

<b>SOLICITATION, OFFER, AND AWARD (Construction, Alteration, or Repair)</b>	1. SOLICITATION NO.	2. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED	PAGE OF PAGES
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**IMPORTANT** - The "offer" section on the reverse must be fully completed by offeror.

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO.	6. PROJECT NO.
7. ISSUED BY	CODE	8. ADDRESS OFFER TO
9. FOR INFORMATION CALL:		a. NAME
		b. TELEPHONE NO. (Include area code) (NO COLLECT CALLS)

**SOLICITATION**

**NOTE:** In sealed bid solicitations "offer" and "offeror" mean "bid and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS (Title, identifying no., date)

11. The Contractor shall begin performance \_\_\_\_\_ calendar days and complete it within \_\_\_\_\_ calendar days after receiving  
 award,  notice to proceed. This performance period is  mandatory  negotiable. (See \_\_\_\_\_ .)

12a. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? (If "YES," indicate within how many calendar days after award in Item 12b). <input type="checkbox"/> YES <input type="checkbox"/> NO	12b. CALENDAR DAYS
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13. ADDITIONAL SOLICITATION REQUIREMENTS:

- a. Sealed offers in original and \_\_\_\_\_ copies to perform the work required are due at the place specified in Item 8 by \_\_\_\_\_ (hour) local time \_\_\_\_\_ (date). If this is a sealed bid solicitation, offers will be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.
- b. An offer guarantee  is,  is not required.
- c. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by
- d. Offers providing less than \_\_\_\_\_ calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

**OFFER (Must be fully completed by offeror)**

14. NAME AND ADDRESS OF OFFEROR (Include ZIP Code)

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CODE FACILITY CODE

15. TELEPHONE NO. (Include area code)

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16. REMITTANCE ADDRESS (Include only if different than Item 14.)

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within \_\_\_\_\_ calendar days after the date offers are due. (Insert any number equal to or greater than the minimum requirement stated in Item 13d. Failure to insert any number means the offeror accepts the minimum in Item 13d.)

AMOUNTS 

18. The offeror agrees to furnish any required performance and payment bonds.

**19. ACKNOWLEDGMENT OF AMENDMENTS**

(The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each)

AMENDMENT NO.										
DATE.										

20a. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)

20. SIGNATURE

20c. OFFER DATE

**AWARD (To be completed by Government)**

21. ITEMS ACCEPTED:

22. AMOUNT

23. ACCOUNTING AND APPROPRIATION DATA

24. SUBMIT INVOICES TO ADDRESS SHOWN IN  (4 copies unless otherwise specified)

ITEM

25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO  
 10 U.S.C. 2304(c) )  41 U.S.C. 253(c) ( )

26. ADMINISTERED BY

27. PAYMENT WILL BE MADE BY

**CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE**

28. NEGOTIATED AGREEMENT (Contractor is required to sign this document and return \_\_\_\_\_ copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all work requirements identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications incorporated by reference in or attached to this contract.

29. AWARD (Contractor is not required to sign this document.) Your offer on this solicitation is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.

30a. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN (Type or print)

31a. NAME OF CONTRACTING OFFICER (Type or print)

30b. SIGNATURE

30c. DATE

31b. UNITED STATES OF AMERICA  
BY

30c. DATE

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## DESIGN BUILD SPECIFICATIONS FOR

Commando Water Supply

Kabul, Afghanistan

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## SECTION 00010

### PROPOSAL SCHEDULE

The Contractor shall provide a price for all items, including those labeled, "Optional Items." The Government will evaluate the Contractor's entire proposal to determine which proposal represents the best value to the Government.

No.	Description	Qty	Unit	Unit Price	Total Amount
<b>1. Base Proposal:</b>					
0001	Design Costs:	1	LS	xxx	\$ _____
0002	Mobilization	1	LS	xxx	\$ _____
0003	Demobilization	1	LS	xxx	\$ _____
0004	As-Built Drawings	1	LS	xxx	\$ _____
0005	Site Development (Construction)				
0005AA	Well and Well House (New well, well house and well pump)	1	LS	_____	\$ _____
0005AB	Existing Well/Well Upgrade (Connection Water Supply to existing well, new well pump and piping)	1	LS	_____	\$ _____
0005AC	Main Water Supply Line (Well to ANA Commando Complex)	1	LS	_____	\$ _____
0005AD	Coordination of connection (Coordination of telemetry hook up to ANA Commando Complex)	1	LS	_____	\$ _____
	<b>Sub-Total Site Development only</b>				<b>\$ _____</b>
	<b>TOTAL BASE PROPOSAL ITEMS</b> (total of all above costs - includes design and construction)				<b>\$ _____</b>

### PROPOSAL SCHEDULE NOTES

1. Offeror shall submit prices on all items.
2. Only one contract for the entire schedule will be awarded under this solicitation. This project will be awarded as a firm fixed price contract. This project will be awarded as a lump sum contract. This Proposal Schedule is an accounting tool for allocating funds to applicable budget.
3. All costs associated with this project (i.e., security, insurance etc.) shall be included in the line items in the bidding schedule.

END OF SECTION

## **Section 00100 - Bidding Schedule/Instructions to Bidders**

### **INSTRUCTIONS TO OFFERORS**

1. The estimated cost range of this project in accordance with FAR 36.204, Disclosure of magnitude of construction projects, including the base proposal and all options is between \$300,000 and \$600,000.

#### **2. PROPOSAL CHECKLIST – “MINIMUM CONTENT”**

The following items or “minimum contents” are required to be submitted with and made a part of each offeror's proposal. Extreme care and personal attention should be given to assure that all required items are included in the proposal. Failure to submit the required items may result in your proposal not being considered for award. A space is provided beside each item for checking as each action is completed. You must submit an original and three (3) complete copies of your proposal.

PRICE/CERTIFICATION SUBMITTAL (See Section 00120):

\_\_\_ a. Signed Solicitation, Offer and Award, SF 1442 with Blocks 14-20c completed, including acknowledgment of all amendments

\_\_\_ b. Completed Proposal Schedule

\_\_\_ c. Completed Representations and Certifications

In order for your proposal to be considered, it MUST be prepared in ENGLISH. Place the following on your submission package so we can know the details of the solicitation and your company contact information:

**CORPS OF ENGINEERS, AED**

**QALAA HOUSE**

**KABUL, AFGHANISTAN**

**ATTENTION: CHARLES R. FOSS, CONTRACTING OFFICER**

**SOLICITATION NO.: W917PM-08-R-0026**

**CONTRACTOR E-MAIL ADDRESS:**

**CONTRACTOR PHONE NO.:**

3. Requests for information must be directed to Charles R. Foss, Contracting Officer. Please email all questions to [Charles.R.Foss@usace.army.mil](mailto:Charles.R.Foss@usace.army.mil).

4. Proposals should be delivered to: U.S. Army Corps of Engineers, House #1 Street #1, West Wazir Akbar Khan (behind Amani High School), Kabul, Afghanistan, Attn: James Sinclair, prior to the time and date specified for receipt of proposals. Due to heightened security conditions, access to the building is controlled by security. [Electronic submission of proposals will not be accepted.](#)

5. Offerors should obtain a DUNS number if they do not already have one. Please note, to receive a DUNS number access the website below:

**INTERNATIONAL DUNS REQUEST INFORMATION:**

Please click on the link below and fill in the International DUNS Request form.

<http://www.dnb.com/upik/uk/intldunsform.asp?link=request>

If you have problems with the form or require a DUNS number immediately, please contact your local D&B Office which can be found by clicking through this link.

[http://www.dnb.com/US/customer\\_service/global\\_listing.asp](http://www.dnb.com/US/customer_service/global_listing.asp)

6. Contractors not having done business with USACE before shall fill out and submit the wire transfer form below:

## WIRE TRANSFER AUTHORIZATION FORM

### PRIVACY ACT STATEMENT

The following information is provided to comply with the Privacy Act of 1974 (P.L. 93-579). All information collected on this form is required under the provisions of 31 U.S.C 3322 and 31 CFR 210. This information will be used by the U.S. Army Corps of Engineers, hereinafter called USACE, to transmit data by electronic means to vendor's financial institution. Failure to provide the requested information may delay or prevent the receipt of payments.

I hereby authorize USACE to initiate direct deposit credit entries to my (our) account indicated below and the financial institution named below, hereinafter called DEPOSITORY, to credit the same to such account.

Name or (Company as shown on invoice) (1)			
Address: (2)			
City: (3)	State:	Country:	Postal Code:
Mailing Address (If different): (4)			
Daytime Phone or Email Address: (5)			

Contract # (Optional):

If more than one contract, please list on a separate sheet.

Name of Financial Institution: (6)			
Address: (7)			
City: (8)	State:	Country:	Postal Code:
SWIFT (BIC) Number: (9)			
Account Number: (10)			
Depositor Account Title: (11)			

Name of Corresponding Bank: (12)			
Address: (13)			
City: (14)	State:	Country:	Postal Code:
SWIFT (BIC) Number: (15)		ABA Number:	
Account Number of Bank listed above: (16)			

Name of Corresponding Bank: (17)			
Address: (18)			
City: (19)	State:	Country:	Postal Code:
SWIFT (BIC) Number: (20)		ABA Number:	
Account Number of Bank listed above: (21)			

SIGNATURE of Payee: \_\_\_\_\_ DATE: \_\_\_\_\_

## INSTRUCTIONS FOR COMPLETING WIRE TRANSFER AUTHORIZATION FORM

1. Include the name or Company as it appears on the invoice. This should be the same as the name on the contract.
2. This address should be the physical address of the business.
3. The city, state, country and postal code should be for the physical address.
4. The mailing address should include any and all Remit to/payment addresses that are different from the physical address.
5. Include daytime phone number or email address in case there are questions concerning the completed form.

### **Payee's Banking Information:**

6. The name of the bank for the person or company listed in block 1.
7. Bank address and e-mail address
8. City, state, country, and postal code of the bank.
9. The SWIFT or Bank Identifier Code (BIC) of the bank.
10. The account number at this bank of the person or company listed in block 1.
11. Exact name on the above account at this bank. Bank will not credit the account if the recipient of the wire transfer is different than the name on the account.

