conditions specified in the provision at 52.215-5, Facsimile Proposals. Proposals may be withdrawn in person by an offeror or an authorized representative, if the identity of the person requesting withdrawal is established and the person signs a receipt for the proposal before award.

(4) Unless otherwise specified in the solicitation, the offeror may propose to provide any item or combination of items.

(5) Offerors shall submit proposals in response to this solicitation in English, unless otherwise permitted by the solicitation, and in U.S. dollars, unless the provision at FAR 52.225-17, Evaluation of Foreign Currency Offers, is included in the solicitation.

(6) Offerors may submit modifications to their proposals at any time before the solicitation closing date and time, and may submit modifications in response to an amendment, or to correct a mistake at any time before award.

(7) Offerors may submit revised proposals only if requested or allowed by the Contracting Officer.

(8) Proposals may be withdrawn at any time before award. Withdrawals are effective upon receipt of notice by the Contracting Officer.

(d) Offer expiration date. Proposals in response to this solicitation will be valid for the number of days specified on the solicitation cover sheet (unless a different period is proposed by the offeror).

(e) Restriction on disclosure and use of data. Offerors that include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall-

(1) Mark the title page with the following legend:
This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed-in whole or in part-for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of-or in connection with-the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]; and

(2) Mark each sheet of data it wishes to restrict with the following legend:
Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.

(f) Contract award. (1) The Government intends to award a contract or contracts resulting from this solicitation to the responsible offeror(s) whose proposal(s) represents the best value after evaluation in accordance with the factors and subfactors in the solicitation.

(2) The Government may reject any or all proposals if such action is in the Government's interest.

(3) The Government may waive informalities and minor irregularities in proposals received.

(4) The Government intends to evaluate proposals and award a contract without discussions with offerors (except clarifications as described in FAR 15.306(a)). Therefore, the offeror's initial proposal should contain the offeror's best terms from a cost or price and technical standpoint. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. If the Contracting Officer determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the Contracting Officer may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals.

(5) The Government reserves the right to make an award on any item for a quantity less than the quantity offered, at the unit cost or prices offered, unless the offeror specifies otherwise in the proposal.

(6) The Government reserves the right to make multiple awards if, after considering the additional administrative costs, it is in the Government's best interest to do so.

(7) Exchanges with offerors after receipt of a proposal do not constitute a rejection or counteroffer by the Government.

(8) The Government may determine that a proposal is unacceptable if the prices proposed are materially unbalanced between line items or subline items. Unbalanced pricing exists when, despite an acceptable total evaluated price, the price of one or more line items is significantly overstated or understated as indicated by the application of cost or price analysis techniques. A proposal may be rejected if the Contracting Officer determines that the lack of balance poses an unacceptable risk to the Government.

(9) If a cost realism analysis is performed, cost realism may be considered by the source selection authority in evaluating performance or schedule risk.

(10) A written award or acceptance of proposal mailed or otherwise furnished to the successful offeror within the time specified in the proposal shall result in a binding contract without further action by either party.

(11) If a post-award debriefing is given to requesting

offerors, the Government shall disclose the following information, if applicable:

(i) The agency's evaluation of the significant weak or deficient factors in the debriefed offeror's offer.

(ii) The overall evaluated cost or price and technical rating of the successful and the debriefed offeror and past performance information on the debriefed offeror.

(iii) The overall ranking of all offerors, when any ranking was developed by the agency during source selection.

(iv) A summary of the rationale for award.

(v) For acquisitions of commercial items, the make and model of the item to be delivered by the successful offeror.

(vi) Reasonable responses to relevant questions posed by the debriefed offeror as to whether source-selection procedures set forth in the solicitation, applicable regulations, and other applicable authorities were followed by the agency.

(End of provision)

1.5 FAR 52. 215-20 REQUIREMENTS FOR CERTIFIED COST OR PRICING DATA AND DATA OTHER THAN CERTIFIED COST OR PRICING DATA (OCT 2010)

(a) Exceptions from certified cost or pricing data.

(1) In lieu of submitting certified cost or pricing data, offerors may submit a written request for exception by submitting the information described in the following paragraphs.The Contracting Officer may require additional supporting information, but only to the extent necessary to determine whether an exception should be granted, and whether the price is fair and reasonable.

(i) Identification of the law or regulation establishing the price offered. If the price is controlled under law by periodic rulings, reviews, or similar actions of a governmental body, attach a copy of the controlling document, unless it was previously submitted to the contracting office.

(ii) Commercial item exception. For a commercial item exception, the offeror shall submit, at a minimum, information on prices at which the same item or similar items have previously been sold in the commercial market that is adequate for evaluating the reasonableness of the price for this acquisition. Such information may include-

(A) For catalog items, a copy of or identification of the catalog and its date, or the appropriate pages for the offered items, or a statement that the catalog is on file in the buying office to which the proposal is being submitted. Provide a copy or describe current discount policies and price lists (published or unpublished), e.g., wholesale, original equipment manufacturer, or reseller. Also explain the basis of each offered price and its relationship to the established catalog price, including how the proposed price relates to the price of recent sales in quantities similar to the proposed quantities;

(B) For market-priced items, the source and date or period of the market quotation or other basis for market price, the base amount, and applicable discounts. In addition, describe the nature of the market;

(C) For items included on an active Federal Supply Service Multiple Award Schedule contract, proof that an exception has been granted for the schedule item.

(2) The offeror grants the Contracting Officer or an authorized representative the right to examine, at any time before award, books, records, documents, or other directly pertinent records to verify any request for an exception under this provision, and the reasonableness of price. For items priced using catalog or market prices, or law or regulation, access does not extend to cost or profit information or other data relevant solely to the offeror's determination of the prices to be offered in the catalog or marketplace.

(b) Requirements for certified cost or pricing data. If the offeror is not granted an exception from the requirement to submit certified cost or pricing data, the following applies:

(1) The offeror shall prepare and submit certified cost or pricing data, data other than certified cost or pricing data, and supporting attachments in accordance with the instructions contained in Table 15-2 of FAR 15.408, which is incorporated by reference with the same force and effect as though it were inserted here in full text. The instructions in Table 15-2 are incorporated as a mandatory format to be used in this contract, unless the Contracting Officer and the Contractor agree to a different format and change this clause to use Alternate I.

(2) As soon as practicable after agreement on price, but before contract award (except for unpriced actions such as letter contracts), the offeror shall submit a Certificate of Current Cost or Pricing Data, as prescribed by FAR 15.406-2.
(End of provision)

1.6 (FAR 52.216-1) TYPE OF CONTRACT (APR 1984)
The Government contemplates award of a firm fixed price contract resulting from this solicitation.
(End of provision)

1.7 (FAR 52.217-5) EVALUATION OF OPTIONS (JUL 1990)
Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).
(End of provision)

1.8 FAR 52.222-5 CONSTRUCTION WAGE RATE REQUIREMENTS-SECONDARY SITE OF THE WORK (MAY 2014)

(a)(1) The offeror shall notify the Government if the offeror intends to perform work at any secondary site of the work, as defined in paragraph (a)(1)(ii) of the FAR clause at 52.222-6, Construction Wage Rate Requirements, of this solicitation.

(2) If the offeror is unsure if a planned work site satisfies the criteria for a secondary site of the work, the offeror shall request a determination from the Contracting Officer.

(b)(1) If the wage determination provided by the Government for work at the primary site of the work is not applicable to the secondary site of the work, the offeror shall request a wage determination from the Contracting Officer.

(2) The due date for receipt of offers will not be extended as a result of an offeror's request for a wage determination for a secondary site of the work.
(End of provision)

1.9 *FAR 52.225-12 NOTICE OF BUY AMERICAN REQUIREMENT-CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (MAY 2014)

(a) *Definitions.* "Commercially available off-the-shelf (COTS) item," "construction material," "designated country construction material," "domestic construction material," and "foreign construction material," as used in this provision, are defined in the clause of this solicitation entitled "Buy American-Construction Materials Under Trade Agreements" (Federal Acquisition Regulation (FAR) clause 52.225-11).

(b) *Requests for determination of inapplicability.* An offeror requesting a determination regarding the inapplicability of the Buy American statute should submit the request to the Contracting Officer in time to allow a determination before submission of offers. The offeror shall include the information and applicable supporting data required by paragraphs (c) and (d) of FAR clause 52.225-11 in the request. If an offeror has not requested a determination regarding the inapplicability of the Buy American statute before submitting its offer, or has not received a response to a previous request, the offeror shall include the information and supporting data in the offer.

(c) *Evaluation of offers.* (1) The Government will evaluate an offer requesting exception to the requirements of the Buy American statute, based on claimed unreasonable cost of domestic construction materials, by adding to the offered price the appropriate percentage of the cost of such foreign construction material, as specified in paragraph (b)(4)(i) of FAR clause 52.225-11.

(2) If evaluation results in a tie between an offeror that requested the substitution of foreign construction material based on unreasonable cost and an offeror that did not request an exception, the Contracting Officer will award to the offeror that did not request an exception based on unreasonable cost.

(d) *Alternate offers.*

(1) When an offer includes foreign construction material, other than designated country construction material, that is not listed by the Government in this solicitation in paragraph (b)(3) of FAR clause 52.225-11, the offeror also may submit an alternate offer based on use of equivalent domestic or designated country construction material.

(2) If an alternate offer is submitted, the offeror shall submit a separate Standard Form 1442 for the alternate offer, and a separate price comparison table prepared in accordance with paragraphs (c) and (d) of FAR clause 52.225-11 for the offer that is based on the use of any foreign construction material for which the Government has not yet determined an exception applies.

(3) If the Government determines that a particular exception requested in accordance with paragraph (c) of FAR clause 52.225-11 does not apply, the Government will evaluate only those offers based on use of the equivalent domestic or designated country construction material, and the offeror shall be required to furnish such domestic or designated country construction material. An offer based on use of the foreign construction material for which an exception was requested-

(i) Will be rejected as nonresponsive if this acquisition is conducted by sealed bidding; or

(ii) May be accepted if revised during negotiations.

(End of provision)

1.10 (FAR 52.232-18) AVAILABILITY OF FUNDS (APR 1984)

Funds are not presently available for this contract. The Government's

obligation under this contract is contingent upon the availability of appropriated funds from which payment for contract purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are made available to the Contracting Officer for this contract and until the Contractor receives notice of such availability, to be confirmed in writing by the Contracting Officer.

(End of clause)

1.11 (FAR 52.233-2) SERVICE OF PROTEST (SEPT 2006)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the Government Accountability Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from District Counsel, 1616 Capitol Avenue, Omaha, Nebraska 68102-4901.

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

(End of provision)

1.12 (FAR 52.236-27) SITE VISIT (CONSTRUCTION) (FEB 1995).

(a) The clauses at 52.236-2, Differing Site Conditions, and 52.236-3, Site Investigations and Conditions Affecting the Work, will be included in any contract awarded as a result of this solicitation. Accordingly, offerors or quoters are urged and expected to inspect the site where the work will be performed.

(b) The Government intends to hold a site visit on February 12, 2019, at 1:00 p.m. local time.

Contractors will be required to provide the following information to the POC no later than January 28, 2019, for vetting purposes and completion of an EAL (Entry Authorization Letter):

----Full name for each attendee
----Driver License number for each attendee

Providing information later than January 28, 2019, will result in attendee denial for site visit.

The initial meeting site will be the Gold Course Parking Lot - see the attached map.

POC:
Dean D. Sulzer
Dean.d.sulzer@usace.army.mil
Project Engineer
US Army Corps of Engineers
Minot Resident Office
Minot AFB, ND 58704
Ph: (701) 727-6127
Cell: (701) 866-4571

(End of provision)

1.13 (FAR 52.252-1) SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):

http://acquisition.gov/comp/far/index.html
http://www.acq.osd.mil/dpap/
(End of provision)

1.14 (DFARS 252.204-7008) COMPLIANCE WITH SAFEGUARDING COVERED DEFENSE INFORMATION CONTROLS (OCT 2016)

(a) Definitions. As used in this provision—

"Controlled technical information," "covered contractor information system," covered defense information, cyber incident, information system, and technical information are defined in clause 252.204-7012, Safeguarding Covered Defense Information and Cyber Incident Reporting.

(b) The security requirements required by contract clause 252.204-7012 shall be implemented for all covered defense information on all covered contractor information systems that support the performance of this contract.

(c) For covered contractor information systems that are not part of an information technology service or system operated on behalf of the Government (see 252.204-7012(b)(2))—

(1) By submission of this offer, the Offeror represents that it will implement the security requirements specified by National Institute of Standards and Technology (NIST) Special Publication (SP) 800-171, "Protecting Controlled Unclassified Information in Nonfederal Information Systems and Organizations" (see http://dx.doi.org/10.6028/NIST.SP.800-171) that are in effect at the time the solicitation is issued or as authorized by the contracting officer, not later than December 31, 2017.

(2)(i) If the Offeror proposes to vary from any of the security requirements specified by NIST SP 800-171 that are in effect at the time the solicitation is issued or as authorized by the Contracting Officer, the Offeror shall submit to the Contracting Officer, for consideration by the DoD Chief Information Officer (CIO), a written explanation of—

(A) Why a particular security requirement is not applicable; or

(B) How an alternative but equally effective, security measure is used to compensate for the inability to satisfy a particular requirement and achieve equivalent protection.

(ii) An authorized representative of the DoD CIO will

adjudicate offeror requests to vary from NIST SP 800-171 requirements in writing prior to contract award. Any accepted variance from NIST SP 800-171 shall be incorporated into the resulting contract.
(End of provision)

1.15 (DFARS 252.215-7008) ONLY ONE OFFER (OCT 2013)

(a) After initial submission of offers, the Offeror agrees to submit any subsequently requested additional cost or pricing data if the Contracting Officer notifies the offeror that—

(1) Only one offer was received; and

(2) Additional cost or pricing data is required in order to determine whether the price is fair and reasonable or to comply with the statutory requirement for certified cost or pricing data (10 U.S.C. 2306a and FAR 15.403-3).

(b) Requirement for submission of additional cost or pricing data. Except as provided in paragraph (c) of this provision, the Offeror shall submit additional cost or pricing data as follows:

(1) If the Contracting Officer notifies the Offeror that additional cost or pricing data are required in accordance with paragraph (a) of this clause, the data shall be certified unless an exception applies (FAR 15.403-1(b)).

(2) Exceptions from certified cost or pricing data. In lieu of submitting certified cost or pricing data, the Offeror may submit a written request for exception by submitting the information described in the following paragraphs. The Contracting Officer may require additional supporting information, but only to the extent necessary to determine whether an exception should be granted, and whether the price is fair and reasonable.

(i) Identification of the law or regulation establishing the price offered. If the price is controlled under law by periodic rulings, reviews, or similar actions of a governmental body, attach a copy of the controlling document, unless it was previously submitted to the contracting office.

(ii) Commercial item exception. For a commercial item exception, the Offeror shall submit, at a minimum, information on prices at which the same item or/ similar items have previously been sold in the commercial market that is adequate for evaluating the reasonableness of the price for this acquisition. Such information may include—

(A) For catalog items, a copy of or identification of the catalog and its date, or the appropriate pages for the offered items, or a statement that the catalog is on file in the buying office to which the proposal is being submitted. Provide a copy or describe current discount policies and price lists (published or unpublished), e.g., wholesale, original equipment manufacturer, or reseller. Also explain the basis of each offered price and its relationship to the established catalog price, including how the proposed price relates to the price of recent sales in quantities similar to the proposed quantities;

(B) For market-priced items, the source and date or period of the market quotation or other basis for market price, the base amount, and applicable discounts. In addition, describe the nature of the market; or

(C) For items included on an active Federal Supply Service Multiple Award

Schedule contract, proof that an exception has been granted for the schedule item.

(3) The Offeror grants the Contracting Officer or an authorized representative the right to examine, at any time before award, books, records, documents, or other directly pertinent records to verify any request for an exception under this provision, and the reasonableness of price. For items priced using catalog or market prices, or law or regulation, access does not extend to cost or profit information or other data relevant solely to the Offeror's determination of the prices to be offered in the catalog or marketplace.

(4) Requirements for certified cost or pricing data. If the Offeror is not granted an exception from the requirement to submit certified cost or pricing data, the following applies:

(i) The Offeror shall prepare and submit certified cost or pricing data and supporting attachments in accordance with the instructions contained in Table 15-2 of FAR 15.408, which is incorporated by reference with the same force and effect as though it were inserted here in full text. The instructions in Table 15-2 are incorporated as a mandatory format to be used, unless the Contracting Officer and the Offeror agree to a different format.

(ii) As soon as practicable after agreement on price, but before contract award (except for unpriced actions such as letter contracts), the offeror shall submit a Certificate of Current Cost or Pricing Data, as prescribed by FAR 15.406-2.

(c) If the Offeror is the Canadian Commercial Corporation, certified cost or pricing data are not required. If the Contracting Officer notifies the Canadian Commercial Corporation that additional data other than certified cost or pricing data are required in accordance with 225.870-4(c), the Canadian Commercial Corporation shall obtain and provide the following:

(1) Profit rate or fee (as applicable).

(2) Analysis provided by Public Works and Government Services Canada to the Canadian Commercial Corporation to determine a fair and reasonable price (comparable to the analysis required at FAR 15.404-1).

(3) Data other than certified cost or pricing data necessary to permit a determination by the U.S. Contracting Officer that the proposed price is fair and reasonable [U.S. Contracting Officer to provide description of the data required in accordance with FAR 15.403-3(a)(1) with the notification].

(4) As specified in FAR 15.403-3(a)(4), an offeror who does not comply with a requirement to submit data that the U.S. Contracting Officer has deemed necessary to determine price reasonableness or cost realism is ineligible for award unless the head of the contracting activity determines that it is in the best interest of the Government to make the award to that offeror.

(d) If negotiations are conducted, the negotiated price should not exceed the offered price.
(End of provision)

1.16 DEFINITION OF "DESIGN-BUILD" PROCESS

The "Design-Build Process is the procurement of a facility utilizing a

Request for Proposal (RFP) to solicit for the design and construction of a facility by a single contractual entity. The contractual entity may be a "Design-Build" firm, or joint venture between an architect-engineer (A-E) and construction firm, or a construction management (CM) firm joint venture with an A-E and a construction firm.

1.17 SOLICITATION RESTRICTIONS

1.17.1 GENERAL CONTRACTOR

This solicitation is unrestricted and open to both large and small business participation.

1.17.2 ESTIMATED DESIGN AND CONSTRUCTION COST

The estimated design and construction cost of this project is between $20,000,000 and $30,000,000.

1.17.3 SUBMISSION, MODIFICATION, REVISION, AND WITHDRAWAL OF PROPOSALS

See FAR 52.215-1 INSTRUCTIONS TO OFFERORS-COMPETITIVE ACQUISTION, subparagraph "(c) Submission, modification, revision, and withdrawal of proposals." below for acceptable methods. Note: Electronic commerce or facsimile are not acceptable methods, unless indicated otherwise.

1.17.4 SUBMISSION DEADLINE

Offers shall be submitted at the location stated and by the time and date as specified in Section 00 10 00, Page 1.

Provide proposals by ~~AMRDEC~~ARLSAFE, however send a courtesy email that Contractor has submitted proposal via ~~AMRDEC~~ARLSAFE for the sake of tracking and acknowledging receipt. Courtesy Email to the following address(s):

Lauren.A.Levy@usace.army.mil

1.17.5 RETURN ADDRESS REQUIREMENTS

Offeror(s) must ensure that ALL mail sent to the Omaha District, U.S. Army Corps of Engineers, either pre-contract or post-contract award, has a return mailing address on the outside of the envelope, package, box, etc. ANY MAIL addressed to the U.S. Army Corps of Engineers, including but not limited to bids, modifications to bids, proposals, revised proposals, bid guarantees, bonds, correspondence, etc., will be REJECTED by the US Army Corps of Engineers mail room facility located at 1616 Capitol Avenue, Omaha, Nebraska 68102-4901 if it does not contain a return mailing address. THERE WILL BE NO EXCEPTIONS.

1.17.6 CADD AND ELECTRONIC DESIGN FILES (PROVIDED)

If provided, the CADD survey files and other electronic design files are provided on an as-is basis. Any Government provided survey, and the other electronic design files are provided to assist the Contractor in preparing their proposal using their own commercially purchased software. The Contractor shall take all professionally prudent and reasonable actions to verify the accuracy of the data provided and shall assume all liability from the use of these files. The Contractor shall be responsible for obtaining any other software necessary to view the files provided. No other CADD design files will be provided for proposal preparation other

than those provided at the time of RFP issuance. No assistance with the files will be provided.

1.18 COPIES OF SOLICITATION DOCUMENT AND AMENDMENTS

Copies of the solicitation and amendments are available by INTERNET ACCESS ONLY. All solicitation documents will be posted to the Federal Business Opportunities website at:

https://www.fbo.gov/spg/USA/COE/DACA45/W9128F-18-R-0048/listing.html

It shall be the Contractor's responsibility to check the websites for any amendments. The offeror shall submit in the proposal all requested information specified in this solicitation. There will be no public opening of the proposals received as a result of this solicitation. A list of interested vendors (potential offerors and subcontractors) is available on the federal business opportunities web site listed above (registration required).

1.19 OFFEROR'S QUESTIONS AND COMMENTS

Questions and/or comments relative to these documents should be submitted via Bidder Inquiry as indicated below. See instructions on when e-mail or mailing is appropriate. Mailing address is shown on the Standard Form SF 1442, Item 8, unless directed otherwise.

Questions and/or comments relative to these bidding (proposal) documents that is proprietary in nature or if Bidder Inquiry system (See Below) is out of service should be submitted to the Contract Specialist:

Contract Specialist - Primary POC:
Lauren Levy
Lauren.A.Levy@usace.army.mil
402-995-2049 (Telephone)
402-995-2081 (Fax)

1.19.1 BIDDER INQUIRY

Technical inquiries and questions relating to technical requirements, proposal procedures or bonds are to be submitted via Bidder Inquiry in ProjNet at: https://www.projnet.org/projnet/ No Later Than ten (10) calendar days before due date of proposals, in order that they may be given consideration or actions taken prior to receipt of offers. Phone calls for non-technical or procedural type questions should be made between 8:30 a.m. and 3:30 p.m. (Central Standard Time) Monday through Friday. The Bidder Inquiry system is to be used to ask and receive answers to all non-proprietary questions.

To submit and review inquiry items, prospective vendors will need to use the Bidder Inquiry Key presented below and follow the instructions listed below. A prospective vendor who submits a comment /question will receive an acknowledgement of their comment/question via email, followed by an answer to the comment/question after it has been processed by our technical team.

All timely questions and approved answers will be made available through ProjNet.

The Solicitation Number is: W9128F-18-R-0048

The Bidder Inquiry Key is: 974F5V-SATWVX

a. Registration for ProjNet Bidder Inquiry Access

If you are already registered, go to Entering Bidder Inquiries in ProjNet Bidder Inquiry System below.

1. From the ProjNet home page linked above, click on Quick Add on the upper right side of the screen.

2. Identify the Agency. This should be marked as USACE.

3. Key. Enter the Bidder Inquiry Key listed above.

4. Email. Enter the email address you would like to use for communication.

5. Click Continue. A page will then open saying that a user account was not found and will ask you to create one using the provided form.

6. Enter your First Name, Last Name, Company, City, State, Phone, Email, Secret Question, Secret Answer, and Time Zone. Make sure to remember your Secret Question and Answer as they will be used from this point on to access the ProjNet system.

7. Click Add User. Once this is completed you are now registered within ProjNet and are currently logged into the system.

b. Entering Bidder Inquiries in ProjNet Bidder Inquiry System

1. For future access to ProjNet, you will not be emailed any type of password. You will utilize your Secret Question and Secret Answer to log in.

2. From the ProjNet home page linked above, click on Quick Add on the upper right side of the screen.

3. Identify the Agency. This should be marked as USACE.

4. Key. Enter the Bidder Inquiry Key listed above.

5. Email. Enter the email address you used to register previously in ProjNet.

6. Click Continue. A page will then open asking you to enter the answer to your Secret Question.

7. Enter your Secret Answer and click Login. Once this is completed you are now logged into the system.

8. Follow online screen instructions to enter specific bidder inquiries for the project.

c. The Bidder Inquiry System will be unavailable for new inquires after ten (10) calendar days in order to ensure adequate time is allotted to form an appropriate response and amend the solicitation, if necessary.

d. Offerors are requested to review the specification in its entirety, review the Bidder Inquiry System for answers to questions prior to submission of a new inquiry.

e. The call center operates weekdays from 8AM to 5PM U.S. Central Time Zone (Chicago). The telephone number for the Call Center is 800-428-HELP.

f. Offers will NOT be publicly opened. Information concerning the status of the evaluation and/or award will NOT be available after receipt of proposals.

1.19.2 PLAN HOLDER'S LIST

For **Viewing a List of Interested Vendors** (i.e. planholders List) and Receiving Notifications or e-mail of changes regarding a solicitation, Federal Business Opportunities has these features available (https://www.fbo.gov/). For this solicitation, go to https://www.fbo.gov/ and register as a vendor or enter user name and password to login. If you wish for General Contractors, Subcontractors, Suppliers, Plan Rooms or Print Shops to have the ability to contact you, click on the "Add me to Interested Vendors" for the solicitation.

1.20 GENERAL DESCRIPTION OF WORK

Scope of project includes all work required to design and construct an indoor firing range at Minot Air Force Base in North Dakota. Work shall be in accordance with Request for Proposal documents issued with this solicitation.

1.21 PROPOSAL SUBMISSION REQUIREMENTS, EVALUATION AND CONTRACT AWARD

See Section 00 22 00 PROPOSAL SUBMISSION REQUIREMENTS, EVALUATION CRITERIA AND BASIS OF AWARD.

1.22 SOURCE SELECTION BOARD (SSB)

The Contracting Officer has established a Source Selection Board to conduct an evaluation of each proposal received in response to this Solicitation. The evaluation will be based exclusively on the merits and content of the proposal and any subsequent discussion required. The identities of the SSB personnel are confidential, and any attempt by the proposers to contact these individuals is prohibited.

1.23 FEDERAL, STATE AND LOCAL TAXES

It is the Contractor's responsibility to investigate applicable federal, state and local taxes and any specific exemptions that may exist. This includes any applicable Value-Added Taxes (VAT), sales, use, and excise taxes. See General Conditions (Contract Clause) 52.229-3 FEDERAL, STATE AND LOCAL TAXES.

1.24 TAXES - NORTH DAKOTA

1.24.1 UNEMPLOYMENT TAX SURCHARGE

The State of North Dakota has enacted legislation applicable to certain some contractors concerning an unemployment tax surcharge. See the North Dakota Century Code, Section 52-04-06.1, Incremental Bond for Impact Projects. The law provides for an unemployment tax surcharge in addition to regular unemployment tax liability. Bidders should investigate the

effect, if any, that this law may have upon their bid prices. Inquiries should be directed to Job Service of North Dakota, Post Office Box 1537, Bismarck, North Dakota 58502. Telephone: (701) 224-3470 (Department of Revenue).

1.25 SUBCONTRACTING PLAN/SUBCONTRACTING GOALS REGARDING THE UTILIZATION OF SMALL BUSINESS CONCERNS

a. Application. This provision applies only to large business concerns submitting bids for services exceeding $700,000 or for construction exceeding $1,500,000.

b. Federal Acquisition Regulations (FAR). Attention is directed to the following FAR and DFARS clauses contained in this solicitation:

52.219-8, Utilization of Small Business Concerns (Alternate I)

52.219-9, Small Business Subcontracting Plan (Alternate I)

52.219-16, Liquidated Damages - Small Business Subcontracting Plan

252.226-7001, Utilization Of Indian Organizations, Indian-Owned Economic Enterprises, And Native Hawaiian Small Business Concerns

c. Goals. The government considers the following goals reasonable and achievable during the performance of the contract resulting from this solicitation. At the Government's discretion, final goals may be negotiated prior to contract award. The Subcontracting Plan will then become a material part of the contract.

Subcontracting Goals:

i. 40.0% of planned subcontracting dollars can be placed with all small business concerns.

ii. 3.0% of planned subcontracting dollars can be placed with those small business concerns owned and controlled by socially and economically disadvantaged individuals or Historically Black Colleges and Universities or Minority Institutions. NOTE: ii. is a subset of i.

iii. 7.0% of planned subcontracting dollars for small women-owned businesses. NOTE: iii. is a subset of i. Also, the women-owned business may meet the definition of a small disadvantaged business. If so, iii. will also be a subset of ii. (Count firm in all applicable areas.)

iv. 1.0% of planned subcontracting dollars may be placed with HUBZone small business concerns. NOTE: iv. is a subset of i. Note: A HUBZone firm may also SDB, women-owned and/or veteran-owned. (Count firm in all applicable areas).

v. 2.0% of planned subcontracting dollars for veteran-owned small business. NOTE: v. is a subset of i. Go to http://www.sba.gov/aboutsba/sbaprograms/ovbd/index.html for questions concerning the Veterans Business Development program.

vi. 3.0% of planned subcontracting dollars may be placed with service-disabled veteran-owned small business. NOTE: vi. is a subset of i. and v.

d. Submission and Review of Subcontracting Plan.

SUBMISSION OF SMALL BUSINESS SUBCONTRACTING PLAN IS NOT APPLICABLE TO SMALL BUSINESSES.

(1) Upon notification by the Contracting Officer, the apparent succesful offeror must submit a subcontracting plan within one (1) calendar day after notification (a longer period maybe granted by the Contracting Officer).

(2) Goals included in the subcontracting plan should be at least equal to those indicated above. If lesser goals are proposed, the bidder may be required to substantiate how the proposed plan represents the bidder's best effort to comply with the terms and conditions of the solicitation. Bidders are highly encouraged to become familiar with the intent of the solicitation provisions and the elements of the subcontracting plan.

(3) The subcontracting plan must contain, as a minimum, the elements set forth in FAR provision 52.219-9. An example subcontracting plan will be furnished to the apparent succesful offeror (upon request). The example subcontracting plan (if requested) should not be construed as an acceptable subcontracting plan. Any format will be acceptable provided that the plan addresses each element as required by the Federal Acquisition Regulations and its supplements.

(4) Proposed plans will be reviewed by the Government to ensure the plan represents the firm's best efforts to maximize subcontracting opportunities for small, small disadvantaged and women-owned businesses.

(5) Subcontracting plans are required to be approved prior to Contract Award. The approved subcontracting plan (to include goals) will become a material part of the contract.

e. Failing to Submit an Acceptable Subcontracting Plan. An apparent succesful offeror failing to submit a subcontracting plan which demonstrates a reasonable effort to meet the goals listed above or provide an explanation why lesser goals are proposed (upon request), will be considered as non-responsive and not considered eligible for award of the contract.

f. Questions or Assistance Needed in Developing Subcontracting Plan. For any questions or assistance needed in developing the subcontracting plan, contact the Contract Specialist or District's Deputy for Small Business (See paragraph: OFFEROR'S QUESTIONS AND COMMENTS. Please contact the Contract Specialist listed or the District's Deputy for Small Business or fax your inquiries to 402-995-2013).

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

SECTION 00 22 00 PROPOSAL SUBMISSION REQUIREMENTS, EVALUATION CRITERIA AND BASIS OF AWARD

1.0 OVERVIEW

2.0 BASIS OF AWARD

3.0 GENERAL INSTRUCTIONS

4.0 PROPOSAL INFORMATION AND RELATED EVALUATION FACTORS

5.0 TECHNICAL PROPOSAL

5.1. FACTOR 1 – SPECIALIZED EXPERIENCE

5.2. FACTOR 2 – PROJECT MANAGEMENT PLAN

5.3. FACTOR 3 – KEY PERSONNEL CAPABILITIES AND EXPERIENCE

5.4. FACTOR 4 – PAST PERFORMANCE

5.5. FACTOR 5 – SMALL BUSINESS PARTICIPATION PLAN

6.0 PRICE AND PRO FORMA INFORMATION

6.1. GENERAL

6.2. PRICE (STANDARD FORM 1442, PROPOSAL DATA SHEET AND CONTRACT LINE ITEM SCHEDULE)

6.3. REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS

6.4. PRE-AWARD SURVEY INFORMATION

6.5. SUBCONTRACTING PLAN

7.0 EVALUATION PROCEDURES

7.1. SOURCE SELECTION EVALUATION BOARD (SSEB)

7.2. EVALUATION

7.3. EVALUATION RATING SYSTEM

7.4. PAST PERFORMANCE CONFIDENCE ASSESSMENT RATING SYSTEM

7.5 SMALL BUSINESS PARTICIPATION FACTOR RATING

ATTACHMENTS

1 - COMPANY SPECIALIZED EXPERIENCE CONSTRUCTION OR PRIME CONTRACTOR

2 - COMPANY SPECIALIZED EXPERIENCE DESIGN FIRM OR IN-HOUSE DESIGN CAPABILITY

3 - COMPANY SPECIALIZED EXPERIENCE KEY SUBCONTRACTOR (OR PRIME IF WORK NOT TO BE SUBCONTRACTED)

4 - PAST PERFORMANCE EVALUATION TELEPHONE INTERVIEW QUESTIONNAIRE

5 - KEY PERSONNEL RESUME

6 - LETTER OF COMMITMENT FOR KEY PERSONNEL

7 - LETTER OF COMMITMENT FOR (DESIGN FIRM OR KEY SUBCONTRACTOR)

8 - PROPOSAL DATA SHEETS

1.0 OVERVIEW

1.1. This is a “Best Value” tradeoff solicitation for the Design and Construction of Indoor Firing Range at Minot AFB, ND. The Government will evaluate the proposals in accordance with the criteria described herein, and award a firm-fixed-price contract to the responsible offeror whose proposal conforms with all the terms and conditions of the solicitation and whose proposal is determined to represent the overall best value to the Government.

1.2. **PROPOSAL FORMAT**

Written materials: 8 ½” x 11” format using 10 point or larger font size. For each electronic file submitted, provide a title page, table of contents and bookmarked tabs matching this documents’ Table of Contents. Provide a title sheet within each volume identifying the prime, consortium, or joint venture’s name, address, telephone, fax and email address and point of contact. Include the signature, title and contact information of the official that can bind the firm.

Factor section and page number shall appear in the bottom right corner of each page (along with the revision number and revision date for the amended page, if necessary)

In an effort to reduce paperwork and reduce cost, all proposals shall be submitted electronically via the Army Research Lab (ARL) Secure File Exchange (SAFE) website, https://safe.arl.army.mil/. All submissions shall be in Adobe PDF format with Optical Character Recognition (OCR) applied to all documents that will enable word searches to be conducted using Adobe-compatible PDF software. The two (2) files listed below shall be submitted as “SEPARATE” single files via ARL SAFE. It is imperative that none of the pricing or file 2 information show up in file 1. Offerors may use compression utilities such as 7-Zip, WinZip or PKZip to reduce file size and facilitate transmission when using ARL SAFE. Offerors are encouraged to send all files in the same ARL SAFE transmission, if possible.

Table 1 – ARL SAFE Submittals

File 1 - Technical Proposal, Past Performance Information, and Small Business Participation Plan.

File 2 - Cost Information and Representations, Certifications, and Other Statements of Offerors

Title the single files in the following format:

W9128F-18-R-0048_Company Name_Technical
W9128F-18-R-0048_Company Name_ Price
(Note: Company name may be abbreviated)

To submit proposals electronically via ARL SAFE, go to the following website: https://safe.arl.army.mil/. There are two distinct kinds of users that will be accessing the ARL SAFE system: inside users, who are associated with the DoD and have a CAC card, and outside users, which encompasses the rest of the Internet.

An inside (CAC authenticated) user is allowed to send a drop-off request to anyone, whether they are an inside or outside user. An outside (unauthenticated) user is only allowed to send a drop-off to an inside user (someone with a .mil email address) after receiving a drop-off request from that user.

To receive a drop-off request, please email Ms. Lauren Levy (lauren.a.levy@usace.army.mil) and Ms. Ann Young (ann.t.young@usace.army.mil). The outside user will receive an email with a link to submit the drop-off.

A user can drop-off multiple files at once in several ways:

1. Drag-and-drop multiple files at once onto the drop-off page
2. Click on the "Add Files" button on the drop-off page, and select 1 or more files at once using combinations of click, Shift+click and Ctrl+click
3. Archive and compress the files into a single package using WINZIP and attach the resulting archive file on the drop-off page.

When a user creates a drop-off, they enter self-identifying information (name, organization, and email address); identifying information about the recipient(s) (name and email address); and choose what files should be uploaded to make the drop-off. If the files are successfully uploaded, an email is sent to the recipient(s). This email provides a link to access the drop-off. Other information (the Internet address and computer name from which the drop-off was created, for example) is retained, to help the recipient(s) check the identity of the sender.

Retrieval of a drop-off by a recipient can only be done with both the drop-off's Claim ID and Passcode. When dropping off files, you can choose not to send either or both of these to the recipient automatically: you would then need to send that information yourself.

For this solicitation, the recipients will be:

Ms. Lauren Levy (lauren.a.levy@usace.army.mil)
Ms. Ann Young (ann.t.young@usace.armym.mil)

For the purposes of determining whether the proposal was received “late” in accordance with FAR 15.208, the date and time the file(s) are uploaded into the ARL SAFE website as identified in the ARL SAFE e-mail sent to the Contract Specialist(s)/Contracting Officer will be the time and date the Government received the proposal. Please make allowances for delays in transmittal.

NOTE: ONLY in the unusual case that the ARL SAFE website is “down” (not operational); the Offeror should email their proposal to the following individuals prior to the proposal due date and time:

Ms. Lauren Levy (lauren.a.levy@usace.army.mil)
Ms. Ann Young (ann.t.young@usace.army.mil)

Electronic Proposals shall be received by the date and time indicated in Block 13 of the SF 1442 for this solicitation or as identified in subsequent amendments.

2.0 BASIS OF AWARD

2.1. All offers received in response to this solicitation will be evaluated in accordance with FAR Part 15.3, DoD Source Selection procedures, and Army Source Selection Supplement. The Contracting Officer will award a firm-fixed-price contract to that responsible Offeror whose proposal the Source Selection Authority has determined conforms to the solicitation, is fair and reasonable, and offers the best overall value to the Government, considering all non-price factors described herein, and price. **All evaluation factors, other than price, when combined, are considered significantly more important than price; however, the Contract award should not exceed the cost limitation described in Section 00 21 01 for this project.** The intent of this solicitation is to obtain the best proposal within the cost limitation. There is no obligation to approach or match the cost limitation in the offer. After the Government individually evaluates and rates each proposal, the Contracting Officer/Source Selection Authority will compare proposals to determine which proposal represents the best value. The Government reserves the right to accept other than the lowest priced offer or to reject all offers. The Government will not award a contract to an Offeror whose proposal contains a deficiency, as defined in FAR 15.001. If there is a lower priced, conforming offer(s), the Contracting Officer/Source Selection Official must determine

that the added value of a more expensive proposal (within the cost limitation) would justify award to that offeror.

3.0 GENERAL INSTRUCTIONS

3.1. Proposals should be submitted initially on the most favorable terms from a price and technical standpoint. Do not assume that offerors will be contacted or afforded an opportunity to clarify, discuss or revise their proposals.

3.2. The proposal shall describe the capability of the Offeror to perform the requirements of the RFP. The proposal should be specific and complete in every detail and should be prepared simply and economically, providing a straightforward and concise description of capabilities to satisfactorily perform the requirements. The proposal should be practical, legible, clear, and coherent.

3.3. In order to effectively and equitably evaluate all proposals, the Contracting Officer must receive information containing sufficient detail to allow review and evaluation by the Government. Proposal clarity, organization, and cross-referencing are mandatory. Failure to submit and organize proposals as requested may adversely affect an Offeror's evaluation.

3.4. Firms formally organized as design-build entities, design firms and construction contractors that have associated specifically for this project, consortia of firms or any other interested parties may submit proposals. Associations may be as joint ventures or as key team subcontractors. Any legally organized Offeror may submit a proposal, provided that the Offeror or Offeror's subcontractor has or will have professional architects and engineers, registered in the appropriate technical disciplines and provided that the requirements specified in Contract clause, "Requirements for Registration of Designers", are met. All designs must be under the direct supervision of appropriately licensed professionals for each discipline involved.

3.5. Submit proposals in accordance with paragraph 1.2 above. Note that the Government will not evaluate any material that exceeds the page limits, where indicated below.

4.0 PROPOSAL INFORMATION AND RELATED EVALUATION FACTORS

4.1. FILE 1 –TECHNICAL

Factor	**Location**	**Description**	**Relative Importance**
		TECHNICAL	**Descending Order of Importance**
FACTOR 1	File 1	Specialized Experience	Most Important Factor
FACTOR 2	File 1	Project Management Plan	2nd Most Important Factor
FACTOR 3	File 1	Key Personnel Capabilities and Experience	3rd Most Important Factor
FACTOR 4	File 1	Past Performance	4th Most Important Factor
FACTOR 5	File 1	Small Business Participation Plan	5th Most Important Factor

4.2. FILE 2 – PRICE AND PRO FORMA INFORMATION

Factor	Location	Description	Relative Importance
FACTOR 6	File 2	Price (Standard Form 1442, Proposal Data Sheet And Contract Line Item Schedule)	Not Rated
	File 2	Standard Form 1442, Proposal Data Sheet And Contract Line Item Schedule	Not Rated
	File 2	Evidence of Bondability	Not Rated
	File 2	Required Pre-Award Information	Not Rated
	File 2	Sub-Contracting Plan	Not Rated

All evaluation factors other than cost or price, when combined are significantly more important than cost or price.

NOTE: 8(a) Joint Venture Offeror or Offeror submitting Proposal as HubZone Joint Venture shall submit evidence from Offerors SBA Servicing Agency that the Offeror has notified and discussed the proposed joint venture for this specific project with the appropriate SBA Representative or business Opportunity Specialist.

5.0 FILE 1 – TECHNICAL

5.1. FILE 1– FACTOR 1 - SPECIALIZED EXPERIENCE

5.1.1. **Submission Requirements:**

5.1.1.1. **Design and Construction Projects.** The Offeror shall submit three projects performed by the Prime Construction Entity. Additionally, the Offeror shall submit three projects performed by the Lead Design Entity. Limit one (1) page per project submitted, with one additional page allowed for describing past teaming experience between current team members (see below). Any information presented beyond the page limit will not be evaluated.

5.1.1.2. **Teaming Experience.** In one page, the Offeror shall demonstrate any previous teaming experience between current team members. Teaming experience information is limited to projects that have been completed and turned over no longer than the past five years preceding the issue date of this solicitation.

5.1.1.3. **Special Requirements.** One (1) of the construction projects submitted and one (1) of the design projects shall clearly demonstrate experience with CONUS Indoor Firing Ranges no smaller than 10,000 square feet (approx. 929 square meters) in size. The government intends to hire experts in Indoor Firing Range design and construction.

5.1.1.4. **Project Information.** All projects submitted should demonstrate experience on similar projects in scope and similar or greater in value. Submit projects that are currently well under way (designed and at least 50% construction progress completed) or completed and turned over no more than ten (10) years prior to the issue date of this solicitation. The proposed prime construction and lead design entities shall have performed in the same role as the prime or lead entities on the projects submitted. Offerors may identify state and local government and private contracts that are similar to the Government's requirements set forth in the RFP. If the Offeror is a joint venture, each firm shall provide information,

demonstrating experience relevant to their role on this project. If the Offeror has multiple functions or divisions, limit the project examples to those performed by the division or unit submitting the offer or by the team member. If projects were design-build, so identify them.

Project information shall CLEARLY include:

(a) Type of Facility Represented

(b) Name of Firm

(c) Name of Project

(d) Location of Project

(e) Owner, including reference POC with confirmed contact information

(f) General Scope of Construction Project

(g) Summary of Your Role in the Project

(h) Construction Cost at completion

(i) Extent and Type of Work Subcontracted Out

(j) Dates Construction Began and Completed

5.1.2. **Evaluation Criteria:** The following criteria are not listed in any particular order of importance.

5.1.2.1. Strengths or Significant Strengths may be given for:

- Experience on similar projects that exceed the scope and value.
- Federal Government project experience
- Proposals that include more than one (1) construction project with experience in CONUS Indoor Firing Ranges
- Proposals that include more than one (1) design project with experience in CONUS Indoor Firing Range
- Proposals that include projects completed and turned over no longer than five (5) years prior to the issue date of this solicitation
- The Government will consider extent of demonstrated familiarity with applicable codes and local conditions.
- Design-Build experience
- Previous recent teaming experience among the team members (Design and Construction firm)
- Any other aspect of a proposal that the evaluators and/or the SSA believe enhances the merit of the proposal or increases the probability of successful performance of the contract.
- Note: The Government reserves the right to verify the experience record of cited projects or other recent projects by reviewing DoD or Government appraisal systems, or through interviewing owners or references. The Government may check any or all cited references to verify supplied information.

Note: A firm will not receive credit under this factor for the relevant experience of key personnel proposed for this project while employed at a different firm.

5.1.2.2. Weaknesses or Significant Weaknesses may be given for each of the following criteria:

- A design-build project where the Offeror did not actively participate in the design and construction aspect of the work.
- Projects that are not “well under way” or completed as defined above may be rated less favorably
- Any project example submitted for which the Offeror was not the Prime Contractor or Joint Venture participant at the time of project execution; any project example submitted for which the Offeror was a subcontractor.
- Omission or incompleteness of any requested information listed in Paragraph 5.1.1. that is not otherwise found as a deficiency.
- Any other aspect of a proposal that the evaluators and/or the SSA believe is a flaw that increases the risk of unsuccessful contract performance.

5.2. FILE 1– FACTOR 2 – PROJECT MANAGEMENT PLAN

5.2.1. **Submission Requirements:**

5.2.1.1. Provide information that describes the offeror’s Project Management approach to executing the design-build contract per the detailed requirements herein. Clearly and concisely describe the organizational and technical approaches to project management and execution, and proposed contract duration. Limit the information to ten (10) pages or less.

5.2.1.2. **Organization.** List the design and construction entities and describe their resources and how their resources will be utilized, their roles and responsibilities and any contractual arrangements that have been established. Clearly describe any teaming or joint venture arrangements, including a clear description of each entity’s roles and responsibilities on the project. A copy of the teaming or joint venture agreement(s) shall be appended to the plan (not included in the page limitation). Include a simple organizational chart, illustrating the organization, including the proposed quality control group(s). Identify the design firm(s) chosen for the project, if not to be self-performed. The Offeror shall document unequivocal teaming arrangements with its lead design entity (ies) and key subcontractors. Describe the proposed management structure for the team, describing how the design and construction process will be managed and the authorities and the delegations of authority within the team. Include a key personnel organization chart that clearly depicts the key positions and the names of the personnel, their firm affiliations and their job locations and their job/position title within the organization. The key personnel organization chart shall be consistent with the corporate organization chart, with the matrix of responsibilities assigned to the D-B team entities, and with the list of key personnel to be provided under Factor 3, “KEY PERSONNEL CAPABILITIES AND EXPERIENCE”.

5.2.1.3. **Technical Approach for Design and Construction.** Describe the technical approach to design and construction of the facility. Include considerations for management of Indoor Firing Range construction. Include any considerations of fast-tracking design and construction, panelized construction, pre-engineered components, etc. The Government is looking for ways to streamline construction and manage labor and other resource constraints in an effort to reduce costs and achieve an aggressive schedule while minimizing impact to the base. The Government is looking for ways to minimize impacts of the construction.

5.2.1.4. **Proposed Contract Duration:** The offeror shall clearly propose the contract duration in this Factor of the proposal.

5.2.2. **Evaluation Criteria:** The following criteria are not listed in any particular order of importance.

5.2.2.1. **Organization.** The Government will evaluate the clarity and strength of the overall organization and how well it is organized, structured and staffed to execute the entire scope of work. This factor will be rated as unacceptable if the Offeror has not selected and

committed to use its lead design entity (ies). Joint venture participants' contribution to the organization should be commensurate with their skills and background.

5.2.2.2. **Technical Approach for Design and Construction.** Proposals that clearly and concisely demonstrate a thorough understanding of the constraints and impacts on Indoor Firing Range construction may be given strengths. The Government places a higher value on an offer that provides proposed methods to streamline construction and manage labor and other resource constraints, in an effort to reduce costs and support an aggressive schedule including such things as fast-tracking, etc. The Government will also consider whether the approach reduces on-site craft labor and susceptibility to inclement weather delays.

5.2.2.3. **Proposed Contract Duration:** Unless changed during negotiations, this duration will become the contractually binding performance period. The Government will rate the proposed duration matching or shorter than the benchmark duration as "acceptable". No advantage will be considered for proposals that provide a duration shorter than the proposed benchmark. A proposed duration that is longer than the proposed benchmark duration will be viewed as a deficiency. The Government will consider an unreasonably condensed contract duration, which places undue risk on the Government or which may create a risk of contract or performance failure, as a significant weakness or a deficiency, depending upon the evaluators' judgment.

5.3. FILE 1– FACTOR 3 - KEY PERSONNEL CAPABILITIES AND EXPERIENCE

5.3.1. **Submission Requirements:**

5.3.1.1. For key personnel provide a brief resume using the Key Personnel Resume form at the end of this Section. Indicate the position title on each project listed in resumes. Provide the name, owner, dollar amount, date of completion, and brief scope of each resume project.

Include resumes for the following key personnel:

- *Project Manager* responsible for the overall project (Prime Construction Contractor Employee)
- *Construction Quality Control System Manager* (Prime Construction Contractor Employee)
- *General Superintendent* (Prime Construction Contractor Employee)
- *Design Manager*

5.3.1.2. The minimum experience requirement for the Project Manager is 5 years of experience as a Project Manager, managing similar projects to this solicitation and a Bachelor's degree, according to section 01 33 00.32.

5.3.1.3. The minimum experience requirement for the Contractor Quality Control (CQC) System Manager is 5 years of experience as a Quality Control Manager on similar projects to this solicitation. CQC System Manager shall comply with personnel requirements listed in Section 01 45 00.

5.3.1.4. The minimum experience requirement for the Superintendent is 5 years' experience as superintendent, managing multiple trades and subcontractors.

5.3.1.5. The minimum experience requirements for the Design manager and designers of record are at least 5 years of design experience. The Design Manager and designers of record should be registered in accordance with FAR 52.236-25.

5.3.1.6. Offeror shall provide unequivocal letters of commitment from all proposed key personnel NOT currently employed by the Offeror. Use the form letter at the end of this section.

5.3.1.7. Each of the key personnel shall demonstrate experience on at least one project that included an Indoor Firing Range completed in the past 5 years (as required for projects in Factor 1).

5.3.2. **Evaluation Criteria:** The following criteria are not listed in any particular order of importance.

5.3.2.1. The Government will evaluate the required information to determine how well the offeror identifies and demonstrates that its key personnel meet or exceed minimum qualifications necessary, which includes previous satisfactory experience in similar type work, to manage, control and perform the design, and to perform construction.

5.3.2.2. Resumes that do not clearly state the personnel's specific duties and job title on previous projects may be rated less favorably.

5.3.2.3. Project Managers that hold active architect or engineer professional registration will be rated more favorably.

5.3.2.4. Offerors that propose key personnel who worked on the projects in Factor 1 may be rated more favorably.

5.3.2.5. Key personnel that exceed the required minimum experience with Indoor Firing Range may be rated more favorably.

5.3.2.6. Key personnel that exceed the required minimum years of experience in their position may be rated more favorably.

5.3.2.7. Previous design-build experience may be rated more favorably.

5.3.2.8. Previous Federal government project experience may be rated more favorably.

5.4. FILE 1 – Factor 4 – PAST PERFORMANCE

5.4.1. **Submission Requirements:**

Submit past performance evaluations and ratings for each project the Offeror includes in its proposal for Factor 1 - Specialized Experience.

If available, submit Construction Contract Administration Support System (CCASS) or Architect-Engineer Contract Administration Support System (ACASS) Performance Evaluations ratings. For projects which were designed and/or constructed for other government entities, submit the performance appraisal sheets used by that government entity if available. For projects cited in Factor 1 Specialized Experience not covered in the CCASS / ACASS database or other Government Design Performance Rating System, submit a Past Performance Questionnaire.

5.4.1.1. CPARS/CCASS/ACASS Evaluations

Firms are requested to retrieve their CPARS/CCASS/ACASS past performance information directly from the Past Performance Information Retrieval System (PPIRS) at http://www.ppirs.gov. PPIRS is an electronic repository of performance information collected by all the major federal performance reporting systems. Logging onto PPIRS will require the following: All firms must have purchased and installed a Public Key Infrastructure (PKI) certificate. If you do not have this certificate, you cannot access your information. Additional

information about the PKI certificate is posted in red at the top, center portion, of the http://www.ppirs.gov web page. You will also need your DUNS number and Marketing Partner Identification Number (MPIN) to log onto PPIRS. The MPIN number was selected by whoever registered your firm in the Central Contractor Registry at http://www.ccr.gov . If you do not know your MPIN number, you will need to contact the CCR help desk by emailing them from the email link on the http://www.ccr.gov/help.asp web page. Please be aware that they will only release the MPIN number to the person who originally registered your firm.

There are two other ways to obtain a copy of CCASS / ACASS evaluations as follows: (1) Contact your government point of contact for the project you mentioned, and ask them if they can send you a copy, or (2) Apply for “Contractor Corporate Senior Management Representative” access on the following CCASS / ACASS web page: http://www.cpars.csd.disa.mil/. This type of access is issued to only one person within the firm, typically a member of senior management. In addition to access to your completed CCASS / ACASS performance evaluations, you will also be able to view status of evaluations which have not yet been completed. Following receipt of your faxed application request, you will be emailed a logon and access instructions. This type of access will only let you see CCASS / ACASS information, so it is not as complete as PPIRS access which allows access to evaluations prepared by non-DOD federal agencies, as well as the DOD agencies which use CCASS / ACASS. Be aware that you will also need to have a PKI certificate to access the CCASS / ACASS system. This is a DOD requirement.

5.4.1.2. Past Performance Questionnaire (PPQ)

The Past Performance Questionnaire is provided for the offeror or its team members to submit to the client. The Past Performance Questionnaire should be completed by an owner or owner’s representative not affiliated with your firm. Ensure correct phone numbers and email addresses are provided for the client point of contact.

Completed Past Performance Questionnaires should be submitted with your proposal. If the offeror is unable to obtain a completed PPQ from a client for a project(s) before proposal closing date, the offeror should complete and submit with the proposal the first page of the PPQ, which will provide contract and client Information for the respective project(s). Offerors should follow-up with clients/references to ensure timely submittal of questionnaires. If the client requests, questionnaires may be submitted directly to the Government's point of contact to proposal closing date. Offerors shall not incorporate by reference into their proposal PPQs previously submitted for other RFPs. However, this does not preclude the Government from utilizing previously submitted PPQ information in the past performance evaluation.

5.4.1.3. Government Utilization of Alternate Information Sources for Past Performance

The Government will assess the past performance on projects submitted under the Specialized Experience factor and reserves the right to conduct telephone interviews with points of contact identified in the proposal or to review personal knowledge. In addition, the Government may review any other sources of information for evaluating past performance of the Offeror on the submitted projects and any other previous work. Other sources may include, but are not limited to, past performance information retrieved through the Past Performance Information Retrieval System (PPIRS), including Contractor Performance Assessment Reporting System (CPARS), using all CAGE/DUNS numbers of team members (partnership, joint venture, teaming arrangement, or parent company/subsidiary/affiliate) identified in the offeror's proposal, inquiries of owner representative(s), Federal Awardee Performance and Integrity Information System (FAPIIS), Electronic Subcontract Reporting System (eSRS), and any other known sources not provided by the offeror.

While the Government may elect to consider data from other sources, the burden of providing detailed, current, accurate and complete past performance information rests with the Offeror.

5.4.2. **Evaluation Criteria:**

5.4.2.1. The Government will evaluate the relative merits of each Offeror's past performance by following the relevancy and confidence assessment procedures. The evaluation of past performance will examine how well Offerors have performed on relevant projects considering such criteria as: cost growth and adherence to budget; time growth, timeliness and adherence to schedule; quality and quality control measures; management of personnel and subcontractors; compliance with safety standards/safety plan; overall customer satisfaction; responsiveness to customer concerns; and safety.

5.4.2.1.1. If an Offeror submits no past performance evaluations and the Government is unable to locate evaluations in PPIRS or other Design/Construction Performance Rating Systems, an Unknown Confidence (Neutral) rating will be given.

5.4.2.1.2. CPARS/CCASS Ratings will be given more weight than PPQs. The Government may, at its discretion, contact individuals other than those identified by the Offeror as references to verify the information contained therein. The Government reserves the right to consider all aspects of an Offeror's performance history, but may attribute more importance to work that was similar to the scope and type of project as stated in this solicitation.

Relevancy. The first aspect of the past performance evaluation is to determine how relevant recent previous experience accomplished by the Offeror is to the anticipated work to be accomplished under this contract. Recent is defined as past performance on contracts that had a construction completion date within the past five (5) years of the date that proposals are due. Relevancy is defined as similarity of items stated within this solicitation such as: types of projects, dollar value, contract type, and stakeholder(s). With respect to relevancy, more relevant past performance will typically be a stronger predictor of future success and have more influence on the past performance confidence assessment. Relevancy is not a separate proposal rating but is used to develop an overall Past Performance Confidence Assessment. The four levels of relevancy ratings are:

- **Very Relevant.** Present/past performance effort involved essentially the same scope and magnitude of effort and complexities this solicitation requires.
- **Relevant.** Present/past performance effort involved similar scope and magnitude of effort and complexities this solicitation requires.
- **Somewhat Relevant**. Present/past performance effort involved some of the scope and magnitude of effort and complexities this solicitation requires.
- **Not Relevant**. Present/past performance effort involved little or none of the scope and magnitude of effort and complexities this solicitation requires.

Quality. The second aspect of the past performance evaluation is to determine the overall quality of the Offeror’s past performance. The past performance evaluation performed in support of a current source selection does not establish, create, or change the existing record and history of the Offeror’s past performance on past contracts; rather, the past performance evaluation process gathers information from customers on how well the offeror performed those past contracts. The SSEB will review this past performance information and determine the quality and usefulness as it applies to performance confidence assessment.

After evaluating relevancy and quality, a Performance Confidence Assessment rating will be determined. In conducting a performance confidence assessment, each Offeror shall be assigned one of the following ratings:

- **Substantial Confidence.** Based on the Offeror's recent/relevant performance record, the Government has a high expectation that the Offeror will successfully perform the required effort.
- **Satisfactory Confidence.** Based on the Offeror's recent/relevant performance record, the Government has a reasonable expectation that the Offeror will successfully perform the required effort.
- **Limited Confidence.** Based on the Offeror's recent/relevant performance record, the Government has a low expectation that the Offeror will successfully perform the required effort.
- **No Confidence.** Based on the Offeror's recent/relevant performance record, the Government has no expectation that the Offeror will be able to successfully perform the required effort.
- **Unknown Confidence (Neutral).** No recent/relevant performance record is available or the Offeror's performance record is so sparse that no meaningful confidence assessment rating can be reasonably assigned. Per Federal Acquisition Regulation (FAR) 15.305(a) (2) (iv), "In the case of an Offeror without a record of relevant past performance or for whom information on past performance is not available, the Offeror may not be evaluated either favorably or unfavorably on past performance."

5.5. FILE 1 – Factor 5 – SMALL BUSINESS PARTICIPATION PLAN

5.5.1. **Submission Requirements:**

5.5.1.1. This factor requires all offerors, regardless of size status to address their planned small business usage for this project. All offerors are required to provide a Small Business Participation Plan. It should address their corporate approach and methodology for acquiring, soliciting and using small businesses in the performance of this contract. All plans should address the Offeror's commitments to providing subcontracting opportunities, as well as evidence of planned and /or continued outreach efforts to encourage and use small businesses. This Participation Plan should include a breakdown of small business subcategories to be used as shown on the chart in (d) below.

5.5.1.2. The Participation Plan should demonstrate commitment to all federally designated categories of small business: Small Businesses (SBs), Veteran-Owned Small Businesses (VOSBs), Service-Disabled Veteran-Owned Small Businesses (SDVOSBs) HUBZone Small Businesses (HUB), Small Disadvantaged Businesses (SDBs), Woman-Owned Small Business (WOSBs), and when applicable, Historically Black Colleges/Universities/Minority Institutions (HBCU/MIs).

5.5.1.3. The plan should identify all categories for participation as part of the Offeror's team. This should include a general description of the type of work, product or service anticipated to be supplied via a small business concern. The Offeror shall not exceed more than 10 pages for the submitted Small Business Participation Plan. A specific format is not required, however, items stated below (a) through (e) shall be provided as a minimum.

<u>Small Business Participation Plan requirements</u>:

(a) Provide a Narrative addressing the corporate approach and methodology for acquiring, soliciting and using small businesses in the performance of this contract. The Narrative should address the Offeror's commitment to providing subcontracting opportunities, as well as evidence of planned and /or continued outreach efforts to encourage and use small businesses. The Narrative should provide detailed supporting documentation regarding the individual commitments expressed in percentages for evaluators to determine that the goals stated are realistic.

(b) Provide the applicable size and categories for the **PRIME** Offeror for this procurement.

_____Large Business Prime Offeror
_____Small Business Prime Offeror (also check type of SB below)
____Small Disadvantaged Business
____Woman-Owned Small Business
____HUB Zone Small Business
____Veteran Owned Small Business
____Service Disabled Veteran Owned Small Business
____Historically Black College/University or Minority Institution

(c) Submit the Total Percentages planned for Small Business. Percentages are based on Total Contract Value of the Offeror. **For this project, the awardee is targeted to subcontract 15% of the Total Contract Value to the Small Business Community.**

Total Percentage planned for Small Business: = _____%
(Small Business Prime Contractors – Include yourselves in the above percentage.)

For example: If you are a Small Business Prime Contractor and will be doing 40% of the work and you will be subcontracting another 20% to other small business firms, then your Total Percentage planned for Small Business will = 60%

(d) Indicate the total percentage of participation, Supplies/Services to be provided and the name of the small business firms intended to be used by each type of subcategory small business.

Type of Small Business	***%***	***Supplies/Services***	***Name of Small Business Firms***
Small Business			
Small Disadvantaged Business (SDB)			
Woman Owned Small Business (WOSB)			
Historically Underutilized Business Zone Small Business (HUBZone)			
Service Disabled Veteran-Owned (SDVOSB)			
Veteran Owned (VOSB)			
Historical Black Colleges/Minority Institutions (HBCU/MI)			

(e) Provide types of commitments, if any are in place, for this specific acquisition either written, verbal, enforceable, non-enforceable, joint venturing, mentor-protégé, etc.

_____

_____

_____

5.5.1.4. Evaluation Criteria:

Small Business Participation Plans will be evaluated on the basis of:

- Percentage of performance of small businesses.
    - All offeror's proposals must meet the minimum mandatory Small Business Participation of **15**% of the proposed Total Contract Value (through collective small business participation from any type of small business or sub-category small business***). Offerors that exceed the targeted 15% will be rated more favorably than Offerors that meet it. Offerors that do not meet the targeted 15% will be rated lower.***
    - The subcategory small business goals provided will be reviewed to ensure they are realistic in respect to this project.
- The extent of identification of the work (Supplies/Services) small firms are to perform.
- The extent to which SB firms are specifically identified in proposals.
- The extent of commitment to SB firms.

All offerors will be evaluated on the level of Small Business commitment that they demonstrate for the proposed acquisition. ***Plans that contain greater detail and specificity will be evaluated more favorably than general statements and commitments.***

6.0 FILE 2 – FACTOR 6 - PRICE AND PRO FORMA INFORMATION

6.1. GENERAL

Submit the Pro Forma information in a separate file labeled: "File 2 – Price and Pro Forma Information."

6.2. FILE 2 – PRICE (STANDARD FORM 1442, PROPOSAL DATA SHEET AND CONTRACT LINE ITEM SCHEDULE)

6.2.1. **Submission Requirements:**

6.2.1.1. Submit the properly filled out and executed SF 1442, along with the CLIN Schedule, containing proposed line item and total pricing, as well as the proposed performance duration. See instructions in Section 00 21 01, *"Instructions to Offerors"*. Submit the Proposal Data Sheet.

6.2.1.2. Supplemental Price Breakdown. If deemed necessary to further evaluate the price proposals, the Government will request a price breakdown of the Contract Line Items in a file marked "Price Breakdown Information", in Excel format. The Government will provide details on where and how to send the breakdown. This information will not be needed sooner than three working days after the proposal submission due date. This information may be required for the initial proposal and, if requested, for any revised proposals. This information is not an opportunity for an offeror to revise its non-price or price proposal.

6.2.2. **Evaluation Criteria:**

Price will not be rated or scored, but will be evaluated for fairness and reasonableness through the use of a price analysis. The price evaluators will also check for appearance of unbalanced line item prices. **The Government is likely to not make award if the construction cost limitation set for this project is exceeded.** Offerors are cautioned to distribute direct costs, such as material, labor, equipment, subcontracts, etc. and to evenly

distribute indirect costs, such as job overhead, home office overhead, bond, etc., to the appropriate contract line items. If deemed necessary, the supplemental price breakdown information will be used to assist the Government in performing the price evaluations described above. **All evaluation factors, other than price, when combined, are considered significantly more important than price.**

6.3. FILE 2 – REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS

6.3.1. **Submission Requirements:**

Submit information showing Offeror's bondability in the amount of the proposal. Include the name, address and telephone number of the prime contractor's bonding agent.

6.3.2. **Evaluation Requirements:**

This item is not rated. Bonding information will be reviewed to determine the Offeror's ability to obtain the required Performance and Payment Bonds. The prime contractor is required to be able to obtain the level of bonding required by the solicitation from an acceptable surety.

6.4. FILE 2 – PRE-AWARD SURVEY INFORMATION

6.4.1. **Submission Requirements:**

6.4.1.1. Submit this information for the Contracting Officer’s determination of offeror responsibility, which includes, but is not limited to, the following:

(1) A list of present commitments, including the dollar value thereof, and name of the organization under which the work is being performed. Include names and telephone numbers of personnel within each organization who are familiar with the prospective contractor’s performance.

(2) A certified statement listing; (1) each contract awarded within the preceding three month period exceeding $1,000,000.00 in value with a brief description of the contract; and (2) each contract awarded within the preceding three year period not already physically completed and exceeding $5,000,000.00 in value with a brief description of the contract.

(3) If the prospective contractor is a joint venture, each joint venture member will be required to submit the above defined certification.

6.4.1.2. One copy of the following information shall be provided:

(1) Proof of Financial Ability (Most recent financial statement covering assets and liabilities)

(2) Number of years the firm has been in business

(3) Name, address and telephone number of firm’s bonding company

(4) Information showing offeror’s bondability for this project. Include the bond rate.

(5) Name, address and telephone numbers of two credit/trade references.

6.4.2. **Evaluation Criteria:**

In addition to the other proposal information, the Contracting Officer shall use this information in making an affirmative responsibility determination for award to the Successful Offeror, in accordance with FAR Part 9.

6.5. FILE 2 - SUBCONTRACTING PLAN

6.5.1. **A Subcontracting Plan is not required to be submitted with the offeror's proposal. It shall only be required from the otherwise successful offeror and only applies if that offeror is an "Other Than Small" (Large) Business. Do not submit a Subcontracting Plan unless requested to do so by the Contracting Officer.**

6.5.1.1. If the Offeror proposing on this solicitation is a large business concern, in accordance with the definition as identified in FAR Clause 52.219-1, "SMALL BUSINESS PROGRAM REPRESENTATION", (upon notification that it is the apparent successful Offeror,) the firm must submit a small business subcontracting plan in accordance with FAR Clause 52.219-9 SMALL BUSINESS SUBCONTRACTING PLAN. The goals established for small business, small disadvantaged business, woman-owned business, HUBZone business, Service disabled veteran-owned small business participation are described in Section 00 21 01, *Instructions, Conditions and Notices to Offerors.*

6.5.1.2. The Offeror should provide as much specific information on proposed subcontracted effort for the contract as possible. The Small Business Subcontracting Plan shall be thorough, complete, and in accordance with AFARS Appendix DD and FAR Clause 52.219-9, as it will be incorporated into the contract upon award of the contract to the Offeror, if acceptable and upon final approval of the Contracting Officer.

6.5.1.3. The Plan shall include a description of the types of services the firm proposes to subcontract with small business (SB), small disadvantaged business (SDB), woman-owned small business (WOSB), HUBZone business, and service-disabled veteran-owned small business (SDVOSB), along with the proposed percentages of their participation, to demonstrate a plan to meet the subcontracting goals that will apply to these contracts. If practical, the Offeror shall provide specific information on proposed subcontracted effort for this project.

6.5.1.4. Large Business concerns shall also submit their subcontracting compliance on previous projects completed or underway within the past three years of the date of this solicitation. This requirement may be supported by using copies of the U.S. Government Standard Form 295.

6.5.2. **Evaluation Criteria:**

6.5.2.1. The Government will evaluate the Plan in accordance with the rating system in Army FAR Supplement Appendix DD and with the requirements of FAR Clause 52.219-9. This factor is rated as acceptable or unacceptable. To be acceptable, the contractor must satisfy all objectives in Appendix DD, Part 2 and meet each statutory subcontracting plan requirement outlined in Part 3. Failure to receive a subcontracting plan rating of acceptable could jeopardize the offeror's selection for contrat award.

6.5.2.2. The offeror must provide sufficient information to enable the Contracting Officer to answer "Yes" questions 1 through 13 of Appendix DD-301, Requirements. If any of the questions are answered "No", the plan is not acceptable, and the offeror must revise it before contract award.

6.6. **EVALUATION PROCEDURES**

6.7. SOURCE SELECTION EVALUATION BOARD (SSEB)

The SSEB will be established to conduct the evaluation of proposals received in response to this solicitation. The evaluation will be based on the content of the proposal and any subsequent discussions required, as well as information obtained from other sources, e.g. past performance information. The SSEB will not consider any information incorporated by reference, except as expressly allowed by this solicitation.

6.8. EVALUATION

6.8.1. The Government will evaluate the proposals and assign a consensus rating for each evaluation factor.

6.8.2. The Government may award without discussions. Offerors are cautioned to put forth their best efforts and to furnish all information clearly to allow the Government to evaluate proposals. Offerors should not assume that they will have an opportunity to clarify or correct anything in their proposal after submitting it.

6.8.3. A “Competitive Range” is a subjective determination of the most highly rated proposals in the event that the Government decides that discussions with offerors are required or are considered to be in the Government’s best interests. In such an event, the Contracting Officer will establish a competitive range of all the most highly rated proposals.

6.8.4. If discussions are held, the Government may engage in a broad give-and-take with those offerors in the competitive range, in accordance with FAR 15.306 (d). The Government will provide the Offeror an advance agenda for the discussions. During discussions, the Government may ask the Offeror to further explain its proposal and to answer questions about it.

6.8.5. Upon conclusion of discussions, those offerors still considered the most highly rated will be afforded an opportunity to submit their proposal revisions for final evaluation and selection.

6.9. EVALUATION RATING SYSTEM

6.9.1. **General:** The SSEB will rate each proposal against the specified evaluation criteria in the Solicitation requirements. The SSA will select the source whose proposal offers the best value to the Government in accordance with evaluation criteria and basis for award stated in the solicitation.

6.9.2. **Rating System:** The application of a scale of colors or words used in conjunction with the narrative to denote the degree to which the proposal has met the standard for a non-cost factor. After listing proposal significant strengths, strengths, weaknesses, significant weaknesses, and deficiencies, the SSEB will assign an adjective rating (see table below), which reflect the Government's confidence in each offeror's ability, as demonstrated in its proposal, to perform the requirements stated in the RFP. The adjectival ratings shall be assigned, using the following criteria, which incorporate a proposal risk assessment for a combined technical/risk rating:

Combined Technical/Risk Ratings for Factors 1-3

Color	Rating	Description
Blue	Outstanding	Proposal indicates and exceptional approach and understanding of the requirements and contains multiple strengths, and risk of unsuccessful performance is low.
Purple	Good	Proposal indicates a thorough approach and understanding of the requirements and contains at least one strength, and risk of unsuccessful performance is low to moderate
Green	Acceptable	Proposal meets requirements and indicates an adequate approach and understanding of the requirements, and risk of unsuccessful performance is no worse than moderate.
Yellow	Marginal	Proposal has not demonstrated an adequate approach and understanding of the requirements, and/or risk of unsuccessful performance is high

Red	Unacceptable	Proposal does not meet requirements of the solicitation, and thus, contains one or more deficiencies, and/or risk of unsuccessful performance is unacceptable. Proposal is unawardable

Strengths, Significant Strengths, Weaknesses, Significant Weaknesses, and Deficiencies are defined as follows:

Strength: an aspect of an offeror's proposal that has merit or exceeds specified performance or capability requirements in a way that will be advantageous to the Government during contract performance.

Significant Strength: an aspect of an offeror's proposal that has appreciable merit or appreciably exceeds specified performance or capability requirements in a way that will be appreciably advantageous to the Government during contract performance.

Weakness: a flaw in the proposal that increases the risk of unsuccessful contract performance.

Significant Weakness: a flaw that appreciably increases the risk of unsuccessful contract performance.

Deficiency: A material failure of a proposal to meet a Government requirement or a combination of significant weaknesses in a proposal that increases the risk of unsuccessful contract performance to an unacceptable level.

6.10. PAST PERFORMANCE CONFIDENCE ASSESSMENT RATING SYSTEM (FACTOR 4)

6.10.1. Past Performance Confidence Assessment Ratings assess the offeror's likelihood of success in performing the requirements stated in the RFP based on the offeror's demonstrated performance on recent, relevant contracts.

6.10.2. Performance Confidence Assessment (Overall) Rating System:

6.10.2.1. **Substantial Confidence:** Based on the offeror's recent/relevant performance record, the Government has a high expectation that the offeror will successfully perform the required effort.

6.10.2.2. **Satisfactory Confidence:** Based on the offeror's recent/relevant performance record, the Government has a reasonable expectation that the offeror will successfully perform the required effort.

6.10.2.3. **Limited Confidence:** Based on the offeror's recent/relevant performance record, the Government has a low expectation that the offeror will successfully perform the required effort.

6.10.2.4. **No Confidence:** Based on the offeror's recent/relevant performance record, the Government has no expectation that the offeror will be able to successfully perform the required effort.

6.10.2.5. **Unknown Confidence (Neutral):** No recent/relevant performance record is available or the offeror's performance record is so sparse that no meaningful confidence assessment rating can be reasonably assigned. The offeror may not be evaluated favorably or unfavorably on the factor of past performance.

6.11. SMALL BUSINESS PARTICIPATION FACTOR RATING (Factor 5)

Color	Rating	Description
Blue	Outstanding	Proposal indicates an exceptional approach and understanding of the small business objectives.
Purple	Good	Proposal indicates a thorough approach and understanding of the small business objectives.
Green	Acceptable	Proposal indicates an adequate approach and understanding of the small business objectives.
Yellow	Marginal	Proposal has not demonstrated an adequate approach and understanding of the small business objectives.
Red	Unacceptable	Proposal does not meet small business objectives.

SECTION 00 22 00 - ATTACHMENT 1
COMPANY SPECIALIZED EXPERIENCE - CONSTRUCTION OR PRIME CONTRACTOR

Provide the following information to show examples of projects your company constructed within the last **ten** years indicating experience with projects of similar type and scope. Use one form per project.

(a) Type of Facility Represented
_____

(b) Your Firm's Name
_____

(c) Name of Project_____

(d) Location of Project_____

(e) Owner
_____

(f) General Scope of Construction Project
_____

_____

(g) Your Role (Prime, Joint Venture, or Subcontractor, etc.) and Work Your Company Self-Performed :
_____

_____

(h) At Completion Construction Cost
_____

_____

(i) Extent and Type of Work You Subcontracted Out
_____

_____

(j) Dates Construction: Began_____ Completed_____

(k) Your Performance Evaluation by Owner, if known
_____

_____

(l) Were You Terminated or Assessed Liquidated Damages?
_____

(If either is "Yes", attach an Explanation)

(m) Owner's Point of Contact for Reference (Name and Company)

_____

_____

(n) Current Telephone Number of Reference POC_____

SECTION 00 22 00 - ATTACHMENT 2
COMPANY SPECIALIZED EXPERIENCE - DESIGN FIRM OR IN-HOUSE DESIGN CAPABILITY

Provide the following information to show examples of projects your company constructed within the last **ten** years indicating experience with projects of similar type and scope. Use one form per project.

(a) Type of Facility Represented
_____

(b) Your Firm's Name
_____

(c) Name of Project_____

(d) Location of Project_____

(e) Owner
_____

(f) General Scope of Construction Project
_____

_____

(g) Summary of Your Role in Design of this Project, including Indoor Firing Range design

_____

_____

(h) Identify Estimated ("E") or Actual ("A") Construction Cost
_____

(i) Extent and Type of Work You Subcontracted
_____

_____

(j) Dates Design: Began_____ Completed_____

(k) Dates Construction: Began_____ Completed_____

(l) Your Performance Evaluation, if known
_____

(m) Were You Terminated or Assessed Liquidated Damages?
_____

(If either is "Yes", attach an Explanation)

(n) Owner's Point of Contact for Reference (Name and Company)

_____

_____

(o) Current Telephone Number of Reference
POC_____

SECTION 00 22 00 - ATTACHMENT 3
COMPANY SPECIALIZED EXPERIENCE
KEY SUBCONTRACTOR (OR PRIME IF WORK NOT TO BE SUBCONTRACTED)

Provide the following information to show examples of projects your company constructed within the last **ten** years indicating experience with projects of similar type and scope. Use one form per project.

(a) Type of Facility Represented
_____

(b) Your Firm's Name
_____

(c) Name of project
_____

(d) Owner
_____
_

(e) General Scope of Construction Project
_____

_____
_____

(f) Your Role (Prime, Joint Venture, or Subcontractor, etc.) and Work Your Company Self-Performed :
_____

_____
_____

_____
_____

(g) Your Contract or Subcontract Amount
_____

(h) Detailed Description of Your Self-Performed Work
_____

_____
_____

(i) Describe any Work You Subcontract to Others
_____

_____
_____

(j) Dates Your (sub) contract: Started_____ Completed_____

(k) Your Performance Evaluation by Owner, if any
_____

By Prime:
_____

(l) Were You Terminated or Assessed Liquidated Damages?
_____

(If either is “Yes”, attach an Explanation)

(m) Name and Company of Point of Contact (POC) for reference (If you were a subcontractor, also list the firm you were hired by):

_____
_____

(n) Current Telephone Number of Reference POC
_____

SECTION 00 22 00 - ATTACHMENT 4

NAVFAC/USACE PAST PERFORMANCE QUESTIONNAIRE (Form PPQ-0)

CONTRACT INFORMATION (Contractor to complete Blocks 1-4)

1. Contractor Information
Firm Name: CAGE Code:
Address: DUNs Number:
Phone Number:
Email Address:
Point of Contact: Contact Phone Number:

2. Work Performed as: ☐ Prime Contractor ☐ Sub Contractor ☐ Joint Venture ☐ Other (Explain)
Percent of project work performed:
If subcontractor, who was the prime (Name/Phone #):

3. Contract Information
Contract Number:
Delivery/Task Order Number (if applicable):
Contract Type: ☐ Firm Fixed Price ☐ Cost Reimbursement ☐ Other (Please specify):
Contract Title:
Contract Location:

Award Date (mm/dd/yy):
Contract Completion Date (mm/dd/yy):
Actual Completion Date (mm/dd/yy):
Explain Differences:

Original Contract Price (Award Amount):
Final Contract Price (*to include all modifications, if applicable*):
Explain Differences:

4. Project Description:
- Complexity of Work ☐ High ☐ Med ☐ Routine
- How is this project relevant to project of submission? (*Please provide details such as similar equipment, requirements, conditions, etc.*)
-
-
-

CLIENT INFORMATION (Client to complete Blocks 5-8)

5. Client Information
Name:
Title:
Phone Number:
Email Address:

6. Describe the client's role in the project:

7. Date Questionnaire was completed (mm/dd/yy)**:**

8. Client's Signature:

NOTE: NAVFAC/USACE REQUESTS THAT THE CLIENT COMPLETES THIS QUESTIONNAIRE AND SUBMITS DIRECTLY BACK TO THE OFFEROR. THE OFFEROR WILL SUBMIT THE COMPLETED QUESTIONNAIRE TO USACE WITH THEIR PROPOSAL, AND MAY DUPLICATE THIS QUESTIONNAIRE FOR FUTURE SUBMISSION ON USACE SOLICITATIONS. CLIENTS ARE HIGHLY ENCOURAGED TO SUBMIT QUESTIONNAIRES DIRECTLY TO THE OFFEROR. HOWEVER, QUESTIONNAIRES MAY BE SUBMITTED DIRECTLY TO USACE. PLEASE CONTACT THE OFFEROR FOR USACE POC INFORMATION. THE GOVERNMENT RESERVES THE RIGHT TO VERIFY ANY AND ALL INFORMATION ON THIS FORM.

ADJECTIVE RATINGS AND DEFINITIONS TO BE USED TO BEST REFLECT YOUR EVALUATION OF THE CONTRACTOR'S PERFORMANCE

RATING	DEFINITION	NOTE
(E) Exceptional	Performance meets contractual requirements and exceeds many to the Government/Owner's benefit. The contractual performance of the element or sub-element being assessed was accomplished with few minor problems for which corrective actions taken by the contractor was highly effective.	An Exceptional rating is appropriate when the Contractor successfully performed multiple significant events that were of benefit to the Government/Owner. A singular benefit, however, could be of such magnitude that it alone constitutes an Exceptional rating. Also, there should have been NO significant weaknesses identified.
(VG) Very Good	Performance meets contractual requirements and exceeds some to the Government's/Owner's benefit. The contractual performance of the element or sub-element being assessed was accomplished with some minor problems for which corrective actions taken by the contractor were effective.	A Very Good rating is appropriate when the Contractor successfully performed a significant event that was a benefit to the Government/Owner. There should have been no significant weaknesses identified.
(S) Satisfactory	Performance meets minimum contractual requirements. The contractual performance of the element or sub-element contains some minor problems for which corrective actions taken by the contractor appear or were satisfactory.	A Satisfactory rating is appropriate when there were only minor problems, or major problems that the contractor recovered from without impact to the contract. There should have been NO significant weaknesses identified. Per DOD policy, a fundamental principle of assigning ratings is that contractors will not be assessed a rating lower than Satisfactory solely for not performing beyond the requirements of the contract.
(M) Marginal	Performance does not meet some contractual requirements. The contractual performance of the element or sub-element being assessed reflects a serious problem for which the contractor has not yet identified corrective actions. The contractor's proposed actions appear only marginally effective or were not fully implemented.	A Marginal is appropriate when a significant event occurred that the contractor had trouble overcoming which impacted the Government/Owner.
(U) Unsatisfactory	Performance does not meet most contractual requirements and recovery is not likely in a timely manner. The contractual performance of the element or sub-element contains serious problem(s) for which the contractor's corrective actions appear or were ineffective.	An Unsatisfactory rating is appropriate when multiple significant events occurred that the contractor had trouble overcoming and which impacted the Government/Owner. A singular problem, however, could be of such serious magnitude that it alone constitutes an unsatisfactory rating.
(N) Not Applicable	No information or did not apply to your contract	Rating will be neither positive nor negative.

TO BE COMPLETED BY CLIENT

PLEASE CIRCLE THE ADJECTIVE RATING WHICH BEST REFLECTS YOUR EVALUATION OF THE CONTRACTOR'S PERFORMANCE.