### **1<sup>st</sup> Corresponding Bank:**

12. Name of corresponding bank. If this bank is not located in the United States, completion of blocks 17 – 21 is also required.
13. Address of corresponding bank and e-mail address.
14. City, state, country and postal code of corresponding bank.
15. SWIFT or Bank Identifier Code (BIC) (if bank is located outside the US) or ABA number of corresponding bank.
16. Account number at corresponding bank of bank listed in block 6.

### **2<sup>nd</sup> Corresponding Bank:**

17. Additional corresponding bank if first corresponding bank is not located in the United States.
  18. Address of this corresponding bank and e-mail address.
  19. City, state, country, and postal code of this corresponding bank.
  20. SWIFT (BIC) code or ABA number of this corresponding bank.
  21. Account number at this corresponding bank of the bank listed in block 12.

Blocks 17 thru 21 will only be necessary if the first corresponding bank is not located in the United States.

\*Note the last corresponding bank listed on the form must be a bank located in the United States.

## CLAUSES INCORPORATED BY REFERENCE

52.204-6	Data Universal Numbering System (DUNS) Number	OCT 2003
52.214-34	Submission Of Offers In The English Language	APR 1991
52.214-35	Submission Of Offers In U.S. Currency	APR 1991
52.215-1	Instructions to Offerors--Competitive Acquisition	JAN 2004
52.217-3	Evaluation Exclusive Of Options	APR 1984
52.217-4	Evaluation Of Options Exercised At The Time Of Contract Award	JUN 1988
52.217-5	Evaluation Of Options	JUL 1990
52.222-23	Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity for Construction	FEB 1999
52.236-27 Alt I	Site Visit (Construction) (Feb 1995) - Alternate I	FEB 1995
52.236-28	Preparation of Proposals--Construction	OCT 1997
252.204-7001	Commercial And Government Entity (CAGE) Code Reporting	AUG 1999

## CLAUSES INCORPORATED BY FULL TEXT

### 52.214-5000 APPARENT CLERICAL MISTAKES (MAR 1995)--EFARS

(a) For the purpose of initial evaluations of bids, the following will be utilized in the resolving arithmetic discrepancies found on the face of bidding schedule as submitted by the bidder:

- (1) Obviously misplaced decimal points will be corrected;
- (2) Discrepancy between unit price and extended price, the unit price will govern;
- (3) Apparent errors in extension of unit prices will be corrected;
- (4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purpose of bid evaluation, the government will proceed on the assumption that the bidder intends his bid to be evaluated on basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid is low.

(End of statement)

# SECTION 00110

## PROPOSAL PREPARATION

### PART 1 - GENERAL

**A. PROPOSAL PREPARATION.** Instructions for the preparation and organization of each proposal are included herein. The proposal submittal shall include **(a) one original and three copies of Volume I and (b) one original and two copies of Volume II.** The Volume II proposal and all copies thereof shall be sealed in a single package separate from the Volume I proposal and all copies thereof, and both packages shall be clearly marked. The proposal shall be submitted as required herein and elsewhere in the RFP.

Volume I shall be typed, with numbered pages and sections tabbed. A cover sheet shall identify the offeror and the project and the second sheet shall be a table of contents. The Volume I proposal is limited to no more than 50 single-sided or 25 double-sided pages, printed on 8-1/2" x 11" sheets, not including the cover sheet, designs/sketches, table of contents and letters of recommendation / evaluations / related certificates. Do not use condensed print. Do not submit any extraneous materials with your proposal.

#### 1. VOLUME I – MANAGEMENT-TECHNICAL PROPOSAL PREPARATION

**1.1 Content.** The Management/Technical proposal shall include the information as described below and shall be presented in the sequence listed.

**1.1.1 Factor 1 - Past Evaluations/Performance.** For the projects listed under Paragraph 1.1.2, Factor 2 - Experience, provide the following information (Attachment 1):

- Project Manager's (Point of Contact) name, telephone, email
- List the problems encountered and the corrective actions taken
- List of change orders and circumstances associated with them
- Construction time duration beyond the contract time and why.
- Construction cost in dollars beyond the contract amount and why.
- Safety record and accident report
- The offeror may also provide letters of recommendation, references, performance evaluations or other evidence of successful performance of the project.

The Source Selection Evaluation Board may attempt to contact the references provided in the list of projects. They may also contact Government personnel who have worked with the offerors. References' comments may affect the scoring of proposals. It is important to verify that the points of contact listed are still available at the phone number and addresses provided and that they are individuals who have sufficient knowledge of the project and your performance to be able to offer meaningful comments.

In the event that an offeror does not have a record of past performance, a written explanation of the reasons why no record is available is requested. 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 will not be evaluated favorably or unfavorably on past performance. A neutral rating with unknown risk will be assigned.

**1.1.2 Factor 2 – Experience.** Demonstrate the experience of the team, including sub-contractors, on projects similar to that described in this RFP which use the design-build process. Provide a list of no more than ten similar and relevant design-build projects underway or completed in the last **five** years that best demonstrates your experience. The list of projects shall include the following information (Attachment 2):

- Project name and location.
- Nature of firm's responsibility (design/build or design or construction).
- Project owner's name, address, **telephone**, email (to be contacted by the Government).
- Contractor a prime or sub-contractor for this project
- Project completion date (estimated if in progress, as well as current portion completed)
- Construction cost
- Brief explanation that illustrates your design/build capabilities and relevant job experiences.

### **1.1.3 Factor 3 - Project Management**

The Project Management Plan shall include the following (Attachment 3):

- The team structure described with an organizational chart (Attachment 4) to include:
  - Key design personnel names and their titles;
  - Key construction personnel names and their titles;
- The quality control process for both design work;
- The quality control process for construction work;
- The interaction process with the Corps of Engineers and the roles that the team members will have in dealing with;
  - Processes for resolving problems like modifications to the contract (design and construction);
  - Resolving potential design or construction delays
  - Reviewing and approving submittals;
  - Attending progress meetings and facilitating contract completion and closeout;
  - Process to control cost over runs while maintaining the project budget during design and construction.

### **1.1.4. Factor 4 – Personnel and Equipment Resources**

**1.1.4.1 - Personnel.** Provide professional resume data on the following individuals who will be key personnel on the project team. Key personnel identified in this section should be senior working-level people who will be involved in design and construction on a day-to-day basis, as opposed to departmental level supervisors or executives. By identifying these personnel, the offeror makes a commitment that, barring unforeseen circumstances; they are the personnel who shall be assigned to the project. All key personnel shall have a minimum of **five** years of professional experience. (Attachment 5)

- Project Manager for design and for construction
- Quality Control Manager
- Project Architect
- Senior Structural Engineer
- Senior Civil Engineer
- Senior Mechanical Engineer
- Senior Electrical Engineer
- Fire Protection Engineer
- Construction Superintendent
- Construction Foreman (if different from above)

Information to be provided for key personnel should be limited to no more than **one page** per person and shall include: (Attachment 5)

- Name and title
  - Project assignment
  - Name of firm with which associated
  - Years experience with this firm and with other firms
  - Education degree(s), year, specialization
  - Active registration, year first registered
  - Other experience and qualifications relevant to the proposed project
- Provide the proposed use of Afghan contractors and labor in numbers or percentages.

**1.1.4.2 – Equipment Resources.** Provide equipment resources to be utilized for this project (i.e. offices, shops, warehouses, machinery, construction tools, vehicles, loaders, etc.) and other resources (i.e. cooperating companies supplying materials and/or services)

## **1.2 Notes**

**1.2.1 Joint Ventures and Teaming Arrangements.** Any contractors submitted in the proposal as part of a joint venture must submit a legally binding joint venture agreement. The Government will not evaluate the capability of any contractors that are not included in the joint venture agreement. Joint ventures must include a copy of the legal joint venture signed by an authorized officer from each of the firms comprising the joint venture with the chief executive of each entity identified and a translation in English, if the original agreement is in a language other than English. Incomplete evidence of a joint venture results will not be considered.

If submitting a proposal as a Joint Venture, the experience, past performance, management plan and equipment submittal of each of the Joint Venture Partners can be submitted for the Joint Venture Entity. The experience for each Joint Venture Partner will be considered the experience of the Joint Venture entity.

The proposal may receive a higher rating if the proposal contains evidence of the Joint Venture Entity working successfully together previously on relevant projects.

**1.2.2 Credit For Others.** If an Offeror wishes to be credited with a subcontractor or supplier, i.e. a firm that is not the prime contractor or part of the joint venture, a letter of commitment signed by the subcontractor must be submitted. The commitment letter must be submitted even if the firm is in some way related to a joint venture partner (for example, the subcontractor is a subsidiary of a joint venture partner, or a subsidiary of a firm to which the joint venture partner is also a subsidiary). In regard to the Experience and Past Performance factors, if an Offeror submits projects demonstrating experience in one of the factors or sub-factors, and that project was completed by a subcontractor, a subsidiary, or a supplier, as opposed to the prime or one of the joint venture partners, the Offeror **MUST** submit a signed letter of commitment from the contractor who performed and completed the work. If a letter of commitment is not submitted, the experience will not be considered.

## **2. VOLUME II - PRICE PROPOSAL PREPARATION**

**2.1 Proposal Schedule.** Offerors shall provide a signed cover letter and complete the Proposal Schedule by filling out the pricing data blanks. An executable Proposal Schedule is included in Section 00010 herein. Overhead and profit shall be applied proportionally to each category and shall not be required to be shown separately. The proposal shall include allowances in the Price Proposal and shall schedule any contingency for weather delays for severe weather in accordance with weather requirements. All prices shall be firm.

### **B. CLARIFICATIONS AND FINAL PROPOSAL REVISION:**

1. General. Any conflicting criteria which cannot be resolved by the terms of this RFP shall be brought to the attention of the Government by the offeror as part of the written clarification requirement of the proposal. In the absence of such request for clarification, the offeror shall perform to the most beneficial criteria as determined by the Government.