1. QUALITY:						
a) Quality of technical data/report preparation efforts	E	VG	S	M	U	N
b) Ability to meet quality standards specified for technical performance	E	VG	S	M	U	N
c) Timeliness/effectiveness of contract problem resolution without extensive customer guidance	E	VG	S	M	U	N
d) Adequacy/effectiveness of quality control program and adherence to contract quality assurance requirements (without adverse effect on performance)	E	VG	S	M	U	N
2. SCHEDULE/TIMELINESS OF PERFORMANCE:						
a) Compliance with contract delivery/completion schedules including any significant intermediate milestones. *(If liquidated damages were assessed or the schedule was not met, please address below)*	E	VG	S	M	U	N
b) Rate the contractor's use of available resources to accomplish tasks identified in the contract	E	VG	S	M	U	N
3. CUSTOMER SATISFACTION:						
a) To what extent were the end users satisfied with the project?	E	VG	S	M	U	N
b) Contractor was reasonable and cooperative in dealing with your staff (including the ability to successfully resolve disagreements/disputes; responsiveness to administrative reports, businesslike and communication)	E	VG	S	M	U	N
c) To what extent was the contractor cooperative, businesslike, and concerned with the interests of the customer?	E	VG	S	M	U	N
d) Overall customer satisfaction	E	VG	S	M	U	N
4. MANAGEMENT/ PERSONNEL/LABOR						
a) Effectiveness of on-site management, including management of subcontractors, suppliers, materials, and/or labor force?	E	VG	S	M	U	N
b) Ability to hire, apply, and retain a qualified workforce to this effort	E	VG	S	M	U	N
c) Government Property Control	E	VG	S	M	U	N
d) Knowledge/expertise demonstrated by contractor personnel	E	VG	S	M	U	N
e) Utilization of Small Business concerns	E	VG	S	M	U	N
f) Ability to simultaneously manage multiple projects with multiple disciplines	E	VG	S	M	U	N
g) Ability to assimilate and incorporate changes in requirements and/or priority, including planning, execution and response to Government changes	E	VG	S	M	U	N
h) Effectiveness of overall management (including ability to effectively lead, manage and control the program)	E	VG	S	M	U	N

5. COST/FINANCIAL MANAGEMENT						
a) Ability to meet the terms and conditions within the contractually agreed price(s)?	E	VG	S	M	U	N
b) Contractor proposed innovative alternative methods/processes that reduced cost, improved maintainability or other factors that benefited the client	E	VG	S	M	U	N
c) If this is/was a Government cost type contract, please rate the Contractor's timeliness and accuracy in submitting monthly invoices with appropriate back-up documentation, monthly status reports/budget variance reports, compliance with established budgets and avoidance of significant and/or unexplained variances (under runs or overruns)	E	VG	S	M	U	N
d) Is the Contractor's accounting system adequate for management and tracking of costs? *If no, please explain in Remarks section.*		Yes			No	
e) If this is/was a Government contract, has/was this contract been partially or completely terminated for default or convenience or are there any pending terminations? *Indicate if show cause or cure notices were issued, or any default action in comment section below.*		Yes			No	
f) Have there been any indications that the contractor has had any financial problems? *If yes, please explain below.*		Yes			No	
6. SAFETY/SECURITY						
a) To what extent was the contractor able to maintain an environment of safety, adhere to its approved safety plan, and respond to safety issues? (Includes: following the users rules, regulations, and requirements regarding housekeeping, safety, correction of noted deficiencies, etc.)	E	VG	S	M	U	N
b) Contractor complied with all security requirements for the project and personnel security requirements.	E	VG	S	M	U	N
7. GENERAL						
a) Ability to successfully respond to emergency and/or surge situations (including notifying COR, PM or Contracting Officer in a timely manner regarding urgent contractual issues).	E	VG	S	M	U	N
b) Compliance with contractual terms/provisions *(explain if specific issues)*	E	VG	S	M	U	N
c) Would you hire or work with this firm again? *(If no, please explain below)*		Yes			No	
d) In summary, provide an overall rating for the work performed by this contractor.	E	VG	S	M	U	N

Please provide responses to the questions above (*if applicable*) and/or additional remarks. Furthermore, please provide a brief narrative addressing specific strengths, weaknesses, deficiencies, or other comments which may assist our office in evaluating performance risk *(please attach additional pages if necessary)*:

SECTION 00 22 00 - ATTACHMENT 5
KEY PERSONNEL RESUME

Provide information, listed below, on separate sheets showing qualifications for Use a continuation sheet, if needed. NOTE: Match the positions on this page to the list of key personnel in the narrative submission requirements and evaluation criteria.

(a) Your Name and Title_____

(a) Your Assignment on this Project_____

(b) Name of Your Firm_____

(c) No. of Years: With this Firm_____ With other Firms_____

(d) Education: Degree(s)/Year/Specialization_____

(e) _____

(f) Active Registration, if any: No._____, State(s) _____,

First Year/ Current Year _____/_____

(g) Describe Your Specific Experience and Qualifications Relevant to this Project (List Projects):

_____

_____

_____

_____

SECTION 00 22 00 - ATTACHMENT 6
LETTER OF COMMITMENT FOR KEY PERSONNEL

TO: Contracting Officer
SUBJECT: Letter of Commitment for Proposed Contract for _____

Dear Sir or Madam:

I hereby make the unequivocal commitment that, in the event of an award of a contract to (Fill in name of Proposer), that I will fulfill the duty of (Job Title).

Sincerely, (prospective employee signs)

Date: _____

SECTION 00 22 00 - ATTACHMENT 7
LETTER OF COMMITMENT OF (DESIGN FIRM OR KEY SUBCONTRACTOR)
(USE SUBCONTRATOR'S COMPANY LETTERHEAD)

TO: Contracting Officer
SUBJECT: Letter of Commitment for Proposed Contract for _____

Dear Sir or Madam:

I hereby make the unequivocal commitment that, in the event of an award of a contract to (Fill in name of Proposer), that (insert name of design firm) will fulfill the duties of (state role on a project)

Sincerely, (Authorized Official)

Date: _____

SECTION 00 22 00 - ATTACHMENT 8
PROPOSAL DATA SHEET

(1) Name of Solicitation:

Name of Firm:

Address:

Phone:

Fax:

E-mail:

DUNS # (used for accessing the Construction Contractor Appraisal Support System (CCASS) or A-E Contractor Administration Support System (ACASS) Database)

Also provide any other assigned number that identifies the member firm(s) in the ACASS or CCASS databases. If a separate DUNS has been created for a joint venture (J-V) it must also be submitted. Provide a DUNS number for each company identified in any proposed Contractor-subcontractor association of firms. If the firm is a joint venture or contractor-subcontractor association of firms, list the individual firms and briefly describe the nature of the association. Provide DUNS for each.

Firm 1:

Firm 2:

Firm 3:

Nature of Association:

(2) AUTHORIZED NEGOTIATORS. FAR 52.215-11

The Offeror represents that the following persons are authorized to negotiate on its behalf with the Government in connection with this Request for Proposals (RFP).

[List names, titles, and telephone number of the authorized negotiator.]
Name of Person Authorized to Negotiate:
Negotiator's Address:
Negotiator's Telephone:
Negotiator’s E-mail:

End of Section 00 22 00

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10/17

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ATTACHMENTS:

Project Sign Details

General Wage Decision No. ND180039

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OTHER ADMINISTRATIVE AND SPECIAL REQUIREMENTS
10/17

PART 1 GENERAL

Attachments:

Project Sign Details
General Wage Decision No. ND180039

1.1 (UAI 5152.231-9000) EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE (MAR 1995)

Note: Copies of each regional schedule may be obtained through the following Internet site: http://www.publications.usace.army.mil/USACEPublications/EngineerPamphlets.aspx. Currently the "Construction Equipment Ownership and Operating Expense Schedule" can be accessed on page 11 of 14 of the afore indicated URL.

(a) This clause does not apply to terminations. See UAI 5152.249-9000, Basis for settlement of proposals and FAR Part 49.

(b) Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a Contractor or subcontractor at any tier shall be based on actual cost data for each piece of equipment or groups of similar serial and series for which the Government can determine both ownership and operating costs from the Contractor's accounting records. When both ownership and operating costs cannot be determined for any piece of equipment or groups of similar serial or series of equipment from the Contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP 1110-1-8, "Construction Equipment Ownership and Operating Expense Schedule," Region IV. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the Contracting Officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be developed using the formula provided in the schedule. For forward pricing, the Schedule in effect at the time of negotiations shall apply. For retrospective pricing, the Schedule in effect at the time the work was performed shall apply.

(c) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees.

(d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the small acquisition threshold (SAT), the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data as appropriate. The data

shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet.

1.2 (UAI 5152.232-9000) PAYMENT FOR MATERIALS DELIVERED OFF-SITE (MAR 2009)

(a) Pursuant to FAR clause 52.232-5, Payments Under Fixed Priced Construction Contracts, materials delivered to the contractor at locations other than the site of the work may be taken into consideration in making payments if included in payment estimates and if all the conditions of the General Provisions are fulfilled. Payment for items delivered to locations other than the work site will be limited to:

(1) materials required by the technical provisions; or

(2) materials that have been fabricated to the point where they are identifiable to an item of work required under this contract; or.

(3) Items specifically listed below.

(b) Payment for materials delivered off-site shall be made only after receipt of paid invoices listing the value of material and labor incorporated in the items along with a canceled check showing the prime contractor's title to the time delivered off site. Payment for materials delivered off-site shall be limited to the following items: (List specific material items to be considered for payment when off-site delivery is made.)

1.3 (UAI 5152.236-9000) DESIGN-BUILD CONTRACT ORDER OF PRECEDENCE (AUG 1997)

(a) The contract includes the standard contract clauses and schedules current at the time of contract award. It entails (1) the solicitation in its entirety, including all drawings, cuts, and illustrations, and any amendments, and (2) the successful offeror’s accepted proposal. The contract constitutes and defines the entire agreement between the Contractor and the Government. No documentation shall be omitted which in any way bears upon the terms of that agreement.

(b) In the event of conflict or inconsistency between any of the provisions of this contract, precedence shall be given in the following order:

(1) Betterments: Any portions of the accepted proposal which both conform to and exceed the provisions of the solicitation.

(2) The provisions of the solicitation. (See also FAR 52.236-21, Specifications and Drawings for Construction)

(3) All other provisions of the accepted proposal.

(4) Any design products including, but not limited to, plans, specifications, engineering studies and analyses, shop drawings, equipment installation drawings, etc. These are "deliverables" under the contract and are not part of the contract itself. Design products must conform with all provisions of the contract, in the order of precedence herein.
(End of clause)

1.4 (UAI 5152.236-9001) PERSONNEL, SUBCONTRACTORS AND OUTSIDE ASSOCIATES OR CONSULTANTS (MAY 2006)

In connection with this contract, any in-house personnel, subcontractors, and outside associates or consultants will be limited to individuals or firms that were specifically identified in the Contractor's accepted proposal. The Contractor shall obtain the Contracting Officer's written consent before making any substitution for these designated in-house personnel, subcontractors, associates, or consultants. If the Contractor proposes a substitution, it shall submit the same type of information that was submitted in the accepted proposal to the Contracting Officer for evaluation and approval. The level of qualifications and experience submitted in the accepted proposal or that required by the Solicitation, whichever is greater, is the minimum standard for any substitution. (End of clause)

1.5 (UAI 5152.236-9002) GOVERNMENT-FURNISHED SPECIFICATIONS, DRAWINGS, SURVEYS, AND SPECIFICATIONS IN THE REQUEST FOR PROPOSAL (JUL 2002)

This is to clarify DFARS 252.236-7001, Contract Drawings and Specifications, refers to any Government-furnished design or design criteria included in the Request for Proposal (RFP). (End of clause)

1.6 (UAI 5152.236-9003) GOVERNMENT-FURNISHED SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (JUL 2003)

This is to clarify FAR 52.236-21, Specifications and Drawings for Construction, refers to any specifications and drawings furnished in the Request for Proposal (RFP). The term "specifications" refers to the design criteria or scope of work, in addition to any attached specifications. (End of clause)

1.7 (UAI 5152.236-9004) RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN (MAY 2002)

(a) The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other non-construction services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiency in its designs, drawings, specifications, and other non-construction services and perform any necessary rework or modifications, including any damage to real or personal property, resulting from the design error or omission.

(b) The standard of care for all design services performed under this agreement shall be the care and skill ordinarily used by members of the architectural or engineering professions practicing under similar conditions at the same time and locality. Notwithstanding the above, in the event that the contract specifies that portions of the Work be performed in accordance with a performance standard, the design services shall be performed so as to achieve such standards.

(c) Neither the Government’s review, approval or acceptance of, nor payment for, the services required under this contact, shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract. The Contractor shall be and remain liable to the Government in accordance with applicable

law for all damages to the Government caused by the Contractor's negligent performance of any of these services furnished under this contract.

(d) The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law.

(e) If the Contractor is comprised of more than one legal entity, each entity shall be jointly and severally liable hereunder.
(End of clause)

1.8 (UAI 5152.236-9005) WARRANTY OF DESIGN (MAY 2002)

(a) The Contractor warrants that the design shall be performed in accordance with the contract requirements. Design and design related construction not conforming to the Contract requirements shall be corrected at no additional cost to the Government. The standard of care for design is defined in paragraph (b) of special contract requirement UAI 5152.236-9004, Responsibility of the Contractor for Design.

(b) The period of this warranty shall commence upon final completion and the Government's acceptance of the work, or in the case of the Government's beneficial occupancy of all or part of the work for its convenience, prior to final completion and acceptance, at the time of such occupancy.

(c) This design warranty shall be effective from the above event through the Statue of Limitations and Statute of Repose, as applicable to the state that the project is located in.

(d) The rights and remedies of the Government provided for under this clause are in addition to any other rights and remedies provided in this contract or by law.
(Emd of Clause)

1.9 (UAI 5152.236-9006) DEVIATING FROM THE ACCEPTED DESIGN (JUN 2002)

(a) The Contractor must obtain the approval of the Designer of Record and the Government's concurrence for any Contractor proposed revision to the professionally stamped and sealed and Government reviewed design, before proceeding with the revision. The Government reserves the right to disapprove such a revision.

(b) The Government reserves the right to non-concur with any revision to the design, which may impact furniture, furnishings, equipment selections or operations decisions that were made, based on the reviewed design.

(c) Any revision to the design, which deviates from the contract requirements (i.e., the RFP and the accepted proposal), will require a bilateral modification (e.g. supplemental agreement) to the contract before any work commences.

(d) Unless the Government initiates a change to the contract requirements, or the Government determines that the Government furnished design criteria are incorrect and must be revised, any Contractor initiated proposed change to the contract requirements, which results in additional cost, shall strictly be at the Contractor's expense.

(e) The Contractor shall track all approved revisions to the reviewed and accepted design and shall incorporate them into the as-built design documentation, in accordance with agreed procedures. The Designer of Record

shall document its professional concurrence on the as-builts for any revisions in the stamped and sealed drawings and specifications.
(End of clause)

1.10 (UAI 5152.236-9007) CONTRACTOR'S ROLE DURING DESIGN PROCESS (JUN 1998)

The Contractor's construction management key personnel shall be actively involved during the design process to effectively integrate the design and construction requirements of this contract. In addition to the typical required construction activities, the Contractor's involvement includes, but is not limited to actions such as: integrating the design schedule into the Master Schedule to maximize the effectiveness of fast-tracking design and construction (within the limits allowed in the contract), ensuring constructability and economy of the design, integrating the shop drawing and installation drawing process into the design, executing the material and equipment acquisition programs to meet critical schedules, effectively interfacing the construction QC program with the design QC program, and maintaining and providing the design team with accurate, up-to-date redline and as-built documentation. The Contractor shall require and manage the active involvement of key trade subcontractors in the above activities.
(End of clause)

1.11 (UAI 5152.236-9008) VALUE ENGINEERING AFTER AWARD (JUN 1999)

(a) In reference to FAR 52.248-3, Value Engineering-Construction, the Government may refuse to entertain a "Value Engineering Change Proposal" (VECP) for those "performance oriented" aspects of the Solicitation documents which were addressed in the Contractor's accepted contract proposal and which were evaluated in competition with other offerors for award of this contract.

(b) The Government may consider a VECP for those "prescriptive" aspects of the Solicitation documents, not addressed in the Contractor's accepted contract proposal or addressed but evaluated only for minimum conformance with the Solicitation requirements.

(c) For purposes of this clause, the term "performance oriented" refers to those aspects of the design criteria or other contract requirements which allow the offeror or Contractor certain latitude, choice of and flexibility to propose in its accepted contract offer a choice of design, technical approach, design solution, construction approach or other approach to fulfill the contract requirements. Such requirements generally tend to be expressed in terms of functions to be performed, performance required or essential physical characteristics, without dictating a specific process or specific design solution for achieving the desired result.

(d) In contrast, for purposes of this clause, the term "prescriptive" refers to those aspects of the design criteria or other Solicitation requirements wherein the Government expressed the design solution or other requirements in terms of specific material, approaches, systems, and/or processes to be used. Prescriptive aspects typically allow the offerors little or no freedom in the choice of design approach, materials, fabrication techniques, methods of installation, or any other approach to fulfill the contract requirements.
(End of clause)

1.12 (UAI 5152.236-9009) PARTNERING (FEB 2000)

In order to most effectively accomplish this contract, the Government proposes to form a partnership with the Contractor to develop a cohesive building team. It is anticipated that this partnership would involve the relevant personnel at the installation and/or facility at which work for each task order will be performed, the Contractor, primary subcontractors and designers and the Corps of Engineers. This partnership would strive to develop a cooperative management team drawing on the strengths of each team member in an effort to achieve a quality project within budget and on schedule. This partnership would be bilateral in membership and participation will be totally voluntary. Any cost associated with effectuating this partnership, excluding travel and lodging cost of Government personnel, will be borne by each party. The partnering meetings shall be held in a location and at a date and time mutually agreed upon by representatives of each interested party at the pre-construction meeting.
(End of clause)

1.13 (UAI 5152.236-9010) GOVERNMENT RE-USE OF DESIGN (MAY 2006)

In conjunction with the Clause 252.227-7022, GOVERNMENT RIGHTS UNLIMITED, the Government will not ask for additional originals or copies of the design works after the Contractor provides all required design documentation and as-built documentation under the instant contract. Further, if the Government uses the design for other projects without additional compensation to the Contractor for re-use, the Government releases the Contractor from liability in the design on the other projects, due to defects in the design that are not the result of fraud, gross mistake as amounts to fraud, gross negligence or intentional misrepresentation.
(End of clause)

1.14 (UAI 5152.222-9000) CONTRACTOR SUPPLY AND USE OF ELECTRONIC SOFTWARE FOR PROCESSING CONSTRUCTION WAGE RATE REQUIREMENTS STATUTE CERTIFIED LABOR PAYROLLS (APRIL 2011)

(a) The Contractor is encouraged to use a commercially-available electronic system to process and submit certified payrolls electronically to the Government. The requirements for preparing, processing and providing certified labor payrolls are established by the Wage Rate Requirements statute.

(b) If the Contractor elects to use an electronic payroll processing system, then the Contractor shall be responsible for obtaining and providing for all access, licenses, and other services required to provide for receipt, processing, certifying, electronically transmitting to the Government, and storing weekly payrolls and other data required for the Contractor to comply with the Wage Rate Requirements statute. When the Contractor uses an electronic payroll system, the electronic payroll service shall be used by the Contractor to prepare, process, and maintain the relevant payrolls and basic records during all work under this construction contract and the electronic payroll service shall be capable of preserving these payrolls and related basic records for the required 3 years after contract completion. If the Contractor chooses to use an electronic payroll system, then the contractor shall obtain and provide electronic system access to the Government, as required to comply with the Wage Rate Requirements over the duration of this construction contract. The

access shall include electronic review access by the Government contract administration office to the electronic payroll processing system used by the contractor.

(c) The Contractor's provision and use of an electronic payroll processing system shall meet the following basic functional criteria:

(1) commercially available;

(2) compliant with appropriate Wage Rate Requirements statute payroll provisions in the FAR;

(3) able to accommodate the required numbers of employees and subcontractors planned to be employed under the contract;

(4) capable of producing an Excel spreadsheet-compatible electronic output of weekly payroll records (format at http://rms.usace.army.mil) for export in an Excel spreadsheet to be imported into the Contractor's Quality Control System (QCS) version of Resident Management System (RMS);, that in turn shall export payroll data to the Government's Resident Management System (RMS);

(5) demonstrated security of data and data entry rights;

(6) ability to produce Contractor-certified electronic versions of weekly payroll data;

(7) ability to identify erroneous entries and track the data/time of all versions of the certified Wage Rate Requirements statute payrolls submitted to the government over the life of the contract;

(8) capable of generating a durable record copy, that is, a CD or DVD and PDF file record of data from the system database at end of the contract closeout. This durable record copy of data from the electronic Construction Wage Rate payroll processing system shall be provided to the Government during contract closeout.

(d) All Contractor-incurred costs related to the Contractor's provision and use of an electronic payroll processing service shall be included in the Contractor's price for the overall work under the contract. The costs for compliance with the Wage Rate Requirements statute by using electronic payroll processing services shall not be a separately bid or reimbursed item under this contract.
(End of Clause)

1.15 (UAI 5115.504) AWARD TO SUCCESSFUL OFFEROR

Only a warranted Contracting Officer (either a Procuring Contracting Officer (PCO), or an Administrative Contracting Officer (ACO)), acting within their delegated limits, has the authority to issue modifications or otherwise change the terms and conditions of this contract. If an individual other than the Contracting Officer attempts to make changes to the terms and conditions of this contract you shall not proceed with the change and shall immediately notify the Contracting Officer. Proceeding with any work not authorized by the Contracting Officer will be at the Contractor’s own risk.

1.16 (UAI 5122.1302-100) VETERANS EMPLOYMENT EMPHASIS FOR U.S. ARMY CORPS OF ENGINEERS CONTRACTS

In addition to complying with the requirements outlined in FAR Part 22.13, FAR Provision 52.222-38, FAR Clause 52.222-35, FAR Clause 52.222-37, DFARS 222.13 and Department of Labor regulations, U.S. Army Corps of Engineers (USACE) contractors and subcontractors at all tiers are encouraged to promote the training and employment of U.S. veterans while performing under a USACE contract. While no set-aside, evaluation preference, or incentive applies to the solicitation or performance under the resultant contract, USACE contractors are encouraged to seek out highly qualified veterans to perform services under this contract. The following resources are available to assist USACE contractors in their outreach efforts:

U.S. Department of Labor Veterans employment: https://www.vets.gov/

Federal Veteran employment information at https://www.fedshirevets.gov/index.aspx

Department of Labor Veterans Employment Assistance http://www.dol.gov/vets/

Department of Veterans Affairs-VOW to Hire Heros Act http://benefits.va.gov/vow/

Army Wounded Warrior Program- http://wtc.army.mil/modules/employers/index.html

U.S. Chamber of Commerce Foundation-Hiring Our Heros https://www.uschamberfoundation.org/hiring-our-heroes

Guide to Hiring Veterans - Reference Material https://www.whitehouse.gov/sites/default/files/docs/white_house_business_council_-_guide

1.17 UAI 5152.249-9000 BASIS FOR SETTLEMENT OF PROPOSALS (MAR 2009)

Actual costs will be used to determine equipment cost for a settlement proposal submitted on the total cost basis under FAR 49.206-2(b). In evaluating a termination settlement proposal using the total cost basis, the following principles will be applied to determine allowable equipment costs:

(a) Actual costs for each piece of equipment, or groups of similar serial or series equipment, need not be available in the contractor's accounting records to determine total actual equipment costs.

(b) If equipment costs have been allocated to a contract using predetermined rates, those charges will be adjusted to actual costs.

(c) Recorded job costs adjusted for unallowable and unallocable expenses will be used to determine equipment operating expenses.

(d) Ownership costs (depreciation) will be determined using the contractor's depreciation schedule (subject to the provisions of FAR 31.205 11).

(e) License, taxes, storage and insurance costs are normally recovered as an indirect expense and unless the contractor charges these costs directly to contracts, they will be recovered through the indirect expense rate.

(End of clause)

1.18 COMPLETION OF WORK

See Section 00 73 00 SUPPLEMENTARY CONDITIONS (SPECIAL CONTRACT REQUIREMENTS), FAR 52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984).

1.18.1 Sequence of Design-Construction

(a) After receipt of the Contract Notice to Proceed (NTP), the Contractor shall initiate design, comply with all design submission requirements as covered in Division 01 General Requirements of the advertised Solicitation, and obtain Government review of each submission. No construction may be started until the Government reviews the 100 Percent Corrected Design submission and determines it satisfactory for purposes of beginning construction. The Government will not grant any time extension for any design resubmittal required when, in the opinion of the Contracting Officer, the initial submission failed to meet the minimum quality requirements as set forth in the Contract.

(b) If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed 100 Percent Corrected Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted and are satisfactory to the Government. Proceeding with limited construction requires written authorization by the Contracting Officer.

1.19 CONTRACTOR PERFORMANCE EVALUATIONS

Federal Acquisition Regulation (FAR) Subpart 36.201(Evaluation of Contractor Performance) requires evaluation of the construction contractor's performance throughout the contract period of performance. The United States Army Corps of Engineers (USACE) follows the procedures outlined in Engineering and Construction Bulletin 2014-13 to fulfill this FAR requirement. For construction contracts valued at or above $700,000.00, including all modifications, the USACE will evaluate Contractor's performance using the web-based Contractors Performance Assessment Reporting System (CPARS). After the USACE drafts an evaluation (interim or final), the Contractor will have the opportunity to access, review, comment and either concur or non-concur with the evaluation in the CPARS system for a period of 60 days. Access to the CPARS system requires either specific software called PKI certification (recommended method) or a username and password. The PKI certification is a Department of Defense recommendation and to provide security in electronic transactions. The certification software could cost approximately $110 - $125 per certificate per year and may be purchased from an External Certificate Authorities (ECA) vendor. Current information about the PKI certification process and contacting vendors can be found on the web site: https://www.cpars.gov.

1.20 LIQUIDATED DAMAGES-CONSTRUCTION

See Section 00 73 00 SUPPLEMENTARY CONDITIONS (SPECIAL CONTRACT REQUIREMENTS), FAR 52.211-12 LIQUIDATED DAMAGES-CONSTRUCTION (SEPT 2000).

1.21 ANTITERRORISM (AT)/OPERATIONS SECURITY (OPSEC) PROVISIONS

1. AT Level I Training

All Contractor employees, to include subcontractor employees, requiring access to Army installations, facilities and controlled access areas shall complete AT Level I awareness training within 30 calendar days after contract start date or effective date of incorporation of this requirement into the contract, whichever is applicable. Upon request, the Contractor shall submit certificates of completion for each affected Contractor employee and subcontractor employee, to the COR or to the contracting officer (if a COR is not assigned), within 5 calendar days after completion of training by all employees and subcontractor personnel. AT Level I awareness training is available at the following website: http://jko.jten.mil/courses/atl1/launch.html; or it can be provided by the RA ATO in presentation form which will be documented via memorandum.

2. Access and General Protection/Security Policy and Procedures

All contractor and all associated sub-contractors employees shall comply with applicable installation, facility and area commander installation/facility access and local security policies and procedures (provided by government representative). The contractor shall also provide all information required for background checks to meet installation/facility access requirements to be accomplished by installation Provost Marshal Office, Director of Emergency Services or Security Office. Contractor workforce must comply with all personal identity verification requirements (FAR clause 52.204-9, Personal Identity Verification of Contractor Personnel) as directed by DOD, HQDA and/or local policy. In addition to the changes otherwise authorized by the changes clause of this contract, should the Force Protection Condition (FPCON) at any installation or facility change, the Government may require changes in contractor security matters or processes.

2b. for Contractors Who Do Not Require CAC, But Require Access To A Dod Facility Or Installation

Contractor and all associated sub-contractors employees shall comply with adjudication standards and procedures using the National Crime Information Center Interstate Identification Index (NCIC-III) and Terrorist Screening Database (TSDB) (Army Directive 2014-05 / AR 190-13), applicable installation, facility and area commander installation/facility access and local security policies and procedures (provided by government representative, as NCIC and TSDB are available), or, at OCONUS locations, in accordance with status of forces agreements and other theater regulations.

3. Not Used

4. Suspicious Activity Reporting Training (e.g. iWATCH, CorpsWatch, or See Something, Say Something)

The contractor and all associated sub-contractors shall receive a brief/training (provided by the RA) on the local suspicious activity reporting program. This locally developed training will be used to inform employees of the types of behavior to watch for and instruct employees to report suspicious activity to the project manager, security representative or law enforcement entity. This training shall be completed within 30 calendar days of contract award and within 30 calendar days of new employees commencing performance with the results reported to the COR NLT 5 calendar days after the completion of the training.

5. Contractor Employees Who Require Access to Government Information Systems.

Not Applicable

6. OPSEC Standing Operating Procedure/Plan

Not Applicable

7. OPSEC Training

All new contractor employees will complete Level I OPSEC Training within 30 calendar days of their reporting for duty. Additionally, all contractor employees must complete annual OPSEC awareness training. The contractor shall submit certificates of completion for each affected contractor and subcontractor employee, to the COR or to the contracting officer (if a COR is not assigned), within 5 calendar days after completion of training. OPSEC awareness training is available at the following websites: https://www.iad.gov/ioss/ or http://www.cdse.edu/catalog/operations-security.html; or it can be provided by the RA OPSEC Officer in presentation form which will be documented via memorandum.

8. Information Assurance (IA)/Information Technology (IT) Training

Not Applicable

9. Information Assurance (IA)/Information Technology (IT) Certification

Not Applicable

10. Not Used
11. Not Used

12. Handling or Access to Classified Information.

Not Applicable

13. Will be Escorted in Areas Where They May be Exposed to Classified and/or Sensitive Materials and/or Sensitive or Restricted Areas

If applicable, all contract employees, including subcontractor employees who are not in possession of the appropriate security clearance or access privileges, will be escorted in areas where they may be exposed to classified and/or sensitive materials and/or sensitive or restricted areas.

14. Contractor Company to Obtain a Facility Clearance and Individual Clearances at the Appropriate Level

The Prime Contractor Company must have (or will have) a Facility Clearance (FCL) at the appropriate level (IAW the NISPOM DOD 5220.22-M and AR 380-49) prior to the start of the contract awarded period of performance. Contractor personnel performing work under this contract must have the required security clearance, per AR 380-67, at the appropriate level at the start of the period of performance. Security Clearances and FCL requirements are required to be maintained for the life of the contract IAW the DD254 attached to the contract. If no FCL, the supporting Government Contracting Activity will sponsor the prime contract company in obtaining the FCL.

15. Pre-Screen Candidates using E-Verify Program

The Contractor must pre-screen Candidates using the E-verify Program (http://www.uscis.gov/e-verify) website to meet the established employment eligibility requirements. The Vendor must ensure that the Candidate has two valid forms of Government issued identification prior to enrollment to ensure the correct information is entered into the E-verify system. An initial list of verified/eligible Candidates must be provided to the COR no later than 3 business days after the initial contract award.

16. Required Armed Security Guards

Not Applicable

17. Threat Awareness Reporting Program (TARP) Training

All new contractor employees will complete annual Threat Awareness and Reporting Program (TARP) Training provided by a Counterintelligence Agent, IAW AR 381-12 . The contractor shall submit certificates of completion for each affected contractor and subcontractor employee(s) or a memorandum for the record, to the COR or to the contracting officer (if a COR is not assigned), within 5 calendar days after completion of training. Authorized webbased TARP training for CAC card holders is available at the following website: https://www.us.army.mil/suite/page/655474

1.22 EXCEPTION TO COMPLETION TIME AND LIQUIDATED DAMAGES

In case the Contracting Officer determines that seeding, sodding, and/or planting and/or the specified maintenance thereof is not feasible during the construction period, such work will be exempt from the completion time and liquidated damages. This work shall be accomplished during the first seeding, sodding, and/or planting period and the specified maintenance period following the completion date.

1.23 DESIGN-BUILD CONTRACT - ORDER OF PRECEDENCE

(a) The contract includes the standard contract clauses and schedules current at the time of contract award. It entails (1) the solicitation in its entirety, including all drawings, cuts, and illustrations, and any amendments, and (2) the successful offeror's accepted proposal. The contract constitutes and defines the entire agreement between the Contractor and the Government. No documentation shall be omitted which in any way bears upon the terms of that agreement.

(b) In the event of conflict or inconsistency between any of the provisions of this contract, precedence shall be given in the following order:

(1) Betterments: Any portion of the accepted proposal, which both conform to and exceed the provisions of the solicitation. "Betterment" is defined as any product, component, or system, which exceeds the requirements stated in the solicitation.

(2) The provisions of the solicitation. (See also GENERAL CONDITIONS (CONTRACT CLAUSES) Clause entitled "SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION".)

(3) All other provisions of the accepted proposal.

(4) Any design products including, but not limited to, plans, specifications, engineering studies and analyses, shop drawings, equipment installation drawings, etc.. These are "deliverable" under the contract and are not part of the contract itself. Design products must conform with all the provisions of the contract, in the order of precedence herein.

(c) Where conflicts between the solicitation requirements and the UFGS guide specifications (available as indicated in Section 01 33 00.32 DESIGN AND CONSTRUCTION DELIVERABLES/PROCEDURES) exist, the solicitation requirements shall take precedence. Any installation requirements within solicitation requirements, but not contained in the UFGS guide specifications, shall be added to the specifications or shown on the drawings.

1.24 RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN

(a) The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and any other non-construction services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiency in its designs, drawings, specifications, and other non-construction services.

(b) Neither the Government's review, approval or acceptance of, nor payment for, the services required under this contract shall be construed to operate as a waiver of any rights under this contract or any cause of action arising out of the performance of this contract, and the Contractor shall be and remain liable to the Government in accordance with applicable law for all damages to the Government caused by the Contractor's negligent performance of any of the services described in paragraph (a) furnished under this contract.

(c) The rights and remedies of the Government provided under this contract are in addition to any other rights and remedies provided by law.

1.25 ORDER OF WORK

The Existing Firing Range building(s), as shown on drawings, must remain fully operational until the new Indoor Firing Range, described in the plans and specs, is complete and accepted by the Government.

Utilities on Minot AFB are owned and operated by privatized utility companies. Water, Sewer and Gas are shown on the drawings as options. This contract will be responsible for providing design for the Water, Sewer and Gas utilities in the basic bid. The option items are to procure and install each utility in the unlikely event the privatized utility does not perform the work.

1.26 REQUEST FOR PROPOSAL (RFP) DRAWINGS

Fourteen (14) calendar days after Notice to Proceed, the Government will provide the successful Contractor a CD-ROM containing editable RFP CAD file drawings (file format and general CAD requirements are defined in Section 01 33 00.32 DESIGN AND CONSTRUCTION DELIVERABLES/PROCEDURES and 01 78 39.00 24 AS-BUILT DRAWINGS) for use in preparation of design drawing deliverables. As-built drawing requirements are specified in Section 01 78 39.00 24 AS-BUILT DRAWINGS.

1.27 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Equipment Room Drawings; G-RO.

This submittal is not required during construction, if equipment room drawings are shown on the 100 percent design submittal.

SD-05 Design Data

USACE BIM PROJECT EXECUTION PLAN (USACE PxP) TEMPLATE; G-DO

1.28 CONCURRENT CONSTRUCTION

Construction work closely related to and/or located at the site of the work under a concurrent contract may be in progress simultaneously with work under this contract. The Contractor shall cooperate with others as necessary in the interest of timely completion of all work. In the event of interference, the Contracting Officer shall be notified immediately for resolution and his decision shall be final.

1.29 PAYMENT

1.29.1 PROMPT PAYMENT ACT

Pay requests authorized in GENERAL CONDITIONS (CONTRACT CLAUSES) clause: "Payments Under Fixed-Price Construction Contracts", will be paid pursuant to the clause, "Prompt Payment for Construction Contracts". Pay requests will be submitted on ENG Form 93 and 93a, "Payment Estimate-Contract Performance" and "Continuation". All information and substantiation required by the identified contract clauses will be submitted with the ENG Form 93, and the required certification will be included on the last page of the ENG Form 93a, signed by an authorized contractor official and dated when signed. The designated billing office is the Office of the Area Engineer.

1.29.2 PAYMENT FOR MATERIALS DELIVERED OFFSITE

See UAI 52.232-5000 PAYMENT FOR MATERIALS DELIVERED OFF-SITE

1.30 AVAILABILITY OF UTILITY SERVICES

Utilities at Minot AFB are privatized and will require the contractor to contact the Base Utility COR, and the following utility providers for placement of gas, water, sanitary sewer and electrical utilities for the facility. The base shall pay all service installation fees, connection fees and/or utility tap-in fees associated with the new utilities being installed on this project.

Utility COR: Contact Mike Nilson at 701-723-4843, to coordinate requirements for placement of gas, water, sanitary sewer, and electrical utilities.

Gas: Contact Montana-Dakota Utilities (MDU) at 701-857-9901, Curt Olson, or 701-857-9902, Dawn Roness. MDU constructs all service lines, and provides service line shutoff valve and meter assembly.

Water/Sanitary Sewer: Contact Base Utilities at (701) 727-5050 Mr. Russ Gohl for water and sanitary sewer installation. Base Utilities constructs all water and sewer mains and services to 5 feet from the building at expense.

Electrical: Contact Verendrye Electric at 800-472-2141 Mr. John Westby for exterior electric primary service installation. Verendrye Electric constructs all exterior electric primary service and makes all temporary connections at –expense.

1.31 UTILITY SERVICE INTERRUPTIONS

The Contractor shall submit written notification not less than 15 calendar days in advance of each interruption of each utility and communication service to or within existing buildings and facilities being used by others. No single outage will exceed 4 hours unless approved in writing. The time and duration of all outages will be coordinated and approved with the Using Agency by the Contracting Officer.

1.32 DIGGING PERMITS AND ROAD CLOSINGS

The Contractor shall allow 14 calendar days from date of written application to receive permission to dig and to close roads. Roads shall only be closed one lane at a time and vehicular traffic shall be allowed to pass through the construction area. Work on or near roadways shall be flagged in accordance with the safety requirements in Safety and Health Requirements Manual EM 385-1-1, which forms a part of these specifications. Work located along the alert force route shall not cause blockage and the Contractor shall maintain unobstructed access for alert force traffic at all times.

1.33 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

a. This clause specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the GENERAL CONDITIONS (CONTRACT CLAUSES) clause entitled "Default: (Fixed-Price Construction)." In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

b. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA)

or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORK DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
23	17	13	4	3	6	3	4	4	3	12	20

c. Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the contractor's scheduled work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph b. above, the contracting officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the GENERAL CONDITIONS (CONTRACT CLAUSES) clause entitled "Default (Fixed Price Construction)". (ER 415-1-15)

1.34 INSURANCE REQUIRED

In accordance with GENERAL CONDITIONS (CONTRACT CLAUSES) clause: "Insurance Work on a Government Installation," the Contractor shall procure the following minimum insurance:

Type	Amount
Workmen's Compensation and Employer's Liability Insurance	$100,000
General Liability Insurance	$500,000 per occurrence
Automobile Liability Insurance	
Bodily injury	$200,000 per person and $500,000 per occurrence
Property damage	$ 20,000 per occurrence

(Coverages per FAR 28.307-2)

1.35 SECURITY REQUIREMENTS

1.35.1 Contractor's Employee Identification

The Contractor shall be responsible for furnishing to each employee and for requiring each employee engaged on the work to display such identification as may be approved and directed by the Contracting Officer. All prescribed identification shall immediately be delivered to the Contracting Officer, for cancellation upon release of any employees. When the contract involves work in restricted security areas, only employees who are U.S. citizens will be permitted to enter. Proof of U.S. citizenship is required prior to entry. When required by the Contracting Officer, the Contractor shall

obtain and submit fingerprints of all persons employed or to be employed on the project. (Based on FAR 52.204-2)

1.36 CONTRACTOR PERSONNEL

Once a contract has been formalized, the contractor must furnish the 5 CONS or the Army Corps of Engineers with a full list of personnel and vehicles requiring access to the installation. The list must include full name, SSAN, address, and the inclusive dates/times of each employee requiring entry; and the make, model, year, color, and license plate number of all vehicles to be operated on the installation. This list will be verified and authenticated by the escorting agency and forwarded to 5 SFS Pass and Registration for further processing. After reviewing the form for accuracy and verification, 5 SFS Pass and Registration will maintain the form until the contractor arrives on the installation to begin work. The contractor must report to Pass and Registration to obtain the passes between 0800 and 1600 on the duty day the work is to begin. The escorting agency, in coordination with the contractor, will be responsible for monitoring the expiration dates of passes, and will ensure all personnel and vehicle passes are returned for destruction no later than the duty day following expiration, or the employees termination of employment. As the sponsoring agency for all contracts let on this installation, the escorting agency will be the point of contact for contracted employees.

1.37 CONTRACTOR QUALITY CONTROL (CQC)

See Section 01 45 00.00 10 QUALITY CONTROL.

1.38 NONDOMESTIC CONSTRUCTION MATERIALS

The list of excepted nondomestic construction materials or their components referenced in the Buy American Construction Material Contract Clauses includes the list set forth in paragraph 25.104 of the Federal Acquisition Regulation.

1.39 DAILY WORK SCHEDULES AND WEEKLY COORDINATION MEETINGS

In order to closely coordinate work under this contract, the Contractor shall prepare a written agenda/meeting minutes and attend a weekly coordination meeting with the Contracting Officer and Using Service at which time the Contractor shall submit for coordination and approval, his proposed daily work schedule for the next two week period. The Contractor shall provide a copy of modifications (MODs), Serial Letters, Requests for Information (RFIs)and any other information that is needed in the minutes of the meeting. Required temporary utility services, time and duration of interruptions, and protection of adjoining areas shall be included with the Contractor's proposed 2-week work schedule. At this meeting, the Contractor shall also submit his schedule of proposed dates and times of all preparatory inspections to be performed during the next 2 weeks. The items of work listed on the proposed 2-week schedule are to be keyed to the NAS by activity number and description for each activity anticipated to be performed during the next 2-week period. Coordination action by the Contracting Officer relative to these schedules will be accomplished during these weekly meetings. Daily reports shall be completed and given to the Contracting Officer or Representative within 24 hours of work. All official correspondence such as serial letters and RFIs, with attachments are to be provided in one hardcopy original with original signatures and one electronic (Adobe pdf format) copy by email. The Government will consider the correspondence to be received when the hardcopy is received by

the designated office.

1.40 AS-BUILT DRAWINGS

See SECTION 01 78 39.00 24 - AS-BUILT DRAWINGS

1.41 SIGN

On commencement of work on this project, the Contractor shall furnish and erect the temporary sign in the location selected by the Contracting Officer near the project site. The Contractor shall maintain the sign in good condition through the project construction period. Upon completion of the project the Contractor shall remove the sign from the premises. The project sign shall conform to standard drawing bound herein. A decal of the "Engineer Castle" and the U. S. Air Force emblem will be furnished the Contractor upon request.

1.42 EQUIPMENT ROOM DRAWINGS

Prior to construction, the Contractor shall prepare and submit room plans (see paragraph SUBMITTALS for conditions regarding this submittal under Design/Build procurement) for all mechanical, electrical, and communication rooms or similar areas. The plans shall be consolidated for all trades, shall be to scale, and shall show all pertinent structural features. All equipment shall be accessible and laid out in a good design and workmanship manner and layouts for communications rooms shall be completed as early as possible. In addition, other items such as doors, windows, and cabinets required for installation and which will affect the available space, will be shown. All mechanical and electrical equipment and accessories shall be shown to scale in plan and elevation and/or section in their installed positions. All duct work and piping shall be shown.

1.43 CONTRACTOR FURNISHED EQUIPMENT DATA

See Section 01 78 36.00 24 WARRANTY OF CONSTRUCTION AND DESIGN for Contractor Furnished Equipment Data to be submitted as part of the Warranty Equipment Booklet.

1.44 ASBESTOS AND LEAD

a. The Contractor is warned that inhalation of asbestos and lead has been associated with health hazards.

b. Asbestos-containing materials have been identified in area(s) where contract work is to be performed. All contract work activities where the potential exists for worker exposure to airborne asbestos fibers shall be performed in accordance with the requirements set forth in Section 02 82 13.00 10 ASBESTOS ABATEMENT.

c. Lead has been determined to be present in some painted surfaces which are scheduled for removal/renovation. See Section 02 82 13.00 20 LEAD IN CONSTRUCTION for locations and proper procedures.

1.45 PARTNERING

a. The Government intends to encourage the formation of a cohesive partnership with the Contractor. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objective is effective contract performance in

achieving completion within budget, on schedule and in accordance with plans and specifications. This partnership between the Contractor and the Government will be voluntary and its implementation will not be part of the contract requirements nor will it result in a change to contract price or terms.

b. [Not Applicable.][It is anticipated that immediately after the preconstruction conference, the appropriate Contractor's key personnel and Government key personnel will attend [a 2-3 hours informal team building workshop at the Area or Resident Office (as directed).][a 2-day team building workshop. Follow-up workshops of 1 or 2 days duration may be held periodically throughout the duration of the contract as agreed to by the Contractor and the Government. Costs of the facilitator and facilities for the workshops will be shared equally by the participants.]]

1.46 PROFIT

a. Weighted guidelines method of determining profit shall be used on any equitable adjustment change order or modification issued under this contract. The profit factors shall be as follows:

Factor	Rate	Weight	Value
Degree of Risk	20	See Item	
Relative difficulty of work	15	b. below	
Size of Job	15		
Period of performance	15		
Contractor's investment	5		
Assistance by Government	5		
Subcontracting	25		
	100		

b. Based on the circumstances of each procurement action, each of the above factors shall be weighted from .03 to .12 as indicated below. The value shall be obtained by multiplying the rate by the weight. The value column when totaled indicates the fair and reasonable profit percentage under the circumstances of the particular procurement.

(1) Degree of Risk. Where the work involves no risk or the degree of risk is very small, the weighting should be .03; as the degree of risk increases, the weighting should be increased up to a maximum of .12. Lump sum items will have, generally, a higher weighted value than the unit price items for which quantities are provided. Other things to consider: the portion of the work to be done by subcontractors, nature of work, where work is to be performed, reasonableness of negotiated costs, amount of labor included in costs, and whether the negotiation is before or after performance of work.

(2) Relative Difficulty of Work. If the work is most difficult and complex, the weighting should be .12 and should be proportionately reduced to .03 on the simplest of jobs. This factor is tied in to some extent with the degree of risk. Some things to consider: the nature of the work, by whom it is to be done, where, and what is the time schedule.

(3) Size of Job. All work not in excess of $100,000 shall be weighted at .12. Work estimated between $100,000 and $5,000,000 shall be proportionately weighted from .12 to .05.

(4) Periods of Performance. Jobs in excess of 24 months are to be weighted at .12. Jobs of lesser duration are to be proportionately

weighted to a minimum of .03 for jobs not to exceed 30 days. No weight where additional time not required.

(5) Contractor's Investment. To be weighted from .03 to .12 on the basis of below average, average, and above average. Things to consider: amount of subcontracting, mobilization payment item, Government furnished property, equipment and facilities, and expediting assistance.

(6) Assistance by Government. To be weighted from .12 to .03 on the basis of average to above average. Things to consider: use of Government-owned property, equipment and facilities, and expediting assistance.

(7) Subcontracting. To be weighted inversely proportional to the amount of subcontracting. Where 80 percent or more of the work is to be subcontracted, the weighting is to be .03 and such weighting proportionately increased to .12 where all the work is performed by the Contractor's own forces.

1.47 LABOR CONDITIONS APPLICABLE TO TEMPORARY FACILITIES

It is the position of the Department of Defense that the Davis-Bacon Act, 40 U.S.C. 276a is applicable to temporary facilities such as job headquarters, tool yards, batch plants, borrow pits, sandpits, rock quarries, and similar operations, provided they are dedicated exclusively, or nearly so, to performance of the contract or project, and provided they are adjacent or virtually adjacent to the site of the work and are established after receipt of the proposal or bid. Clause "Payrolls and Basic Records" of the GENERAL CONDITIONS (CONTRACT CLAUSES) is applicable to such operations.

1.48 DRAWING SCALES

All scales shown on the RFP project drawings are based on a standard drawing size of 22" x 34". If any other size drawings are furnished or plotted, the contractor shall adjust the scales accordingly. The Contractor shall also advise his sub-contractors of the above.

1.49 WAGE RATE APPLICATION

Applicable to all work.

1.50 FEDERAL HOLIDAYS

The following Federal legal holidays are observed by this installation:

New Year's Day	1 January
Martin Luther King's Birthday	Third Monday in January
President's Day	Third Monday in February
Memorial Day	Last Monday in May
Independence Day	4 July
Labor Day	First Monday in September
Columbus Day	Second Monday in October
Veterans Day	11 November
Thanksgiving Day	Fourth Thursday in November
Christmas Day	25 December

If a wage determination applies the number of holidays specified on it, it has priority over this requirement.

1.51 BASE HOURS

Base operation hours are 6:00 a.m. to 6:00 p.m. daily (Monday through Friday), excluding federal holidays. Access to the base during other times must be requested in writing from the Contracting Officer and will be granted only for extenuating circumstances. Federal Holidays and weekends are considered as scheduled non-workdays.

1.52 USACE BIM PROJECT EXECUTION PLAN (USACE PxP) TEMPLATE

The Contractor is required to submit a completed copy of the latest version of the USACE BIM PROJECT EXECUTION PLAN (USACE PxP) Template for this project to the CAD BIM Manager of the Omaha District for approval. See Attachment A to Section 01 78 39.00 24 AS-BUILT DRAWINGS.

This section defines basic project reference information and BIM related project milestones.

1. FACILITY OWNER: [U.S. ARMY][U.S. AIR FORCE]

2. PROJECT NAME: [Family Life Center]

3. PROJECT LOCATION: [Fort Hood, TX]

4. CONTRACT TYPE: DESIGN-BUILD

5. FACILITY TYPE: [CoS Religious Facility - Family Life Center]

6. BRIEF PROJECT DESCRIPTION: [Family Life Center 17000 GSF, Activity Center 10000 GSF]

7. ADDITIONAL PROJECT INFORMATION: [Family Life Center with Non-Standard Design Activity Center]

8. PROJECT NUMBERS:

PROJECT INFORMATION NUMBER
USACE CONTRACT NUMBER: [E.G. W9128F-10-C-0000]
TASK ORDER: [W9126G-08-R-0172 DK01]
USACE PROJECT NUMBER: [71515]
PROJECT NUMBER(S): [IF APPLICABLE]
Project Code: [FH10]
Drawing (File) Number: [F730-18-01]

9. CADD BIM MANAGER: [ROGER FUJAN]

PART 2 NOT USED

PART 3 NOT USED

-- End of Section --

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5/07

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SECTION 01 33 00.36

60 PERCENT DESIGN REQUIREMENTS
5/07

PART 1 60 PERCENT DESIGN SUBMITTALS

For general submittal requirements, See Section 01 33 00.32 DESIGN AND CONSTRUCTION DELIVERABLES/PROCEDURES.

1.1 REFERENCES

U.S. DEPARTMENT OF DEFENSE (DOD)

MIL-HDBK 1190	Facility Planning And Design Guide
UFC 1-200-01	DoD Building Code (General Building Requirements)(1 February 2018)
UFC 3-600-01	Fire Protection Engineering for Facilities (28 November 2016)
UFC 4-021-01	Design and O&M: Mass Notification Systems (January 2010)
AF ETL 11-18	Small Arms Range Design and Construction (19 April 2011)
AF FC 4-179-03F	Air Force Indoor Small Arms Firing Range (1 April 2015)
UFC 3-240-07FA	Sanitary and Industrial Wastewater Collection

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE Fundamentals Handbook	(2015) Fundamentals Handbook
ASHRAE HA	(2015) HVAC Applications Handbook

1.2 CIVIL/SITE

1.2.1 DRAWINGS

1.2.1.1 Location Plan and Vicinity Map

A Vicinity Map consists of a small scale drawing of the project location, similar to a road map. A Location Plan consists of a small scale drawing showing the Government property or reservation limit with the construction project site shown. The drawing shall show the facility approved Contractor Access and Haul Routes. A reproducible base sheet, if available, may be provided by the Omaha District for the Contractor's use in preparing the Location Plan.

1.2.1.2 Survey Plan

The information depicting existing conditions used to generate site drawings shall be shown on this drawing. An engineering survey of the site will be presented to the Contractor selected as a result of this RFP process. Any additional survey information required by the Contractor for design above that shown in the prepared engineering survey shall be procured and paid for by the Contractor.

1.2.1.3 Removal Plan

The removal plan will show the existing physical features and condition of the site before construction. This information should include the field survey to show all above and below ground utilities; buildings, drives, roads and parking areas, walks, and vegetation; and such facilities as retaining walls, underground storage tanks, foundations, etc. Each physical feature to be removed shall be as indicated on the standard legend sheet, a legend on the removal plan, and properly noted: to be removed, to remain, or to be relocated.

1.2.1.4 Site Plan

The Site Plan shall show all the site layout information necessary to field locate the building, walks, parking lots, and all other appurtenances to be constructed on the project. All site related work to be constructed will be located by dimensions. The Site Plan will identify all site related items such as: curbs, pavements, walks, plazas, seating areas, bollards, trash enclosures, retaining walls, chiller units, electrical transformers locations, etc. in accordance with a standard legend sheet or with additional legends or notes. Site Plans shall be at a scale of 1 Inch = 20 Feet or 1 Inch = 40 Feet. Other drawing scales must be approved by the Omaha District. North arrows shall be oriented the same direction on all plan sheets and by all disciplines. No existing or proposed contours shall be shown on this Plan. The Site Plan, prior to adding the dimensions, should serve as the base sheet to the other Plans, such as: Utilities Plan, Grading and Drainage Plans and Landscape Plan. The Site Plan shall show all existing physical features and utilities within and adjacent to the work site that will remain after the proposed construction has been completed. This plan will also show any free zones, construction limits, and storage areas etc. Whenever the Site Plan occupies more than one sheet of drawings, a Key Plan shall be included. Additional plans showing specific areas of the site in smaller scales can be included if more detail is necessary.

1.2.1.5 Grading and Drainage Plan

A preliminary grading and drainage plan shall be provided at the same scale as the site plan (1 Inch = 20 Feet or 1 Inch = 30 Feet). Other drawing scales must be approved by the Omaha District. Tentative new and existing grading contours shall be indicated at 1-foot contour intervals. Indicate finished floor elevation of the new buildings. Plans shall show layout of the new and existing storm drainage systems. Uniform grades shall be labeled using slope arrows. Provide spot elevations at building corners, parking area corners, changes in grade, etc. Provide location and description of benchmarks and indicate vertical and horizontal datums.

1.2.1.6 Grading Sections

Provide grading sections through the site showing finished and existing

grades, pavement sections in detail, slope percentage, ditches, etc.

1.2.1.7 Typical Pavement Sections

Provide typical pavement and road sections and details showing interface between new and existing pavements and new pavements of different sections.

1.2.1.8 Site Furnishing Details

The Contractor shall provide designs and details as necessary for site furnishings and accessories.

1.2.1.9 Landscape Plan

A Landscape Plan is included in the drawing set to serve as a guide in preparing the final contract drawings. A detailed Landscape Plan showing trees, shrubs, ground covers, seeded and sodded areas, shall be prepared by the Contractor. The Landscape Plan shall be prepared by a fully qualified, experienced professional Landscape Architect. The Contractor shall specify types of plant materials that are locally grown, commercially available and acclimated to the project environment. The Landscape Plan shall include a plant material schedule. This schedule shall include botanical names, common names, size the method of planting and remarks. The Landscape Plan shall also show all unsurfaced ground areas disturbed by construction within the project limits with these areas shown to be seeded, sodded, and/or mulched as required.

1.2.1.10 Landscape Details

The Contractor shall verify the methods of planting to meet the project site/installation requirements and provide the necessary Landscape Details to perform the contract design work. Details shall reflect local practices and conditions for installation. The Contractor shall provide designs and details as necessary for other required site furnishings and accessories.

1.2.1.11 Sprinkler Irrigation Systems

A list of applicable criteria and/or design standards shall be provided. This shall also include precipitation rates, allowable pipe material and preliminary calculations of total flow and pressure requirements. A narrative description of the system including special requirements and drip systems shall be provided.

1.2.2 SPECIFICATIONS

Provide a listing by title and number of all Technical Specifications proposed for use in the final civil/site/landscape design.

1.2.3 DESIGN ANALYSIS NARRATIVE

Design analysis shall include the following:

1.2.3.1 References

Design references used in preparing the civil/site design.

1.2.3.2 Grading

A narrative of the grading design and criteria used.

1.2.3.3 Pavements

A narrative of the pavement design and criteria used.

1.2.3.4 Drainage

A narrative of the drainage design and criteria used. Include information on the storm drain pipe materials selected and their ability to withstand earth dead loads and live loads that will be imposed.

1.2.3.5 Basis, Specific Goals, Objectives and Priorities For Civil/Site Design

The Design Analysis should give the basis for the civil/site design and should establish specific goals, objectives and priorities for civil/site design of the project. Identify, explain and document use of design criteria and how the design meets goals, objectives and priorities. Identify the preferred site development concept. Document pollution prevention measures and other environmental considerations made during design. The 60 percent Design Analysis must be approved and accepted before Final Design.

1.2.4 DESIGN ANALYSIS CALCULATIONS

1.2.4.1 Storm Drainage System Calculations

Storm Drainage System Calculations shall include the following:

a. Drainage area map showing boundaries of each drainage area and respective drain inlet or culvert.

b. Storm run-off calculations for each drainage area.

c. Preliminary storm drain pipe sizing calculations.

1.2.4.2 Pavement Calculations

Pavement thickness calculations for each pavement.

1.3 GEOTECHNICAL

See Structural Design Requirements.

1.4 WATER SUPPLY AND WASTEWATER

1.4.1 DRAWINGS

1.4.1.1 Water Distribution and Sewage Collection Systems Plan (including building services)

Provide all existing utilities and above ground features which may pose as an obstacle (i.e., water, sewer, gas, electrical, etc.) on the basic site plan layout. Exclude site notes and dimensions from the plan. Provide all proposed new water and sewer lines with preliminary sizes. This shall include all new service lines up to the 5-foot building line. Show the proposed locations of all new manholes, fire hydrants, valves (including PIV's), connection points and etc.

1.4.2 SPECIFICATIONS

Specifications shall be coordinated with the plans and include all items. Provide a listing of specifications to be provided. Provide a complete copy of special sections to cover those subjects for which no UFGS guide specifications are used or available.

1.4.3 DESIGN ANALYSIS NARRATIVE

Design analysis shall include the following:

1.4.3.1 References

Provide design references used in preparing the water and wastewater design.

1.4.3.2 Water Supply and Distribution Systems

A narrative of the water supply and distribution systems design and applicable criteria used shall be provided. Include the peak and average domestic demands, the fire flow required and the available flow and residual pressures. A description of the water distribution system, a listing of allowable piping materials, hydrant flow test data and preliminary calculations necessary to support equipment, piping sizes, fire and domestic demands, etc., shall be provided.

1.4.3.3 Wastewater and Sewers

A narrative of the wastewater supply design and applicable criteria used shall be provided. Include the preliminary calculations used to design the average, diurnal peak, and extreme peak flows. Full flow capacity (70% of the total depth) of the existing system to ensure that it will be adequate for the flows generated by the new facility. Include the available capacity and full flow capacity in the design analysis. Preliminary calculations necessary to support equipment and piping sizes and a listing of allowable piping materials shall be provided. The design shall be in accordance with the velocity requirements of UFC 3-240-07FA.

1.5 ARCHITECTURAL

1.5.1 DRAWINGS

Sixty percent architectural drawing submittal shall be a complete set of architectural drawings without large scale details. All other drawings shall be complete except referencing of the large scale details.

1.5.1.1 Floor Plans

Provide a double line Composite Floor Plan of the entire building, drawn at the largest scale practicable to include the entire building on a single sheet. This building is of a size that will require the floor plans to be divided into multiple areas. See paragraph on Drawing Scales for plan scale requirements. Floor plans shall essentially be complete with the exception of large scale detail referencing. Floor plans shall be scaled double-line drawings showing the functional arrangement, pocheing, location of all openings and plumbing fixtures, all section cuts, wall types, all notes and leaders, all general notes, and all dimensions shall be completed. The plans shall indicate door swings, door numbers and window type; door and window schedules are required. A north arrow shall be shown on each floor plan. Enlarged toilet and stair plans shall also be

included. The first composite plan sheet shall include a gross area tabulation comparing the actual square feet with the authorized square feet of the facility. Submit credentials of the Fire Protection Engineer of Record with submittal. Architect-Engineer suggestions for plan improvement shall be fully shown and justified. Include the following:

Overall, control, and door/ window opening dimensioning.
Match lines for combining individual portions of floor plans.
Room names and numbers.
Structural column or bay indicators.
Wall and building section cuts.
Door swings and door numbers.
Window types.
Area in square feet.
General notes.
Life Safety Plans and Building Code Analysis

Also provide a Key Plan at a uniform location on all Floor Plan sheets which shows the interrelationships between the building portions. This key plan will be scaled, and oriented in the same manner as the floor plan for all plan type drawings of all disciplines. When dimensioning, use arrowheads, not dots or slashes. Where major structural elements are included as parts of architectural detailing, do not indicate sizes. These elements should all be fully defined as part of the structural design documents. Major elements of mechanical and electrical equipment affecting room size or shape, shall be shown on the architectural plans to a practicable extent and coordinated with other respective disciplines. When applicable, Government-furnished, Contractor-installed, or Government-furnished and Government-installed items shall be shown as a dashed line.

1.5.1.2 Reflected Ceiling Plans

Reflected ceiling plans shall be complete including all electrical lights, mechanical supply & diffusers, notes, complete legends and pocheing of all materials to be used. See paragraph on Drawing Scales for reflected ceiling plan scale requirements.

1.5.1.3 Roof Plan

Composite and larger area roof plans shall be complete including all notes, legends, slope indications, gutter and downspout locations, and roof overflow drains. All elements located on the roof shall be coordinated with all disciplines. See paragraph on Drawing Scales for roof plan scale requirements.

1.5.1.4 Building Elevations

Provide all building elevations complete showing the appearance and architectural treatment. Elevations shall be dimensioned to show total height, and relation to grade. Critical elevations such as top of finish floor, top of steel, etc. shall be indicated. All notes for materials shall be included. See paragraph on Drawing Scales for Exterior Building Elevation scale requirements.

1.5.1.5 Building Sections

Building cross section and longitudinal sections shall be included to show general interior volumes, construction methods, and height of ceilings and partitions. Identify materials used and necessary dimensions. See

paragraph on Drawing Scales for Building Section scale requirements.

1.5.1.6 Wall Sections

Drawings shall include all wall sections and stair section conditions including corridors, showing vertical control elevations and dimensions, with all materials labeled. The sections should normally be cut through doors, windows, and other critical wall section locations. Wall sections shall not be broken. Additional details shall be included when necessary to illustrate important or unusual features. All horizontal dimensions shall occur on the plans and vertical dimensions on the sections and elevations. See paragraph on Drawing Scales for Wall Section scale requirements.

1.5.1.7 Room Finish Schedules

Room finish schedule shall be complete in accordance with Corps of Engineers (COE) standard format.

1.5.1.8 Door, Window, and Louver Schedules

Door schedule shall be complete in accordance with Corps of Engineers (COE) standard format. Schedule shall include door and frame types, except referencing to door details and hardware sets. Window and louver schedules shall be complete including window and louver types except referencing to details.

1.5.1.9 Fire Ratings

Wall ratings, and fire hazards shall be clearly indicated as required by Fire Protection criteria. Wall fire ratings shall be graphically shown by a continuous symbol or pocheing within the wall on a Fire Protection /Life Safety Plan. When other functions coexist with the fire protection functions, their integration shall be clearly indicated, with an analysis that describes how both functions will be served. Provide a separate, composite type floor plan which makes an accurate presentation of these various features and functions.

1.5.1.10 Drawing Scales

Architectural work shall be drawn at the scales listed below. Other scales may be used only by written authorization through the Project Architect, Omaha District. Units of measurements shown on the drawings shall be done in english units. All disciplines should use the same scale for plan sheets. The following is a comparison guide to establish equivalent scaling of drawings:

	ENGLISH
Composite Plans (Note 1)	Varies
Floor Plans	1/4-Inch = 1'-0"
Reflected Ceiling Plans	1/8-Inch = 1'-0"
Detail Plans (Note 2)	1/2-Inch = 1'-0"
Roof Plans	1/8-Inch = 1'-0"
Exterior Elevations	Same scale as plan
Interior Elevations	1/2-Inch = 1'-0"
Interior Toilet Elevations	1/2-Inch = 1'-0"
Building Cross Sections	1/4-Inch = 1'-0"
Wall Sections	3/4-Inch = 1'-0"
Stair Sections	3/4-Inch = 1'-0"

Details (Note 2)	3-Inches = 1'-0"
Wall Types	3/4-Inch = 1'-0"
Fire Protection Plans (Note 1)	Varies

Notes:

1. Scale of composite plan shall be as required so that the entire facility is drawn on one sheet without break lines.

2. The goal of this requirement is that the details be large enough to show all fixtures, accessories, equipment, materials, manner of construction, clearances required for proper maintenance, and complete dimensions. Toilet rooms and Equipment rooms are examples of the kind of spaces which shall be drawn as a Detail Plan.

1.5.1.11 Legends

Standard architectural material symbols used on the drawings shall be provided as a separate architectural legend drawing. Additional material symbols should be added to the Legend Sheet as needed for the project.

1.5.1.12 North Arrows

North arrows shall be oriented the same direction on all plan sheets and by all disciplines; including site and civil drawings. Plan north shall be "up" or the left on the drawings. Indicate true north on composite plan drawings. North arrows shall be located approximately at the same location on all sheets.

1.5.1.13 Modular Design

Modular Design practices shall be followed in the design of all masonry buildings or components of buildings. Dimensions shall be figured to whole or half-unit lengths of standard units in order to reduce on-site cutting of masonry.

1.5.1.14 Symbols

The Room and Door Numbering system shall be consistent. The standard symbols for Amendments (a triangular box) or Modifications (a type of circular box, see the chapter on Drafting Criteria) to the contract shall not be used for any other purpose, and care must be taken to avoid using even similar appearing but technically different symbols. Room numbering shall start at the main entrance and proceed clockwise around functional areas.

1.5.1.15 Schedules

Schedules for room finish, doors, windows, louvers, etc., shall be clear and complete. As many columns as necessary should be provided in order to present the essential information. The "Remarks" column should not be used as a substitute for an information column. Normally a single item should be presented on each schedule line. Other scheduling methods as standard with the A-E may be used if approved by written authorization from the Project Architect, Omaha District.

1.5.1.16 Notes

Notes may be placed on drawings to reduce the amount of repetitive drafting, provided that clarity is not lost. General notes should be placed at the right-hand edge of the sheet and, if possible, should be located on the first sheet in the set. Notes that pertain to each drawing however, should be placed on each drawing.

1.5.1.17 Dimensions

Dimensions must be complete, accurate and fully coordinated. Dimensions should be to points easily measurable in the construction, and should be laid out to eliminate refiguring in the field. Dimensions should be tied-in to column lines, etc., to facilitate checking. Plan dimensions for frame construction should be to face of stud for exterior walls, to one face of stud for interior partitions, and to centerline of openings. For masonry construction, dimensions should be to one or both nominal faces of masonry and to jambs of openings.

1.5.1.18 Facility Elevation

The level of finished floor shall be indicated as EL.= 100 000. Elevations for footings, etc., shall be related to this figure. Sea level elevations shall not be shown on the building drawings.

1.5.1.19 Access to Utilities

All utilities within the building, such as piping, ductwork, electrical work, etc., shall be concealed in finished areas. Provide plumbing chases in toilet areas. The clear space above ceilings and the size of chases must be carefully figured to accommodate piping slopes and connections, ductwork crossovers, and similar situations. Access must be provided to valves, cleanouts, etc. Space provided for utilities systems must be adequate but should not be excessive.

1.5.1.20 Reflected Ceiling Plans

Reflected Ceiling Plans shall be provided for all spaces in the building. Reflected ceiling plans shall show the ceiling tile layout and location of gypsum wallboard and other ceiling types where applicable. All light fixtures, air diffusers, grilles, registers, PA speakers, sprinkler head layout, smoke and heat detectors - if ceiling mounted, and other ceiling mounted items will also be shown on the reflected ceiling plans. The fixtures and other equipment shall be laid out in a regular pattern symmetrical with the ceiling tile grid, or symmetrical with the room centerlines, columns, windows, or other feature that dominates. All ceiling mounted items shown shall be fully coordinated with all other disciplines.

1.5.1.21 Sketches

All sketches presented during the design phase shall be reduced to 8-1/2" by 11" and included in this design analysis to document the design options and decisions evaluated during the design process.

1.5.2 SPECIFICATIONS

1.5.2.1 Use of Technical Guide Specifications

Unified Facilities Guide Specifications (UFGS) are prepared by the Corps of Engineers to achieve the maximum uniformity in contract specifications. The UFGS describe the type and quality of material and installation normally acceptable for Corps construction, and often represent specific agreement between the Corps and the applicable industry. The provisions of the technical guide specifications should not be changed without justification. The 60% submittal shall include a draft edited specifications of all the applicable sections. Items added or deleted in these specification sections shall be evident. Complete descriptions including specific size, gauge, and configuration are included in the UFGS for a wide variety of items. The designer must be familiar with the UFGS requirements in order to provide details fully coordinated with the technical specification descriptions. Terminology used on the drawings shall be the same as used in the UFGS. Where it is desirable to detail a variance with the standard provisions of the UFGS, the specifications must be revised to coordinate with the details. New guide specifications shall be limited to those specialty type items not covered in the regular sections of UFGS.

1.5.3 DESIGN ANALYSIS NARRATIVE

The Design Analysis shall be essentially complete with emphasis on the following:

1.5.3.1 Basic Criteria Statement

A statement indicating the basic criteria to be applied to the design including type of construction (noncombustible, etc.), category of construction (permanent, etc.), major fire protection and exit requirements, etc..

1.5.3.2 Description of Materials

A description of materials for all major building components and of all interior and exterior finishes ascertaining their matching of existing. The description of materials must include type of exterior wall construction, room finish schedule, window types, panel materials, etc. The description of materials should follow the continuity of the MIL-HDBK 1190. The description of finishes may be presented in schedule form.

1.5.3.3 Additional Criteria/Clarification

A list of items on which additional criteria, clarification, or guidance is required.

1.5.3.4 Reason for Selection

The written presentation must include the designer's reasons for selecting specific materials, architectural compatibility, and architectural treatment in all cases in which the reason for selection is not obvious.

1.5.3.5 Site Adaptation of Standard Drawings

Site adaptation of standard drawings shall include the following in the

design analysis.

a. An outline of the selections made where the standards permit the designer a choice of design or material.

b. An outline of items on the standard that do not conform to current criteria or to the design instructions, and suggested methods for changing the standards.

c. An outline of errors found in the standards and suggested methods for correction.

d. An outline of improvements the designer feels should be made to the standards, with full explanation and justification.

1.5.3.6 General Parameters

The design analysis shall follow the format described herein.

a. The purposes, overall functions, and total capacities of the facility.

b. The design theme or visual appearance of the exterior and interiors of the building, and how this facility coordinates with the image criteria of the installation on which it will be constructed.

c. The number of personnel to use facility.

d. The type of activities and equipment involved.

e. The anticipated life of the functions to be accommodated.

f. The category of construction; permanent

1.5.3.7 Functional and Technical Requirements

a. Functional areas, occupant capacities, and allocation, including a functional relationship matrix.

b. All items of equipment, required.

c. Occupational safety and health.

d. Handicapped accessibility.

e. Energy conservation energy budget goals.

f. Sound and vibration control.

g. Interior service areas.

h. Physical security; lock and keying, intrusion-detection, alarms, restricted access areas, interior guard support, and ties to local authorities.

i. Justification for selection of exterior and interior finishes and materials.

j. Moisture Vapor Control.

k. Lessons learned incorporated into the design.

1.5.3.8 Design Objectives and Provisions

a. Adaptation of the building to the size, shape, and orientation of the site.

b. Building layout to establish convenient circulation flows during normal operation and emergency evacuation activities, for materials, equipment, services, and people.

c. Grouping spaces into sound-compatible zones and protective construction zones, e.g., for fire and storm.

d. Space layout compatible with modular (structural and environmental) support systems.

e. Type of construction materials, architectural systems, and finishes.

f. Building expandability/changeability.

g. Physical security.

h. Barrier-free design.

i. Energy conservation. (insulation, orientation)

j. Acoustical design.

k. Moisture vapor condensation design.

l. Composition of masses and spaces architectural compatibility and architectural details to reflect the design theme and desired image, and the scale and nature of the activities involved.

m. Perception of the building details and volumes. (Specific provisions made, e.g., an identifiable sequence of viewing positions for experiencing the interior and exterior architectural design.)

n. Enhancement of materials and systems maintenance and operation.

o. Economy of building construction, operation, and maintenance: life-cycle cost effectiveness.

1.5.3.9 Coordination with Installation or Outside Agencies

a. Physical security support.

b. Occupational safety and health, as required.

c. Government furnished equipment.

d. Operations and maintenance support.

1.5.3.10 Checklists

Fire Protection Code Analysis and Handicapped Checklist shall be included in the Design Analysis.

1.5.4 DESIGN ANALYSIS CALCULATIONS

a. Net room areas, occupant capacity and gross building areas.

(Categorize areas and capacities under the titles of "Operational Space Requirements", "Administrative Space Requirements", "Storage Space Requirements", and "Support Space Requirements".)

b. U-values for each wall, window, door, or roof type studied or selected.

c. Acoustics.

d. Rainfall intensity relative to roof area and roof drain size and number calculations.

1.6 INTERIORS

1.6.1 DESIGN ANALYSIS NARRATIVE

The design analysis shall contain an explanation of the desired image or visual appearance of the interior of the facility and the design intent.

1.6.2 DRAWINGS

A furniture footprint indicating proposed furniture layout shall be incorporated into the drawings. Drawings shall be at 1/4" = 1'-0" scale. **??????????Id**
on drawings if furniture is not in contract.

1.6.3 SPECIFICATIONS

Appropriate UFGS guide specifications shall be provided and coordinated with the drawings and design analysis. Color requirements shall be specified in Section 09 06 00 Schedule of Finishes. Specifications shall be edited to identify proposed product and installation requirements. Where materials or installation requirements are not covered in the provided specifications, information shall be prepared to cover these items.

1.6.4 STRUCTURAL INTERIOR DESIGN (SID) COLOR BOARDS

SID color boards shall show color samples of all proposed exterior and interior finishes. A color board legend shall accompany the boards and shall clearly identify all finishes. Clarification of finish placement shall be required when more than one color of a single finish is proposed. Color boards shall be 8 1/2" x 11" in size. Provide both electronic color boards and a color board binders. The color board binders shall consist of three ring binders with pockets. Include project name and location, design stage and date on the electronic color boards and on the front cover and spine of the binders. The color board binders shall include a legend and actual color samples. Three copies of the color board binders shall be provided; one each for the Omaha District Corps of Engineers PM, the User and BCE Office. Obtain mailing addresses from the Omaha District Corps of Engineers PM. All electronic copies for this submittal shall include an electronic color board.

1.6.5 FURNITURE, FIXTURES AND EQUIPMENT (FF&E)

Provide a 65% FF&E design in accordance with UFC 3-120-10 INTERIOR DESIGN submittal requirements. Include an Item Code Legend, not an Item

Installation List. Provide both an electronic FF&E and FF&E binders. The FF&E binders shall consist of three ring binders with pockets and have tabs to separate the different sections. Include the project name and location, design stage and date on the front cover and spine of the binder. The FF&E binder shall include actual finish and fabric samples. Three copies of the FF&E binder shall be provided; one each for the Omaha District Corps of Engineers PM, the User and BCE Office. Obtain mailing addresses from the Omaha District Corps of Engineers PM. All electronic copies of this submittal shall include the FF&E package.

1.7 STRUCTURAL

1.7.1 DRAWINGS

Drawings shall include roof and floor framing plans, floor slab plans and foundation plans. Roof and floor framing plans shall show sufficient details to clearly indicate the type of framing system used, size and spacing of members and their elevations. The location of all columns or pilasters shall be shown, and all building structural members shall be at least outlined. The sizes, locations and elevations of footings shall be shown. Slab plans shall be coordinated with the Architectural sheets and shall indicate the locations of structural walls and partitions, recessed slabs and contraction or construction joints. Concrete slab-on-grade thicknesses and sections shall be shown. Proposed treatment of special footings and unique or complex features and details shall be shown on the drawings. Elevation views, sections and details necessary to illustrate the design at a 60% level of completion shall be provided. Drawings shall also include overall building plan dimensions, north arrows, and design notes. Drawings shall be at done at a scale appropriate for the design, in no case however, shall plan type drawings be done at a scale smaller than 1/8" = 1'-0" or detail type drawings at a scale smaller than 1/2" = 1'-0".

1.7.2 SPECIFICATIONS

For this 60% design submittal the Contractor shall provide a listing by title and number of all Technical Specifications proposed for use in the final structural design. Identify special sections that are to be developed.

1.7.3 DESIGN ANALYSIS NARRATIVE

Design analysis shall follow the format described in Section 01 33 00.32 DESIGN AND CONSTRUCTION DELIVERABLES/PROCEDURES, Paragraph 3.3, "Design Analyses" and the specific content shall be essentially as outlined below.

1.7.3.1 Design Criteria and References

A list of design criteria references, such as DOD Unified Facilities Criteria, Department of the Army Technical Manuals, ACI Standards, AISC Specifications, etc., and any other references which were used in the design of the project shall be included in the narrative.

1.7.3.2 Design Loads and Conditions

A list of structural design loads and conditions shall be provided, including:

- Snow load parameters;
- Wind load parameters

- Seismic design parameters;
- Roof live loads;
- Floor live loads, identifying each loading with usage and the room or space where used;
- Foundation design criteria, including the design depth for footings, allowable soil bearing pressure, equivalent fluid densities (or lateral earth pressure coefficients) for the design of earth retaining structures and building components, modulus of subgrade reaction, and any other pertinent data derived from the recommendations of the Final Geotechnical Investigation Report.

1.7.3.3 Structural Materials

A list of structural materials shall be provided, together with the stress grades and/or ASTM designations, as applicable, for structural steel, concrete, and reinforcing steel; the series for steel joists; and identification of the proposed use of each material in the structure.

1.7.3.4 Description of the Structural System

A concise description of the proposed structural system for the building, together with the reasons for its selection, shall be provided. All principal elements of the structural system selected shall be described. Typically, these shall include:

- Primary supporting members for the roof;
- Structural walls, type of material, and whether load bearing or non-load bearing, with location of load-bearing walls defined, and measures taken to compensate for expansion/contraction and crack control in masonry walls;
- The proposed system for resisting lateral forces (wind and earthquake) and transferring them to the ground, whether diaphragms, chord bracing, shear walls, braced or moment resisting frame, etc;
- Foundations, description of special designs to accommodate existing site conditions;
- Concrete slab-on-grade floors, description of floor surface finish treatment, accommodation of live loads, and the use, location and types of crack control joints;
- The proposed treatment of any unusual structural loadings, features or unique solutions to structural problems.
- Identification of any major vibrating elements and measures taken to isolate them.

1.7.4 Design Analysis Calculations

The extent of the structural calculations shall be indicative of a design which has reached a 60% level of completion. Computations shall include snow, wind, seismic, dead and live loads. Computations shall show sizing and spacing of structural members for roof and floor framing, sidewalls and foundation sizes, as appropriate to the systems to be used for these elements.

1.7.5 Final Geotechnical Investigation Report

The geotechnical investigation data~~, which will be included in this RFP at a later submittal,~~ is intended for proposal preparation and final design use. The information in the Final Subsurface Investigation and Geotechnical Information Report included in the RFP represents the best

available site data. Variations from the typical conditions described may exist at the site."

1.8 MECHANICAL

Compliance with the design requirements for the building mechanical systems will be determined by a review of the submitted 60 percent drawings, design analysis, and specifications. Any conflicts in the design requirements or lack of thorough understanding of the nature and scope of work shall be identified and resolved prior to submittal of the 60 percent design.

1.8.1 DESIGN DRAWINGS

The 60 percent design drawings shall be fully coordinated with the design analysis. Sufficient plans, piping diagrams, sections, flow diagrams, details, schedules, and control diagrams/sequences shall be provided as necessary to define the required design intent. Floor plans shall use the architectural floor plans as a basis, with the building outline half-toned. Unless otherwise indicated, all floor plans shall be drawn at 1/8" = 1'-0" scale and show all room names and numbers. An exception to this are administrative areas being air-conditioned shall be 1/4" = 1'-0" scale and mechanical room plans shall be 1/2" = 1'-0" scale. Sheet reference number sequencing shall be in accordance with the National CADD Standards with Omaha District CADD requirements. Submittal drawings shall include, but not limited to, the following:

1.8.1.1 Mechanical Index Sheet

An index sheet identifying all mechanical drawings shall be provided, including those drawings anticipated to be provided in the 100 percent design submittal. Index shall include drawing design file numbers, drawing numbers, sheet numbers, and drawing descriptions.

1.8.1.2 Mechanical Abbreviation, Legend, and General Notes Sheet

This sheet shall include all mechanical abbreviations and symbols that will be used on the drawings. Symbols shall be grouped into sections; as a minimum, provide sections for Plumbing, Heating, Miscellaneous Piping, Valves and Fittings, and ventilation.

1.8.1.3 Exterior Utility Drawings

The following exterior utility drawings shall be provided:

a. Removal Plan

All existing exterior mechanical utilities and utilities which are to be removed shall be indicated on the Site Removal Plan located in the civil section of the drawing package.

b. Utility Plan:

All existing and new mechanical utilities shall be indicated on the Site Composite Utilities Plan located in the civil section of the drawing package. The location of existing exterior utilities shall be thoroughly checked and indicated on plans and profiles, thus preventing interference with new services. The utility drawing shall indicate all new utilities, including tie-in points, and existing utilities which are to be abandoned.

1.8.1.4 Plumbing Drawings

The following plumbing drawings shall be provided:

a. Plumbing Plans

Plumbing plans showing the design and tentative layout of the domestic hot and cold water distribution systems; make-up water piping; soil, waste and vent piping; and storm water drainage system shall be provided. Plans shall show all anticipated routing of piping systems from the connections within the structure to a point 5 feet outside the structure. The grade of all drain lines shall be calculated and invert elevations established. All electrical panels/equipment and pertinent HVAC equipment (expansion tanks, boilers, AHU's, pumps, lawn sprinkler system, etc.) shall be outlined in half-tone on the plumbing plans. Plans may combine building areas and be drawn at 1/8" = 1'-0" scale as long as legibility is not compromised. Plumbing fixtures and drains shown on the drawings shall be designated by the same identification system used in the Technical Specification and Plumbing Fixture Schedule.

b. Enlarged Mechanical Room Plumbing Plan

An enlarged mechanical room plumbing plan drawn at a minimum 1/4" = 1'-0" scale shall be provided. Plan shall show layout of all plumbing equipment and piping within the rooms. In addition to all the plumbing systems required, the plan shall show half-toned outlines of all HVAC equipment located in the room, gas service, lawn sprinkler apparatus, the fire protection entrance and risers, and the outline of any electrical panels or equipment located in the room.

c. Plumbing Detail and Schedule Sheet

The following details shall be provided: water heaters, and water service entrance. The provided plumbing fixture schedule and a contractor generated water heater schedule shall be provided.

1.8.1.5 Mechanical HVAC Drawings

Show on mechanical HVAC drawings, all items of mechanical equipment, including boiler room equipment, HVAC equipment layout, air handling units, air distribution and exhaust systems, etc., to determine proper space allocation within the intent of the architectural layout requirements. Plans, elevations, and sections shall be developed sufficiently to insure that major equipment items, piping, and ductwork cause no interference with structural members, electrical equipment, etc. The following HVAC drawings shall be provided:

a. Mechanical HVAC Plans

Mechanical HVAC plans showing the design and tentative layout of the hot water piping distribution system and equipment, the air supply and distribution systems, and the ventilation and exhaust systems shall be provided. Air supply and distribution systems shall show all ductwork, including supply and return ductwork, ductwork to diffusers, and all diffusers. For the 60 percent submittal, all ductwork may be shown as single-lined. The final design submittal shall show all ductwork as double-lined. All electrical panels/equipment and pertinent plumbing equipment shall be outlined in half-tone on the HVAC plans.

b. Enlarged Mechanical Room HVAC Plans

Enlarged mechanical room HVAC plans showing all mechanical systems and drawn at a minimum 1/2" = 1'-0" scale shall be provided. Plans shall show layout of all equipment, piping, and ducts located within the rooms. Equipment shall include (but not limited to) air handling units with associated outside air intakes, relief air, and supply/return ducts; exhaust/supply fans, mechanical room ventilation intake/relief openings, gas service entrance, combustion air opening, unit heaters, HW pumps, boilers, expansion tanks, and temperature control panels. Plans shall show dedicated access space for items requiring maintenance. In addition to all the mechanical HVAC systems required, the plan shall show half-toned outlines of all major plumbing equipment, the water service entrance, fire protection entrance and riser, lawn sprinkler apparatus, and any electrical equipment or panels located in the room.

c. Mechanical Room Sections:

For each air handling unit within the mechanical room, a mechanical room section view shall be provided showing, but not limited to, all AHU components, ductwork connections/routing, and relationship to adjacent structural features.

d. Chilled Water System Flow Diagram:

Provide flow diagram showing the facility piping system including the pumps and connected chilled water equipment. Each pump and equipment item shall show associated cfm flowrate. All thermometers, pressure gauges, isolation and control valves, bypass piping, freeze protection piping, etc. shall be shown on the flow diagram.

e. Mechanical Detail Sheets:

Installation details showing all specification requirements such as isolation and balancing valves, thermometers, pressure gauges, equipment pads, strainers, vents, hangers, vibration isolation, etc. shall be provided for each item of mechanical equipment. As a minimum, the following mechanical details shall be provided to the extent they are included in the design:

Refrigerant Piping Diagram
Hot Water Boiler and Piping Diagram
Chilled water piping Diagram
Chilled water pumps
Hot Water Pumps
Expansion Tanks
Horizontal Unit Heater
Vertical Unit Heater
Chemical Shot Feeders
Gas Service Entrance
Radiant Floor Heating Piping Diagram
Radiant Floor Manifolds
Cabinet Unit Heater
Air Handling Units
Wall Propeller Supply/Exhaust Fan
In-line Supply/Exhaust Fan
Relief Hood
Relief Vent
Exhaust Hoods

Seismic Requirements for Floor-
Mounted and Suspended Equipment
Infra-red System

f. Mechanical Schedule Sheets

Schedules, with preliminary capacities, shall be provided for each item of mechanical equipment. Furnished typical equipment schedules shall be used whenever possible and shall be revised and completed as necessary to suit the project requirements. In addition to the furnished schedules, damper and control valve schedules shall also be provided.