2. Written Clarification Requirement: In the event that clarifications are required prior to submitting the proposal, contact the individuals listed on the RFP letter; such contact shall be in writing. All RFP holders shall be advised of significant clarifications affecting the scope of the project.

3. Clarifications Submitted with Proposals. If ambiguities remain in the RFP at the time and date that proposals are due, written clarifications may be included in the proposal for consideration by the Government. Clarifications submitted with proposals shall clearly identify the understanding of the RFP documents and how this understanding is reflected in the cost proposal. Qualifications, exclusions and exceptions in the form of clarifications may be considered by the Government to be non-responsive and may be grounds for rejection of the proposal.

4. Final Proposal Revision(s):

4.1 The Government intends to award a contract on the basis of the initial offers received without further discussions or negotiations. Offers should contain the offeror's best terms from a cost and management standpoint.

4.2 The Government may contact those firms whose proposals are within the competitive range and conduct discussions/negotiations concerning their proposal. Following resolution

of the discussions/negotiations, offerors in the competitive range shall be given the opportunity to submit their Final Proposal Revision (otherwise known as 'Best and Final offer').

-- End of Section --

## **SECTION 00120**

### **PROPOSAL EVALUATION AND CONTRACT AWARD**

#### **PART 1 – GENERAL**

**A. BASIS FOR AWARD.** The Government intends to make one award for completion of the subject project. The award will be made to the offeror whose proposal shows them to be technically acceptable and offers the lowest price to the Government. Competing proposals shall be evaluated technically against the requirements of the solicitation in order to assess strengths, weaknesses and associated risks and deficiencies. If offer is found to be acceptable, it will then be ranked based on the price offered.

#### **B. PROPOSAL EVALUATION.**

B.1 Proposals will be evaluated by a Source Selection Evaluation Board (SSEB). The SSEB will be composed of Corps of Engineers personnel and possibly a customer representative. The identity of SSEB members is confidential and members will not be available for contact or discussion prior to submission of proposals.

B.2 The Volume I (Management Technical) factors are listed in descending order of importance. Sub-factors under each factor are of equal importance. The factors and sub-factors will be evaluated and assigned merit ratings using the adjectives of excellent (E), good (G), satisfactory (S), marginal (M), and unsatisfactory (U). The non-pricing Volumes (I, Management-Technical has significantly more importance compared to the pricing factor (Volume II) in the evaluation and selection process.

B.3 Templates. Model templates are provided in this RFP as a possible format available to assist offerors in the preparation of their proposals. Use of the template format is not required. Sections 110 and 120 of this RFP govern and the templates do not supplant or substitute the requirements stated in these sections.

#### **1. VOLUME 1 – MANAGEMENT-TECHNICAL PROPOSAL EVALUATION CRITERIA.**

##### **1.1 Content**

**1.1.1 Factor 1 – Past Evaluations/Performance.** This factor may be evaluated by contacting references for **customer satisfaction** and review of **quality performance** evaluations or other information provided by the offeror or obtained by the Government. The evaluators will consider the **relevance** of the past performance information and the success achieved on past projects to determine the rating. In the event that an offeror does not have

a record of past performance evaluations, a written explanation of the reasons why no record is available is requested. In the case of an offeror without a record of relevant past performance evaluations or for whom information on past performance is not available, the offeror will not be evaluated favorably or unfavorably on this factor. A neutral rating will be assigned.

**1.1.2 Factor 2 - Experience.** The Government will evaluate the relevant work experience of the contractor's company and designer, including subcontractors, on projects similar to that described in this RFP which use the design-build process. Contractor experience with similar relevant projects (type of construction, dollar value, design-build method, complexity, applicable standards such as EMS 385-1-1) will receive a higher rating than those with dissimilar or non-relevant projects. **Of particular relevance is work experience managing multiple project sites concurrently.**

### **1.1.3 Factor 3 – Project Management Plan.**

The Government will evaluate and rate the Project Management Plan which will include the contractor's and designer's key personnel professional qualifications and relevant work experience, the company's quality control procedures, their ability to team work (engineers, sub-contractors and the government), their ability to handle cost controls and managing construction time tables completion, their ability to resolve problems, their ability to manage multiple projects concurrently, and describe their interactions with the Corps of Engineers. The Plan will also address how the offeror will adequately manage the project described in this RFP in light of any other ongoing projects and contractual commitments it may have within Afghanistan.

Offers which deviate from RFP specifications or requirements may be considered weak or deficient.

### **1.1.4 Factor 4 – Personnel and Equipment Resources.**

**1.1.4.1 Personnel.** The Government will evaluate the qualifications and experience of contractor's & designer's personnel for this project. Contractor personnel with experience with **similar relevant** projects (type of construction, dollar value, design-build method, complexity) will receive a higher rating than those with dissimilar or non-relevant project experience. Other personnel including the use of Afghan workers will be evaluated, with greater credit being given for Afghan workers unless logistics of using foreign workers is fully detailed.

Proposals will also address how the offeror will have adequate personnel from the local area (or how they will resolve difficulties that may result from not involving the local populace) for the project described in this RFP in light of any other ongoing projects and contractual commitments it may have within Afghanistan.

**1.1.4.2 Equipment Resources-** The Government will evaluate the adequacy of the offeror's equipment resources to successfully complete the project.

Proposals will also address how the offeror will have adequate equipment for the project described in this RFP in light of any other ongoing projects and contractual commitments it may have within Afghanistan. Proposals must address adequacy of equipment in regards to the number of construction sites and the contract performance period.

**1.2 Format.** Proposal will be evaluated based on adherence to format requirements of Section 00110, Proposal Preparation.

### **1.3 Notes**

**1.3.1 Joint Ventures and Teaming Arrangements.** Any contractors submitted in the proposal as part of a joint venture must submit a legally binding joint venture agreement. The Government will not evaluate the capability of any contractors that are not included in the joint venture agreement. Joint ventures must include a copy of the legal joint venture signed by an authorized officer from each of the firms comprising the joint venture with the chief executive of each entity identified and a translation in English, if the original agreement is in a language other than English. Incomplete evidence of a joint venture results will not be considered.

If submitting a proposal as a Joint Venture, the experience, past performance, management plan and equipment submittal of each of the Joint Venture Partners can be submitted for the Joint Venture Entity. The experience for each Joint Venture Partner will be considered the experience of the Joint Venture entity.

The proposal may receive a higher rating if the proposal contains evidence of the Joint Venture Entity working successfully together previously on relevant projects.

**1.3.2 Credit For Others.** If an Offeror wishes to be credited with a subcontractor or supplier, i.e. a firm that is not the prime contractor or part of the joint venture, a letter of commitment signed by the subcontractor must be submitted. The commitment letter must be submitted even if the firm is in some way related to a joint venture partner (for example, the subcontractor is a subsidiary of a joint venture partner, or a subsidiary of a firm to which the joint venture partner is also a subsidiary). In regard to the Experience and Past Performance factors, if an Offeror submits projects demonstrating experience in one of the factors or sub-factors, and that project was completed by a subcontractor, a subsidiary, or a supplier, as opposed to the prime or one of the joint venture partners, the Offeror **MUST** submit a signed letter of commitment from the contractor who performed and completed the work. If a letter of commitment is not submitted, the experience will not be considered.

**2. VOLUME II - PRICE PROPOSAL PREPARATION.** The Government will evaluate whether the Volume II price proposals are complete and reasonable. The price proposals will not be assigned adjective ratings but will be assigned a confidence/risk rating. The government will evaluate the proposed pricing to determine the reasonableness and completeness of the proposed price.

## **C. METHOD OF PROPOSAL EVALUATION**

**C.1** Proposals will be reviewed to determine if they contain the required minimum procurement and technical data. Incomplete proposals may be eliminated. All forms shall be filled in and all requested data must be provided.

**C.2** After the compliance review, the SSEB will begin evaluation and scoring the factors and sub-factors set forth herein. The Price proposal information will be evaluated (not scored) with regard to reasonable and complete pricing and associated risks.

**C.3** If necessary, a competitive range may be determined. The competitive range will consist of all proposals which are considered to have a reasonable chance of being selected for award. However, the offeror is reminded that the Government intends to award without discussions and that their best offer should be provided with the initial proposal. After the determination of the competitive range, written and/or oral discussions may be conducted with all offerors within the competitive range. Upon completion of written and/or oral discussions, Final Proposal Revision will be requested.

**C.4** The Government may reject any or all proposals and waive minor informalities or minor irregularities in proposals.

**D. SELECTION and AWARD.** Award will be made to the offeror that, in the judgment of the Contracting Officer, provides the best combination of management and technical capability and lowest reasonable cost. The Government reserves the right to make award to other than the lowest cost offeror if the offeror has been determined not to be technically capable of successfully performing on the project.

-- End of Section --

## **SECTION 00150**

### **THE DESIGN/BUILD PROCESS**

#### **PART 1 - GENERAL**

##### **1. DESIGN/BUILD (DB) PROCESS**

The facility shall be designed and built by a single DB contractor. The DB contractor may be a single firm or a team of firms that includes registered Architects and Engineers either employed by or subcontracted to the DB contractor. Licensing jurisdiction of Architects and Engineers of record shall be shall be verifiable. The DB contractor shall be the Architect/Engineer-of-Record, whether the DB contractor utilizes services of licensed architects and engineers employed by its firm or subcontracts with independent architectural and/or engineering firm(s). The DB contractor shall be solely liable for design errors and/or omissions and should be insured as the A-E firm against design errors and omissions.

Section 00555, DESIGN CONCEPT DOCUMENTS identifies project documents furnished herewith to be used as the basis for the project design and construction documents. The successful Offeror shall be required to complete the design and construction documentation, and construct the project in compliance with these completed requirements.

## **2. OUTLINE DESCRIPTION OF THE DB PHASE**

No work can begin on any phase of the process until an authorization Clearance for construction for that phase is issued.

### **2.1 PROPOSAL PHASE**

The Proposal Phase includes the period from the time from the issuance of the Request for Proposals (RFP) through the selection process and the final award of the DB contract.