1.8.1.6 HVAC Control Drawings

Simplified, one-line type control schematics showing all control system interface points and detailed sequence of operation shall be provided for all mechanical equipment and systems. Sequence of operation for each item of equipment and system shall be sub-sectioned into paragraphs describing discreet operational requirements. The following drawings shall be provided:

HVAC Controls Legend:

This sheet shall include all control abbreviations and symbols that will be used on the drawings. Furnished Controls Legend sheet shall be used as a basis for all abbreviations and symbols used on the Final Control Drawings.

a. Misc Systems

These sheets shall include all miscellaneous equipment items such as supply/exhaust fans, unit heaters, radiant floor, infra-red heaters, controls air compressor, etc. that are not interlocked to the main HW or air handling unit systems. Provide control schematic and sequence of control for each item of equipment on the same sheet.

b. Hot Water System

Provide a boiler and pumping system control schematic and sequence of operation.

c. Radiant Floor Water System

Provide a manifold and zone pumping system control schematic and sequence of operation.

d. Air Conditioning System:

Provide a condensing unit, evaporator and chilled water pumping system control schematic and sequence of operation.

e. Air Handling Systems

For each air handling system, including outside air makeup system, provide a control schematic and a sequence of operation. Include all items of equipment that are interlocked to each system.

f. Control Points Lists

Provide Local Control Panel control points lists for all items of equipment

and systems, identifying all anticipated temperature control system input/output points. The format for defining the input/output points shall be as identified on the furnished Example Control Point List sheets.

1.8.2 TECHNICAL SPECIFICATIONS

None of the government provided guide specifications are required to be submitted at the 60 percent design stage. However; any Contractor generated specifications required to meet the project specifics, or individual specification items added to the provided guide specifications shall be submitted for review.

The following UFGS guide specifications shall be edited and coordinated with the drawings and design analysis to identify the proposed product and installation requirements for the facility:

33 61 00 Prefabricated Underground Heating/Cooling Distribution System
33 51 03 Gas Distribution System
13 48 00 Seismic Protection for Miscellaneous Equipment
13 48 00 Seismic Protection for Mechanical Equipment
23 07 00 Thermal Insulation for Mechanical Systems
23 20 00 Chilled, Chilled-Hot, and Condenser Water Piping System
23 23 00 Refrigerant Piping
33 51 01 Gas Piping Systems
22 00 00 Plumbing, General Purpose
23 54 16 Heating System: Gas-fired Heating
23 52 00 Water and Steam Heating; Oil, Gas or Both; up to 20 MBTUH
42 22 00 Liquid Chillers
23 82 02 Unitary Heating and Cooling Equipment
23 00 00 Air-Supply, Distribution, Ventilation, and Exhaust System
23 09 23 Direct Digital Control for HVAC and Other Local Building Systems
23 05 93 Testing, Adjusting and Balancing of HVAC Systems
23 08 00 Commissioning of HVAC Systems

Proposed HVAC and Temperature Control System Performance Test and Functional Performance Checklists shall be included in the appropriate specifications.

1.8.3 DESIGN ANALYSIS NARRATIVE

The narrative portion of the design analysis shall contain a narrative description and analysis for each of the mechanical portions of the design. The basis and reasons for specific engineering decisions, special features, unusual requirements, etc., shall be explained or summarized as applicable. If it is necessary to deviate from criteria or standard practice, reasons shall also be included. Design statements shall be provided in sufficient detail to enable the reviewer to get a clear picture and understanding of all included work so that approval will be granted. Narrative shall be complete relative to scope and intended design approaches. The total scope projected to final design shall be outlined in a form that will be conveniently adapted, expanded, and detailed at the final design stage. If alternatives were to be evaluated and selected by the designer, findings (pros and cons) and conclusions shall be included. The design analysis shall carry a complete narrative for every item and system covered in the design, and shall include, but not be limited to, the following:

1.8.3.1 Index

Provide a design analysis index identifying all main and sub-paragraph headings.

1.8.3.2 Project Summary

Provide a brief description of the mechanical design objectives.

1.8.3.3 Applicable Criteria

A list of all applicable criteria used for basis of design.

1.8.3.4 Technical Specifications

A list of Technical Guide Specifications that will be used for the project.

1.8.3.5 Design Conditions

A list of Mechanical HVAC design conditions including elevation, latitude, heating/cooling degree days, winter and summer outside design temperatures, inside design temperatures for all spaces, ventilation rates, etc. shall be provided.

1.8.3.6 System Descriptions

Provide a complete description of all building systems; include the designer's reasons for selecting specific materials, systems, etc. in which the reason for selection is not obvious. System descriptions shall be include, but not limited to, the following:

Plumbing System
Exterior Gas Distribution System
Interior Gas Piping System
Hot Water Heating System
Radiant Floor System
Exhaust Hoods
Air Supply and Distribution Systems
Ventilation and Exhaust Systems
Temperature Control System
Seismic Protection
Chilled Water System
Refrigeration System
Infra-red system

1.8.4 DESIGN ANALYSIS CALCULATIONS

The Design Analysis calculations shall provide an estimate of the heating, cooling, and ventilation loads to determine a preliminary selection of the type and size of mechanical equipment to be used. Design calculations shall be provided in sufficient detail to enable the reviewer to get a clear understanding of all work to allow approval. Backup data shall be furnished to support basic design decisions related to sizing of major equipment and materials, performance of specific systems or equipment. Manufacturer's catalog data sheets shall be provided for each item of equipment selected. Calculations may be performed by manual or computerized procedures. Use of standardized charts, curves, tables, graphs will generally be acceptable for portions of required calculations lieu of specific calculation procedures. Such data must be from a

recognized source which is identified in the design analysis and shall be included with the calculations. Design calculations and computations shall be provided for all systems and shall include, but not limited to, the following:

1.8.4.1 Index

Provide a design analysis index identifying all calculation items.

1.8.4.2 Design Conditions

A list of Mechanical HVAC design conditions including elevation, latitude, heating/cooling degree days, winter and summer outside design temperatures, inside design temperatures for all spaces, ventilation rates, etc. shall be provided.

1.8.4.3 Zone Air-Conditioning Loads

Preliminary cooling calculations shall be prepared using the Cooling Load Temperature Differential/Cooling Load Factors (CLTD/CLF) Method as described in the ASHRAE Fundamentals Handbook.

1.8.4.4 Block Air-Conditioning Loads

Preliminary block cooling load calculations, compassing the air-conditioned areas, shall be prepared using the CLTD/DLF Method.

1.8.4.5 Chilled Water Pump Selections

Include pump flow calculations and catalog selection data indicating dimensions, connection sizes, rpm, horsepower, and efficiency.

1.8.4.6 Heating Loads

For each area or room requiring heat; provide calculations.

1.8.4.7 Heating Load Summary

A tabular summary of all heating load calculations for each area or room, including combustion air heating, shall be provided.

1.8.4.8 Boiler Selection

Include boiler capacity adjustments for altitude, inefficiency, and net rating. Provide catalog data indicating input capacity, net output capacity, dimensions, and water and flue size connections.

1.8.4.9 Hot Water Pump Selection

Include pump flow calculations and catalog selection data indicating dimensions, connection sizes, rpm, horsepower, and efficiency.

1.8.4.10 Combustion-Air Requirements

Include combustion air quantity and free area calculations, louver selection, combustion air heating requirements, and selection of heating equipment.

1.8.4.11 Unit Heater Selections

For each area requiring a unit heater, provide data on capacity, weight, and horsepower.

1.8.4.12 Mechanical Ventilation

For each area or room requiring mechanical ventilation for cooling; provide calculations similar to zone air-conditioning, louver selection, and catalog fan data.

1.8.4.13 Toilets/Janitor Room Ventilation

Provide calculations, catalog fan data, and louver selections, for each toilet area.

1.8.4.14 Air Handling Units

A tabular summary of all airflow calculations for each area or room shall be provided on each air distribution system for fan sizing.

1.8.4.15 Domestic Water Demand

Calculations for determining the size of the domestic cold water supply line to the building shall be provided.

1.8.4.16 Domestic Hot Water Demand

The design guidance provided for service water heating in ASHRAE HA shall be followed to determine the domestic hot water demand for the facility. Provide catalog data for the domestic water heaters.

1.8.4.17 Electrical Load Summary

A summary of all mechanical equipment and the associated electrical load requirements shall be provided.

1.8.5 ENERGY CONSERVATION

Mechanical designs shall be economical, maintainable and energy conservative with full consideration given to the functional requirements and planned life of the facility. Emphasis shall be given to heat reclamation, outside air usage and other energy conservation measures for mechanical systems. Each major item of proposed mechanical equipment shall have a net efficiency rating that is equal to or exceeds the net efficiency ratings of similar or equal equipment of the four manufacturers each having one of the four highest ratings.

1.8.6 AIR POLLUTION CONTROL

Air pollution control shall be incorporated in all designs. The Architect-Engineer shall investigate the latest Using Service, Local, State, and Federal regulations and standards, analyze and report on requirements in the design analysis, and include in the design as applicable. The most stringent of all regulations and standards shall be implemented into the design. If in doubt as to requirements, contact this office for assistance.

1.9 ELECTRICAL

1.9.1 DRAWINGS

Drawing scale shall match architectural drawing requirements. Drawings shall show the following:

1.9.1.1 Lighting Layout and List of Fixtures

Complete lighting layout of all areas shall be provided. The type of fixture shall be indicated on the drawing. Complete list of fixtures proposed with type of lamp and wattage.

1.9.1.2 Receptacle Layout

Complete receptacle layout should be provided for all areas to indicate project requirements.

1.9.1.3 Power Equipment and Layout

Power equipment and layout such as switchboard, panelboards, large motor driven items, etc.

1.9.1.4 Power One Line Diagram

Power one line diagram shall be shown to indicate arrangement of the system.

1.9.1.5 Fire Detection

Fire Detection drawings shall be provided and inserted in the Fire Protection/Fire Suppression F-Series of drawings.

1.9.1.6 Miscellaneous Details of Special Equipment

Miscellaneous details of special equipment to indicate understanding of 01 86 26 ELECTRICAL REQUIREMENTS.

1.9.2 SPECIFICATIONS

Submit prescriptive specification sections to specify the quality, characteristics, installation procedures and testing requirements for all items of the proposed electrical design.

Specifications shall be provided (to approximately 60 percent completion). See Section 01 33 00.32 DESIGN AND CONSTRUCTION DELIVERABLES/PROCEDURES, paragraph 3.2, SPECIFICATIONS for additional requirements.

1.9.3 DESIGN ANALYSIS NARRATIVE

The design analysis shall contain a description and analysis of the electrical portions of the design. Special features, unusual requirements, etc., should be noted. Narrative must address all technical requirements identified in Section 01 86 26 ELECTRICAL REQUIREMENTS.

1.9.4 DESIGN ANALYSIS CALCULATIONS

Backup data shall be furnished to support basic design decisions related to sizing of major equipment and materials. As a minimum the following shall

be submitted.

1.9.4.1 Service

Sizing of building services EMD (Estimated Maximum Demand) for all the building loads.

1.9.4.2 Transformers

Sizing of general purpose dry type transformers.

1.9.4.3 Feeders

Sizing of main feeders.

1.9.4.4 Panelboards

Sizing of panelboards and distribution equipment.

1.9.4.5 Illumination Calculations

Data should identify target and calculated illumination levels for all typical rooms. Calculations should be adjusted to compensate for special applications such as irregularly shaped rooms, open sides, ceiling obstructions (beams, ductwork), corridors, etc. If the lumen method is used for corridor calculations, the calculations should be performed using a module in which the length doesn't exceed 3 times the width (2:1 ratio preferred).

1.9.4.6 Short Circuit Evaluation

The maximum possible fault current at the building service should be calculated.

1.10 COMMUNICATIONS

1.10.1 Drawings

Drawing scale shall match architectural drawing requirements. Drawings shall be organized and demonstrate that the work complies with all requirements of the RFP as follows:

1.10.1.1 Outside Plant Distribution

Manhole and ductbank system layout shall show all exterior features including: quantity and sizes of ducts, manhole types, cable types and routing.

1.10.1.2 Voice and Data Plans

Complete layout of all areas and outlets shall be provided. The type of outlets shall be indicated. Cable tray, conduits and other pathways shall be shown, with sizes indicated. Racks, cabinets, and other equipment shall be shown and identified.

1.10.1.3 Riser Diagrams

Provide riser diagrams that indicate the ER, TR's risers, backbone trays and conduits, typical horizontal cabling, backbone termination areas, and

service entrance configurations, and all backbone cabling (including types and counts).

1.10.1.4 Outlet Configurations

Show all unique outlet configurations, including connector types and quantities and labeling conventions.

1.10.1.5 Rack, Cabinet , and Equipment Elevations

Show typical elevations of each type of rack, cabinet, or other equipment or termination enclosures, including cable management, grounding, power, patch panels, connectors, etc.

1.10.1.6 Miscellaneous Communications Systems

1.10.1.7 Plans

Show all devices and equipment for Public Address, and CATV.

1.10.1.8 Riser Diagrams

Provide a separate riser diagram for each system, showing all major components, typical minor components (speakers, volume control, etc.) and interconnecting cabling.

1.10.2 Specifications

Submit prescriptive specification sections to specify the quality, characteristics, installation procedures and testing requirements for all items of the proposed communications design.

1.10.3 Design Analysis Narrative

The design analysis shall contain a description and analysis of the communications portions of the design. Special features, unusual requirements should be noted. Narrative must address all technical requirements identified in section 01 86 29 COMMUNICATIONS REQUIREMENTS.

1.10.4 Design Analysis Calculations

Backup data shall be furnished to support basic design decisions related to sizing of cable trays and conduits.

1.11 FIRE PROTECTION

1.11.1 DRAWINGS

Features of Fire Protection, their ratings, and the hazards requiring them, shall be clearly indicated. Sprinkler and fire alarm/detection areas shall also be clearly indicated. Fire detection mass notification and sprinkler systems shall be laid out and detailed sufficiently to indicate the designers understanding of the Section 01 86 13 FIRE PROTECTION REQUIREMENTS. When other functions co-exist with the fire protection functions, their integration shall be clearly indicated, with an analysis that describes how both functions will be served. Provide a separate, composite type floor plan which makes an accurate presentation of these various features and functions. As part of the submittal, provide a set of plans that shows emergency egress for the facility. Submit Life Safety Plan

and Building Code Analysis developed by the Fire Protection Engineer of Record. Submit credentials of Fire Protection Engineer of Record with submittal. Perform hydrant flow test in accordance with NFPA before design of fire suppression system.

1.11.2 SPECIFICATIONS

None of the Unified Facilities Guide Specifications (UFGS) are required to be submitted at this design stage. However; any Contractor generated specifications required to meet the project specifics, or individual specification items added to the provided guide specifications shall be submitted for review. Note that UFGS sections 21 13 13.00 10, WET PIPE SPRINKLER SYSTEMS, FIRE PROTECTION, 21 13 17.00 10 DRY PIPE SPRINKLER SYSTEMS, FIRE PROTECTION, AND 28 31 76 INTERIOR FIRE ALARM AND MASS NOTIFICATION SYSTEM CURRENT LOOP are required for this contract. UFGS sections may be edited only for those portions that do not apply to this project. For the items that do apply, no changes may be made.

1.11.3 DESIGN ANALYSIS

The design analysis shall include a separate fire protection report containing, but not limited to, review statements and/or comments on the following items, where applicable.

a. Location and rating of fire walls and fire partitions.

b. Column, floor, and roof protection.

c. Path of travel for emergency egress and operation of panic exits.

d. Access to building for fire fighting.

e. Design and placement of fire and smoke stop doors.

f. Labeled windows, where required.

g. Venting of smoke.

h. Placement of hand fire extinguisher cabinets.

i. Type and adequacy of sprinkler system.

j. Building exterior fire protection facilities and building clearances.

k. Type of occupancy.

l. Zoning of fixed fire protection systems and hydrant flow test results.

m. Type and adequacy of fire alarm and detection systems.

n. Zoning of fire alarm and detection systems.

o. Life Safety Plans and Building Code Analysis

p. Number of zones of alarm and detection systems that are separately transmitted to the base or installation fire department.

1.12 ENVIRONMENTAL PROTECTION COMPLIANCE

1.12.1 SPECIFICATIONS

If Section 01 57 20.00 10.00 10 ENVIRONMENTAL PROTECTION is not adequate for compliance with environmental laws and regulation for this project, the Contractor shall be responsible for developing additional requirements and/or editing the specification to ensure that the project is in full environmental compliance. If Section 01 57 20.00 10.00 10 ENVIRONMENTAL PROTECTION is revised by the Contractor, the revised specification shall be included with this submittal.

1.12.2 DESIGN ANALYSIS NARRATIVE

The Contractor shall prepare a chapter in the Design Analysis entitled: "Environmental Protection Compliance". This chapter shall summarize how the project complies with environmental laws and regulations with regard to environmental permits, notices, reviews and/or approvals by the governing authorities. As a minimum, the chapter shall include the following:

a. The list of Permitting and/or Approving Authority(ies).

b. The list Construction/Operating Permits, Notices, Reviews and/or Approvals required for the project. If, when checking with the environmental agencies, a permit, notice, or approval is not required, include a copy of the telephone conversation memorandum or letter from the agency stating nothing required.

c. Time required by the permitting agency(ies) to process the application(s) and issue the permits.

d. Fee schedule including filing/application fees, review fees, emissions fees, certification testing, etc.

e. Monitoring and/or compliance testing requirements.

f. Copies of the completed application forms and associated documents.

1.12.3 Submittal of Environmental Approvals, Permits Applications and Associated Documents

Approvals and/or Permits, for which the facility is required to be permittee or the facility is required to submit for approval to the Federal, State, or local governing agency, may be required to be submitted with 60 percent design documents because of time restraints for obtaining the permit. The Contractor shall complete the technical portions of the approvals, permit applications and complete the required associated supporting material. This package shall be submitted to the Corps of Engineers with sufficient time for the Federal Facility to receive the approval and/or permit prior to construction commencing.

1.13 SAFETY

1.13.1 SPECIFICATIONS

At a minimum, identify the pertinent UFGS guide specification that will be edited.

01 35 26 Governmental Safety Requirements
02 82 13.00 10 ASBESTOS ABATEMENT

02 83 13.00 20 LEAD IN CONSTRUCTION
02 84 16 HANDLING OF LIGHTING BALLASTS AND LAMPS CONTAINING PCBs AND MERCURY

Any interference with the Civil, Mechanical, Electrical, Geotechnical, and Environmental specifications shall be addressed and reviewed to extract the list of sampling and analysis requirements.

1.13.2 DESIGN ANALYSIS

1.13.2.1 Narrative

The Design Analysis Narrative shall list all conditions impacting safe work on the project for each of the sections listed above. Potentially hazardous conditions such as and materials shall be identified. The basis and reasons for specific decisions, special features, unusual requirements, etc., shall be explained or summarized as applicable. If it is necessary to deviate from criteria or standard practice, reasons shall also be included. Design statements shall be provided in sufficient detail to enable the reviewer to get a clear picture and understanding of all included work. Narrative shall be complete relative to scope and intended design approaches. The total scope projected to final design shall be outlined in a form that will be conveniently adapted, expanded and detailed at the final design stage. The design analysis shall carry a complete narrative for every item covered in the design.

1.13.2.2 Design Analysis Calculations

Amount and location of hazardous material (asbestos, lead paint, PCBs, etc) that will be removed shall be addressed.

1.13.2.3 Basis, Specific goals, Objectives and Priorities for Hazardous Material

The Design Analysis should establish specific goals, objectives and priorities for safety (including the removal, handling and disposal of hazardous materials) of the project. Identify, explain and document use of design criteria and how the design meets goals, objectives and priorities. Identify the preferred site development concept. Show how systematic planning has been used in the design, and to meet the objectives. Systematic planning ensures high decision confidence and stakeholder satisfaction. It should list various regulatory, scientific and engineering decisions that must be made in order to achieve the desired outcome, list unknowns that stand in the way of making those decisions, and strategies to eliminate or manage the unknowns.

PART 2 NOT USED

PART 3 NOT USED

-- End of Section --

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SECTION 01 33 00.38

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05/07

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SECTION 01 33 00.38

100 PERCENT DESIGN REQUIREMENTS
05/07

PART 1 100 PERCENT DESIGN SUBMITTALS

For general submittal requirements, see Section 01 33 00.32 DESIGN AND CONSTRUCTION DELIVERABLES/PROCEDURES.

1.1 REFERENCES

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC 350	(2005) Load and Resistance Factor Design (LRFD)Specification for Structural Steel Buildings

ACI INTERNATIONAL (ACI)

ACI SP-66	(2004) ACI Detailing Manual

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE Std 241	(1990; REAF 1997) Electric Power Systems In Commercial Buildings
IEEE Std 242	(2001) Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems - Buff Book

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	(2004) Structural Welding Code - Steel

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2017) National Electrical Code

U.S. DEPARTMENT OF DEFENSE (DOD)

AF ETL 11-18	Small Arms Range Design and Construction (19 April 2011)
AF FC 4-179-03F	Air Force Indoor Small Arms Firing Range (1 April 2015)
UFC 1-200-01	DoD Building Code (General Building Requirements) (1 February 2018)
UFC 3-600-01	Fire Protection Engineering for Facilities (28 November 2016)
UFC 4-021-01	Design and O&M: Mass Notification Systems (January 2010)
UFC 3-310-05A	(March 2005) Design: Masonry Structural Design for Buildings

UFC 3-240-07FA Sanitary and Industrial Wastewater Collection

1.2 CIVIL/SITE

1.2.1 DRAWINGS

1.2.1.1 Location Plan and Vicinity Map

A Vicinity Map consists of a small scale drawing of the project location, similar to a road map. A Location Plan consists of a small scale drawing showing the Government property or reservation limit with the construction project site shown. The drawing shall show the facility approved Contractor Access and Haul Routes. A reproducible base sheet, if available, may be provided by the Omaha District for the Contractor's use in preparing the Location Plan.

1.2.1.2 Survey Plan

The information depicting existing conditions used to generate site drawings shall be shown on this drawing. An engineering survey of the site will be presented to the Contractor selected as a result of this RFP process. Any additional survey information required by the Contractor for design above that shown in the prepared engineering survey shall be procured and paid for by the Contractor.

1.2.1.3 Removal Plan

The removal plan will show the existing physical features and condition of the site before construction. This information should include the field survey to show all above and below ground utilities; buildings, drives, roads and parking areas, walks, and vegetation; and such facilities as retaining walls, underground storage tanks, foundations, etc.. Each physical feature to be removed shall be as indicated on the standard legend sheet, a legend on the removal plan, and properly noted: to be removed, to remain, or to be relocated.

1.2.1.4 Site Plan

The Site Plan shall show all the site layout information necessary to field locate the building, walks, parking lots, and all other appurtenances to be constructed on the project. All site related work to be constructed will be located by dimensions. The Site Plan will identify all site related items such as: curbs, pavements, walks, plazas, bollards, trash enclosures, retaining walls, etc. in accordance with a standard legend sheet or with additional legends or notes. Site Plans shall be at a scale of 1 Inch = 20 Feet or 1 Inch = 40 Feet. Other drawing scales must be approved by the Omaha District. North arrows shall be oriented the same direction on all plan sheets and by all disciplines. No existing or proposed contours shall be shown on this Plan. The Site Plan, prior to adding the dimensions, should serve as the base sheet to the other Plans, such as: Utilities Plan, Grading and Drainage Plans and Landscape Plan. The Site Plan shall show all existing physical features and utilities within and adjacent to the work site that will remain after the proposed construction has been completed. This plan will also show any free zones, construction limits, and storage areas. Whenever the Site Plan occupies more than one sheet of drawings, a Key Plan shall be included. Additional plans, showing specific areas of the site in smaller scales can be included

if more detail is necessary.

1.2.1.5 Grading and Drainage Plan

A final grading and drainage plan shall be provided at the same scale as the site plan 1 Inch = 20 Feet or 1 Inch =30 Feet. Other drawing scales must be approved by the Omaha District. In addition to the requirements for the preliminary plan, the final plan shall show the final location of all storm drains, culverts, and subdrains. Storm drainage lines and structures shall be labeled. The rim elevation of all manholes, curb inlets, and area inlets shall be indicated.

1.2.1.6 Composite Utilities Plan

A Composite Utilities Plan shall be provided at a scale of 1 Inch = 20 Feet or 1 Inch = 30 Feet. Other drawing scales must be approved by the Omaha District. New and existing utilities shall be indicated. Plans shall show layout of the new and existing storm drainage systems, gas systems, sanitary systems, electrical systems, communication systems, water systems, steam systems and any other utilities which need to be provided for. Include new and existing contours.

1.2.1.7 Storm Drain Profiles

Provide profiles of all new storm drains, subdrains, and culverts showing new and existing grades, new and existing utilities, pavement sections in detail, pipe diameters and lengths, pipe slopes, invert elevations, etc. Class and gauge of all storm drain, subdrain, and culvert pipes shall be provided. This information may also be included in Storm Drain and Subdrain Schedule drawings. Profiles of roof drain runout lines may or may not be provided, at the Contractor's discretion.

1.2.1.8 Drainage Structure Details

Provide typical details of all storm drainage structures. Unless otherwise directed, use Omaha District standard detail drawings. The use of alternate details shall be approved prior to the final design documents. A, B, C, and D dimensions of all storm drain and subdrain structures shall be shown. Dimensions may be shown on either the Storm Drain and Subdrain Schedules, profiles, or structure detail drawings.

1.2.1.9 Pavement Details

Provide details of concrete curb and gutter, integral curb, typical pavement sections, typical sidewalk section, pavement utility cut details, and interface detail between new and existing pavement. Concrete curb and gutter and integral curb shall conform to standard details provided, in RFP drawings.

1.2.1.10 Pavement Joint Layout Plans

Provide pavement joint layout plans with spot elevations at joint intersections for all new concrete roads, parking areas, and pavements. Each type of joint shall be shown with a different symbol and a joint legend provided. Pavement joint layout plans shall be drawn at a scale of

1 Inch = 10 Feet or 1 Inch = 20 Feet. Under no circumstances shall pavement joint layout plan be combined with any other plans.

1.2.1.11 Concrete Pavement Joint Details

Provide concrete pavement joint details. Use Omaha District standard detail drawings whenever practicable.

1.2.1.12 Fence Details

Provide details of fence and gates. Use Omaha District standard detail drawings whenever practicable.

1.2.1.13 SWPPP Site Map

Provide a site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, areas which will not be disturbed, locations of major structural and nonstructural erosion controls identified in the Storm Water Pollution Prevention Plan, locations where stabilization practices are expected to occur, locations of off-site material, waste, borrow or equipment storage areas, surface waters (including wetlands), and locations where storm water discharges to a surface water.

1.2.1.14 Erosion Control Details

Provide details of best management practices used to control erosion.

1.2.1.15 Site Furnishing Details

The Contractor shall provide designs and details as necessary for site furnishings and accessories.

1.2.1.16 Landscape Plan

A Landscape Plan showing seeded and sodded areas, shall be prepared. The Landscape Plan shall be prepared by a fully qualified, experienced professional Landscape Architect. The A-E (Contractor's Designer) shall specify types of plant materials that are locally grown, commercially available and acclimated to the project environment. The Landscape Plan shall include a plant materials schedule or listing. This schedule shall include botanical names, common names, size, the method of planting and remarks. The Landscape Plan shall also show all unsurfaced ground areas disturbed by construction within the project limits with these areas shown to be seeded, sodded, or mulched as required.

1.2.1.17 Landscape Details

The Contractor shall verify the methods of planting to meet the project site/installation requirements and provide the necessary Landscape Details to perform the contract design work. Details shall reflect local practices and conditions for installation. The Contractor shall provide designs and details as necessary for other required site furnishings and accessories.

1.2.1.18 Sprinkler Irrigation System Plan

Sprinkler irrigation plan shall designate the lawn area to be irrigated. Plan shall show head layout piping with sizes and all other corresponding components. All appropriate details are to be shown and calculations

included. Provide flow and pressure requirements.

1.2.2 SPECIFICATIONS

Provide complete edited specifications for all items. Technical specifications shall be complete and fully coordinated with the drawings. All specification indexes shall be completely edited to reflect the paragraphs retained in the body of the specification. All references that have not been used in the body of the specification shall be edited from the technical specification.

1.2.3 DESIGN ANALYSIS NARRATIVE

Design analysis shall include the following:

1.2.3.1 References

Provide design references used in preparing the civil/site design.

1.2.3.2 Basis For Design

The Design Analysis should give the basis, specific goals, objectives and priorities for civil/site design of the project. Identify, explain and document use of design criteria and how the design meets goals, objectives and priorities. Identify the preferred site development concept. Document stormwater pollution prevention measures and other environmental considerations made during design.

1.2.3.3 Grading

A narrative of the grading design and criteria used.

1.2.3.4 Drainage

A narrative of the drainage design and criteria used. Include information on the storm drain pipe materials selected and their ability to withstand earth dead loads and live loads that will be imposed.

1.2.4 Design Analysis Calculations

1.2.4.1 Storm Drainage System Calculations

Storm Drainage System Calculations shall include the following:

a. Drainage area map showing boundaries of each drainage area and respective drain inlet or culvert.

b. Storm run-off calculations for each drainage area.

c. Tabulation of capacities of new storm drains including: diameter and slope of storm drain pipes, design storm discharge and velocity for each storm drain pipe, maximum discharge capacity of each storm drain pipe, headwater depth of each culvert during design storm discharge.

d. Hydraulic capacity calculations for each new curb and area inlet.

1.2.4.2 Pavement Calculations

Pavement thickness calculations for each pavement.

1.2.4.3 Sprinkler Irrigation System Design Parameters

A list of applicable criteria and/or design standards shall be provided. This shall also include precipitation rates, pipe sizes and material and complete calculations of total flow and pressure requirements and head losses. A narrative description of the system including special requirements and drip systems shall be provided.

1.3 GEOTECHNICAL

See Structural Design Requirements.

1.4 WATER SUPPLY AND WASTEWATER

1.4.1 DRAWINGS

Generally, the corrected and approved 60 percent plans may be used as the basis for the final plans. However, all details necessary for complete construction must be included. The 100 percent final design submittal shall include all the information presented in the 60 percent submittal, updated to final design status, corrected to reflect any changes made in response to review comments, and shall include the additional requirements specified hereinafter. Any concerns in developing the final design documents shall be resolved prior to starting the final design stage.

1.4.1.1 Water Distribution and Sewage Collection Systems Plans (including building services)

Provide all existing utilities and above ground features, including sizes and material types, which may pose as an obstacle (i.e., water, sewer, gas, electrical, etc.) on the basic site plan layout. Indicate existing pipe material and sizes where new lines connect along with the type of connection and elevations of connections. Provide all new water and sewer lines with sizes. This will include all new service lines, up to within the 5-foot building line. Locations of all new manholes, fire hydrants, valves (including PIV's), similar appurtenances, connection points and etc. shall be provided. For pavement cuts, show type of pavement to be removed and replaced. Show contours on plan view. Include stationing on both plan and profile sheets.

1.4.1.2 Water Distribution and Sewage Collection Systems Profiles

Profiles of all gravity sewers, waterlines (excluding service connections) and sewage force mains shall be provided. Profiles may be omitted for short waterlines, unless necessary to assure adequate cover or avoid interference with other underground facilities. Indicate existing pipe material and sizes where new lines connect. Indicate type of connection and elevation. Include all interference elevations.

1.4.1.3 Water Distribution and Sewage Collection Systems Details

Appropriate water and sewer details shall be provided. Use Omaha District standard detail drawings. The standard detail sheets will be furnished if required. For roadway pavement crossings, indicate installation method (open cut, boring, jacking, etc.). Include standard casing details.

1.4.2 SPECIFICATIONS

Specifications shall be coordinated with the plans and include all items. Provide special sections to cover those subjects for which no UFGS guide specifications are used or available. These special sections shall include all approved changes from the 60 percent review stage. All UFGS guide specifications, to be provided, shall be in edited form showing all text to be deleted and added.

1.4.3 DESIGN ANALYSIS NARRATIVE

Design analysis shall include the following and all applicable data contained in the 60 percent design analysis narrative shall be repeated. References shall not be made to the previous design analysis. The final design analysis shall be corrected to reflect changes in content made in response to review comments, and shall be expanded to reflect the completed design.

1.4.3.1 References

Provide design references used in preparing the water and wastewater design.

1.4.3.2 Water Supply and Distribution Systems

A narrative of the water supply and distribution systems design and applicable criteria used shall be provided. Include the peak and average domestic demands, the interior and exterior fire flow requirements and the available flow and residual pressures. A description of the water distribution system, and complete calculations necessary to support equipment, piping sizes, interior and exterior fire demands, and domestic demands, etc. shall be provided.

1.4.3.3 Wastewater and Sewers

A narrative of the wastewater supply design and applicable criteria used shall be provided. Include the average, diurnal peak, and extreme peak flows along with the full flow capacity (70% of the total depth) of the system. The design shall be in accordance with velocity requirements of UFC 3-240-07FA. A listing of allowable piping materials, and complete calculations necessary to support equipment and piping sizes shall be provided.

1.5 ARCHITECTURAL

1.5.1 DRAWINGS

The drawings shall be complete, include all necessary and required details, thoroughly checked, and fully coordinated with the technical Specifications and all other Construction Documents. Previous comments and applicable criteria changes shall have been incorporated into the design. Removal work and details should be shown on separate drawings. The contract drawings shall fully describe the type and the scope of work required. The layout of individual sheets and the organization of the assembled set shall follow and communicate a logical sequence. General information shall be presented first, progressing to more detailed information. When assembling details, begin in the upper left-hand corner of the sheet with letters progressing to the right and down. When dimensioning, use arrowheads, not dots or slashes. Where major structural elements are included as parts of architectural detailing, do not indicate sizes. These elements must be

fully defined in the structural design documents. See 60% Architectural drawing submittal requirements for drawing scales of remaining drawings to be submitted. Contractor shall submit letter by Fire Protection Engineer at 100% submission certifying the design complies with all pertinent codes, UFCs, etc. Contractor shall submit life safety and building code plans stamped and sealed by the fire protection engineer at the 100% design. Include all drawings from the 60% submittal plus all additional detail drawings required for complete 100% design. These shall include but not be limited to the following:

Interior Elevations and Details
Door Details
Window Details
Louver Details
Roof Details
Stair Details
Casework Plans, Elevations, and Details
Wall Plan Details and Plan Details
Fire Wall Details and Penetration Conditions
Sealant Details
Ceramic Tile Details
Ceiling Details
Control/Expansion Joint Details
All Miscellaneous Details

1.5.2 SPECIFICATIONS

The technical specifications shall be complete and fully coordinated with the drawings. Special sections shall be prepared to cover those subjects for which no pattern guide specification is available. Notes to the Designer that accompany specifications shall be used in editing technical guide specifications. All specification indexes shall be completely edited to reflect the paragraphs retained in the body of the specification. All UFGS guide specifications shall be edited in accordance with Section 01 33 00.32 DESIGN AND CONSTRUCTION DELIVERABLES/PROCEDURES.

1.5.3 DESIGN ANALYSIS NARRATIVE

The Design Analysis shall include the basic information presented in the previous submittal, corrected to reflect changes in content made in response to review comments. Outline specifications shall be omitted from the Final Design Analysis as the information is included on the final drawings and project specifications. The design analysis shall be written in the present tense.

1.5.4 DESIGN ANALYSIS CALCULATIONS

The Design Analysis calculations shall include the basic information presented in the previous submittal, corrected to reflect changes in content made in response to review comments.

1.6 INTERIORS

1.6.1 DESIGN ANALYSIS NARRATIVE

Updates as a result of the 60% review conference shall be made to the design analysis.

1.6.2 DRAWINGS

Updates required to the furniture footprint as a result of 60% review shall be incorporated into the drawings.

1.6.3 SPECIFICATIONS

Technical specifications shall be in final form for construction (in accordance with the requirements of Section 01 33 00.32 DESIGN AND CONSTRUCTION DELIVERABLES/PROCEDURES and shall include all changes requested during the 60% review stage. All specifications shall be completely edited and fully coordinated with the drawings to accurately and clearly identify the product, installation requirements, and testing methods for this facility.

1.6.4 STRUCTURAL INTERIOR DESIGN (SID) COLOR BOARDS

SID color boards shall show color samples of all proposed exterior and interior finishes. A color board legend shall accompany the boards and shall clearly identify all finishes. Clarification of finish placement shall be required when more than one color of a single finish is proposed. Color boards shall be 8 1/2" x 11" in size. Provide both electronic color boards and color board binders. The color board binders shall consist of three ring binders with pockets. Include project name and location, design stage and date on the electronic color boards and on the front cover and spine of the binders. The color board binders shall include a legend and actual color samples.

Resubmit electronic color board. Resubmittal of color board binders is not required if there are no changes from the previous design submittal; provide updated cover and spine for insertion into the previously submitted SID binder. If only minor changes are required, submit updated binder cover and spine, applicable coded samples (tape ready for application) and corrected legends for the color board binders. If major changes to the color board are required, resubmit the color board binders and include color samples of all proposed exterior and interior finishes and an updated legend.

Three binder copies shall be provided; one each for the Omaha District Corps of Engineers PM, the User and BCE Office. Obtain mailing addresses from the Omaha District Corps of Engineers PM. All electronic copies for this submittal shall include an electronic color board.

1.6.5 FURNITURE, FIXTURES AND EQUIPMENT (FF&E)

Provide a 100% FF&E design in accordance with UFC 3-120-10 INTERIOR DESIGN submittal requirements. Include an Item Code Legend, not an Item Installation List. Provide both an electronic FF&E and FF&E binders. The FF&E binders shall be a three ring binder with pockets and have tabs to separate the different sections. Include the project name and location, design stage and date on the front cover and spine of the FF&E binder. The FF&E binder shall include actual finish and fabric samples.

Resubmit electronic FF&E. Resubmittal of FF&E binder is not required if there are no changes from the previous design submittal; provide updated cover and spine for insertion into the previously submitted FF&E binders. If only minor changes are required, submit updated binder cover and spine, corrected FF&E sections, and applicable coded finish and fabric samples (tape ready for application). If major changes to the color board are

required, resubmit the FF&E binders, include actual color samples of all proposed finishes and fabrics.

Three binder copies shall be provided; one each for the Omaha District Corps of Engineers PM, the User and BCE Office. Obtain mailing addresses from the Omaha District Corps of Engineers PM. Electronic copies of this submittal shall include the FF&E package.

1.7 STRUCTURAL

1.7.1 DRAWINGS

Final drawings shall be complete, thoroughly checked, and fully coordinated with the other disciplines, specifications and all other construction documents. Previous comments and applicable criteria changes shall have been incorporated into the design. The drawings shall be complete with all plan views, elevations, sections, details, schedules, diagrams, and notes necessary for the construction of the project. For structural steel framing, the drawings shall meet the requirements for design drawings set forth in the AISC 350 AISC Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings. All structural steel members and connections shall be fully detailed. Design of structural steel connections shall be the responsibility of the structural design engineer and shall not be delegated to the steel fabricator. For structural concrete, the drawings shall conform to the standards for engineering (design) drawings set forth in the ACI Detailing Manual ACI SP-66. Additionally, those items described below which are applicable to the design shall be incorporated into the drawings. Drawings shall be at a scale appropriate for the design, in no case however, shall plan type drawings be done at a scale smaller than 1/8" = 1'-0" or detail type drawings at scale smaller than 1/2" = 1'-0".

1.7.1.1 Grid Systems, Dimensions, and Floor Elevations

Each foundation and slab plan, floor framing plan and roof framing plan shall have an alpha-numeric grid system aligned with centerlines of any columns or pilasters, or with load bearing and non-load bearing walls, as applicable. The same grid system shall be used for all plan views. Each plan view shown shall have all necessary dimensions. On plan views, the dimensions shall define the location of grid lines, offsets, and all structural elements, as well as the overall sizes of the buildings and structure. The finish elevation of the floor shall be indicated as 100'-0", and elevations for all other roofs, floors, and foundations shall be numerically referenced to this basic elevation.

1.7.1.2 Plan Sheets

a. Foundation and Slab Plans

Foundation and slab plans shall show the size and location of all foundation elements, such as foundation walls, grade beams, piers, footings, piles, and pile caps, drilled piers, and foundation drains. Elevations for footings, pile caps, and foundation drains shall be indicated on the plan. Plans for building slabs-on-grade and exterior stoop slabs at building entrances shall show location and type of joints, slab thicknesses and reinforcing, elevation of slab surfaces, and any other design features, such as drain trenches or equipment bases, which affect the slab design. Also, indicate if slabs are placed over a vapor barrier and capillary water barrier.

b. Framing Plans

Separate framing plans shall be provided for each structural floor roof and all parts of the structure. Plans shall show the size, spacing, and location of all roof and floor framing members, their supporting columns, pilasters or walls, all auxiliary members such as bracing and bridging, sag rods and the size and location of all major openings through floors and the roof.

1.7.1.3 Elevation Views, Sections and Details Sheets

Elevation views, sections and details necessary to illustrate fully the design shall be provided. Some requirements peculiar to the various structural materials are described below.

a. Concrete

Drawings shall include elevation views as necessary, plus sections and details to show the outlines of concrete cross-sections, reinforcing bar arrangements, concrete cover for rebar, installation of embedded items, and joint construction. All lap splice and embedment lengths for reinforcing bars shall be clearly indicated on the drawings. A sill detail for each foundation condition at exterior and interior doors shall be provided.

b. Precast Concrete

Submit drawings and design calculations indicating complete information for the fabrication, handling, and erection of the precast prestressed member. Drawings shall not be reproductions of contract drawings. Design calculations and drawings for precast prestressed concrete units (including connections) shall be made by a registered professional engineer experienced in the design of precast prestressed concrete members and registered in the state where the project is located, and submitted for approval prior to fabrication. The drawings shall indicate, as a minimum, the following information:

i. Plans, elevations and other drawing views showing the following:
(1) Member piece marks locating and defining products furnished by the manufacturer.
(2) Headers for openings.
(3) Location and size of openings that cut prestressing strands or require the location of prestressing strands to miss field cut openings.
(4) Relationships to adjacent material.
(5) Joints and openings between members and between members and other construction.
(6) Location of field installed anchors.
(7) Erection sequences and handling requirements
(8) Areas receiving toppings and magnitude of topping thickness. Identify areas where topping is an integral part of the structural capacity of the precast prestressed members.
(9) Lifting and erection inserts

ii. Elevations, sections and other details for each member showing the following:
(1) Connections between members and connections between members and other construction.
(2) Connections for work of other trades and cast-in items and their

relation to other trades.

(3) Dimensioned size and shape for each member with quantities, position and other details of reinforcing steel, anchors, inserts and other embedded items.

(4) Lifting, erection and other handling devices and inserts.

(5) Surface finishes, texture, treatment, and color of each member.

(6) Estimated cambers

iii. Magnitude, schedule and sequence of tensioning and detensioning prestressing strands.

iv. Strength properties for concrete, steel and other materials.

v. Methods for storage and transportation.

vi. Description of loose, cast-in and field hardware.

vii. All dead, live, handling, erection and other applicable loads used in the design.

viii. Reinforcing, including prestressing and special reinforcement details. Panel thicknesses showing and dimensioning the various concrete wythes and insulation layer(s).

ix. Minimum concrete compressive strengths at initial prestress and 28 days, initial prestress to be applied, and minimum release strength.

x. Shoring, unless structural computations are submitted showing that allowable concrete stresses during the work will not be exceeded when shoring is not used.

xi. Indicate separate face and backup mix locations.

c. Masonry

Wall reinforcing shall be located and identified on plans, in section cuts, elevation views or in schedules. Structural elevations when needed shall be included to clarify the construction requirements for masonry reinforcement, especially the reinforcement around wall openings. Details applicable to the project shall be shown on the structural drawings. Listed below are some frequently required masonry details, most of which are shown in UFC 3-310-05A, and on the Typical Masonry Sheets. The Typical Masonry Sheets will be provided to the successful offeror upon request and may be edited and incorporated into the final drawings as needed. Additional details as required shall be extracted from other sources and incorporated into the final drawings. All details shall be fully edited to reflect the specific requirements of this project. Supplemental details shall be added as necessary to complete the design.

Masonry Details Frequently Used

- Masonry Control Joint (MCJ).
- Brick Expansion Joint (BEJ)
- Control Joint at Bond Beam.
- Bond Beam Corner Reinforcement.
- Seismic Reinforcement Around Wall Openings.
- Wall Reinforcement Details for 1 and/or 2 bar-per-cell stiffeners.
- Doweled or Other Connection of Masonry to Foundation, Floor, Roof or Bond Beam.

- Bond Beam (or Steel) Lintels and Bearing Details
- Lateral Support Detail for Top of Masonry Partition Walls. (lateral support locations must be shown on framing plan sheets.)
- Steel Joist Bearing

d. Structural Steel, Steel Joists, and Steel Decking

Structural steel connections shall be fully detailed and shown on the drawings. The anchorage of beams, trusses, joists, and steel deck to walls or other bearings, and the extra framing or reinforcement required at deck openings shall also be detailed. Notes, details, or schedules on the drawings shall indicate the steel deck attachment method to be used, and shall give the size and spacing for perimeter, side lap, intermediate supports and end lap attachments. Welded connections shall be detailed using standard weld symbols illustrated in AWS D1.1/D1.1M. All applicable weld sizes, spacing, types, contours and finishes shall be shown.

1.7.1.4 Schedules

a. Foundation Schedules

Foundation schedules for the foundation type selected shall be included, as applicable. The schedule shall include all pertinent information required for the foundation system being used.

b. Framing Schedules

For concrete framing, beam and column schedules shall conform to the requirements of the ACI SP-66. For structural steel framing, provide a column schedule complete with design loads at splices, if any, and at column bases.

1.7.1.5 Equipment Loads

All equipment loads which exceed 200 lbs and are not supported by concrete slab-on-grade shall be identified on the drawings by showing equipment locations, total weights, and reaction loads at support points.

1.7.1.6 Notes

a. Design Notes

Under the heading "Designer's Notes," the structural drawings shall contain notes which begin: "The structural design was prepared using the following data:". The data then listed shall include the structural loading criteria used for design, such as roof and floor live loads, snow load design parameters, wind speed and wind load design parameters, seismic design parameters vehicular loads, allowable soil bearing pressures (as recommended by the Final Foundation Analysis report, foundation design depth, design wind uplift pressures for steel joists and other data pertinent to future alterations. Also, to be listed are the ASTM designations and stress grades of the applicable structural materials: structural steel, masonry, cold-formed metal framing, concrete for each usage, reinforcing bars, welds, and bolts.

b. General Notes

Other notes, which direct the work to be performed, the materials to be used, etc., shall be grouped under the heading of "General Notes."

Included in these notes should be a description of the building's structural system, if necessary.

1.7.2 SPECIFICATIONS

Technical specifications for final design shall be prepared in accordance with the instructions provided in Section 01 33 00.32 DESIGN AND CONSTRUCTION DELIVERABLES/PROCEDURES, Paragraph 3.2 "Specifications". The technical specifications shall be complete and fully coordinated with the drawings. All specification indexes shall be completely edited to reflect the paragraphs retained in the body of the specification. All references that have not been used in the body of the specification shall be edited from the technical specification.

1.7.3 DESIGN ANALYSIS NARRATIVE

The final design analysis narrative shall repeat and expand upon the basic information presented in the 60% design analysis narrative, and shall be corrected to reflect revisions made for the final design.

1.7.4 DESIGN ANALYSIS CALCULATIONS

Calculations shall be prepared by an experienced structural engineer and shall include an investigation of loading, (gravity, wind, seismic, etc.) shear, moment, wind uplift, stability and deflection calculations. The computations are to be systematic and accurate. Similar beams, columns, panels, or connections may be grouped by designing the largest member or connection in the group, but every individual slab, beam, column, footing, connection or other structural member or structural consideration indicated by the plans shall be accounted for by pertinent calculations, statement or reasoning, or reference to a design source. Design formulas shall be written out in symbols the first time each is used, before the numerical values are supplied. All formulas and results(answers) shall be identified by dimensional units. Basic assumptions of loads, working stresses, and methods of analysis must appear in the calculations; these assumptions must be applied consistently to a given problem. Complete design calculations shall be required for all original designs. The calculations shall be presented in a clear and legible form, incorporating a title page, table of contents, and a tabulation showing all design loads and conditions. Pages shall be numbered consecutively and identified in the table of contents. Cross referencing shall be clear. The source of loading conditions, formulas, and references will be identified. Assumptions and conclusions shall be explained. Superseded areas of computations must be ruled out. All computations shall be given a complete numerical and theoretical check within the Contractor's office. Calculation sheets shall carry the names or initials of the developer and the checker, and the dates of calculations and checking. No portion of the design calculations shall be developed and checked by the same individual.

1.7.4.1 Computer Calculation Submittals

All applicable input and output data shall be included in readable printed form as part of the design calculations. Continuous paper such as that used in computer terminals or printers shall be cut into individual pages and shall not be submitted in a continuous roll form. All input and output data shall include a brief synopsis of the computer program(s) stating required input, method of solution, approximations used, codes and specifications used, output generated, extent of previous usage or certification of the program(s), and program author(s). Generalized flow

chart(s) may be used to supplement description of solution process, if desired. All computer generated and long-hand calculation sheets shall be identified by sheet number, indexing and cross-referencing. Each member or structure being analyzed shall be identified, dimensioned and shown in a loading diagram. A separate diagram shall be provided for each load case, such as dead plus live, dead plus wind, etc. Input and output values including intermediate values shall clearly be identified if such values are necessary for evaluation of the submittal.

1.7.5 Final Geotechnical Investigation Report

The geotechnical investigation data~~, which will be included in this RFP at a later submittal,~~ is intended for proposal preparation and final design use. The information in the Final Subsurface Investigation and Geotechnical Information Report included in the RFP represents the best available site data. Variations from the typical conditions described may exist at the site."

1.8 MECHANICAL

The 100 percent final design submittal shall include all the information presented in the 60 percent submittal, updated to final design status, corrected to reflect any changes made in response to review comments, and shall include the additional requirements specified hereinafter. Any concerns in developing the final design documents shall be resolved prior to starting the final design stage.

1.8.1 DRAWINGS

The final design drawings shall be fully coordinated with the design analysis and specifications. Provide sufficient plans, piping diagrams and isometrics, mechanical room sections, water and air flow diagrams, details, schedules, control diagrams, sequences of operation, etc., as necessary to define the design requirements. Large-scale plans of congested areas shall be provided. Coordinate with architectural design for provision of access panels for all concealed valves, traps and air vents, etc. Floor plans shall use the architectural floor plans as a basis, with the building outline half-toned. The final design drawings shall include all the requirements and drawings defined for the 60 percent submittal. In addition, the following new drawing requirements and drawings shall be provided:

1.8.1.1 Mechanical Abbreviation, Legend, and General Notes Sheet

On this sheet, include any mechanical general installation notes that may be required to clarify the construction intent that may not be readily apparent in the specifications or on the drawings. General notes may be provided on a separate sheet if space does not exist on the Abbreviation and Legend sheet.

1.8.1.2 Plumbing Drawings

Enlarged Toilet Room Plans:

Enlarged toilet room plans showing all fixtures, water, waste, and vent piping shall be provided for each toilet area. Enlarged plans shall be drawn at a minimum 1/4" = 1'-0" scale.

1.8.1.3 Mechanical HVAC Drawings

Hot Water System Flow Diagram:

Provide a hot water flow diagram showing the boiler, pumps, and all connected heating equipment including radiant floor heating system. Each equipment item shall show associated flowrate. All thermometers, pressure gauges, isolation and control valves, bypass piping, etc. shall be shown on the flow diagram.

Chilled Water System Flow Diagram:

Provide a chilled water flow diagram showing the cooler, pumps, and all connected cooling equipment. Each equipment item shall show associated flowrate. All thermometers, pressure gauges, isolation and control valves, bypass piping, etc. shall be shown on the flow diagram.

1.8.1.4 HVAC Control Drawings

In addition to the updated Controls Legend and System Block Diagram Sheets, final HVAC control drawings for each system and item of equipment shall be in accordance with the following requirements:

Control Diagrams:

Control Diagrams shall be provided for each system or item of equipment. Systems diagrams shall include every major component installed in or connected to the system, and only one system shall be shown on each diagram. Control Diagrams shall schematically show all sensors, controllers, actuators, indicators, and operator interface devices that are required for the complete automatic control and monitoring of the system. All sensing devices utilized in the control or instrumentation of the system, and all actuating devices shall be shown in their correct mechanical location and functionally interconnected to the other control devices which comprise the control loop. All controlling devices shall be shown with all functional interconnections to inputs and outputs. Each sensing, controlling, actuating, and indicating device shall have its own unique control loop tag identifier. Communication linkages required to complete the entire intended interface between operators and the control system shall be shown schematically. This includes interconnections between local temperature control panels and the base EMCS. All associated thermometers and pressure gauges, located in their correct mechanical locations, shall also be shown on the diagrams. See furnished Example HVAC Control Drawings for the required level of detail and formatting.

Sequence of Operations:

Sequence of Operations shall be provided for each item of equipment or system and shall fully describe the intended operation of the equipment or system in all different operating modes. As identified on the furnished Example Control Drawings, each Sequence shall be broken down by individual control loops and shall include descriptions of both normal operating modes (running, shutdown, standby, etc.) and abnormal, emergency or safety related modes. Sequences shall include a description of all indication instrumentation, alarm conditions, and automatic actions to be taken upon occurrence of alarm conditions. Each device referenced in the sequence shall be referred to by its unique tag identifier, with each component designator shown in parenthesis. Design setpoints shall be specified for each control loop and indicated as being adjustable. See furnished Example

HVAC Control Drawings for the required level of detail and formatting.

The designer shall analyze every component of each system and write each Sequence of Operation to compliment the Functional Performance Checklists. The Sequence of Control on the project drawings shall be explicit and written to ensure that all the requirements of the "Functional Performance Test Checklists" can be accomplished.

Control Points Lists:

Control points lists, identifying each temperature control system input and output, shall be developed for each temperature control panel. See furnished Example HVAC Control Drawings for the required level of detail and formatting.

1.8.2 SPECIFICATIONS

The submitted 60 percent technical guide specifications shall be updated, completely edited, and fully coordinated with the drawings to accurately and clearly identify the final product and installation requirements for the facility.

1.8.3 DESIGN ANALYSIS NARRATIVE

The Final Design Analysis Narrative shall include the information presented in the 60 percent submittal, shall be corrected to reflect changes in content made in response to review comments, and shall be expanded to reflect the completed design.

1.8.4 DESIGN ANALYSIS CALCULATIONS

The Final Design Analysis calculations shall include all the information presented in the 60 percent submittal, shall be corrected to reflect changes in content made in response to review comments, and shall be expanded to reflect the completed design. In addition, the following new calculations shall be provided:

a. Pipe sizing calculations for the chilled & heating hot water, plumbing, gas piping systems.

b. Chilled & heating hot water pump head calculations.

c. Chilled & heating hot water expansion tank sizing.

d. External static pressure calculations for all fans.

e. Control Valve CV calculations.

1.9 ELECTRICAL

1.9.1 DRAWINGS

Drawing scale shall match architectural drawing requirements.

1.9.1.1 Interior Drawings

Drawings shall be complete and accurate in every detail and shall include arrangements and types of light fixtures, receptacles, switching, location of special features, necessary details, including legends, fixture

schedule, panel schedules, one-line diagrams, layout or functional diagrams for each of the various systems, riser diagrams if applicable, estimated maximum demand for each panel and for entire building and any other relative information which will help clear up any and all questionable items on the plans or in the specifications toward the development of a set of plans which will be clear, concise and correct. Additional drawing requirements for specific equipment or systems have been included in subsequent paragraphs pertaining to the equipment or systems.

1.9.1.2 Floor Plans

All rooms must be identified by name and number. Plans must be legible. Plans shall be developed using the same scale and areas as the architectural floor plans. Separate floor plans must be provided for lighting, power, and fire detection.

1.9.1.3 Diagrams

The power one-line diagram shall be on a dedicated sheet. The diagram should show ratings of major equipment including short circuit ratings. Power, communications diagrams, fire detection and telephone diagrams should be on separate sheets also.

1.9.1.4 Schedules

Provide panelboard and lighting fixture schedules. Panelboard schedules shall include the designation, location, mounting (flush or surface), number of phases and wires, voltage, ampacity and total connected and demand load. Indicate the trip rating, frame size, interrupting rating and number of poles for each circuit breaker in the panelboards. List the circuit number, circuit description and load for each branch circuit.

1.9.1.5 Exterior Drawings

Drawings shall be complete and accurate in all details and shall include the routing of all feeder and branch circuits.

1.9.2 SPECIFICATIONS

All specifications shall be completely edited and fully coordinated with the drawings to accurately and clearly identify the product, installation requirements, and testing methods for this facility.

1.9.3 DESIGN ANALYSIS NARRATIVE

The text of the preliminary design analysis should be expanded to reflect the completed design. Calculations used to develop the design should be included. The document in its final form should conform in all applicable respects to the requirements of Section 01 86 26 ELECTRICAL DESIGN REQUIREMENTS.

1.9.4 DESIGN ANALYSIS CALCULATIONS

Backup data shall be furnished to support basic design decisions related to sizing of major equipment and materials, selection of economic alternatives, performance of specific systems or equipment. Calculations may be performed by manual or computerized procedures. Use of standardized charts, curves, tables, graphs will generally be acceptable for portions of required calculations or in lieu of specific calculation procedures. Such

data must be from a recognized source which is identified in the design analysis. If possible, a copy of applicable sheets or pages should be included with the calculations. For given equipment, the calculations must conform to requirements identified under subsequent paragraphs herein pertaining to the equipment.

1.9.4.1 Service

Sizing of building service.

1.9.4.2 Transformers

Sizing of all transformers. (Generally for dry type transformers, 1 or 2 samples of detailed calculations to identify the method are sufficient, if input data for remaining units can be derived from panel or feeder sizing data.)

1.9.4.3 Feeders

Sizing of feeders (One detailed sample calculation is sufficient to establish the procedure, remaining data can be in schedules, tables, etc.).

1.9.4.4 Panelboards

Sizing and loading of panelboards and distribution equipment.

1.9.4.5 Voltage drop determination

Provide voltage drop calculations in accordance with IEEE Std 241 to demonstrate that the voltage drop requirements of NFPA 70 are satisfied.

1.9.4.6 Illumination calculations

Data should identify target and calculated illumination levels for all rooms and areas. Calculations should be adjusted to compensate for special applications -- irregularly shaped rooms, open sides, ceiling obstructions (beams, ductwork), corridors, etc. If the lumen method is used for corridor calculations, the calculations should be performed using a module in which the length doesn't exceed 3 times the width (2:1 ratio preferred).

1.9.4.7 Short Circuit Evaluation

Calculate the fault current in accordance with IEEE Std 242 for each node in the electrical distribution system.

1.9.4.8 Protective Coordination Analysis

A protective coordination study shall be performed to show that the power system is selectively coordinated and is fully coordinated with the upstream breakers. In addition the study shall include all existing and new devices in the Base power plant affected by the installation of the Space Test and Evaluation Facility. The protective coordination / short circuit study shall be complete and approved by the government before any changes are make to the existing equipment.

1.9.4.9 Specialized Applications

Additional engineering backup should be included to address special requirements such as accommodation of nonlinear loads, harmonics analysis,

energy studies, etc.

1.10 COMMUNICATIONS

1.10.1 Drawings

Drawing scale shall match architectural drawing requirements. Drawings shall be complete and accurate in every detail; be coordinated with all other work, sufficiently cross referenced to other drawings and specifications;, include appropriate notes, schedules, diagrams and details; shall be organized and demonstrate that the work complies with all requirements of the RFP as follows:

1.10.1.1 Outside Plant Distribution

Drawings shall include manhole and ductbank system layout shall show all exterior features including: quantity and sizes of ducts, manhole types, cable types and routing, detail cross references and other notes.

1.10.1.2 Voice and Data Plans

Complete layout of all areas and outlets shall be provided. The type of outlets shall be indicated. Indicate areas served by TR's and equipment rooms. Cable tray, conduits and other pathways shall be shown, with sizes indicated. Racks, cabinets, and other equipment shall be shown and identified.

1.10.1.3 Riser Diagrams

Provide riser diagrams that indicate the ER and TR's; risers, backbone trays and conduits; backbone termination areas; racks and cabinets; service entrance configurations, typical horizontal cabling; and all backbone cabling (including types and counts). Provide separate diagrams for each system. Identify interfaces to other systems (fire alarm, EMCS, etc.)

1.10.1.4 Outlet Configurations

Show all unique outlet configurations, including connector types and quantities and labeling conventions

1.10.1.5 Rack, Cabinet, and Equipment Elevations

Show individual elevations of each type of rack, cabinet, or other equipment or termination enclosures, including cable management, grounding, power, patch panels, connectors, etc.

1.10.1.6 Enlarged Room Plans

Provide enlarged room plans drawn at ¼" = 1' of every room containing one or more racks or cabinets. Include scaled outlines of racks, backboards, cabinets, cable

1.10.1.7 Details

Provide installation details that fully define installation requirements for typical and special conditions, including all termination enclosures, break-out boxes, consolidation point or box which includes termination or cable management hardware.
Provide manhole details and elevations. Provide duct bank configuration

and construction details

1.10.1.8 PDS Drawings

Provide a separate set of drawings for each PDS. Provide plan drawings that include conduit routing, boxes and enclosures. All materials used in the PDS shall be identified and defined, including conduit type, conduit fittings, boxes, enclosures, locking mechanisms and alarm devices.

1.10.1.9 Miscellaneous Communications Systems

1.10.1.10 Plans

Show all devices and equipment for Public Address, and CATV.

1.10.1.11 Riser Diagrams

Provide a separate riser diagram for each system, showing all major components, typical minor components (speakers, volume controls, etc.) and interconnecting cabling.

1.10.1.12 Details

Provide installation details that fully define installation requirements for typical and special conditions.

1.10.2 Specifications

Submit prescriptive specification sections to specify the quality, characteristics, installation procedures and testing requirements for all items of the proposed communications design.

1.10.3 Design Analysis Narrative

The design analysis shall contain a description and analysis of the communications portions of the design. Special features, unusual requirements should be noted. Narrative must address all technical requirements identified in section 01 86 29 COMMUNICATIONS.

1.10.4 Design Analysis Calculations

Backup data shall be furnished to support basic design decisions related to sizing of cable trays and conduits.

1.11 FIRE PROTECTION

1.11.1 DRAWINGS

Design will be an extension of the 60% submittal, incorporating all comments thereto and any revised criteria, all as specifically directed by the District Office. All conflicts, lack of specific criteria, and/or direction, inconsistencies, ambiguities, and lack of thorough understanding of the nature and scope of work shall be resolved prior to starting final design work. The fire protection plans shall show the following: entire sprinkler system; fire detection and mass notification system, to include control panels, remote annunciators, alarm notification devices, and each initiating device; fire walls; fire partitions; building separations; other fire protection features. Submit letter by Fire Protection Engineer of

Record certifying that the project meets all applicable codes, UFC, etc. at 100% submission. Submit life safety and building code plans stamped and sealed by the Fire Protection Engineer of Record at 100% submission.

1.11.2 TECHNICAL GUIDE SPECIFICATIONS

The following UFGS guide specifications shall be completely edited and fully coordinated with the drawings to accurately and clearly identify the product and installation requirements for the facility:

21 13 13.00 10	Wet-Pipe Sprinkler Systems, Fire Protection
21 13 17.00 10	Dry-Pipe Sprinkler Systems, Fire Protection
28 31 76	Interior Fire Alarm ans Mass Notification System Current Loop

All items identified in the specifications not required shall be marked for deletion in accordance with the requirements of Section 01 33 00.32 DESIGN AND CONSTRUCTION DELIVERABLES/PROCEDURES. Those items of equipment, materials, or installation requirements that are required are not permitted to be modified or changed from that presently shown. Government approval is required for the final submittal of these guide specifications.

1.11.3 DESIGN ANALYSIS

The final design analysis will be an extension of the 60% design analysis and shall be complete for every item covered in the design and will include, but not be limited to, the following:

a. List of design criteria.

b. Design conditions.

c. Design calculations.

d. Complete description of system alarm zones.

e. Complete description of system sprinkler system.

f. Complete description of the building fire protection features.

g. Other pertinent information of value for future use in construction contract administration, substantiation of design methods, or permanent record shall be included.

1.12 ENVIRONMENTAL PROTECTION COMPLIANCE

1.12.1 SPECIFICATIONS

The Contractor shall be responsible for updating/revising UFGS Specification Section 01 57 20.00 10.00 10 ENVIRONMENT PROTECTION which is furnished with Division 1 of this RFP. Any additional environmental compliances that may be required for this project shall be included. This section shall be included with the 100% Design Specifications rather it has any revisions or not. See 60% submittal requirements for additional information.

1.12.2 DESIGN ANALYSIS

The Contractor shall update/revise the chapter in the 60% Design Analysis

entitled: "Environmental Protection Compliance".

1.12.3 SUBMITTAL OF ENVIRONMENTAL APPROVALS, PERMIT APPLICATION AND ASSOCIATED DOCUMENTS

Any revisions that may be required to the permits and/or approvals which were submitted with the 60 percent submittals shall be submitted with final design submittals. If these submittals were not required to be submitted to the governing agencies for a permit or approval at 60% design, they shall be submitted with the 100% Design documents. Any additional approvals and/or Permits required, which were not previously submitted, shall be submitted to the Corps of Engineers with sufficient time for the permits to be obtained prior to construction commencing or with the final design submittals.

1.13 SAFETY

1.13.1 SPECIFICATIONS

At a minimum, the pertinent UFGS guide specification shall be completely edited and coordinated with the drawings.

01 35 26 Governmental Safety Requirements
02 82 13.00 10 ASBESTOS ABATEMENT

02 83 13.00 20 LEAD IN CONSTRUCTION
02 84 16 HANDLING OF LIGHTING BALLASTS AND LAMPS CONTAINING PCBs AND MERCURY

Any interference with the Civil, Mechanical, Electrical, Geotechnical, and Environmental specifications shall be addressed and reviewed to extract the list of sampling and analysis requirements.

1.13.2 Design Analysis

1.13.2.1 Narrative

The Design Analysis Narrative shall list all conditions impacting safe work on the project for each of the sections listed above. Potentially hazardous conditions such as and materials shall be identified. The basis and reasons for specific decisions, special features, unusual requirements, etc., shall be explained or summarized as applicable. If it is necessary to deviate from criteria or standard practice, reasons shall also be included. Design statements shall be provided in sufficient detail to enable the reviewer to get a clear picture and understanding of all included work. Narrative shall be complete relative to scope and design approaches. The design analysis shall carry a complete narrative for every item covered in the design.

1.13.2.2 Design Analysis Calculations

Amount and location of hazardous material (asbestos, lead paint, PCBs, etc) that will be removed shall be addressed.

1.13.2.3 Basis, Specific goals, Objectives and Priorities for Hazardous Material

The Design Analysis should establish specific goals, objectives and priorities for safety (including the removal, handling and disposal of hazardous materials) of the project. Identify, explain and document use of design criteria and how the design meets goals, objectives and priorities. Identify the preferred site development concept. Show how systematic planning has been used in the design, and to meet the objectives. Systematic planning ensures high decision confidence and stakeholder satisfaction. It should list various regulatory, scientific and engineering decisions that must be made in order to achieve the desired outcome, list unknowns that stand in the way of making those decisions, and strategies to eliminate or manage the unknowns.

PART 2 NOT USED

PART 3 NOT USED

-- End of Section --

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SECTION 01 83 00

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SECTION 01 83 00

STRUCTURAL REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

The design publications listed below are sources of criteria for structural design. The criteria from these sources may be supplemented, but not supplanted, by applicable criteria contained in nationally recognized codes, standards, and specifications.

U.S. ARMY CORPS OF ENGINEERS (USACE)

ER 1110-1-261	(1999) Quality Assurance of Laboratory Testing Procedures

U.S. DEPARTMENT OF DEFENSE (DOD)

AF ETL 11-18	(2014)Small Arms Range Design and Constructione
AF FC 4-179-03F	(2015) Air Force Indoor Small Arms Firing Range
DOD 5100.76-M	(2012) Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives
MIL-HDBK-1013/1A	(1993) Design Guidelines for Physical Security of Facilities
UFC 3-301-01	(2013; with Change 3) Structural Engineering
UFC 3-310-04	(2013; with Change 1) Seismic Design for Buildings
UFC 4-010-01	(2012; with Change 1) DoD Minimum Antiterrorism Standards for Buildings
UFC 4-215-01	(2014) Armories and Arms Rooms

AMERICAN CONCRETE INSTITUTE INTERNATIONAL (ACI)

ACI 117	(2010; Errata 2011) Specifications for Tolerances for Concrete Construction and Materials and Commentary
ACI 302.1R	(2015) Guide for Concrete Floor and Slab Construction
ACI 318	(2014; Errata 1-2 2014; Errata 3-5 2015; Errata 6 2016; Errata 7-9 2017) Building Code Requirements for Structural Concrete

(ACI 318-14) and Commentary (ACI 318R-14)

ACI 530/530.1 (2013) Building Code Requirements and Specification for Masonry Structures and Related Commentaries

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC 325 (2017) Steel Construction Manual

AMERICAN IRON AND STEEL INSTITUTE (AISI)

AISI S100 (2012) North American Specification for the Design of Cold-Formed Steel Structural Members

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 7-10 (2010; Errata 2011; Supp 1 2013) Minimum Design Loads for Buildings and Other Structures

ASTM INTERNATIONAL (ASTM)

ASTM A 36/A 36M (2012) Standard Specification for Carbon Structural Steel

ASTM A 53/A 53M (2012) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

ASTM A 185/A 185M (2007) Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete

ASTM A 325 (2010) Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength

ASTM A490 (2014a) Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength

ASTM A 500/A 500M (2010) Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

ASTM A 615/A 615M (2014) Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

ASTM A 653/A 653M (2013) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

ASTM A 706/A 706M (2014) Standard Specification for Low-Alloy Steel Deformed and Plain Bars

	for Concrete Reinforcement
ASTM A 992/A 992M	(2011) Standard Specification for Structural Steel Shapes
ASTM C 90	(2014) Loadbearing Concrete Masonry Units
ASTM A490	(2014a) Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength
ASTM C 270	(2014a) Standard Specification for Mortar for Unit Masonry
ASTM C 476	(2010) Standard Specification for Grout for Masonry
ASTM C1260	(2014) Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1567	(2013) Standard Test Method for Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)
ASTM C33/C33M	(2016) Standard Specification for Concrete Aggregates
ASTM C618	(2017) Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C989/C989M	(2017) Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM E1745	(2017) Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs
ASTM F 1554	(2007ae1)Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength

INTERNATIONAL CODE COUNCIL (ICC)

ICC IBC	(2015) International Building Code

PRECAST/PRESTRESSED CONCRETE INSTITUTE (PCI)

PCI MNL-120	(2010) PCI Design Handbook - Precast and Prestressed Concrete, 6th Edition

STEEL DECK INSTITUTE (SDI)

SDI DDMO3	(2004; Errata 2006; Add 2006) Diaphragm Design Manual; 3rd Edition
SDI 30	(2001) Design Manual for Composite Decks,

Form Decks, and Roof Decks

STEEL JOIST INSTITUTE (SJI)

SJI LOAD TABLES	(2010; Errata 1 2011; Errata 2 2012) 42nd Edition Catalog of Standard Specifications Load Tables and Weight Tables for Steel Joists and Joist Girders

1.2 PROJECT DESCRIPTION AND REQUIREMENTS

The purpose of this project is to design and construct a new Indoor Firing Range at Minot Air Force Base in Minot, North Dakota. The scope involves demolishing and remediating the existing firing range site, and constructing a new Indoor Firing Range with both an indoor range component as well as an attached Combat Arms Training and Maintenance Facility component. The facility will consist of load bearing precast concrete walls and structural steel members that will support the steel-framed roof structure. The roof structure will consist of standing seam metal roofing on metal decking, supported by steel joists. Besides the roof envelope, the steel roof will also support the steel ballistic baffles. The axial loads will be transferred from the roof to the steel roof framing, and then into the ground via the precast walls. The precast walls will also serve as the lateral force-resisting system.

The firing range will need to be designed to support forklift loads to allow for future repairs and adjustments to the baffling and bullet collection systems. The Issue room will need to be designed to accommodate a 150psf live load. The facility will be designed and constructed in accordance with the 2015 IBC, UFC 3-301-01, AF ETL 11-18, and AF FC 4-179-03F. Glazing, frames, supporting structural elements, and anchorage shall be designed in accordance with requirements of UFC 4-010-01: DoD Minimum Antiterrorism Standards for Buildings. The small arms vault shall not be a prefabricated vault, shall have a GSA approved door, and shall also be designed in accordance with the requirements of DOD 5100.76-M and MIL-HDBK-1013/1A.

1.3 STRUCTURAL DESIGN LOADS AND CRITERIA

Structural loading criteria shall be developed for the building using site and project specific criteria as well as the criteria and procedures indicated below. The building shall be classified as an Occupancy Category II structure in accordance with UFC 3-301-01 for the determination of snow, seismic, and wind loads.

1.3.1 Antiterrorism / Force Protection (AT/FP)

Based on the government's assessment of the facility for AT/FP, blast resistant mitigation is required for all exterior structural elements in accordance with UFC 4-010-01 "DoD Minimum Antiterrorism Standards for Buildings". Structural design calculations for door and window blast design shall be provided. All design assumptions and criteria shall be clearly stated in the design calculations. Refer to Specification 01 89 00 "SITE WORK REQUIREMENTS" for determining standoff distance requirements

1.3.2 Small Arms Vault

The small arms vault shall be designed in accordance with the requirements of DOD 5100.76-M MIL-HDBK-1013/1A, and UFC 4-215-01.

1.3.3 Firing Range

The firing range shall be designed in accordance with the requirements of AF ETL 11-18 and AF FC 4-179-03F.

1.3.4 Dead Loads

Minimum design dead loads for common building materials shall be obtained from ASCE 7-10 as applicable. Loads for materials not listed in ASCE 7-10 and equipment loads shall be obtained from other recognized sources.

1.3.5 Roof Live Loads and Snow Loads

1.3.5.1 Minimum Roof Live Load

A minimum roof live load of 20 psf shall be provided for in the design to account for construction and maintenance loads. The minimum roof live load shall not be reduced. The minimum roof live load shall be applied in accordance with ICC IBC and shall be used as a loading condition for the roof and independent of the calculated snow loads.

1.3.5.2 Roof Snow Load

Roof snow load shall be applied in accordance with ASCE 7-10. A ground snow load (Pg) of 40 psf shall be used in determining the roof snow loads. Snow drift and sliding snow loads shall be taken into consideration. Other factors used in determining snow loads are as follows:

Terrain Category	=	C
Snow Exposure Factor, Ce	=	1.0
Snow Thermal Factor, Ct	=	1.0
Snow Importance Factor, Is	=	1.0

1.3.5.3 Rain-On-Snow Load

A rain-on-snow load, if applicable, shall be applied in accordance with ASCE 7-10.

1.3.6 Floor Live Loads

Floor live loads shall be in accordance with ICC IBC for the type of occupancy indicated, except as modified herein, and to accommodate any special requirements from the buildings user.

The Issue room will need to be designed to accommodate a 150psf live load.

The floor of the firing range shall be designed to accommodate a 70psf live load, as well as a forklift load to allow for future repairs and adjustments to the baffling and bullet collection systems.

1.3.7 Wind Loads

Wind loads for both the main wind force resisting system and for components and cladding shall be determined in accordance with ICC IBC and ASCE 7-10 using the following parameters:

Basic Wind Speed, V (3-second gust)	=	115 mph
Wind Exposure Category	=	C
Internal Pressure Coefficient Partially Enclosed Bldg.)	=	+/- 0.55 (ASCE 7-10,Table 26.11-1,

1.3.8 Seismic Loads

Seismic loads shall be determined in accordance with the applicable requirements of UFC 3-310-04, 2012 IBC, and ASCE 7-10. For existing buildings, a seismic evaluation must be performed in accordance with the latest version of ASCE/SEI 31 and ASCE/SE1 41. The total lateral seismic force shall be determined using the following parameters:

Risk Category = II
Seismic Importance Factor, Ie = 1.0
Mapped Spectral Response Acceleration, Ss = 0.05g
Mapped Spectral Response Coefficient, S1= 0.02g
Site Classification = D
Seismic Design Category = A (Needs to be Verified)

1.3.9 Interior Partition Lateral Loads

Interior partitions shall be designed for a wind pressure of 5 psf normal to the partition. The deflection of interior partitions due to wind loads shall not exceed 1/360 the span for walls with brittle finishes and l/240 for walls with flexible finishes. Other design requirements such as seismic may be more restrictive and control the design of the partitions.

1.3.10 Load Combinations

Load combinations shall be in accordance with ASCE 7-10.

1.3.11 Wind Uplift Resistance

Wind uplift calculations shall be based on the criteria for Wind Loads contained herein.

1.3.12 Deflections

Deflections of structural members and systems shall not be greater than allowed by applicable codes, references, and material standards (IBC, ACI, AISC, etc.) and shall not impair the serviceability of the structure. Deflection limits needed to restrict damage to ceilings, partitions, and other fragile non-structural elements shall not exceed the deflection over span length (l) limits permitted by the ICC IBC.

1.3.13 Drift

Drift limits applicable to code-specified seismic loads (criteria noted above) shall be in accordance with the UFC 3-301-01.

1.4 FOUNDATION DESIGN

Final foundation design, foundation type, and subgrade proposed to be built by the Contractor shall be based on the recommendations contained in the Final ~~Soils and Foundation Analysis appendix~~Geotechnical Investigation Report. Foundations shall extend down to a frost depth of 64 inches.

1.5 Structural Stoops at Exterior Doorways

Structural stoops shall be provided at exterior doorways. Stoops shall have foundations extending down to a frost depth of 64 inches and shall be rigidly attached to the building foundation walls. Stoops shall have 12 inches of uncompacted fill under the stoop slab. Stoop slabs shall drop 1/2 inch relative to the interior floor slab-on-grade at the threshold and slope away from the building at a 1/4 inch per foot slope minimum.

1.6 INTERIOR SLABS-ON-GRADE DESIGN

The structural slab or slab-on-grade design shall be based upon the information in the Final Geotechnical Investigation Report, which is provided in the appendices. Slabs-on-grade (interior) shall be designed in accordance with the guidelines of ACI 302.1R, "Guide to Concrete Floor and Slab Construction". Proper construction methods, workmanship, slab-on-grade materials and preparation, and concrete mix proportioning specifications shall follow the guidelines of ACI 302.1R, "Guide to Concrete Floor and Slab Construction". Interior slabs-on-grade shall be designed as "floating slabs" without rigid edge support and lateral and vertical movement unrestrained. An isolation joint consisting of 30 lb. felt or 1/2-inch expansion joint material, is required where slabs abut vertical surfaces.

1.6.1 Crack Control

Crack control measures shall be incorporated in the slab design. Control joint spacing and details shall be as delineated in ACI 302.1R, as applicable. Slabs-on-grade shall be jointed and reinforced with temperature and shrinkage reinforcement located near the top of the slab in order to control shrinkage and limit curling. Slab-on-grade temperature and shrinkage reinforcement shall ~~not be less than 0.18 percent per ACI 318 requirements~~be designed in accordance with ACI 302.1R. Maximum spacing of the slab-on-grade reinforcing bars shall not exceed three times the slab thickness.

1.6.2 Vapor Emission Control

For slabs to receive adhered finish flooring, coatings, tile, resinous flooring, and other vapor sensitive finishes, vapor control measures shall be incorporated into the project specifications. The floor finish systems for the facility generally require that the moisture/vapor transmission rate through the slab be limited to a maximum of 3 pounds per 1000 square feet in a 24 hour period. Appropriate and sufficient vapor emission control measures shall be designed to meet this criterion, and shall include, but not be limited to, an underslab vapor retarder properly placed in the supporting subgrade system.

As a minimum, a 10 mil thick polyolefin membrane manufactured with virgin resins, complying with ASTM E1745, Class A, shall be required beneath all building slabs-on-grade. Joint tape shall be manufacturer's standard for vapor retarder product used and shall be applied to all seams in each layer. Each layer shall be adhered to foundation at perimeter. All penetrations through the vapor retarder shall be sealed.

1.6.3 Supporting Subgrade System

The slab-on-grade supporting subgrade system shall be in accordance with the recommendations of ACI 302.1R and recommendations contained in the Final Geotechnical Investigation Report. All interior slabs-on-grade shall

be constructed with a vapor retarder system and a compacted 6-inch capillary water barrier on compacted subgrade. The location of the vapor retarder system relative to the capillary water barrier shall be in accordance with recommendations contained in ACI 302.1R.

1.6.4 Capillary Water Barrier Layer

Capillary water barrier material shall be in accordance with the recommendations contained in the Final Geotechnical Investigation Report for material type and installation requirements.

1.6.5 Underslab Vapor Retarder

As a minimum, a 10 mil thick polyolefin membrane manufactured with virgin resins, complying with ASTM E1745, Class A, shall be required beneath all building slabs-on-grade. Joint tape shall be manufacturer's standard for vapor retarder product used and shall be applied to all seams in each layer. Each layer shall be adhered to foundation at perimeter. All penetrations through the vapor retarder shall be sealed.

1.6.6 Concrete Floor Slab Finishes

All interior concrete slabs will receive a trowel finish unless noted otherwise. Interior slabs to receive mortar setting beds will receive rough slab finish.

1.6.7 Floor Tolerances

There are no special flatness and levelness requirements for the floor, however, the flatness and levelness of all concrete slabs-on-grade shall be carefully controlled and the tolerances measured by the F-Number or straightedge system of ACI 117. The minimum surface profile quality classifications for float and trowel finishes surfaces shall be "flat" as defined in ACI 117. All other finishes shall meet the criteria set forth in ACI 117.

1.7 EXTERIOR CONCRETE SLAB DESIGN

Design and specification of exterior concrete slabs shall incorporate measures for durability in a cold weather climate.

1.7.1 Exterior Slabs at Exterior Doorways

Exterior slabs shall dowel into foundation wall or interior slabs sufficiently to prevent exterior slab heave.

1.7.2 Exterior Equipment Pads

Exterior mechanical or electrical equipment shall be installed on concrete pads. Equipment pads shall be a minimum of 8 inches thick, 4 inches above finished grade, and reinforced with at least the minimum temperature and shrinkage reinforcement required by ACI 318. The pads shall be sized a minimum of 12 inches larger all around than the piece of equipment furnished and all edges- of the pad shall be chamfered. The Contractor shall coordinate the design of the exterior equipment pads with the mechanical and electrical system design and the equipment selected to be installed by the Contractor.