The proposals to be submitted include a Management/Technical Proposal and a Cost/Price Proposal. The contents and organization of the proposal is described in SECTION 00110 - PROPOSAL PREPARATION. The Government will evaluate and award the DB contract to a single Offeror based upon the criteria which are outlined in SECTION 00120 - PROPOSAL EVALUATION AND CONTRACT AWARD.

### **2.2 DESIGN PHASE**

The successful DB contractor shall develop and submit for formal review three submittals and the final design. The DB contractor is encouraged to develop and submit multiple cost saving proposals for innovative design alternatives.

2.2.1 The Design Phase will consist of three parts as follows:

a. Part 1 will be the basic services required to develop the first submittal which represents: 100% complete drawings and specifications for site preparation work, utility construction, paving, foundation, and structural diaphragm of all work and approximately 35% complete drawings and specifications of all other required construction documents. Part I also includes incorporating the revisions identified in the First submittal review.

After approval of the Part 1 drawings and specification submittal, the Government may issue a Clearance for Construction letter to commence with the Build Phase for all site and off-site utilities, clearing, grubbing, rough grading the site, demolition work, parking lot base course, foundation, and structural framing.

A Pre-design meeting will be conducted to distribute as-built drawings to the DB contractor, finalize and clarify technical information, and clarify other necessary information.

b. Part 2 shall include all design services required to complete the second design submittal: 100% complete drawings and specifications for site preparation work, utility construction, paving, foundation, and structural diaphragm of all work and approximately 65% complete drawings and specifications of all other required construction documents. Part 2 design shall not begin until an approval of the Part 1 submittal is issued.

c. Part 3 shall include all design services required to complete the third design submittal (100%). Part 3 design shall not begin until an approval of the Part 2 submittal is issued.

## **3. BUILD PHASE**

The Build Phase will be initiated by an authorization letter.

The authorization letter will be provided separately by the Contracting Officer for each phase of the work. The Government may give the DB Contractor authorization for the Build Phase for portions of the work following review and approval of the First Design Submittal.

Weekly coordination meetings will be held at which, as a minimum, the DB Contractor's Project Manager, a representative of the Designer, the site Superintendent, and the Contractor's Quality Control Manager shall be present.

#### **4. PROJECT SCHEDULE:**

The following is a *suggested* internal design schedule and is subject to modification by the Offeror to suit their particular method of operation. Overall time constraints are required and cannot be changed except by contract modification. Prospective offerors shall be required to submit a complete schedule for design and construction that meets or exceeds the overall time goals of the Government for this project.

Notice to Proceed	following Award of Contract (upon written notification)
Design Phase - Basic Services Pre-design Meeting	within 7 days from Award of Contract
Design Submittal Due	within 30 days following Award of Contract
Submittal Review Conference	within 7 days following ( <i>location TBD</i> ) submittal review
Incorporate Changes to Submittal	within 7 days following review conference (Re-Submit for Review and Approval 100% design submittal)
Build Phase Authorization for Remainder of Work	Upon approval of design submittal
Total Design and Construction Period	180 days (performance period includes design and construction phases)

Liquidated damages in the amount of \$327.86 every calendar day of delay shall be assessed and charged to the Contractor.

*All days are in calendar days.*

**PART 2 - PRODUCTS (NOT APPLICABLE)**

**PART 3 - EXECUTION (NOT APPLICABLE)**

--END OF SECTION--

**SECTION 00555**

**DESIGN CONCEPT DOCUMENTS**

**PART 1 GENERAL**

**1.1 GENERAL**

This section identifies documents issued with this RFP which establish the concept or basis for the project design. These requirements are minimum standards and may be exceeded by the Offeror. Deviations from these concepts and standards may be approved if considered by the Government to be in its best interests.

The extent of development of these requirements in no way relieves the successful Offeror from the responsibility of completing the design, construction documentation, and construction of the facility in conformance with applicable criteria and codes.

**1.2 ENGINEERING AND DESIGN CRITERIA**

General design requirements are set forth in this RFP herein. The Specifications Divisions 02 thru 16 is the primary specifications criteria for the design and construction of the project. No design criteria will be furnished by the Afghanistan Engineer District except that which may be required for design and is not available from commercial sources or from the Construction Criteria Base (CCB) or 'Techinfo' website located at <http://www.wbdg.org/ccb/> . The references within CCB must be obtained by the A/E if the criteria are required or desired. All design, unless otherwise specified, shall be based on nationally recognized industry standard, criteria, and practice.

**1.3 APPENDIX DOCUMENTS**

See Appendices for further technical requirements, criteria, and parameters that are a part of this contract.

**1.4 SPECIFICATIONS**

Specifications included herein shall be utilized as design criteria and minimum standards for the corresponding construction work. The successful Offeror shall develop complete construction specifications using the criteria included in these specifications.

The Government will provide Division 1 specifications sections as required, to the successful Offeror; and these sections shall be included in the final construction specifications without change. The Design Build Contractor shall furnish these specifications on electronic media

for the production of construction specifications when requested. These specifications shall be submitted together with other required contractor prepared project construction documents during the Second Design Submittal of the Design Phase, Part II.

### **1.5 ORDER OF PRECEDENCE**

In case of conflict, duplication, or overlap of design criteria specified in the documents referenced in this section, the following order of precedence shall be followed:

1. Drawings.
2. General written design requirements within RFP narrative.
3. General guidance from referenced publications herein.

### **1.6 MANDATORY CRITERIA**

Portions of the design criteria documents provide mandatory criteria. Mandatory criteria consists of drawings, schematics, specifications, and other requirements which shall not be altered or modified for proposal submittal or subsequent final design except for minor adjustments for coordination or except for cost reduction proposals as specified in Section 00150 - THE DESIGN BUILD PROCESS. Non-mandatory criteria shall be considered minimum requirements and may be enhanced, improved, or substituted to better suit design requirements or to improve evaluation consideration. Mandatory requirements are as listed below. All other design criteria shall be considered non-mandatory.

Work Plan  
Boundary survey plan  
Topographic survey plan- Not Required  
Any mandatory criteria referenced within Project Program.  
Any other criteria listed herein which is listed, shown or implied as mandatory.

### **1.7 ADDITIONAL DOCUMENTS/CRITERIA FURNISHED BY THE GOVERNMENT**

The following documents will be furnished to the Design/Build Contractor when requested by the Offeror or Contractor:

Design Criteria published by the Government such as Technical Manuals (TM), Engineer Manuals (EM), Engineer Technical Letters (ETL) and other documents related to the design referenced herein which are not available on the Internet, including the CCB website.

Commercial design criteria and specifications will not be furnished by the Government.

Conversion of electronic media to other formats shall be the responsibility of the Design Build Contractor.

### **PART 2 PRODUCTS (Not Applicable)**

### **PART 3 EXECUTION (Not Applicable)**

-- End of Section --

## Section 00600 - Representations & Certifications

### CLAUSES INCORPORATED BY REFERENCE

52.203-11	Certification And Disclosure Regarding Payments To Influence Certain Federal Transactions	SEP 2007
52.222-38	Compliance With Veterans' Employment Reporting Requirements	DEC 2001
252.209-7001	Disclosure of Ownership or Control by the Government of a Terrorist Country	OCT 2006
252.225-7031	Secondary Arab Boycott Of Israel	JUN 2005
252.225-7042	Authorization to Perform	APR 2003
252.247-7022	Representation Of Extent Of Transportation Of Supplies By Sea	AUG 1992

## Section 00700 - Contract Clauses

### CLAUSES INCORPORATED BY REFERENCE

52.202-1	Definitions	JUL 2004
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	APR 1984
52.203-6	Restrictions On Subcontractor Sales To The Government	SEP 2006
52.203-7	Anti-Kickback Procedures	JUL 1995
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	JAN 1997
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	JAN 1997
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	SEP 2007
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.204-7	Central Contractor Registration	JUL 2006
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	SEP 2006
52.215-2	Audit and Records--Negotiation	JUN 1999
52.215-11	Price Reduction for Defective Cost or Pricing Data--Modifications	OCT 1997

52.215-15	Pension Adjustments and Asset Reversions	OCT 2004
52.215-18	Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other than Pensions	JUL 2005
52.215-21	Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data-- Modifications	OCT 1997
52.217-7	Option For Increased Quantity-Separately Priced Line Item	MAR 1989
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	MAR 2007
52.222-27	Affirmative Action Compliance Requirements for Construction	FEB 1999
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	SEP 2006
52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, and Other Eligible Veterans	SEP 2006
52.225-13	Restrictions on Certain Foreign Purchases	FEB 2006
52.225-14	Inconsistency Between English Version And Translation Of Contract	FEB 2000
52.227-4	Patent Indemnity-Construction Contracts	APR 1984
52.228-3	Worker's Compensation Insurance (Defense Base Act)	APR 1984
52.229-6	Taxes--Foreign Fixed-Price Contracts	JUN 2003
52.232-5	Payments under Fixed-Price Construction Contracts	SEP 2002
52.232-17	Interest	JUN 1996
52.232-18	Availability Of Funds	APR 1984
52.232-27	Prompt Payment for Construction Contracts	SEP 2005
52.232-33	Payment by Electronic Funds Transfer-- Central Contractor Registration	OCT 2003
52.232-34	Payment By Electronic Funds Transfer--Other Than Central Contractor Registration	MAY 1999
52.232-38	Submission of Electronic Funds Transfer Information with Offer	MAY 1999
52.233-1	Disputes	JUL 2002
52.233-3	Protest After Award	AUG 1996
52.233-4	Applicable Law for Breach of Contract Claim	OCT 2004
52.236-1	Performance of Work by the Contractor	APR 1984
52.236-2	Differing Site Conditions	APR 1984
52.236-5	Material and Workmanship	APR 1984
52.236-6	Superintendence by the Contractor	APR 1984
52.236-7	Permits and Responsibilities	NOV 1991
52.236-8	Other Contracts	APR 1984
52.236-9	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements	APR 1984