1.8 STRUCTURAL MATERIALS DESIGN DATA

Materials for structural elements shall be as indicated herein and/or on the RFP drawings.

1.8.1 REINFORCED CONCRETE

1.8.1.1 Design

Reinforced concrete shall be designed and detailed in accordance with the ICC IBC as modified by ACI 318, and related current ACI publications that are applicable to the design. All concrete elements, including slabs-on-grade, shall be reinforced with temperature and shrinkage reinforcement as recommended by ACI as a minimum.

1.8.1.2 Concrete Strength and Durability

Concrete shall be composed of cementitious material, water, fine and coarse aggregates, and admixtures. The total cementitious material content shall be at least 517 lbs per cubic yard.

Concrete shall meet the durability requirements of Chapter 4 of ACI 318 for buildings. These requirements may involve determining concentrations of sulfate ions, chloride ions, and other chemicals in order to select the appropriate cement type, strength, and water/cement ratio.

Material testing shall be performed by US Army Corps of Engineers (USACE) accredited laboratory in accordance with ER 1110-1-261. The accreditation shall be current for each applicable test method.

Size number and class designation of coarse aggregate shall be provided in accordance with ASTM C33/C33M.

Gradation and limits for deleterious substances in fine aggregates shall be provided in accordance with ASTM C33/C33M.

Fine and coarse aggregates shall be tested and evaluated separately for alkali-aggregate reactivity (ASR) in accordance with ASTM C1260. All results of the testing shall have a measured expansion less than 0.10 percent at 16 days after casting. Should the test data indicate an expansion of 0.10 percent or greater, reject the aggregate(s) or perform additional testing using ASTM C1260 and ASTM C1567. Perform the additional testing using ASTM C1260 and ASTM C1567 using low alkali portland cement in combination with ground granulated blast furnace slag (ASTM C989/C989M) or Class F fly ash (ASTM C618) until the measured expansion is less than 0.10 percent.

1.8.1.3 Reinforcing Steel Bars

Reinforcing bars (deformed) used in concrete design shall be ASTM A 615/A 615M, Grade 60 (Fy = 60ksi). Reinforcing bars (deformed) required to be welded shall be ASTM A 706/A 706M, Grade 60 (Fy = 60ksi). The minimum bar size is No. 4 except for stirrups and ties which may be No. 3 per ACI.

1.8.1.4 Welded Wire Fabric

Welded Wire Fabric where used in exterior slabs and flat work shall be provided in flat sheets and conform to ASTM A 185/A 185M with a minimum

yield strength, Fy = 60ksi.

1.8.1.5 Concrete Joints

Control joints and contraction joints shall be located to limit concrete cracking to a minimum.

1.8.2 CONCRETE MASONRY

1.8.2.1 Design

Masonry design shall be in accordance with ACI 530/530.1 as modified by the ICC IBC, and UFC 3-301-01.

1.8.2.2 Concrete Masonry Material Strengths

Masonry materials shall meet the following minimum requirements:

Masonry shall have a specified prism strength f'm = 1500 psi at 28 days.

Hollow concrete masonry units (CMU) shall be two cell lightweight aggregate units conforming to ASTM C 90, Type I and have a minimum compressive strength of 1900 psi on the net area (1000 psi on the gross area) at 28 days.

Mortar shall be Type S conforming to ASTM C 270, with a specified minimum compressive strength of 1800 psi at 28 days.

Grout shall conform to ASTM C 476 and shall have a specified minimum compressive strength (f'c) of 3000 psi at 28 days.

1.8.2.3 Concrete Masonry Reinforcing

Reinforcing bars (deformed) used in masonry design shall be ASTM A 615/A 615M, Grade 60 (Fy = 60 ksi). Reinforcing bars (deformed) required to be welded shall be ASTM A 706/A 706M, Grade 60 (Fy = 60 ksi). The minimum reinforcing bar size is a No. 4. Joint reinforcing shall be 9 gage minimum and be spaced at 16 inches on center.

1.8.3 PRECAST CONCRETE

Design precast prestressed members in accordance with ACI 318 or PCI MNL-120. Design precast prestressed members (including connections) for the design load conditions and spans indicated, handling and erection stresses, and for additional loads imposed by openings and supports of the work of other trades. Design precast prestressed members for handling without cracking in accordance with the PCI MNL-120. Design steel members and connections in accordance with AISC 325.

1.8.4 STRUCTURAL STEEL

1.8.4.1 Design

Structural steel shall be designed in accordance with the ICC IBC and the AISC Specifications. All structural steel members shall be designed by the structural engineer to support all applicable loads. Structural drawings shall clearly show all structural members and their locations. Types of connections shall be consistent with the design assumptions for the basic type of steel construction used. Connections shall be designed and detailed

to provide adequate capacities for the applied forces and moments. Connection design shall be the responsibility of the structural engineer and shall not be delegated to the steel fabricator.

1.8.4.2 Structural Steel Materials

Structural steel materials shall meet the following minimum requirements:

Steel Type	ASTM	Grade	Min Yield Strength, Fy
Structural Wide Flange Beams & Columns (W-Shapes)	ASTM A 992/A 992M		50ksi 50ksi
Structural Tees (WT-Shapes)	ASTM A 992/A 992M		50ksi
Structural Channels & Angles (C, MC, & L-Shapes)	ASTM A 36/A 36M		36ksi
Structural Plates & Bars	ASTM A 36/A 36M		36ksi
Structural Steel Pipe	ASTM A 53/A 53M	B, Type E or S	35ksi
Structural Steel Tubing (TS-Shapes)	ASTM A 500/A 500M	B	46ksi
Rectangular or Square Hollow Structural Sections (HSS Shapes)	ASTM A 500/A 500M	C	50ksi
Structural Anchor Rods	ASTM F 1554		36ksi
High Strength Structural Bolts	ASTM A 325 ASTM A490		Fu=120ksi Fu=150ksi
Welding Rods (Structural Steel)		E70XX	Fu=70ksi
Welding Rods (Steel Decking)		E60XX	Fu=60ksi

1.8.4.3 Connections

Types of connections shall be consistent with the design assumptions for the basic type of steel construction used. Connections shall be designed and detailed to provide adequate capacities for the applied forces and moments. Connection design shall be the responsibility of a licensed structural engineer and shall not be delegated to the steel fabricator.

1.8.5 STEEL JOISTS

The design and selection of steel joists shall be governed by the SJI LOAD TABLES (2005) Standard Specifications Load Tables and Weight Tables for Steel Joists and Joist Girders - 42nd Edition. The wind uplift requirements shall be clearly delineated on the design drawings or with the specifications. Joists requiring special design to resist wind uplift and non-uniform loads shall be designated as such on the drawings, and the required design loads provided. The designer shall provide joist-loading diagrams on the drawings for all joists with geometric configurations outside the scope of the SJI Standard Specifications for Steel Joists and Joist Girders. Joist end supports and anchorage to resist uplift shall be designed to accommodate the applied forces, including those resulting from wind and seismic loading. Columns will not be allowed to interrupt the clear span of the firing range.

1.8.6 STEEL DECKING

The design and selection of steel deck shall be in accordance with the provisions of SDI 30. The designation of the steel roof decking type and gauge shall conform to SDI standards. Steel roof deck manufacturer's designations shall not be used. The minimum required section properties of

the steel roof deck shall be required to be specified or noted on the design drawings and shall be determined as prescribed by the appropriate specifications of SDI 30, the Steel Deck Institute Design Manual for Composite Decks, Form Decks and Roof Decks.

Steel deck designed to function as a shear diaphragm shall be designed in accordance with the provisions of the SDI DDMO3 "Steel Deck Institute Diaphragm Design Manual".

1.8.7 COLD-FORMED METAL FRAMING (CFMF)

1.8.7.1 Design

Design and detailing of wall systems using cold-formed metal framing (CFMF) members to anchor masonry veneers shall be in accordance with the provisions of ICC IBC. Wall systems shall be specified using the Cold-Formed Metal Framing Specification. Design assumptions and details shall be coordinated with the specifications. Cold-Formed Metal Framing shall be designed in accordance with AISI S100

1.8.7.2 Cold-Formed Metal Framing Material

Cold-formed metal framing shall be formed from corrosion-resistant steel, corresponding to the requirements of ASTM A 653/A 653M. Structural members shall have a minimum yield strength, Fy = 33ksi.

1.9 LOCATION OF STRUCTURAL ELEMENTS

The structural design and corresponding selection and location of the structural elements shall be compatible with the floor and roof plans, and other information included in the RFP documents.

1.10 WALLS AND PARTITIONS

Exterior wall, window, and door assemblies shall meet the Antiterrorism/Force Protection (AT/FP) requirements of UFC 4-010-01. Interior non-structural partitions shall be constructed of steel studs and gypsum wallboard.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-- End of Section --

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SECTION 01 86 13

FIRE PROTECTION REQUIREMENTS

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SECTION 01 86 13

FIRE PROTECTION REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

The publications are referred to in the text by the basic designation only. The most current edition shall be used whenever a specific edition is not mentioned.

ASTM INTERNATIONAL (ASTM)

ASTM E 84	(2009c) Standard Test Method for Surface Burning Characteristics of Building Materials

INTERNATIONAL CODE COUNCIL (ICC)

ICC IBC	(2015) International Building Code

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 13	(2016; TIA 16-1; TIA 16-2; TIA 16-3 2016; Errata 17-1; Errata 17-2) Standard for the Installation of Sprinkler Systems
NFPA 24	(2016; ERTA 2016) Standard for the Installation of Private Fire Service Mains and Their Appurtenances
NFPA 72	(2016) National Fire Alarm and Signaling Code
NFPA 10	(2018; TIA 18-1) Standard for Portable Fire Extinguishers
NFPA 101	(2018; TIA 18-1) Life Safety Code

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 4-021-01	(2008; with Change 1) Design and O&M: Mass Notification Systems
UFC 4-021-02	Electronic Security Systems,01-October-2013

Fire protection shall be based on sound fire protection engineering principles and shall give safeguards against loss of life and property by fire, consistent with the mission, risk involved, and economical utilization. A Life Safety/Building Code analysis shall be provide by the Fire Protection Engineer. At final submission, the Fire Protection Engineer shall stamp and seal the Life Safety/Building Code plans. Fire protection criteria shall also be based on the codes listed above and on the following code requirements:

ADA and ABA Accessibility Guidelines for Buildings and Facilities (www.access-board.gov/ada-aba/final.cfm)

Omaha District Design Guide (January 2015)

All requirements of the latest aforementioned codes shall be incorporated into the design. A Fire Protection Engineer shall be part of the design team in accordance with UFC 3-600-01 and shall a single person. The Fire Protection Engineer shall provide a Life Safety Code Analysis and Building Code Analysis of the new facility as well as be responsible for the design of the new fire alarm, fire sprinkler, and mass notification systems. At 100% design submission, the Fire Protection Engineer of Record shall submit a letter to USACE certifying the project meets all of the mentioned codes, and NFPA 101 criteria.

The Life Safety Code

NFPA 101 relative to this design shall give special attention to the application of fire codes as they relate to Life Safety. Features of fire protection based on the following shall be included in the design: Automatic operating devices; Exiting for inhabitants and the protection of egress components; Personnel safety in hazardous areas; Appropriate ratings of fire and smoke partitions, doors and windows; Travel distances; Common paths of travel; Occupancy types; Hazard of occupancies and their contents; and Isolation from the remainder of the facility.

Applicable requirements of the International Building Code shall also be included in the design. These shall include the following: Types of construction; Fire area limitations; Increases to allowable floor areas; and Separation of structures.

All military construction must comply with the code requirements set forth in

UFC 1-200-01,

UFC 4-021-01,

UFC 3-600-01,

UFC 4-021-02, Air Force

AF ETL 11-18, and Air Force

FC 4-179-03F .

All fire protection design shall be done by a Fire Protection Engineer in accordance with UFC 3-600-01. Refer to section 28 31 76 INTERIOR FIRE ALARM AND MASS NOTIFICATION SYSTEM for additional information regarding qualification requirements for the fire alarm and mass notification system designer.The fire protection engineer shall perform a a Life Safety/Building Code analysis of the renovated facility including egress capacity and pathways. At final submission, the Life Safety/Code Analysis shall be stamped and sealed by the Fire Protection Engineer of Record. The life safety analysis shall be submitted with the first submittal for review. Life safety analysis shall comply with UFC 3-600-01 and NFPA 101. The new floor plans shall be evaluated for compliance with NFPA 101.

1.2 OCCUPANCY FOR THE PROJECT

The project will be classified in accordance with NFPA 101. According to Chapter 4 of the International Building Code (IBC), the project will be classified as part of the Life Safety Code Analysis. Review assembly, storage , and business occupancies.

1.3 CONSTRUCTION PER 2015 INTERNATIONAL BUILDING CODE (IBC)

Type IIB, except that hourly fire rating requirements for the building systems and components shall not be less than those specified in the performance specifications sections of IBC.

1.4 CORRIDORS

Review NFPA 101 to determine fire rating of corridors and exits.

Separation of incidental use areas shall be provided per NFPA 101 .

1.5 INTERIOR FINISHES

Interior wall and ceilings of exits shall be in accordance with NFPA 101. Review based upon occupancy.

Interior floor finishes in exits shall be in accordance with NFPA 101. Review based upon occupancy.

No downgrade in finish Class due to complete coverage by an automatic sprinkler system shall be allowed.

1.6 EGRESS CAPACITY:

Egress capacities shall be in accordance with NFPA 101 and included as part of the scope of work and Life Safety Code Analysis.

1.7 MEASUREMENT OF TRAVEL DISTANCE TO EXITS:

NFPA 101, SEC 7.6 - Review as part of the Life Safety Code Analsysis

1.8 FIRE EXTINGUISHER CABINETS:

NFPA 101 AND NFPA 10 - Review as part of the Life Safety Code Analysis. Provide in areas of the building that do not have a fire sprinkler system.

1.9 AUTOMATIC SPRINKLER SYSTEMS:

Provide a new sprinkler system throughout the entire facility, except in downrange firing area. Refer to Air Force ETL 11-8. The firing platform shall be provided with a fire sprinkler system. Provide a dry sprinkler system for any areas subject to freezing. Provide a new water service into the building with a new Post Indicator Valve. The new PIV shall have a tamper switch tied to the building fire alarm system. Provide a new fire sprinkler service entrance with a vertical double check valve assembly. Provide a forward flow test assembly for the new back flow prevention device. Provide a new fire department connection with check valve. All valves shall be provided with a tamper switch tied to the fire alarm system. System shall be designed per UFC 3-600-01. Also, provide fire sprinkler systems for any overhangs, canopies, or storage areas where required by NFPA 101 or UFC 3-600-01. Areas and densities shall comply with

UFC 3-600-01. Hydraulically calculate the new system per NFPA 13. Obtain a current fire hydrant flow data for the design of the system. A structural engineer shall be part of the contractor's design team. The structural engineer shall review all piping supports for the new structure. The new sprinkler system shall not overload the building's structural capacity. Only UFGS fire suppression specifications shall be edited and used for this project (Section 21 13 13.00 10, and/or 21 13 17.00 10). For underground fire mains, water velocity shall not exceed 10 fps for any plastic pipe. Provide surge pressure analysis for the plastic pipe system.

1.10 PRESENCE OF DISABLED OCCUPANTS

Disabled personnel will potentially be present. Provisions for accessibility and usability will be made for physically handicapped individuals for exiting these facilities. Refer to Paragraph 1.18 for fire alarm system requirements.

1.11 FUNCTIONAL AND TECHNICAL REQUIREMENTS

1.11.1 Building Construction Type

These facilities shall comply with a minimum Construction Type IIB, in accordance with ICC IBC. Review as part of the Life Safety/Building Code Analysis.

1.11.1.1 Exterior Walls

Exterior walls of the facilities will not be rated as long as minimum distances from other buildings are maintained and the area and size of the structure does not require it per IBC. Review as part of the Life Safety/Building Code Analysis.

1.11.1.2 Roof

The building roof covering shall be in accordance with UFC 3-600-01. Review as part of the Life Safety/Building Code Analysis.

1.11.1.3 Interior Walls

All penetrations in fire and smoke rated walls (conduits, pipes, cable trays, etc.) shall be fire or smoke stopped according to their respective wall/floor/ceiling rating at each penetration. Review all building walls as part of the Life Safety/Building Code Analysis and provide smoke and fire rated walls as necessary as part of NFPA 101. Provide a 1 hour fire rated wall around the firing range area to separate the portions of the building that do not have a fire sprinkler system from the rest of the building.

1.11.1.4 Interior Finishes

Interior finish materials on walls, ceilings, partitions, and furnishings of all types in all exits shall be as defined in NFPA 101. All other areas will have interior finish materials for walls, ceilings, and furnishings as required by NFPA 101. Smoke Developed Ratings will not exceed 50 for Class A materials, 100 for Class B materials, and 200 for Class C materials when tested in accordance with ASTM E 84 in accordance with UFC 3-600-01.

Provide self-closing hardware and gasketing at all fire-rated doors as well as smoke rated doors.

1.12 FIRE ALARM AND DETECTION SYSTEMS

Installation of the Fire Alarm and Mass Notification System shall require a Certification and Accreditation to be obtained, refer to section 01 86 29 COMMUNICATIONS REQUIREMENTS for additional information.

1.12.1 Fire Alarm and Mass Notification Panel

This project shall provide a new addressable fire alarm and mass notification system and panel (FACP). All new circuits to the addressable type fire alarm system shall comply with NFPA 72, UFC 3-600-01, and NFPA 101. Contractor shall install new detectors and initiating devices as required. Provide appropriate interfaces at the new panel to allow all new alarm detection, new fire alarm devices and new initiation devices to be connected to the addressable panel. System shall meet the Minot Air Force Base Requirements and all other applicable standards. Provide a new transmission device to send fire alarm and mass notification signals to the receiving equipment located at the base fire department. The supervising equipment is existing and consists of the following brands and models: Monaco D21 fire alarm central station and Weather Warn mass notification system connected to a Motorola VHF radio transmitter. Refer to AF ETL 11-18.

The system shall be addressable to each reporting device and with turnkey MNS. MNS devices shall be combination speaker/strobe on ceilings or walls. The system shall be complete with the control panel in the building and required devices, The addressable system shall transmit and receive addresses and data between the control panel and the new devices. Comply with UFC 4-021-01 for all aspects of the Mass Notification System.

1.12.2 Initiating and Notification Devices

The new system shall include addressable manual pull stations, addressable heat detectors, addressable duct smoke detectors, addressable spot type smoke detectors, and audible and visual notification appliances that comply with ADA requirements.

1.12.3 Mass Notification System

Refer to Section 28 31 76 and UFC 4-021-01 for requirements for the Mass Notification System. Provide a new Mass Notification System for the building.

1.12.4 Interfaces to Other Systems

The new system shall shut down appropriate air handling equipment, smoke dampers, and release magnetic door holding devices as necessary for proper operation of the facilities. Provide a "Sequence of Operations Matrix" to coordinate with alarm functions in Section 28 31 76 ADDRESSABLE FIRE ALARM AND MASS NOTIFICATION SYSTEMS. The "Sequence of Operations Matrix" shall be approved by the Contracting Officer. System shall meet requirements of UFC 4-021-02, if applicable.

1.12.5 Layout Considerations

Duct smoke detectors shall be provided on all new air handling supply fans over 2000 CFM, and all new return fans over 15,000 CFM. Smoke detectors, shall be provided where electromagnetic door holders are used. Audible and

visual notification appliances shall be provide to meet these specifications. This includes the new interior egress doors. Design shall comply with ADA Requirements, NFPA 101 and NFPA 72. Provide an audible notification appliance on the exterior at each exit door. Addressable initiating device circuits modules shall be provided for each non-addressable device, excluding notification appliances. Visual strobes shall be located in every space within the building.

1.13 FIRE PROTECTION SPECIFICATIONS (SUBMITTALS AND ACCEPTANCE TESTS)

The sprinkler and fire alarm submittals shall be reviewed and approved by the Base Fire Chief or designated representatives as well as USACE Omaha District Fire Protection Engineer. Only UFGS fire alarm and fire suppression specifications shall be edited and used for this project. All submittals shall be stamped and sealed by a Registered Fire Protection Engineer.

Representatives of the Base Fire Department shall inspect and witness all final acceptance testing prior to the Contracting Officer accepting the sprinkler and fire alarm systems.

Fire water service shall be installed and tested in accordance with NFPA 24 guidelines. Fire sprinkler system shall be tested in accordance with NFPA 13 guidelines. Fire alarm and mass notification shall be tested in accordance with NFPA 72 guidelines.

1.14 DESIGN OBJECTIVES AND PROVISIONS

1.14.1 Zoning and Treatment of Each Potential Hazard

1.14.1.1 Limiting Fire Spread

Every horizontal opening and hazardous locations as defined by NFPA 101 .

1.14.2 Provision and Maintenance of an Unobstructed Emergency Egress System

All corridor widths, clear space requirements relative to exit doors, etc., shall be in accordance with the Uniform Federal Accessibility Standards and the Americans with Disabilities Act for unobstructed egress. Emergency lighting shall be installed in accordance with NFPA 101.

1.14.3 Maximum dead ends.

Maximum dead ends shall be as per NFPA 101. Verify as part of the Life Safety/Building Code Analysis.

1.14.4 Egress locations

Egress locations shall be marked with exit signs per NFPA 101. Review as part of the Life Safety/Building Code Analysis.

1.14.5 Outside Exit Doors

Outside exit doors shall swing in the direction of exit travel. Outside exit doors shall be equipped with panic hardware mounted 44 inches above the finish floor and have a minimum clear width of 34 inches to allow for egress. Exit doors requiring security hardware shall be reviewed as part of the Life Safety/Code Analysis. Review per NFPA 101.

1.14.6 Required Fire Exits

Required fire exits from the building shall lead to a public way or to a clear safe area at a minimum distance of 75-feet from the building.

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ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

Publications, codes, specifications and standards shall be used as the basis for the project design and shall include, but not be limited to the following. Publications and codes that imply recommendations shall be taken to be mandatory. Where there are conflicting criteria, the requirements of this RFP take precedence.

ASTM INTERNATIONAL (ASTM)

ASTM F2160	(2016) Standard Specification for Solid Wall High Density Polyethylene (HDPE) Conduit Based on Controlled Outside Diameter (OD)

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE 90.1 - IP	(2013) Energy Standard for Buildings Except Low-Rise Residential Buildings

INTERNATIONAL CODE COUNCIL (ICC)

ICC IBC	(2015) International Building Code

ILLUMINATING ENGINEERING SOCIETY (IES)

IES HB-10	(2011; Errata 2015) IES Lighting Handbook

ILLUMINATING ENGINEERING SOCIETY (IES)

IES LM-79	(2008) Electrical and Photometric Measurements of Solid-State Lighting Products

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 1100	(2005) Emerald Book IEEE Recommended Practice for Powering and Grounding Electronic Equipment
IEEE 1584	(2002) IEEE Guide for Performing Arc-Flash Hazard Calculations
IEEE 386	(2016) Separable Insulated Connector Systems for Power Distribution Systems Rated 2.5 kV through 35 kV
IEEE 81	(2012) Guide for Measuring Earth

	Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System
IEEE C2	(2017) National Electrical Safety Code
IEEE C57.12.25	(1990) Standard for Transformers - Pad-Mounted, Compartmental-Type, Self-Cooled, Single-Phase Distribution Transformers With Separable Insulated High-Voltage Connectors; High Voltage, 34,500 Grdy/ 19,920 Volts and Below; Low Voltage, 240/120 Volts; 167 kVa and Smaller Requirements

NACE INTERNATIONAL (NACE)

NACE SP0169	(2013) Control of External Corrosion on Underground or Submerged Metallic Piping Systems

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

36 CFR 1191	Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 101	(2018; TIA 18-1) Life Safety Code
NFPA 70	(2017) National Electrical Code
NFPA 70E	(2015; ERTA 1 2015) Standard for Electrical Safety in the Workplace
NFPA 77	(2014) Recommended Practice on Static Electricity
NFPA 780	(2014) Standard for the Installation of Lightning Protection Systems

NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA)

NECA 90	(2006) Recommended Practice for Commissioning Building Electrical Systems

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

ANSI/NEMA OS 1	(2013) Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports
ANSI/NEMA OS 2	(2013) Nonmetallic Outlet Boxes, Device Boxes, Covers, and Box Supports
NEMA AB 1	(2002) Molded-Case Circuit Breakers, Molded Case Switches, and Circuit-Breaker Enclosures

NEMA AB 3	(2013) Molded Case Circuit Breakers and Their Application
ANSI C12.1	(2014) Electric Meters Code for Electricity Metering
NEMA ANSLG C78.377	(2015) American National Standard for Electric Lamps– Specifications for the Chromaticity of Solid State Lighting Products
NEMA C82.77	(2002) Harmonic Emission Limits - Related Power Quality Requirements for Lighting Equipment
NEMA FB 1	(2014) Standard for Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable
NEMA ICS 2	(2000; R 2005; Errata 2008) Standard for Controllers, Contactors, and Overload Relays Rated 600 V
NEMA ICS 6	(1993; R 2011) Enclosures
NEMA LA 1	(2009) Standard for Surge Arresters
NEMA MG 1	(2014) Motors and Generators
NEMA MG 11	(1977; R 2012) Energy Management Guide for Selection and Use of Single Phase Motors
NEMA MG 2	(2014) Safety Standard for Construction and Guide for Selection, Installation and Use of Electric Motors and Generators
NEMA PB 1	(2011) Panelboards
NEMA RN 1	(2005; R 2013) Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit
NEMA SSL 1	(2010) Electronic Drivers for Led Devices, Arrays, or Systems
NEMA SSL 3	(2011) High-Power White LED Binning for General Illumination
NEMA TC 2	(2013) Standard for Electrical Polyvinyl Chloride (PVC) Conduit
NEMA TC 3	(2015) Standard for Polyvinyl Chloride (PVC) Fittings for Use With Rigid PVC Conduit and Tubing
NEMA TC 6 & 8	(2013) Standard for Polyvinyl Chloride (PVC) Plastic Utilities Duct for Underground Installations

NEMA TC 7	(2013) Standard for Smooth-Wall Coilable Electrical Polyethylene Conduit
NEMA TC 9	(2004) Standard for Fittings for Polyvinyl Chloride (PVC) Plastic Utilities Duct for Underground Installation
NEMA TP 1	(2002) Guide for Determining Energy Efficiency for Distribution Transformers
NEMA TR 1	(2013) Transformers, Regulators, and Reactors
NEMA WC 7	(1988; Rev 3 1996) Cross-Linked-Thermosetting-Polyethylene-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy
NEMA WC 8	(1988; Rev 3 1996) Ethylene-Propylene-Rubber-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy
NEMA WD 1	(1999; R 2005; R 2010) Standard for General Color Requirements for Wiring Devices
NEMA WD 6	(2012) Wiring Devices Dimensions Specifications
NEMA WD 7	(2011) Occupancy Motion Sensors Standard
NEMA Z535.1	(2006; R 2011) Safety Colors
NEMA Z535.4	(2011) American National Standard for Product Safety Signs and Labels

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)

TIA-607	(2011b) Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 4-010-01	(2012; with Change 1) DoD Minimum Antiterrorism Standards for Buildings
UFC 3-501-01	(2015) Electrical Engineering
UFC 3-520-01	(2015)Interior Electrical Systems
UFC 3-530-01	(201) Design: Interior and Exterior Lighting and Controls
UFC 3-550-01	(2016) Design: Exterior Electrical Power Distribution, including Change 1
UFC 3-560-01	(2006, with Change 5) Electrical Safety,

O&M

UFC 3-575-01 (2012) Lightning and Static Electricity Protection Systems

UFC 4-021-01 (2008; with Change 1) Design and O&M: Mass Notification Systems

FC 4-179-03F (2015) Air Force Indoor Small Arms Firing Range

UNDERWRITERS LABORATORIES (UL)

UL 1 (2005; Reprint Jul 2012) Standard for Flexible Metal Conduit

UL 1449 (2014;Reprint Mar 2015) Surge Protective Devices

UL 1472 (2015) UL Standard for Safety Solid-State Dimming Controls

UL 1581 (2001; Reprint Jun 2015) Electrical Wires, Cables, and Flexible Cords

UL 1598 (2008; Reprint Oct 2012) Luminaires

UL 1699 (2006; Reprint Nov 2013) Arc-Fault Circuit-Interrupters

UL 20 (2010; Reprint Feb 2012) General-Use Snap Switches

UL 231 (2008; Reprint Sep 2014) Power Outlets

UL 2556 (2015) UL Standard for Safety Wire and Cable Test Methods

UL 44 (2014; Reprint Feb 2015) Thermoset-Insulated Wires and Cables

UL 467 (2007) Grounding and Bonding Equipment

UL 486A-486B (2013; Reprint Jan 2016) Wire Connectors

UL 486C (2013; Reprint Jan 2016) Splicing Wire Connectors

UL 489 (2013; Reprint Mar 2014) Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures

UL 498 (2012; Reprint Jan 2016) Attachment Plugs and Receptacles

UL 5 (2011) Surface Metal Raceways and Fittings

UL 514A (2013) Metallic Outlet Boxes

UL 514B	(2012; Reprint Nov 2014) Conduit, Tubing and Cable Fittings
UL 514C	(2014; Reprint Dec 2014) Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
UL 5A	(2015) Nonmetallic Surface Raceways and Fittings
UL 6	(2007; Reprint Nov 2014) Electrical Rigid Metal Conduit-Steel
UL 651	(2011; Reprint May 2014) Standard for Schedule 40 and 80 Rigid PVC Conduit and Fittings
UL 651A	(2011) Type EB and A Rigid PVC Conduit and HDPE Conduit
UL 83	(2014) Thermoplastic-Insulated Wires and Cables
UL 854	(2004; Reprint Nov 2014) Standard for Service-Entrance Cables
UL 924	(2006; Reprint Dec 2015) Standard for Emergency Lighting and Power Equipment
UL 94	(2013; Reprint Mar 2016) UL Standard for Safety Tests for Flammability of Plastic Materials for Parts in Devices and Appliances

U.S. AIR FORCE (USAF)

ETL 12-15	Light-Emitting Diode (LED) Fixture Design and Installation Criteria for Interior and Exterior Lighting Applications
AFI 32-1054	(2014) Corrosion Control
AFI 32-1065	(2015) Grounding Systems

ARMY CORPS OF ENGINEERS (COE)

ODDG	(2015) Omaha District Design Guide for Design Solicitations.

1.2 SCOPE OF WORK

1.2.1 Indoor Firing Range

This project will include all design, calculations, etc. for all premises systems required for a Indoor Firing Range. All associated references are required to be included in this design and construction of the new building. Design shall follow all applicable Unified Facilities Criteria, including the following:

UFC 3-501-01, UFC 3-520-01, UFC 3-530-01, UFC 3-550-01, UFC 3-560-01, UFC 3-575-01, UFC 4-021-01, & FC 4-179-03F.

A survey of existing conditions, including location of underground utilities shall be provided, and incorporated prior to submitting the 100% design.

If the UFGS products or systems are applicable to the project, the DOR shall edit these referenced UFGS sections and submit them as a part of the design submittal specification.

1.2.2 Small Arms Site Area

This portion of work includes installation and modifications of new underground electrical distribution systems. All work shall meet 1.2.1 requirements.

Site work includes, but is not limited to the following list.

1. Secondary service from the distribution transformer. Primary service and distribution transformer to be provided by Verendrye Electric. ~~Three, 15kV aluminum conductors with 1/3 concentric neutral and 133% EPR insulation installed in a concrete underground ductbank with 6" PVC conduit. Properly sized manhole, a minimum of 2 pullboxes, with a 6" spare conduit installed in ductbank.~~

2. ~~600V conductors meeting UFC 3-550-01.~~

~~3.~~ Underground street light circuits in raceway for parking lot lighting.

~~4. Padmount transformer, with associated secondary service.~~

~~5~~3. All lightning & grounding systems required, meeting IEEE 81, NFPA 70, NFPA 77, NFPA 780 & IEEE 1100.

1.2.3 Small Arms Building

This portion of the work includes all premises wiring systems. This includes all power, lighting, control, and signal wiring with their associated hardware, fittings, and wiring devices. All systems shall meet section 1.2.1 requirements. The basis of design is FC 4-179-03F along with the associated standard drawings. The tenants have additional requirements above the standard as indicated in the following section.

1.2.3.1 General

1. Rough-In for tenant provided CATV, (Satellite) system. This includes conduit stub-ups above ceiling spaces where applicable, associated hardware, raceways routed to the new communications room, faceplates and pull strings.

2. Rough-In for Audio Video system speakers in classroom. Coordinate final numbers with tenant, with a minimum of two locations inside classroom. This includes conduit stub-ups above ceiling spaces where applicable, raceways associated hardware, pull strings.

3. Lighted Beacon tied into exhaust system for the shooting range. This shall indicate when range is active. Color, style, and location shall be coordinated with tenant. This systems requires all controls, signal and power

wiring, raceways, associated hardware, etc.

4. Four pairs of beacon lights mounted at the back of the shooting range. Each pair will consist of a red and blue flashing beacon. All power to the beacons shall be controlled at the control booth pilot light switch.

5. Rough-In for a future Intrusion Detection System, provided by others, located at all outer doors. The rough-in shall include all stub-ups, raceways with pull strings routed to the new communications room, and blank faceplates.

1.2.3.2 Room Data Sheets

1. Administrative Instructor Room
   a. As detailed in the facility criteria document.

2. Break Room
   a. Provide power for two (2) microwaves, instead of the one listed. Each shall be on its own dedicated circuit.

3. NCOIC Office
   a. As detailed in the facility criteria document.

4. Open Office
   a. As detailed in the facility criteria document.

5. Queuing Room
   a. WIFI shall be rough-in only.

6. Arms Range
   a. As detailed in the facility criteria document.

7. Control Booth Room
   a. Mount power strip for controls at 4' minimum.
   b. For target retrieval, provide rough-ins, including pull strings, junction boxes, raceways, and associated hardware for automated target retrieval.
      1. Provide override, (Automated Target Retrieval), control rough-ins at each shooting position.

8. Range Supplies
  a. As detailed in the facility criteria document.

9. Classroom
  a. As detailed in section 1.2.3.1.
     b. Power and HDMI, Component, CAT 6 systems for a ceiling mounted projector. All audio visual cables shall be routed to a tenant specified location.

10. Observation Room
   a. As detailed in the facility criteria document.

11. Classroom/Simulator Room Storage
   a. As detailed in the facility criteria document.

12. Weapons Simulator Office
   a. As detailed in the facility criteria document.

13. Weapons Maintenance Shop

a. As detailed in the facility criteria document, except verify location of part cleaner, and provide power strips mounted above workbenches meeting NFPA 70.

14. Student Weapons Cleaning Room
a. As detailed in the facility criteria document.

15. Arms Vault and Issue Room
a. As detailed in the facility criteria document.

16. Janitors Closet, Restroom/Locker, Laundry Rooms
a. As detailed in the facility criteria document.

17. Building Support Rooms
a. As detailed in the facility criteria document.

18. Building Lightning Protection System

1.3 Submittals

Cable Installation Plan and Procedure; G, DA

Six copies of the information described below in 8-1/2 by 11 inch binders having a minimum of three rings from which material may readily be removed and replaced, including a separate section for each cable pull. Separate sections by heavy plastic dividers with tabs, with all data sheets signed and dated by the person supervising the pull.

a. Site layout drawing with cable pulls numerically identified.

b. A list of equipment used, with calibration certifications. The manufacturer and quantity of lubricant used on pull.

c. The cable manufacturer and type of cable.

d. The dates of cable pulls, time of day, and ambient temperature.

e. The length of cable pull and calculated cable pulling tensions.

f. The actual cable pulling tensions encountered during pull.

1.4 Certificate of Competency for Cable Installer, and Splicer/Terminator

The cable splicer/terminator must have a certification from the National Cable Splicing Certification Board (NCSCB) in the field of splicing and terminating shielded medium voltage (5 kV to 35 kV) power cable using pre-manufactured kits (pre-molded, heat-shrink, cold shrink). Submit "Proof of Certification" for approval, for the individuals that will be performing cable splicer and termination work, 30 days before splices or terminations are to be made.

Provide at least one onsite person in a supervisory position with a documentable level of competency and experience to supervise all cable pulling operations. Provide a resume showing the cable installers' experience in the last three years, including a list of references complete

with points of contact, addresses and telephone numbers. Cable installer must demonstrate experience with a minimum of three medium voltage cable installations. The Contracting Officer reserves the right to require additional proof of competency or to reject the individual and call for an alternate qualified cable installer.

1.5 Directional Boring As-Builts

Provide final installation site conditions for each directional bore, including: HDPE conduit size and type, bend radius, elevation changes, vertical and horizontal path deviations, conductor size and type and any conductor derating due to depth of conduit. Record location and depth of all directional-bore installed HDPE conduits using Global Positioning System (GPS) recording means with "resource grade" accuracy.

PART 2 PRODUCTS & INSTALLATION

2.1 Standard Products

Material and equipment shall be a standard product of a manufacturer regularly engaged in the manufacture of the product and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. The label or listing of the Underwriters Laboratories, Inc., will be accepted as evidence that the materials or equipment conform to the applicable standards of that agency. In lieu of this label or listing, a statement from a nationally recognized, adequately equipped testing agency indicating that the items have been tested in accordance with required procedures and that the materials and equipment comply with contract requirements will be accepted. Products shall meet NEMA FB 1, ANSI/NEMA OS 1, ANSI/NEMA OS 2, NEMA TC 2, UL 514B, NEMA AB 1, NEMA AB 3, NEMA ANSLG C78.377, NEMA C82.77, NEMA ICS 2, NEMA ICS 6, NEMA LA 1, NEMA MG 11 , NEMA MG 2, NEMA PB 1, NEMA RN 1, NEMA SSL 1, NEMA SSL 3, NEMA TC 3, NEMA TC 6 & 8, NEMA TP 1, NEMA TR 1, NEMA WC 7, NEMA WC 8, NEMA WD 1, NEMA WD 6, NEMA WD 7, NEMA Z535.1, NEMA Z535.4, UL 1, UL 1598, UL 1699, UL 231, UL 467, UL 489, UL 498, UL 514A, UL 514C, UL 5A, & UL 1449.

2.2 Special Environmental Conditions

Exterior electrical equipment such as motors, and lights shall be suitable for the environment and shall operate within a temperature range of -20 degree F to 100 degrees F.

2.3 Color of Exterior Equipment

Exterior electrical equipment such as the service entrance transformer and pad-mounted switches shall be factory painted color matching base standards. Exterior equipment shall have a paint coating rated for 120 hours of salt spray exposure. Light poles shall be dark bronze anodized finish.

2.4 Accommodation of Disabilities

Designs shall incorporate provisions of ADA Accessibility Guidelines for Buildings and Facilities (ADAAG), and the Uniform Federal Accessibility Standards. All aspects concerning placement and sizing from these standards shall be incorporated. In case of a conflict between the 36 CFR 1191 and the UFAS, 36 CFR 1191 shall govern. Provisions pertaining to clearances shall generally be accommodated by other disciplines, however

the design shall observe some precautions such as avoiding equipment configurations which would project into restricted clear space in corridors.

2.5 Antiterrorism/Force Protection

2.5.1 Unobstructed Space

The design shall comply with UFC 4-010-01. Ensure that obstructions within 33-feet of inhabited buildings or portions thereof do not allow for concealment from observation of objects 6-inches or greater in height.

2.5.2 Electrical and Mechanical Equipment

The preferred location of electrical and mechanical equipment such as transformers, air-cooled condensers, and packaged chillers is outside the unobstructed space or inside the building.

2.5.3 Utility Distribution and Installation

Route critical utilities and those necessary for life-safety so that they are not on exterior walls or on walls shared with mailrooms.

2.6 Coordination of Electrical Criteria

Electrical criteria provided in this section shall be coordinated with the architectural section, mechanical section, fire protection section, structural section, interior design section, civil and site section, force protection and security section, and all other sections of this RFP. The number and location of electrical equipment indicated in the electrical requirements are approximate. Contractor design shall meet the intent of the electrical requirements provided in this section. Contractor shall coordinate the final locations of electrical equipment with the Contracting Officer. Coordinate with the Contracting Officer for the Government furnished/Government installed (GF/GI): (1) System Furniture; (2) Security Systems and (3) Telephone/Data systems.

2.7 Exterior Primary Electrical Distribution System

Contact Verendrye Electric at 800-472-2141 for exterior primary electrical distribution. Provide Verendrye Electric with anticipated load and service transformer location. Verendrye will size transformer and design and install all exterior primary electrical service.

~~The source of power feeding the new Small Arms Facilities New Transformer with incoming power shall be stepped down from 13,200/7620 volts to 480/277 volts at the building service entrance.~~ Large HVAC equipment will be powered using 3-phase, 480 volts. Lighting will be powered using 277 volts. Inside the building, power shall be stepped down from 480/277 volts to 120/208 volts for branch power. ~~The primary feed shall originate from switchgear that is located to the southwest of the proposed site. Provide standard 8' x 8' x 8' octagonal concrete Amcor vault or equal for tying into the site electrical distribution system.~~

Follow the design requirements in UFC 3-550-01.

2.8 Products & Installation

~~2.8.1 Medium Voltage Cables and Conduit~~

~~The primary electrical distribution system conductors shall be aluminum with the 3-phase conductors.~~

~~Provide . Provide cables manufactured for use in duct applications. Cable must be rated 15 kV with 133 percent insulation level.~~

~~These cables shall be installed within a conduit encased in concrete, with an approved pulling lubricate. Provide ethylene-propylene-rubber (EPR) insulation conforming to the requirements of ANSI/NEMA WC 71/ICEA S-96-659 and ICEA S-94-649.~~

~~Cables rated for 2 kV and above must have a semiconducting conductor shield, a semiconducting insulation shield, and an overall copper tape shield for each phase.~~

~~The required conduit arrangement shall be neatly stacked in the trench utilizing plastic duct/conduit spacers and a spacer made out of sheet metal, which shall be driven into the ground prior to concrete encasement. Minimum depth of the conduit shall be 3 feet below the earth's surface. Minimum conduit size shall be 4 inches diameter.~~

2.8.1 Cable Marking

Identify each cable by means of a fiber, laminated plastic, or non-ferrous metal tags, or approved equal, in each manhole, handhole, junction box, and each terminal. Each tag must contain the following information; cable type, conductor size, circuit number, circuit voltage, cable destination and phase identification.