52.236-10	Operations and Storage Areas	APR 1984
52.236-11	Use and Possession Prior to Completion	APR 1984
52.236-12	Cleaning Up	APR 1984
52.236-13	Accident Prevention	NOV 1991
52.236-15	Schedules for Construction Contracts	APR 1984
52.236-17	Layout of Work	APR 1984
52.236-21	Specifications and Drawings for Construction	FEB 1997
52.236-23	Responsibility of the Architect-Engineer Contractor	APR 1984
52.236-24	Work Oversight in Architect-Engineer Contracts	APR 1984
52.236-25	Requirements for Registration of Designers	JUN 2003
52.236-26	Preconstruction Conference	FEB 1995
52.242-13	Bankruptcy	JUL 1995
52.242-14	Suspension of Work	APR 1984
52.243-4	Changes	JUN 2007
52.243-6	Change Order Accounting	APR 1984
52.244-4	Subcontractors and Outside Associates and Consultants (Architect-Engineer Services)	AUG 1998
52.244-5	Competition In Subcontracting	DEC 1996
52.246-21	Warranty of Construction	MAR 1994
52.247-34	F.O.B. Destination	NOV 1991
52.247-63	Preference For U.S. Flag Air Carriers	JUN 2003
52.248-3	Value Engineering-Construction	SEP 2006
52.249-2	Termination For Convenience Of The Government (Fixed-Price)	MAY 2004
52.249-10	Default (Fixed-Price Construction)	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	DEC 2004
252.204-7000	Disclosure Of Information	DEC 1991
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	DEC 2006
252.215-7000	Pricing Adjustments	DEC 1991
252.215-7002	Cost Estimating System Requirements	DEC 2006
252.222-7002	Compliance With Local Labor Laws (Overseas)	JUN 1997
252.222-7006	Combating Trafficking in Persons	OCT 2006
252.223-7002	Safety Precautions For Ammunition And Explosives	MAY 1994
252.223-7003	Changes In Place Of Performance-- Ammunition And Explosives	DEC 1991
252.223-7004	Drug Free Work Force	SEP 1988
252.225-7005	Identification Of Expenditures In The United States	JUN 2005
252.225-7041	Correspondence in English	JUN 1997

252.225-7043	Antiterrorism/Force Protection Policy for Defense Contractors Outside the United States	MAR 2006
252.227-7013	Rights in Technical Data--Noncommercial Items	NOV 1995
252.227-7022	Government Rights (Unlimited)	MAR 1979
252.227-7023	Drawings and Other Data to become Property of Government	MAR 1979
252.227-7030	Technical Data--Withholding Of Payment	MAR 2000
252.227-7033	Rights in Shop Drawings	APR 1966
252.229-7000	Invoices Exclusive of Taxes or Duties	JUN 1997
252.232-7003	Electronic Submission of Payment Requests	MAR 2007
252.232-7008	Assignment of Claims (Overseas)	JUN 1997
252.232-7010	Levies on Contract Payments	DEC 2006
252.233-7001	Choice of Law (Overseas)	JUN 1997
252.236-7000	Modification Proposals-Price Breakdown	DEC 1991
252.236-7001	Contract Drawings, and Specifications	AUG 2000
252.236-7008	Contract Prices-Bidding Schedules	DEC 1991
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.247-7023	Transportation of Supplies by Sea	MAY 2002
252.247-7024	Notification Of Transportation Of Supplies By Sea	MAR 2000

## **CLAUSES INCORPORATED BY FULL TEXT**

### **52.249-5000 BASIS FOR SETTLEMENT OF PROPOSALS**

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

- (1) 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.
- (2) If equipment costs have been allocated to a contract using predetermined rates , those charges will be adjusted to actual costs.
- (3) Recorded job costs adjusted for unallowable expenses will be used to determine equipment operating expenses.
- (4) Ownership costs (depreciation) will be determined using the contractor's depreciation schedule (subject to the provisions of FAR 31.205-11).
- (5) 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)

## Section 00800 - Special Contract Requirements

### CLAUSES INCORPORATED BY REFERENCE

52.211-10	Commencement, Prosecution, and Completion of Work	APR 1984
52.211-12	Liquidated Damages--Construction	SEP 2000
52.211-13	Time Extensions	SEP 2000
52.246-12	Inspection of Construction	AUG 1996
252.232-7003	Electronic Submission of Payment Requests	MAR 2007

### CLAUSES INCORPORATED BY FULL TEXT

#### **52.232-5000 PAYMENT FOR MATERIALS DELIVERED OFF-SITE (MAR 1995)--EFARS**

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

(b) Such payment will be made only after receipt of paid or receipted invoices or invoices with canceled check showing title to the items in the prime contractor and including the value of material and labor incorporated into the item.

(End of clause)

#### **52.000-4105**

#### **\*DBA SUPPLEMENTAL INSURANCE\*\***

**DO NOT** add a separate line item for the DBA Supplemental Insurance. DBA Supplemental Insurance **Must** be allocated based on the **Labor Cost** for each line item. Your Proposal may be considered **Non-Responsive** if you fail to comply with the directions above.

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#### **(3) WORKERS COMPENSATION INSURANCE (DEFENSE BASE ACT) - SERVICES (APR 2007)**

(a) This clause supplements FAR Clause 52.228-3

(b) The contractor agrees to procure Defense Base Act (DBA) insurance pursuant to the terms of the contract between the U.S. Army Corps of Engineers (USACE) and CNA/Continental Insurance Company unless the contractor has a DBA self-insurance program approved by the Department of Labor. The contractor shall submit a copy of the Department of Labor's

approval to the contracting officer upon contract award. The current rate under the USACE contract is \$3.50 per \$100 of compensation for services.

- (c) The contractor agrees to insert a clause substantially the same as the one in all subcontracts to which DBA is applicable. Subcontractors shall be required to insert a similar clause in any of their subcontracts subject to the DBA.
- (d) Should the rates for DBA insurance coverage increase or decrease during the performance of this contract, USACE shall modify the contract accordingly. However, the revised rates will not be applicable until the Contractor's or Subcontractor's DBA Insurance policy is due to be renewed.
- (e) Premiums will be reimbursed only if coverage is purchased through the USACE DBA Pilot Program administered by CNA Insurance and their Managing Broker, Rutherford International.

(End of clause)

**52.000-4106 DEFENSE BASE ACT INSURANCE RATES – LIMITATION -  
FIXED-PRICE (APR 2007)**

(a) The U.S. Army Corps of Engineers (USACE) has entered into a contract with CAN/Continental Insurance Company to provide all Defense Base Act (DBA) insurance to USACE contractors at a contracted rate. The rates for this insurance are as follows:

Services @ \$3.50 per \$100 of compensation; or

Construction @ \$7.25 per \$100 of compensation.

(b) Bidders/Offerors should compute the total compensation (direct salary plus differential, but excluding per diem, housing allowance and other miscellaneous post allowances) to be paid to employees who will be covered by DBA insurance and the cost of DBA totals in the spaces provided for the base period and whatever extension there may be thereafter, if applicable.

(1) Compensation of Covered Employees:

\_\_\_\_\_

(2) Defense Base Act Insurance Costs:

\_\_\_\_\_

(3) Total Cost: \_\_\_\_\_

(c) Bidders/Offerors shall include a statement as to whether or not local nationals or third country nationals will be employed on the resultant contract.

(d) CNA Insurance is utilizing Rutherford International as their managing Broker. The primary POC is the USACE DBA Program Administrator is Ramoan Jones, (703)813-6571 [ramoan.jones@rutherford.com](mailto:ramoan.jones@rutherford.com). The alternate POC is Sara Payne, Senior Vice President, (703)813-6503 [sara.payne@rutherford.com](mailto:sara.payne@rutherford.com).

**Your insurance should be applied to each line item as they pertain to labor cost for that line item.**

**Do not add a separate line item for DBA insurance, if you do your bid may be considered as non-responsive.**

**(4) CNA Insurance – Contractor – Insurance Carrier**

(5) Roger Ellickson (312) 822-4395 [Roger.ellickson@cna.com](mailto:Roger.ellickson@cna.com)

The Continental Insurance Co.  
Roger Ellickson  
DBA CNA Insurance  
333 S. Wabash Avenue  
Chicago, IL 60685-1809

**(e) Rutherford International – Insurance Broker**

(1) James Walczak (703) 813-6544 [jim.walczak@rutherford.com](mailto:jim.walczak@rutherford.com)

Rutherford International  
James Walczak  
5500 Cherokee Avenue, Suite 300  
Alexandria, VA 22312

**Economic Surveillance- Section I**

**SAFETY EXPOSURE REPORT**

**DATE**

*(USACE Supplement 1 to AR 385-40)*

**INSTRUCTIONS**

This report is due to the Contracting Officers' Representative (COR) no later than the 25th of each month. Contractor progress payments will not be processed until this report has been submitted.

Be sure to include the complete Contract Number including task order number.

FROM AED:

- RESIDENT ENGINEER
- PROJECT ENGINEER
- PROJECT MANAGER

\_\_\_\_\_  
SIGNATURE

TO AED:

SAFETY & OCCUPATIONAL HEALTH OFFICE

**PRIME CONTRACTOR NAME**

**SUB-CONTRACTORS NAME**

**CONTRACT NUMBER AND SHORT TITLE:**

**SITE LOCATION (nearest city and province or latitude and longitude)**

**MANHOURS THIS MONTH**

**MONTH**

**TOTAL MANHOURS YEAR TO DATE**

**Prepared by (TYPE NAME and TITLE)**

**SIGNATURE**

**CERTIFIED CONTRACTOR PROJECT  
MANAGER**

**SIGNATURE**

## Economic Surveillance-Section II

**INJURY AND ILLNESS LOG**

*(USACE Supplement 1 to AR 385-40)*

**DATE:****CONTRACT NUMBER AND SHORT TITLE:**

This report is due to the Contracting Officers' Representative (COR) no later than the 25th of each month. Contractor progress payments will not be processed until this report has been submitted.

Attach an additional sheet if more space is needed.

**List all recordable injury cases during the month where medical treatment was administered.**

	Name	Type Injury	Date of Injury	Date ENG Form 3394 Submitted to COR
1				
2				
3				
4				
5				

**1<sup>st</sup> Aid cases during the month. List all non-recordable injuries where first aid was administered.**

	Name	Type Injury	Date of Injury	Return to Duty	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

**Economic Surveillance-Section III**

**ECONOMIC ANALYSIS REPORT**

**DATE:**

**CONTRACT NUMBER AND SHORT TITLE:**

**SITE LOCATION (nearest city and province or latitude and longitude)**

<b>Employment</b>	<b>Average Number of Employees per Day</b>		<b>Average Salary per Day</b>	
	<b>Afghan Employees</b>	<b>International Employees</b>	<b>Afghan Employees</b>	<b>International Employees</b>
Unskilled Labor				
Semi Skilled Labor				
Skilled Labor				
Technical				
Supervisory				
Management				
<b>Total</b>				

**Expenditures (include Prime and Subcontractors)**

	<b>Local Expenditures (US\$) per Month</b>	<b>International Expenditures (US\$) per Month</b>
Sub Contracts		
Life Support		
Building Materials		
Equipment		
Security		
<b>Total</b>		

## **SECTION 01010**

### **SCOPE OF WORK**

#### **1. GENERAL**

The project consists of the design and construction of a new water supply system including groundwater well (GWW), submersible well pump, well house, and water supply line from the new well to a termination point at a future water storage and treatment facility to be constructed by others. (See red line in Appendix A). The project will also consist of tying into the existing well as a back up. The existing well submersible pump and associated piping shall be upsized and connected to the new water supply line along with maintaining connection to the existing two inch supply line to the north. Power will be tied into existing generators at the site to the north (See blue line in appendix A). The site is located at Khairabad ASP, south of Kabul. Refer to Appendix A for approximate layout and site location and Appendix B for site photos. The project is defined as the design, material, labor, and equipment to construct buildings, utilities and other infrastructure for water supply. The work within this contract shall meet and be constructed in accordance with current U.S. design and International Building Codes (IBC), Life Safety Codes (NFPA-101), Force Protection and security standards. A partial listing of references is included herein:

IBC, International Building Codes 2003

NFPA 101, Life Safety Codes

UFC 4-010-01, DoD Minimum Anti-Terrorism Standards for Buildings.

#### **1.1 ENGLISH LANGUAGE REQUIREMENT**

All information shall be presented in English. The Contractor shall have a minimum of one English-speaking representative to communicate with the COR at all times when work is in progress.

#### **1.2 SUBMITTALS**

Submittals and a Submittal Register are required as specified in Section 01335 of the Basic Contract.

#### **1.3 CQM TRAINING REQUIREMENT**

Before project design and construction begin, the Contractor's Quality Control Manager is required to have completed the U.S. Army Corps of Engineers CQM course, or equivalent. The Construction Trades Training Center (CTTC) in Jalalabad, Afghanistan provides a course that satisfies the requirement. Courses are offered at regular intervals. For enrollment and course information contact CTTC at the following:

Mhd. Haris

e-mail: [mharis@afghanreconstruction.org](mailto:mharis@afghanreconstruction.org)

Telephone: 0700 08 0602

Pervaiz

e-mail: [adpzmuj@yahoo.com](mailto:adpzmuj@yahoo.com)

Telephone: 0700 61 3133

## **2. LOCATION**

The site is located in Khairabad ASP, south of Kabul, Afghanistan, as shown in Appendix A.

## **3. UNEXPLODED ORDNANCE (UXO)**

### **3.1 UXO REMOVAL AND CLEARANCE**

The contractor is not responsible for the clearance or removal of mines and unexploded ordnance (UXO) from the site prior to the commencement of construction.

It is the responsibility of the Contractor to be aware of the risk of encountering UXO/mines and to take all actions necessary to assure a safe work area to perform the requirements of this contract. The Contractor assumes the risk of any and all personal injury, property damage or other liability arising out of or resulting from any Contractor action taken hereunder. The Contractor and its subcontractors may not handle, work with, move, transport, render safe, or disarm any UXO/mine, unless they have appropriate accreditations from the MAC.

If a UXO/mine is encountered during project construction, UXO/mine disposal shall be handled in accordance with Section 01015, Technical Requirements.

## **4. SUMMARY OF WORK**

### **4.1 CONTRACTOR REQUIREMENTS**

The contractor shall design and construct the facilities as a design-construct contract and shall be in accordance with the requirements stated in Section 01015: TECHNICAL REQUIREMENTS. The design and construction work shall include but not be limited to that described herein.

#### **4.1.1 GENERAL REQUIREMENTS FOR FACILITIES**

All requirements set forth in the Scope of Work, but not included in the Technical Requirements, shall be considered as set forth in both, and vice versa. Provide heating for well house.

All standard construction amenities and details such as heating, lighting, site drainage, utility connections, etc. shall be implied as a design and construction requirement. Drawings referenced are contained in Appendix A. Ariel photo is older and do not reflect current changes to the site. Additional photos show more recent work done. Construction is ongoing

in certain areas so field verification will be required and minor adjustment in water line route layout and electrical line layout will be required. The actual length of piping will be greater than indicated because of change in topography and adjustment in final contractor layout.

In general, this project consists of design and construction of the following:

#### **4.1.2 Base Bid**

- New Well, Well Pump and Well House
- Connection to existing well and submersible pump and piping upgrade
- Piping, bends, fittings, isolation valves, spigots and all other accessories
- Main water supply line from new GWW to ANA Commando Complex and electrical

#### **4.2 Contractor Coordination**

Contractor must verify the space requirements and code compliance in accordance of section 1010 and section 1015 of this contract. ANA Commando project will be under construction at the termination point of this contract. Coordinate with other contractor to ensure smooth project completion.

#### **4.3 WATER SYSTEM**

Design a potable water supply system, to include water well and well house, well pump, and underground water supply line. The well pump shall deliver a minimum 345-414 kPa (50-60 psi) at a flow rate of 520 lpm (137 gpm) to the termination point. The water line shall have a temporary cap at the termination point for future water piping connection. Maximum water pressures in supply main lines shall not exceed 517 kPa (75 psi) at the termination point. Provide an enclosed water well house. The existing well pump shall be replaced with a pump that shall deliver a minimum 345-414 kPa (50-60 psi) at a flow rate of 303 lpm (80 gpm).

#### **4.4 DEMOLITION AND GRADING**

The contractor shall limit his demolition along the water line route as necessary for construction. The Contractor shall remove and dispose of all debris. The Contractor shall verify the location of debris disposal with the Contracting Officer. The Contractor shall perform complete final site grading after installation of all required structures per the Drainage Plan that shall be prepared as part of this project and after installation of any other buried utilities or other project components.

Native crushed stone 100 mm thick shall be placed around the building, from the building wall out 2 meters and all areas of anticipated foot or vehicle traffic to reduce erosion and to provide dust control. Concrete walkways shall be installed between building and roadway.

#### **4.5 SITE ELECTRICAL DISTRIBUTION SYSTEM**

The contractor shall tie into the existing electrical system at the existing generator and provide underground electrical distribution to the new facilities. The electrical systems shall

be designed as described in section 01015, Technical Requirements and in accordance with applicable codes and regulations. All conductors shall be run through conduit shall be sized for the specific loads. All electrical design and installation shall meet NEC (NFPA 70) requirements.

#### **4.8 LIGHTING**

General lighting shall be provided as indicated and shall meet the recommendations of the IESNA for the building type and function. Exterior building lighting shall consist of high intensity discharge luminaries.

#### **4.9 ELECTRICAL**

Secondary voltage shall be 220/380V, 3-phase, 50Hz. Receptacles shall be provided as indicated in Section 1015, Technical Requirements.

#### **4.10 FENCING**

Any disturbed fencing shall be repaired to match the existing fencing.

#### **4.11 FOUNDATION DESIGN**

Foundations, including subgrade, shall be designed and constructed based on recommendations from geotechnical investigation required herein.

### **5. COMPLETION OF WORK**

All work required under this contract shall be completed within 180 calendar days, except as noted, including government review time, from Notice to Proceed for site work. Coordination of hook up to the tank, to be constructed by others, shall be completed within 180 calendar days. Site work construction will not be allowed to proceed until demining is complete.

### **6. SPARE PARTS**

A spare submersible well pump for each well.

### **7. REFERENCES**

Refer to Section 01015 for required references.

-- End of Section --

SECTION 01015

## **SECTION 01015**

# **TECHNICAL REQUIREMENTS**

## **1. GENERAL**

**1.1** The Contractor's design and construction must comply with technical requirements contained herein. The Contractor shall provide design and construction using the best blend of cost, construction efficiency, system durability, ease of maintenance and environmental compatibility.

**1.2** These design and product requirements are minimum requirements. The Contractor is encouraged to propose alternate design or products (equipment and material) that are more commonly used in the region; will be equally or more cost effective or allow for more timely completion, but furnish the same system durability, ease of maintenance and environmental compatibility. The Contractor will be required to submit information as requested by the Contracting Officer to make a comparison of the proposed alternate. All variations must be approved by the Contracting Officer.

### **1.3 ASBESTOS CONTAINING MATERIALS**

Asbestos containing material (ACM) shall not be used in the design and construction of this project. If no other material is available which will perform the required function or where the use of other material would be cost prohibitive, a waiver for the use of asbestos containing materials must be obtained from the Contracting Officer.

### **1.4 SAFETY**

#### **1.4.1 Unexploded Ordnance (UXO)**

##### **1.4.1.1 UXO/Mine Discovery During Project Construction**

#### **Contractor IS NOT responsible for clearance/removal if UXO/mines are found during construction**

It is the responsibility of the Contractor to be aware of the risk of encountering UXO and to take all actions necessary to assure a safe work area to perform the requirements of this contract. If during construction, the contractor becomes aware of or encounters UXO or potential UXO, the contractor shall immediately stop work at the site of encounter, move to a safe location, notify the COR, and mitigate any delays to scheduled or unscheduled contract work. Once the contractor has informed the COR, the contractor will await further direction. The Contractor assumes the risk of any and all personal injury, property damage or other liability arising out of or resulting from any Contractor action taken hereunder.