Conductors must be color coded. Provide conductor identification within each enclosure where a tap, splice, or termination is made. Conductor identification must be by color-coded insulated conductors, plastic-coated self-sticking printed markers, colored nylon cable ties and plates, heat shrink type sleeves,or colored electrical tape. Control circuit terminations must be properly identified. Color must be green for grounding conductors and white for neutrals; except where neutrals of more than one system are installed in same raceway or box, other neutrals must be white with a different colored (not green) stripe for each. Color of ungrounded conductors in different voltage systems must be as follows:

a. 208/120 volt, three-phase

(1) Phase A - black

(2) Phase B - red

(3) Phase C - blue

b. 120/240 volt, single phase: Black and red

2.8.2 Products

2.8.2.1 Conduits

Smoothwall, approved/listed for directional boring, minimum Schedule 80, ASTM F2160, NEMA TC 7.

2.8.2.1.1 Duct Encased in Concrete

Construct underground duct lines of individual conduits encased in concrete. Depths to top of the concrete envelope must be not less must be not less than 24 inches below finished grade. Do not mix different kinds of conduit in any one duct bank. Concrete encasement surrounding the bank must be rectangular in cross-section and must provide at least 3 inches of concrete cover for ducts. Separate conduits by a minimum concrete thickness of 3 inches. Before pouring concrete, anchor duct bank assemblies to prevent the assemblies from floating during concrete pouring. Anchoring must be done by driving reinforcing rods adjacent to duct spacer assemblies and attaching the rods to the spacer assembly.

2.8.2.1.1.1 Connections to Manholes

Duct bank envelopes connecting to underground structures must be flared to have enlarged cross-section at the manhole entrance to provide additional shear strength. Dimensions of the flared cross-section must be larger than the corresponding manhole opening dimensions by no less than 12 inches in each direction. Perimeter of the duct bank opening in the underground structure must be flared toward the inside or keyed to provide a positive interlock between the duct bank and the wall of the structure. Use vibrators when this portion of the encasement is poured to assure a seal between the envelope and the wall of the structure.

2.8.2.1.1.2 Connections to Existing Underground Structures

For duct bank connections to existing structures, break the structure wall out to the dimensions required and preserve steel in the structure wall. Cut steel and bend out to tie into the reinforcing of the duct bank envelope. Chip the perimeter surface of the duct bank opening to form a key or flared surface, providing a positive connection with the duct bank envelope.

2.8.2.1.1.3 Connections to Existing Concrete Pads

For duct bank connections to concrete pads, break an opening in the pad out to the dimensions required and preserve steel in pad. Cut the steel and bend out to tie into the reinforcing of the duct bank envelope. Chip out the opening in the pad to form a key for the duct bank envelope.

2.8.2.1.1.4 Connections to Existing Ducts

Where connections to existing duct banks are indicated, excavate the banks to the maximum depth necessary. Cut off the banks and remove loose concrete from the conduits before new concrete-encased ducts are installed. Provide a reinforced concrete collar, poured monolithically with the new duct bank, to take the shear at the joint of the duct banks.

2.8.2.1.1.5 Partially Completed Duct Banks

During construction wherever a construction joint is necessary in a duct bank, prevent debris such as mud, and, and dirt from entering ducts by providing suitable conduit plugs. Fit concrete envelope of a partially completed duct bank with reinforcing steel extending a minimum of 2 feet back into the envelope and a minimum of 2 feet beyond the end of the envelope. Provide one No. 4 bar in each corner, 3 inches from the edge of the envelope. Secure corner bars with two No. 3 ties, spaced approximately one foot apart. Restrain reinforcing assembly from moving during concrete pouring.

2.8.3.1.1 Fittings

2.8.2.1.2 Metal Fittings

UL 514B.

2.8.2.1.3 PVC Conduit Fittings

UL 514B, UL 651.

2.8.3.1.3 PVC Duct Fittings

NEMA TC 9.

2.4.3 Conduits

Smoothwall, approved/listed for directional boring, minimum Schedule 40, ASTM F2160, NEMA TC 7.

2.8.3 Innerduct

Provide corrugated or solid wall polyethylene (PE) or PVC innerducts, or fabric-mesh innerducts, with pullwire. Size as indicated.

2.8.4 Duct Sealant

UL 94, Class HBF. Provide high-expansion urethane foam duct sealant that expands and hardens to form a closed, chemically and water resistant, rigid structure. Sealant must be compatible with common cable and wire jackets and capable of adhering to metals, plastics and concrete. Sealant must be capable of curing in temperature ranges of 35 degrees F to 95 degrees F. Cured sealant must withstand temperature ranges of -20 degrees F to 200 degrees F without loss of function.

2.8.5 Fittings

2.8.5 Metal Fittings

UL 514B.

2.8.6 PVC Conduit Fittings

UL 514B, UL 651.

2.8.7 PVC Duct Fittings

NEMA TC 9.

2.8.8 CAST-IN-PLACE CONCRETE

Provide concrete for encasement of underground ducts with 3000 psi minimum 28-day compressive strength. Concrete associated with electrical work for other than encasement of underground ducts must be 4000 psi minimum 28-day compressive strength unless specified otherwise.

2.8.9 Terminations and Splices

Termination kits shall be type 3M. No splices shall be allowed in the manholes; instead an above-ground medium voltage pad-mounted sectionalizer switch shall be located at the required manhole location with a termination strip and loadbreak elbows in the manhole, fully insulated. The mounting hardware shall be grounded to the ground conductor. Each load break elbow shall have it's own drain conductor grounded to the ground conductor.

2.8 Separable Insulated Connector Type

IEEE 386. Provide connector with steel reinforced hook-stick eye, grounding eye, test point, and arc-quenching contact material. Provide connectors of the loadbreak or deadbreak type as indicated, of suitable construction for the application and the type of cable connected, and that include cable shield adaptors. Provide external clamping points and test points. Separable connectors must not be used in manholes/handholes.

a. 200 Ampere loadbreak connector ratings: Voltage: 15 kV, 95 kV BIL. Short time rating: 10,000 rms symmetrical amperes.

2.8.10 Above Ground Medium Voltage Pad Mounted Sectionalizer Switch

The medium voltage pad mounted switches for this project shall be manufactured by S & C Corporation and shall be type as required for a complete distribution system. The ground ring for the pad-mounted switches shall be connected to the new ground guard wire over the power duct bank.

Exterior equipment shall be mounted such that the distance between equipment items is no less than 10-feet and such that the personal egress space around the equipment is no less than 40 inches.

2.8.11 Relay Coordination Study, Short Circuit Analysis, and Arc-Flash Study

Provide a Relay Coordination Study and a Short Circuit Analysis with recommended changes to the relays in the Protective Circuit Breakers. Provide an Arc-Flash Study with recommendations for Personnel Protective Equipment (PPE) at the equipment. Provide warning/danger labels and signs at the equipment. Refer to NFPA 70E. Provide the design services of a registered professional engineer to perform arc-flash study, short circuit analysis and relay coordination study.

2.9 Pad-Mounted Tamperproof Compartmental Transformer

The pad-mounted transformer shall have copper windings and conductors, have mineral oil insulation of low flammability type or "non-flammable", "less flammable liquid-filled" with no PCB contaminates.. The transformer shall be loop feed type with load-break switching and surge arresters on spare bushings. Transformer pad shall extend 10-inches beyond the edge of the transformer furnished. Transformer pad shall use conduit window areas instead of pouring around the conduit. Provide at least one spare 4-inch

primary conduit to the transformer. Pad-mounted transformer shall comply with IEEE C57.12.25.

2.9.1 Locations

Transformers should be located not less than 33-feet from combustible walls or building openings.

2.9.2 Clearances

Exterior equipment shall be mounted such that the distance between equipment items is no less than 10-feet and such that the personal egress space around the equipment is no less than 42 inches.

2.9.3 Grounding

a. Frame of the transformer is to be grounded from the high voltage equipment pad and the low voltage equipment pad.

b. On the grounded-wye secondary, a ground strap is required from XO to the frame.

c. When a building has a lightning protection system with a ground ring and the transformer has a ground ring and the ground rings are within 25-feet of each other, then the ground rings shall be interconnected below grade.

d. Service from transformer to building shall not have a grounding conductor. Service from Transformer to building shall have a full-size neutral conductor no smaller than the phase conductors.

f. Provide a ground ring (counterpoise); minimum size shall be #4/0 AWG, around pad with a ground rod at each corner. The ground ring size shall be increased in size to the proper size per IEEE C2, if the fault current indicates that #4/0 AWG is not adequate.

g. Extend separate conductors from arresters and transformer neutral/housing and connect to the ground ring.

h. Ground any metallic conduit/duct to the ground ring.

i. Provide any other connections required by the NEC or NESC.

2.9.4 Over-Current Protection

Provide type Bay-O-Net dual-element fuse mounted in series with an ELSP current-limiting fuse.

2.9.5 Design for Precast Structures

In the absence of detailed on-site soil information, design for the following soil parameters/site conditions:

a. Angle of Internal Friction (phi) = 30 degrees

b. Unit Weight of Soil (Dry) = 110 pcf, (Saturated) = 130 pcf

c. Coefficient of Lateral Earth Pressure (Ka) = 0.33

d. Ground Water Level = 2.5 feet below ground elevation

e. Horizontal design loads must include full geostatic and hydrostatic pressures for the soil parameters, water table, and depth of installation to be encountered. Also, horizontal loads imposed by adjacent structure foundations, and horizontal load components of vertical design loads, including impact, must be considered, along with a pulling-in iron design load of 6000 pounds.

f. Each structural component must be designed for the load combination and positioning resulting in the maximum shear and moment for that particular component.

g. Design must also consider the live loads induced in the handling, installation, and backfilling of the manholes. Provide lifting devices to ensure structural integrity during handling and installation.

2.9.6 Specific Site Construction Requirements

1. 4' X 7' 200 amp vault. Over-Excavate as necessary to install with 18" base of Rock, 2" of tamped gravel, and a 6" bed of tamped sand free of rock and gravel.

a. Compacted in 8" layers to 95 percent of the maximum density obtained by AASHTO Std. T180 or ASTM D-1556 & ASTM D-1557.

b. If firm material has not been reached within a depth of 3 feet, excavate 3 feet beyond the perimeter of the enclosure and backfill the entire excavated area to the required grade

1. In case it has been necessary to excavate deeper than the required grade to reach firm material, backfill to the required grade in following way:

a) Precast vaults shall be placed on a 3-inch layer of slurry backfill or sand screeded level to provide uniform bearing. The soil-cement slurry consisting of one sack of Portland cement per cubic yard and clean native soil or sand.

2.9.7 Directional Boring

HDPE conduits must be installed below the frostline and as specified herein.

For distribution voltages greater than 1000 volts and less than 34,500 volts, depths to the top of the conduit must not be less than 48 inches in pavement-covered areas and not less than 120 inches in non-pavement-covered areas. For branch circuit wiring less than 600 volts, depths to the top of the conduit must not be less than 24 inches in pavement- or non-pavement-covered areas.

2.10 CABLE PLAN & PROCEDURES

2.10.1 Cable Installation Plan And Procedure

Obtain from the manufacturer an installation manual or set of instructions which addresses such aspects as cable construction, insulation type, cable

diameter, bending radius, cable temperature limits for installation, lubricants, coefficient of friction, conduit cleaning, storage procedures, moisture seals, testing for and purging moisture, maximum allowable pulling tension, and maximum allowable sidewall bearing pressure. Perform pulling calculations and prepare a pulling plan and submit along with the manufacturer's instructions in accordance with SUBMITTALS. Install cable strictly in accordance with the cable manufacturer's recommendations and the approved installation plan.

Calculations and pulling plan must include:

a. Site layout drawing with cable pulls identified in numeric order of expected pulling sequence and direction of cable pull.

b. List of cable installation equipment.

c. Lubricant manufacturer's application instructions.

d. Procedure for resealing cable ends to prevent moisture from entering cable.

e. Cable pulling tension calculations of all cable pulls.

f. Cable percentage conduit fill.

g. Cable sidewall bearing pressure.

h. Cable minimum bend radius and minimum diameter of pulling wheels used.

i. Cable jam ratio.

j. Maximum allowable pulling tension on each different type and size of conductor.

k. Maximum allowable pulling tension on pulling device.

2.11 Underground Service Entrance/Feeder/Branch Circuits

The new underground service entrance shall be fed from the new transformer provided by the contractor.

2.12 Conductors

Service entrance conductors, branch and feeder circuits shall be single conductors, type USE or RHW. Service entrance conductors and underground feeder/branch circuits shall be copper conductors with insulating grounding conductor in conduit. Aluminum conductors and direct buried cables are NOT acceptable.

2.13 Conduits

Non-concrete encased conduits shall be schedule 80 PVC or HDPE until they are located under slab where they can transition to schedule 40 PVC or HDPE. Conduits shall be non-encased, direct buried for low voltage circuits. Top of conduit shall be a minimum 24-inches below finished grade. Conduits and innerduct shall have pull strings. Transition to RGS conduit when above grade.

2.14 Exterior Lighting System

Area lighting shall be provided for walkways, above exit doors, above overhead doors, and for area signage. Lighting shall also be provided under new exterior canopies. Lighting fixtures shall be LED full-cutoff type. Fixture finish shall be anodized bronze. Walkway lighting shall be accomplished using LED shoebox fixtures mounted on 12-foot poles. The use of LED bollards is also acceptable for walkway lighting, but shall only be installed near building entryways. Design shall be in accordance with IES HB-10 IES LIGHTING HANDBOOK, ASHRAE 90.1 - IP, UFC 3-530-01 and the requirements in this section. Where there is a conflict between IES HB-10 IES LIGHTING HANDBOOK and UFC 3-530-01, IES HB-10 shall take precedent.

A conceptual area lighting layout shall be the responsibility of the designer.

Care should be taken during the exterior lighting design to minimize the amount of light trespass. This may be accomplished through a variety of methods including but not limited to full cut off fixtures, light fixture shields, and fixture aiming. The exterior lighting system design shall result in a maximum illuminance value no greater than 0.10 horizontal and vertical footcandles at the site boundary and no greater than 0.01 horizontal footcandles 10-feet beyond the site boundary. Site lighting fixtures shall be selected so that no more than 2% of the total lumen output for the site are emitted at an angle of 90-degrees of higher from nadir.

2.15 Exterior Building Lighting

Exterior building lighting fixtures shall be recessed and wall pack type fixtures installed around the building and over doors. Fixtures shall be LED and sized to meet the lighting criteria. Fixtures shall be mounted near each entrance for the building. Exterior building lighting control shall be as referenced in paragraph "Exterior Lighting Control" below. Fixtures shall be wired from within the building and shall conform to the interior wiring standards described in this section. No building lighting circuits shall be surface mounted.

2.15.1 LED Lighting Fixtures

Light emitting diode (LED) fixtures shall be capable of multi-level control with a CCT of 3985 K +/-275K and a CRI of no less than 70. LED fixtures with screw base light sources are not permitted. Built in fixture failure detection shall be provided. Exterior LED luminaires require integral metal oxide varistors (MOV) type surge protection device (SPD).

LED drivers shall have a total current harmonic distortion no greater than 20 percent, power factor greater than or equal to 90 percent.

2.15.2 Exterior Lighting Controls

Provide programmable lighting control relay panel with photocell input. Building mounted lights shall be individually controlled as per lighting type. Exterior fixtures shall make use of motion sensors to automatically reduce power by a minimum of 30% during any period when no activity has been detected for a time of no longer than 15 minutes.

2.15.3 Underground Lighting Circuits

Provide underground branch circuits for exterior lighting circuits. Branch circuits shall be insulated copper conductors with insulated grounding conductor in conduit. Aluminum conductors are NOT acceptable. Direct buried conductors are NOT acceptable. Underground lighting conductors shall be in schedule 80 PVC with steel RMC elbows. Transition to steel RMC conduit when above grade. Top of conduit shall be 24-inches below finished grade.

2.16 Cathodic Protection System

A sacrificial anode cathodic protection system shall be provided for underground metallic lines , fittings, valves and fire hydrants. If underground lines are non-metallic, then associated metallic fittings, valves, hydrants, Tee's and 90's, etc. shall be protected and there shall be a tracer wire provided over the pipeline. A dedicated galvanic anode shall be used for each fitting, valve, hydrant, etc. Galvanic anodes shall be connected to the structure through a test station. At least one test station shall be provided on each valve, fire hydrant and metallic pipe. Isolate new piping from existing piping. Insulated flanges or couplings, if not accessible, shall have a test station which is connected to either side of the insulated flange or coupling. Connections to structures shall be done with two conductors: one is the active conductor and one is a spare. A conductor color coding system shall be used: black for anode, red for main structure and blue for a second structure. In addition to the anodes, metallic pipes must be provided with a coating system. The cathodic protection systems shall be designed and installed in accordance with AFI 32-1054 and NACE SP0169 Standards. The design of the system shall be a minimum of 25 years with a soil resistivity of 1500 ohm-cm. The highest quality magnesium anode shall be used. Criteria for determining the adequacy of protection shall be in accordance with NACE SP0169 and shall be selected by the corrosion engineer as applicable. Test stations shall be flush-curb box mounted in 1-foot X 1-foot concrete pads. Anode wires shall be #10 AWG.

Design shall be by a corrosion protection engineer.

2.17 Underground Cable Markings

A color-coded plastic warning tape at least 4-inches wide shall be placed 12-inches above buried utility lines. RED shall be supplied for the buried electrical lines and ORANGE shall be supplied for the buried communication lines.

2.18 Interior Distribution

Follow the design requirements of UFC 3-520-01.

The interior distribution voltage within the building shall be 480/277 volt, 3-phase, 4-wire. Power shall be stepped down from 480/277 volts to 120/208 volts for branch power. Transformers that serve non-linear loads such as the computer receptacles shall be K-rated. Transformers shall be selected using 2016 DOE efficiency standards. Provide transformers per Air Force AFJMAN 32-1080 Chapter 8.

2.19 Service Equipment

Service equipment/disconnecting means shall be provided in the service rated Main Distribution Panelboard(MDP) located in the Electric Room. Transient Voltage Surge Suppression (TVSS) suitable for service distribution equipment shall be provided at the MDP.

2.19.1 Main Distribution Panelboard (MDP)

Provide panelboards in accordance with the following:

a. UL 67 and UL 50 having a short-circuit current rating of 10,000 amperes symmetrical minimum.
b. Panelboards for use as service disconnecting means: additionally conform to UL 869A.
c. Panelboards: circuit breaker-equipped.

Lighting and appliance branch-circuit panelboards shall be of the circuit breaker type conforming to NEMA PB 1 and UL 489 and shall be located within the electrical rooms.

a. Panelboard shall not exceed 78-inches in height from the finished floor.

b. Panelboards shall have a minimum of 25 percent spare capacity for future loads at the end of the project. Panelboards shall have a minimum of 25 percent spare circuit breakers. Spare circuit breakers shall be redundant of the type of circuit breaker being provided in the panelboard.

c. Panelboard busses shall be tin-plated copper only. Aluminum busses are not acceptable.

d. The phase loading on panelboards shall be balanced as much as practical by the type of loads on the panel. This includes equally disbursing the spares between the phases.

e. Panelboards shall be provided with an "As-Built" panel schedule which is typed and placed in a protective holder located on the front inside of the panelboard door.

f. Panels shall have hinged covers door-in-door construction with a master keyed flush tumbler latches.

g. All circuit breakers shall be bolt-on type breakers only. Stab-in breakers shall not be allowed.

h. Thermal-magnetic breakers larger than 150 amps shall have adjustable, instantaneous magnetic trip.

2.20 KWHR Meter

The kilowatt-hour meters shall be wall mounted within the main electrical room. KWHR meters with 15-minute demand registers shall be provided for recording energy consumption of the facility and shall also record maximum demand and power factor for each phase. Meters shall be provided with factory-installed electronic pulse initiators meeting ANSI C12.1 for connection to the BASE EMCS - (Energy Management and Control System). Pulse initiators shall be solid-state devices incorporating light-emitting diodes, phototransistors, and power transistors. Initiators must be totally contained within demand meter enclosures, must be capable of operating up to speeds of 500 pulses per minute with no false pulses, and

must require no field adjustments. Initiators shall be calibrated for a pulse rate output of 1 pulse per one-fourth disc revolution of the associated meter and must be compatible with the indicated equipment. Meter shall have tele-metering capability. Provide 1-inch conduit from transformer-mounted meter to the EMCS control panel.

2.21 Power System Analysis

2.21.1 Short Circuit Study

A full short circuit analysis shall be performed on the electrical distribution system for the building. The study shall include the interior electrical distribution system and service distribution system back to the existing primary line.

2.21.2 Protective Coordination Study

A full protective coordination study shall be performed on the electrical distribution system for the building. The study shall include the interior electrical distribution system and service distribution system back to the existing primary line.

2.21.3 Arc Flash Hazard Study

A full arc flash hazard study shall be performed in accordance with NFPA 70E, IEEE 1584 on the electrical distribution system for the building. The study shall include the interior electrical distribution system and service distribution system back to the existing primary line. ~~The electrical system shall be designed such that no piece of electrical equipment receives greater than an arc flash hazard level of 2.~~

2.22 Motors

Motors shall be of sufficient size for the duty to be performed and shall not exceed the full-loading rating when the driven equipment is operating at specified capacity under the most severe conditions encountered.

a. Motors shall have open frames and continuous-duty classification and be based on a 40 degree C ambient temperature reference.

b. Permanently wired polyphase motors of 1 horsepower or more shall meet the minimum full-load efficiencies in NEMA MG 1 for NEMA Premium™ Efficiency Electric Motors, except that motors provided as an integral part of motor driven equipment are excluded from this requirement if a minimum seasonal or overall efficiency requirement is indicated for that equipment by the provisions of another section.

c. Power factor correction capacitors are to be installed with individual motors 25 HP and larger as a minimum, unless the motor is controlled by a variable frequency drive (VFD). In the case of VFD, capacitors are not required.

d. Motor starters shall use circuit breakers instead of fuses.

e. Thermal overloads shall be the bimetallic type that can be reset. The magnetic overload option shall only be used if indicated by the manufacturer of the equipment.

f. Reduced voltage starters shall be used on motors which are 50 Hp or

larger as a minimum.

g. Three-phase motors shall have phase loss protection.

h. Disconnect switches for motors shall be heavy duty type. Exterior switches shall be rain-tight with in NEMA 4 enclosures. Disconnect switches for packaged HVAC equipment shall be as required by the equipment manufacturer.

g. Motors controlled by variable frequency drives shall have Class H wiring insulation and be rated for inverter duty.

2.23 General Purpose Duplex Receptacle Outlets

Duplex receptacle outlets for general purpose applications shall be NEMA WD 6 Type 5-20R, 20 amp, 125 volt, 2-pole, 3-wire grounding type. A maximum of five duplex general purpose receptacles may be connected to a 20A, 120V receptacle circuit. Receptacle circuits shall not supply lighting and motor loads. General purpose duplex receptacle outlets shall be located in the facility as follows:

a. Provide general-use duplex receptacles a minimum of 10-feet on center in offices and a minimum of every 25-feet along the walls in all other areas of the building except as otherwise indicated. For small rooms that do not have 10-foot walls, a minimum of one outlet shall be installed on each wall. Receptacles shall be mounted 18-inches above finished floor.

b. Provide general-use duplex receptacles a minimum of 50-feet on center in corridors with a minimum of one per corridor. Receptacles shall be mounted 18-inches above finished floor.

c. Provide one GFCI general-use duplex receptacles in each janitor's closet.

d. Provide general-use duplex receptacles adjacent to each telephone outlet and each cable jack.

e. Provide two general-use duplex receptacles adjacent to each telecommunications outlet within administrative spaces.

f. Provide a general purpose duplex receptacle outlet adjacent to sink in the restrooms. Receptacle outlets shall have (GFCI) ground fault circuit interrupters. Mount receptacle outlets 48-inches above finished floor. One women's restroom shall have an additional GFCI outlet located in one of the stalls.

g. The exact location of receptacle outlets shall be verified and coordinated with the Contracting Officer during the design of the project. Coordinate the location of the receptacle outlets with the Interior Design package (furniture layout). Power and communication to system furniture in open office spaces shall be served by connections to system furniture whenever possible. Feed system furniture from floor boxes. Power poles are not acceptable. Provide 8-wire, 4-circuit configuration to system furniture with #10 AWG neutral. Make final connections to the system furniture outlets.

h. Provide general-use duplex receptacles at break room countertops. A minimum of two branch circuits shall be used to supply receptacles installed at the break room countertop. Receptacles installed at break room

countertops shall be spaced such that no point along the wall line is more than 24 inches, measured horizontally, from a receptacle.

2.23.1 Special Receptacles

Ground Fault Circuit Interrupter (GFCI) receptacle outlets shall be provided in rest rooms, at sink countertops in restrooms and break rooms, in janitor's closets, at other wet locations, and for vending machines. Weatherproof GFCI receptacles for exterior use, shall be weatherproof whether or not plug is inserted and have a polycarbonate cover plate. Exact location of the receptacles noted below shall be coordinated with the Contracting Officer during the design of this project. Except where indicated otherwise, provide NEMA 5-20R, 20 amp, 125 volt, 2-pole, 3-wire grounding type, duplex receptacles in the following locations:

a. Provide a dedicated branch circuit and ground fault circuit interrupter receptacle for vending machines.

b. Provide a duplex receptacle outlet for each electric water cooler.

c. Provide duplex receptacle outlet for government furnished and government installed copiers, printers, scanners, shredders and fax machines in locations coordinated with the Contracting Officer. Provide a dedicated circuit for each copier, printer and shredder.

d. Provide a weatherproof duplex receptacle with ground fault circuit interrupter on the exterior of the building adjacent to each personnel exit door of the building. Mount receptacles 24-inches above finished grade. Provide additional receptacles around the exterior of the facility located for convenient access but at no more than 165-feet on center with a minimum of one per side.

e. Provide a dedicated branch circuit and duplex receptacle outlet for each of the EMCS panels.

f. Communications Equipment Room (CER): One rack with one NEMA L5-20R; one rack with two NEMA L5-20R; one rack with one NEMA L6-30R. Each rack shall be provided with a dedicated general purpose quaduplex receptacle fed from a separate dedicated 20A branch circuit. A minimum of two dedicated, unswitched, general purpose receptacles shall be installed within the CER; each fed from a separate dedicated 20A branch circuit. Additional convenience outlets shall be installed at 6-foot intervals around the CER perimeter walls with a minimum of one per wall.

g. Provide outlets where required by the NFPA 70 for servicing HVAC equipment.

h. The contractor shall install dedicated receptacles to power two sets of washer and dryers located in the laundry room. Type and rating of washer and dryer receptacles shall be coordinated with the equipment to be installed.

2.23.2 Computer Outlets

Computer receptacles shall be duplex, 20 amp, 120 volt, 2-pole, 3-wire grounding type receptacles. A maximum of four duplex computer outlets shall be connected to a receptacle circuit. Computer outlets shall be labeled as "COMPUTER". Mount the outlets 18-inches above finished floor. Computer outlets shall be mounted adjacent to the telephone/data outlets.

Maintain a separation of 6-inches from the telephone/data outlets. Exact location of all computer outlets shall be verified and coordinated with the Contracting Officer during the design of the project. Location of outlets shall be coordinated with the interior design package to include the furniture layout. One computer outlet shall be provided adjacent to every voice/data outlet. Provide capability for future alternate configurations.

2.24 Device Plates

Communication outlets, switches, receptacles, etc. shall be coordinated with the finish interior colors. Device plates shall be stainless steel in areas with finished walls. In areas with unfinished walls like mechanical walls, the device plate shall be galvanized steel.

2.25 Other Loads

Designer of Record shall coordinate with the other applicable sections. The anticipated loading and power configuration for some items will be provided, but the Designer of Record is still responsible for the final coordination with the actual equipment installed. Contractor shall provide electrical power to the following loads either by receptacle or direct wired as applicable. This list is representative and is not considered to be all-inclusive: Vending Machines; Microwaves; Garbage Disposals; Refrigerators; Water Coolers; Hoods; electric oven/ranges; Mechanical Equipment; Electrical Equipment; Communications Equipment; Fire Alarm Equipment; Podiums; Overhead Projectors; Motorized Screens; shredders, Automatic Door Operators; Gate Operators, Landscape Sprinkler Controls; Access Control Equipment, CCTV Monitors, Cameras.

2.26 Architectural/Mechanical Connections

Contractor shall provide branch circuits, disconnect switches, magnetic starters, and other related electrical equipment and material for architectural, mechanical equipment and environmental equipment to be installed in the project (includes the facility and site). This shall include hand dryers, HVAC units, chillers, humidifiers, and reheat, unit heaters, pumps, exhaust fans, heat tracing, and other mechanical equipment in the facility.

2.27 Wiring Methods

Wiring shall conform to NFPA 70 and the requirements of this section.

2.27.1 Conductors

Conductors shall be copper. Minimum power wiring shall consist of #12 AWG conductors installed in ½-inch conduits. Power and lighting conductors shall be 600 volt, Type THHN (in dry locations), and THWN-2 or XHHW (in wet locations). Cabling systems such as Mineral-insulated cables, metallic armored cables and nonmetallic-sheathed cables shall not be allowed on this project.

Conductors shall be sized based upon the 75°C column of NEC Table 310-15(B)(16). All wiring shall meet UL 2556, UL 44, UL 486A-486B, UL 486C, UL 83, & UL 854.

2.27.2 Conduits

Wiring shall consist of insulated conductors installed in steel rigid

metallic conduit (RMC), electrical metallic tubing (EMT), or intermediate metal conduit (IMC). Conduit size shall be based on use of single conductor cable with THW or RHW insulation for sizes #1 AWG and smaller. Flexible metal conduit (FMC)is permitted only where equipment vibration is a consideration. Plastic conduit is allowed only underground or under the floor slab. Raceways shall be concealed within finished walls, ceilings, and floors. Conduit that is exposed along walls in areas that are subject to damage shall be RMC. All raceways shall meet UL 1, UL 5, UL 514B, UL 5A, UL 6, UL 651, & UL 651A.

2.28 Interior Lighting System

Provide according to the recommendations in UFC 3-530-01. If the designer chooses to use a networked lighting system of any kind, a Certification and Accreditation shall be obtained, refer to section 01 86 29 COMMUNICATIONS REQUIREMENTS for additional information. Products shall meet UL 1472, UL 1581, UL 20, UL 20, & UL 924.

2.28.1 Illumination Levels

Average maintained illumination levels shall not be less than the values listed in FC 4-179-03F. The illumination levels identified shall be maintained design intensity, including light loss factors. A light loss factor (LLF) of 0.7 shall be used when calculating lighting levels.

2.28.2 Conservation Requirements

Contractor shall optimize building performance by the use of occupancy sensors and the use of sensors to control loads based on the availability of natural light. Illumination levels, in conjunction with energy conservation, shall be obtained by the most life cycle cost-effective techniques including, but not limited to, the following:

a. Provide multiple switching of multi-lamp fixtures or multiple switching of fixture groups in large rooms, or both, to permit lighting fixtures to be turned off in unoccupied areas.

b. Provide LED fixture and drivers with a minimum of 85 percent efficiency, less than or equal to 20 percent THD, and with power factor correction to exceed 90 percent.

c. Occupancy and daylight sensors shall be used where recommended in UFC 3-530-01.

d. Location of light switches shall be coordinated with the floor plan and furniture layout to ensure that they are easily accessible and convenient. Location shall also be coordinated with the Contracting Officer.

2.28.3 Incandescent Lighting Fixtures

Incandescent lighting fixtures shall NOT be used.

2.28.4 LED Lighting Fixtures

Light emitting diode (LED) fixtures shall be dimmable or capable of multi-level control with a CCT of 3000 K (unless otherwise indicated) and a CRI of no less than 80. ~~Lighting in all offices and utility spaces shall have a CCT of 3985 K +/- 275K.~~ LED fixtures with screw base light sources are not permitted. Built in fixture failure detection shall be provided.

LED drivers shall have a total current harmonic distortion no greater than 20 percent at full and 50 percent output and power factor greater than or equal to 90 percent at full and 50 percent output. Dimmable or bi-level drivers shall be compatible with standard dimmer control circuit or 0-10V. LED Fixtures shall meet ETL 12-15, & IES LM-79

2.28.5 Egress and Exit Lighting Fixtures

Egress and exit lighting design shall be in accordance with NFPA 101, and ICC IBC. Exit lights shall be green LED type with brushed aluminum faces. Incandescent exit lighting fixtures are not permitted. Egress and exit light fixtures shall have individual battery back up. Egress lighting fixtures shall be provided from room LED light fixtures throughout the facility. Emergency egress lighting shall be provided for common areas such as lobbies, corridors, restrooms and in utilitarian rooms such as mechanical rooms, electrical rooms, communications rooms, etc, with one of the egress light fixtures the fixture closest to the exit door way.

2.29 Energy Management Control System (EMCS)

Provide power as required for EMCS or DDC components (such as dampers, VAV boxes, control panels, etc.) requiring power.

2.30 Grounding System

The basis of all of the grounding for this project is initiated via an Earth Electrode System (EES) around the perimeter of each facility. All metallic objects that pass under or that are close within 6-feet of the EES shall be bonded to the EES. The Lightning Protection System (LPS) shall be connected to the EES via multiple down conductors. The EES shall be bonded to the duct bank guard wires and to the ground ring around the facility transformer. The EES shall be extended into the main electrical room to the MDS. The EES shall also be extended into the telecommunications entrance room where it shall be connected to the telecommunications main grounding busbar (TMGB)

The grounding system shall be designed in accordance with NFPA 70 Article 250, IEEE 1100, AFI 32-1065, and the following criteria. Ground rods shall be ¾-inch x 10-foot copper clad steel.

Lightning protection component penetrations and attachments shall be sealed and flashed and anchored in a permanent manner and in a manner to avoid the degradation of the watertight integrity of the roof system. Do not cut or otherwise disturb the roof membrane. Mastic seals in the plane of the roof are unacceptable. Anchor plates set in mastic shall be set on roof surface cleaned of aggregate and loose material prior to mastic application.

2.30.1 Communications Grounding System

See COMMUNICATION REQUIREMENTS 01 86 29

Provide corrosion-resistant grounding busbar suitable for indoor installation in accordance with TIA-607. Busbars: plated for reduced contact resistance. If not plated, clean the busbar prior to fastening the conductors to the busbar and apply an anti-oxidant to the contact area to control corrosion and reduce contact resistance. Provide a

telecommunications main grounding busbar (TMGB) in the telecommunications entrance facility. The telecommunications main grounding busbar (TMGB: sized in accordance with the immediate application requirements and with consideration of future growth. Provide telecommunications grounding busbars with the following:

a. Predrilled copper busbar provided with holes for use with standard sized lugs,

b. Minimum dimensions of 0.25 in thick by 6 in wide for the TMGB with 36 inlength.

c. Listed by a nationally recognized testing laboratory.

2.30.2 Ground Bus

Copper ground bus: provided in the electrical equipment rooms with minimum dimensions of 0.25 in thick by 6 in wide by 24 in.

2.30.3 Equipment Grounding Conductors

A green equipment grounding conductor, sized in accordance with NFPA 70 shall be provided, regardless of the type of conduit. Equipment grounding bars shall be provided in panelboards. The equipment grounding conductors shall be carried back to the service entrance grounding connection or separately derived grounding connection. Equipment grounding conductors shall be provided in feeders and branch circuits.

2.30.4 Earth Electrode System

The maximum resistance measured of the earth electrode system shall not exceed 5 ohms under normally dry conditions. Ground rods shall be ¾-inch x 10-foot copper clad ground rods.

2.30.5 Separately Derived System

For dry-type transformers within buildings, the grounding electrode conductor shall be connected to adjacent structural steel or to a common grounding electrode conductor per the NEC. If there are multiple dry-type transformers within a room, a copper ground bar shall be used as the connection point. This bar shall be bonded to the grounding electrode or common grounding electrode conductor. The grounding bars and the conductors shall be sized to handle the combined fault duty of the equipment connected. Use exothermic welds for the connection.

2.31 Equipment Sizing Requirements and Ratings

Except as specifically noted otherwise, minimum required capacity of the equipment bus shall be computed from the estimated maximum demand (EMD) for the panelboard, switchboard, motor control center and be specified as having the next larger manufactured standard bus or main lug size.

The EMD shall be calculated as indicated in Omaha District Design Guide,ODDG.

Overcurrent protection for panelboards, switchboards, switchgear and motor control centers with heavy motor loads, sizing must also consider starting current of the largest motor or motors in addition to the continuous demand amperes.

2.31.1 Interrupting Capacities

Equipment ratings shall be determined based on results of the short circuit analysis per the ODDG. Minimum standard interrupting ratings shall be identified on the plans preferably on a one-line diagram or alternately in panel schedules. Ratings may be called out in the specifications when single items are involved. The designer shall identify variables (such as equipment impedances) which could affect available short circuit current and verify that equipment acceptable under contract plans and specifications would not permit fault current levels higher than the specified interrupting ratings.

2.31.2 Feeders and Branch Circuits

Branch circuit sizes shall be based on the load supplied, EMD and voltage drop requirements. Feeders to distribution equipment such as panelboards, motor control centers, and switchboards shall be sized to allow the full capacity of the panelboards, motor control centers, and switchboards bus bar amperage rating to be used. Voltage drop shall be taken into account when sizing branch circuits. Feeder conductors shall be sized for a maximum voltage drop of 2 percent at design load. Branch circuit conductors shall be sized for a maximum voltage drop of 3 percent at design load.

2.31.3 Transformer Feeders

Sizes for primary and secondary feeders for transformers shall be based on the transformer kVA. This criteria also applies to the service entrance conductors. Feeder ampacity shall not be less than the rating of the overcurrent device at the termination of the secondary conductors.

2.31.4 Neutral Sizing

Use of full size neutrals shall be standard practice. For applications involving harmonics generating equipment (inverter, variable frequency drives, other solid state apparatus), the neutral must be treated as a current carrying conductor. Multi-wire branch circuits with common neutrals shall not be permitted to serve data processing applications, including personal computers, but branch circuits shall have an individual neutral for each phase conductor.

2.31.5 Derating

Ampacity of conductors is to be derated per NEC Article 310, if more than three current carrying conductors are installed in a raceway. Four-wire feeders where the neutral is considered a current carrying conductor shall have an additional 20 percent derating. A maximum of nine current carrying conductors, using NEC designated derating factors, shall be installed in any raceway. When nonlinear loads are served, the neutral must be treated as a phase conductor. If a double size neutral is employed, count it as two line conductors.

2.31.6 Nuisance Tripping

For a period of one year after construction, the contractor shall be responsible for correcting problems which may arise from nuisance tripping. Nuisance tripping shall be defined has having breakers or fuses activating under an overload condition while the equipment was operating within manufacturer parameters. These situations shall be corrected by making

changes to the installation at no cost to the Government. These corrections can increase the trip setting or fuse size, as long as the increased setting is still at or below setting maximums given in NFPA 70. Any change could impact other items not listed such as conductor sizing and upstream coordination settings.

Any changes made to correct nuisance tripping shall be incorporated into the protective coordination and arc flash hazard studies and updated arc flash labels shall be provided for equipment as necessary at no additional cost to the government.

2.32 Installation

The Contractor shall install system components, switchboards, generator, panels, lighting, equipment connections, etc., including Government furnished equipment, and appurtenances in accordance with the manufacturer's instructions and shall furnish necessary connectors, terminators, interconnections, services, and adjustments required for a complete and operable system. Interior wiring, including low voltage wiring, shall be installed in steel conduit. Minimum conduit shall be 1/2-inch. Flexible cords or cord connections shall not be used to supply power to any components, except where specifically allowed in writing by the Contracting Officer. Grounding shall be installed as necessary to preclude ground loops, noise, and surges from adversely affecting system operation. The installation wiring shall use terminal strips, wire nuts, or crimp terminals. Devices shall use terminal points, strips or screw terminals for the wiring connections points - pigtail connections are not acceptable. If the manufacturer needs to use special cable e.g. twisted and shielded, then the minimum wire size and insulation voltage rating shall be met.

PART 3 FIELD QUALITY CONTROL

3.1 Testing

Furnish test equipment and personnel and submit written copies of test results. Give Contracting Officer 5 working days notice prior to each test.

As a minimum, test equipment according to the applicable commissioning procedures in NECA 90. Document the test results and take corrective actions, as necessary, based on these results.

3.2 Devices Subject to Manual Operation

Operate each device subject to manual operation at least five times, demonstrating satisfactory operation each time.

3.3 600-Volt Wiring Test

Test wiring rated 600 volt and less to verify that no short circuits or accidental grounds exist. Perform insulation resistance tests on wiring No. 6 AWG and larger diameter using instrument which applies voltage of approximately 500 volts to provide direct reading of resistance. Minimum resistance: 250,000 ohms.

3.4 Transformer Tests

Perform the standard, not optional, tests in accordance with the Inspection and Test Procedures for transformers, dry type, air-cooled, 600 volt and

below; as specified in NETA ATS. Measure primary and secondary voltages for proper tap settings. Tests need not be performed by a recognized independent testing firm or independent electrical consulting firm.

3.5 Ground-Fault Receptacle Test

Test ground-fault receptacles with a "load" (such as a plug in light) to verify that the "line" and "load" leads are not reversed.

3.6 Grounding System Test

Test grounding system to ensure continuity, and that resistance to ground is not excessive. Test each ground rod for resistance to ground before making connections to rod; tie grounding system together and test for resistance to ground. Make resistance measurements in dry weather, not earlier than 48 hours after rainfall. Submit written results of each test to Contracting Officer, and indicate location of rods as well as resistance and soil conditions at time measurements were made.

3.7 Watthour Meter

a. Visual and mechanical inspection
   (1) Examine for broken parts, shipping damage, and tightness of connections.
   (2) Verify that meter type, scales, and connections are in accordance with approved shop drawings.

b. Electrical tests
   (1) Determine accuracy of meter.
   (2) Calibrate watthour meters to one-half percent.
   (3) Verify that correct multiplier has been placed on face of meter, where applicable.

-- End of Section --

RECORD OF ATTENDANCE
U.S. ARMY CORPS OF ENGINEERS
Minot Resident Office
Minot AFB, ND

SUBJECT: Indoor Firing Range, Site Visit, Minot AFB, North Dakota

DATE: 1300, 12 February 2019

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Civilian: FIRST & LAST NAME Military: RANK & LAST NAME			
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