Scrap metal shall be the property of the Host Government. The scrap metal on site shall be moved to an area away from the site perimeter as directed by the Contracting Officer's Representative and left for the Host Government to remove and/or salvage.

NOTE: For previous UXO/mine information, the following points of contact from the UN Mine Action Center of Afghanistan are provided:

Mohammad Sediq, Chief of Operations,  
Email: [sediq@unmaca.org](mailto:sediq@unmaca.org)  
Cell: +93 070 295207

Hansie Heymans, Chief Information Officer,  
Email: [hansie@unmaca.org](mailto:hansie@unmaca.org)  
Cell: +93 070 294286

#### 1.4.1.2 Explosives Safety

##### 1.4.1.2.1 General Safety Considerations

General safety considerations applicable to personnel, both essential and non-essential, at project sites where UXO may be encountered include:

- a. Do not carry fire or spark-producing devices.
- b. Do not conduct explosive or explosive-related operations without approved procedures and proper supervision and UXO safety support.
- c. Do not become careless by reason of familiarity with UXO or the reported probability level of UXO contamination.
- d. Do not conduct explosive or potentially explosive operations during inclement weather.
- e. Avoid contact with UXO except during UXO clearance operations.
- f. Conduct UXO-related operations during daylight hours only.
- g. Employ the "buddy system" at all times.

##### 1.4.1.2.2 Activity Hazard Analysis (AHA) briefings

a. Activity Hazard Analysis's shall be prepared in accordance with the Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1.

b. Hazard analyses will be prepared and briefed by personnel that are knowledgeable in UXO and explosives safety standards and requirements. These personnel should understand the specific operational requirement and hazard analysis methodologies. A hazard analysis will be performed for each activity to determine the significance of any potential explosive-related hazards. Explosive residues may be discovered or exposed during UXO operations in the form of powder or various granular and powder based pellets. These contaminants can enter the body through the skin or by ingestion if proper personal hygiene practices are not followed. Explosive fillers such as white phosphorus are dangerously reactive in air and acute exposure can result in serious injury to the skin, eyes, and mucous membranes. They are also a fire hazard.

Safety requirements (or alternatives) that will either eliminate the identified hazards, mitigate or control them to reduce the associated risks to an acceptable level will be developed. The adequacy of the operational and support procedures that will be implemented to eliminate, control, or abate identified hazards or risks will then be evaluated and a second risk assessment completed to verify that a satisfactory safety level has been achieved.

#### 1.4.1.3 Notification of Noncompliance

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall make no part of the time lost due to such stop orders the subject of claim for extension of time or for excess costs or damages.

### 1.5 LIMITATION OF WORKING SPACE

The Contractor shall, except where required for service connections or other special reason(s) confine his operations strictly within the boundaries of the site. Workmen will not be permitted to trespass on adjoining property. Any operations or use of space outside the boundaries of the site shall be by arrangement with all interested parties. It must be emphasized that the Contractor must take all practical steps to prevent his workmen from entering adjoining property and in the event of trespass occurring the Contractor will be held entirely responsible.

Areas located immediately outside the construction area may contain mines and unexploded ordnance (UXO). Contractors assume all risks when venturing in or out of the designated work area.

### 1.6 TEMPORARY STRUCTURES

The Contractor shall erect suitable temporary fences, lighting, and necessary structures to safeguard the site, materials and plant against damage or theft and for the protection of the general public and shall adequately maintain the same throughout the course of the contract.

### 1.7 SUBCONTRACTORS

Compliance with the provisions of this section by subcontractors will be the responsibility of the contractor.

### 1.8 LIST OF CODES AND TECHNICAL CRITERIA:

The following codes and technical criteria and those referenced therein shall be required for this project. References within each reference below shall be required and adhered to. This list is not exhaustive and is not necessarily complete.

ACI 318 Building Code Requirements for Structural Concrete (latest edition), American Concrete Institute

American Water Works Association, ANSI/AWWA C651-99 standard

ASCE 7-02, Minimum Design Loads for Buildings and Other Structures, 2002

ASHRAE - American Society of Heating, Refrigeration and Air-Conditioning

## Engineers

ASME - American Society for Mechanical Engineering

ASTM - American Society for Testing and Materials

AWS - American Welding Society

IBC - International Building Codes, 2003 (and its referenced codes including those inset below)

IMC – International Mechanical Code

IPC – International Plumbing Code

Lighting Handbook, IESNA, latest edition

Codes and Standards of the National Fire Protection Association (NFPA)

as applicable and enacted in 2002 or later, unless otherwise noted.

National Electrical Safety Code (NESC), Institute of Electrical and Electronic Engineers (IEEEC2), 2002 edition

NFPA 10, Portable Fire Extinguishers, 2002 edition

NFPA 70, National Electrical Code, 2002 edition

NFPA 101, Life Safety Code, 2003 edition

SMACNA - Sheet Metal and Air Conditioning Contractors' National Association, Standards and Guides, latest editions

International Mine Action Standards, latest edition; (see <http://www.mineactionstandards.org> for copy of standards)

UFC 1-300-07A Design Build Technical Requirements

UFC 3-230-03a, Water Supply, 16 Jan 2004

UFC 3-230-04a, Water Distribution, 16 Jan 2004

UFC 3-230-06a, Subsurface Drainage, 16 Jan 2004

UFC 3-230-07a, Water Supply: Sources and General Considerations, 16 Jan 2004

UFC 3-230-08a, Water Supply: Water Treatment, 16 Jan 2004

UFC 3-230-09a, Water Supply: Water Storage, 16 Jan 2004

UFC 3-230-10a, Water Supply: Water Distribution, 16 Jan 2004

UFC 3-230-13a, Water Supply: Pumping Stations, 16 Jan 2004

UFC 3-230-17FA, Drainage in Areas Other than Airfields, 16 Jan 2004

UFC 1-300-09N, Design Procedures, 25 May 2005

UFC 3-310-01, Structural Load Data, 25 May 2005

UFC 3-400-01, Design: Energy Conservation, 5 July 2002

UFC 3-410-01FA Heating, Ventilating and Air Conditioning, Change 1, 15 May 2003

UFC 3-430-01FA, Heating and Cooling Distribution Systems, 27 Jy 2003

UFC 3-501-03N, Electrical Engineering Preliminary Considerations, 16 Jan 2004

UFC 3-520-01, Interior Electrical Systems, 10 June 2002

UFC 3-530-01AN, Design: Interior and Exterior Lighting and Controls, 19 Aug 2005

UFC 3-550-03FA Design: Electrical Power Supply and Distribution Systems, 1 Mar 2005

UFC 4-010-01, Design: Minimum DoD Antiterrorism Standards for Buildings, 22 Jan 2007

UFC 4-010-02, DoD Minimum Antiterrorism Standoff Distances for Buildings, 19 Jan 2007

Underwriters' Laboratories (UL) Fire Protection Equipment Directory (2002)

UL Standards (as applicable)

USCINCCENT OPORD 97-1

The publications to be taken into consideration shall be those of the most recent editions.

Standards other than those mentioned above may be accepted if the standards chosen are internationally recognized and meet the minimum requirements of the specified standards.

The Contractor shall be prepared to submit proof of this if requested by the Contracting Officer.

## **2. SITE DEVELOPMENT:**

### **2.1 GENERAL**

The project includes furnishing all materials, equipment and labor for constructing water supply system, as applicable.

### **2.2 ENVIRONMENTAL PROTECTION**

#### 2.2.1 Applicable regulations

The Contractor shall comply with all Host Nation laws, rules, regulations or standards concerning environmental pollution control and abatement with regard to discharge of liquid waste into natural streams or manmade channels. The contractor shall review host nation and U.S. Government environmental regulations with the contracting officer prior to design and discharge of any liquid wastes into natural streams or manmade channels.

#### 2.2.2 Notification

The Contracting Officer will notify the Contractor in writing of any observed non-compliance with the foregoing provisions. The Contractor shall immediately take corrective action. If the Contractor fails or refuses to promptly take corrective action, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No extension of time or damages will be awarded to the Contractor unless it was later determined that the Contractor was in compliance.

#### 2.2.3 Spillages

Measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, waste washings, herbicides and insecticides, and construction materials from polluting the construction site and surrounding area.

#### 2.2.4 Disposal

Disposal of any materials, wastes, effluents, trash, garbage, oil, grease, chemicals, etc., shall be taken to a dumpsite off site and subject to the approval of the Contracting Officer. Burning at the project site for the disposal of refuse and debris will not be permitted.

### **2.3 CIVIL SITE DEVELOPMENT**

#### **2.3.1 SITE PLAN**

The contractor shall locate the facilities in general agreement with the drawings included and any requirements in the Scope of Work 01010. All buildings, roads, wall, fence, utility structures, water supply pipe, water supply route, and other site features shall be clearly

defined and dimensioned on the site plan. The site plan shall show geometric design of the site, including applicable dimensions of all exterior facilities, mechanical equipment, utilities, etc. Required facilities are described in the following sections of this specification. Existing roads that are disturbed shall be replaced in kind.

All site plans and master plans shall be drawn in the following projection and datum for incorporation into the U.S. Army Corps of Engineers GIS system:

WGS 1984 UTM Zone 42 N

### **2.3.2 DEMOLITION**

Demolition shall include removal of all structures, foundations, and utilities, and clear and grubbing. All refuse and debris shall be disposed of off site. Areas of excavation contain rocks and will require heavy equipment for excavation. Holes and depressions shall be backfilled. Fill materials shall be composed of satisfactory soils or aggregates defined in ASTM D 2487 as GW, GP, GM, SP, SM, SW, CL-ML. Minimum soil compaction shall be 95 percent of maximum density as defined in ASTM D 1557.

### **2.3.3 GRADING AND DRAINAGE**

The contractor will provide all necessary site grading to insure adequate drainage so that no areas will be flooded due to a rainfall. Drainage of the area should be compatible with the existing terrain. Building floor elevation shall be a minimum 150mm above grade and slope away from the building on all sides at a minimum of 5% for 3 meters.

### **2.3.4 ROADS**

#### **2.3.4.1 Roads**

Contractor shall repair disturbed roads using aggregate surface to match existing. Subgrade shall be 150mm (6 inches) minimum in depth scarified and compacted to 95% proctor density. Aggregate base shall be 150mm (6 inches). Aggregate Base Course (ABC) material must be well graded, durable aggregate uniformly moistened and mechanically stabilized by compaction. Degree of compaction shall be expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557 or equivalent DIN, BS, or EN standards.

### **2.3.5 CIVIL UTILITIES**

#### **2.3.5.1 General**

The design of the water systems shall be sized to provide flow and discharge of 520 lpm (137 gpm). The design drawings shall show all utility lines, line sizes, valves, manholes, and applicable details associated with water system design. Specifications covering well, water lines, valves, pumps, and controls shall be submitted as part of the design and shall require standard materials that are available in-country. Contractor shall install blind flange for future connection to WTP.

## 2.3.5.2 Water

### 2.3.5.2.1 General Water

Infrastructure design and construction shall serve the demand. Water supply line shall not be less than 150mm. The Contractor shall install water supply main line to include all pipe, valves, fittings and appurtenances.

### 2.3.5.3 Well

The well shall be located as shown, and be constructed in accordance with AWWA A100 Water Wells. Well shall be installed to prevent aquifer contamination by the drilling operation and equipment, intra- and inter-aquifer contamination, and vertical seepage of surface water adjacent to the well into the subsurface, especially the well intake zone.

#### 2.3.5.3.1 Capacity Test

The Contractor shall furnish and install an approved temporary test pump, with discharge piping of sufficient size and length to conduct the water being pumped to point of discharge, and equipment necessary for measuring the rate of flow and water level in the well. An 8 hour step-drawdown capacity test shall be run with the pumping rate and drawdown at the pump well and observation wells recorded every 1/2 minute during the first 5 minutes after starting the pump; then every 5 minutes for an hour; then every 20 minutes for 2 hours. From this point on, readings taken at hourly intervals, until the water level stabilizes, shall be sufficient. Observation wells (existing well) shall be read on the same schedule as the pump well. During the step-drawdown test, the pumping rate shall be increased in steps at 2 hour intervals. Specific capacity shall be measured for each step. The well shall be "step" tested at rates of approximately 1/2, 3/4, 1 and 1 1/2 times the design capacity of 137 **gpm**. When the pump is shut off, water level readings shall be taken during the rebound period for the same intervals of time as the drawdown test. The record of the test, in triplicate, shall be delivered to the Contracting Officer.

#### 2.3.5.3.2 Water Quality Sampling and Analysis

The Contractor shall perform water quality sampling and testing at the source. The Contractor shall utilize well-qualified and equipped testing capability in the project site area, if available. If professional testing services are not available in the area, the Contractor will submit an alternative practical testing source for approval. Raw water quality criteria for Water Quality and Criteria Standards, and shall address the following: PH, turbidity, conductivity, oxidation reduction potential, total dissolved solids, color, odor, salinity, total coliform/fecal coliform (bacteria) an indicator of the presence of E. coli. These baseline parameters are a partial list as presented in TM5-813-3/AFM 88-10 APPENDIX A.

#### 2.3.5.3.3 Well House

Construct a permanent well house with concrete slab floor. The floor of the well house shall slope away from the casing approximately 3 mm per 300 mm (1/8" per foot). Ensure the excess water flows to the outside via a drain pipe through the floor and/or walls. Floor of well house shall be above flood plain. The well house design should be such that the well pump, motor and drop pipe could be readily accessible, for removal, via an insulated roof hatch secured by a hasp and lock from the inside. The entry door shall be made of an insulated heavy duty metal door and frame with no louvers or glazing. Provide a small window placed high on the building for security issues. The well house shall protect valves and pumping equipment plus provide freeze protection for the pump discharge piping beyond the check valve. The well house shall be insulated and a base heating unit installed. The well shall be protected from unauthorized use by a security fence with lockable gate. Provide outriggers, barbed wire and concertina wire on fence and gate.

#### 2.3.5.3.4 Existing Well and House

The existing well current configuration is supplying water to the existing ANA camp to the north (Existing Pump house) to a storage tank located inside the pump house. New upsized piping shall connect existing well to the new water transmission line to the Commando site and still maintain connection to the existing pump house. All piping intersections shall have valves to isolate the piping system. The connection between the existing well and new transmission line shall have the valve normally closed with water allowed to flow to the north. The intent is to be able to pump water from the existing well to the Commando site if the new well pump failed. This would mean to manually valve off the supply line from the new well, valve off the water supply to the existing pump house, and open the valve to the new water supply line. The pump would have to be manually overridden to ignore the existing float communication system from the existing pump house to supply water to Commando tanks. Tanks will be monitored to have pumping shut down manually. In addition the existing system to the north will have to be monitored to allow filling of that tanks as required. The existing well is 80 meters deep. The static water level is approximately 33 meters deep. The casing is 300mm. The existing pipe is measured at 50mm.

#### 2.3.5.3.5 Valve Pits

Main line valves shall be spaced every 500' to 600' and placed in a readily accessible locations, which allow appropriate water main isolation. Valve pits shall not be accessible outside the fence line except by operating stem extension key.

#### 2.3.5.3.6 Raw Water Disinfection

Contractor shall perform disinfection of the well water in accordance with AWWA Standard C654-97 for Disinfection of Wells or equivalent. Bacteriological samples shall be collected and examined in accordance with Standard Methods for the Examination of Water by a qualified lab as approved by the Contracting Officer.

#### 2.3.5.3.7 Water Storage Tank

**Water tanks are not under this contract.** However, this contract will supply the high high, high level, and low level float mechanism telemetry, level transmitters, Hi Level Alarm, Normally Open Electrically Operated Valve (EOV) with controller, Remote Start Stop Station, 1" Diameter Galv. Rigid Conduit, and Instrumentation Cable to the GWW. Telemetry shall be hard wire and conduit from GWW to WTP. Provide enough extra cable to allow connection beyond the end of pipe to WTP.

Water Storage Tank and Well Pump Sequence of Operation: High High, High and Low Level Switches and level transmitters shall be supplied to the other contractor to be installed in the Water tank at predetermined levels. The Level Switches shall be similar to Varec LH23-1201 Switch-Tek Mini Level Float Switch or equal. The High High Level Switch shall set off an alarm to signify a failure of the Well Pump instrumentation and the Water Tank is in danger of overflowing. The Low Level Switch will activate the Well Pump and open the Electrically Operated Valve located on the Water Tank nozzle. The High Level Switch will shut off power to the normally open EOV so the valve will close. The Well Pump Controller will be located near the Well Pump and shall consist of a Non Reversible Magnetic Starter with Fused Disconnect Switch sized for the pump motor and a Hand Off Automatic Switch (HOA) switch. The HOA switch will be placed in the Hand or Off position only when maintenance is being performed on the Well Pump or the Water Tank or the High High Level Alarm has been activated on the Water Tank and the tank is in danger of overflowing. Otherwise the HOA switch is normally in the automatic position. A shutdown switch will also be located near the Water Tank. This switch will also be utilized only if the Tank is Overflowing. A pressure switch will be located in the Well Pump discharge line to stop the Well Pump at a designated design setting. This pressure switch shall be overridden when the HOA switch is in the Hand or Off mode.

Coordinate telemetry hook up to the water tanks, to be constructed by the ANA Commando Complex Contractor, so that all systems function properly. See Section 01010 paragraph Completion of Work for completion schedule allotted days.

The contractor shall account for surges and air in system due to the frequent starting/stopping of the Well Pump in the piping design.

#### 2.3.5.3.8 Disinfection & Chlorination System

Disinfection and chlorination for water distribution system is not under this contract.

#### 2.3.5.3.9 Chlorine Shelter

Chlorine shelter is not under this contract.

#### 2.3.5.4 Water Supply System

##### 2.3.5.4.1 General

The Contractor shall provide a water supply line system described as follows: Transmission pipe diameter shall be a minimum of 150mm (6 inches). Pipes should be adequate to carry the maximum quantity of water at acceptable velocities 0.9 to 1.5m/sec (3 to 5 ft/sec ) at

average daily flows not to exceed 2.8m/sec (9.2ft/sec) with working pressures of 240kPa (35psi) to 350kPa (50psi). **Maximum pressure shall be 517kPa (75psi)**. Adequate cover must be provided for frost protection. A minimum cover of 800mm (2'-8") is required to protect the water distribution system against freezing. Water lines less than 1.25 meters (4 feet) deep under road crossings shall have a reinforced concrete cover of at least 150 mm (6 inch) thickness around the pipe. The transmission main valves shall be provided at all connections. Design and construction shall include blowoff valves and air release valves as required by design.

#### 2.3.5.4.2 Interconnect Piping

The Contractor shall design and construct an interconnect pipe between the proposed well transmission line and existing well discharge line. Tee connections with gate valve shall be provided at each well head to be situated on the downstream side of well head including accessories, i.e., flow meters gate & check valves, air release valves etc. Provide valves on the interconnect pipe section which shall be manual with valve box and tee accessories. Either well must be capable of supplying water in the event of one of the wells becomes inoperable. The existing well shall have manual valves to be open and closed to allow flow to be directed to the existing pump house as it currently serves the ANA Commando Complex. The intent is to manually operate the existing well when the new well is not operational and divert the flows to each of the sites as needed.

#### 2.3.5.4.3 Pipe

The Contractor shall provide pipe of adequate strength, durability and be corrosion resistant with no adverse effect on water quality. The exterior surface of the pipe must be corrosion resistant. Underground ductile iron pipe shall be encased with polyethylene in accordance with AWWA C105. Water distribution pipe material shall be HDPE or Ductile Iron Pipe (DIP). **PVC pipe will not be allowed.** Ductile iron pipe shall conform to AWWA C104, etal. DI fittings shall be suitable for 1.03MPa (150psi) pressure unless otherwise specified. Fittings for mechanical joint pipe shall conform to AWWA C110. Fittings for use with push-on joint pipe shall conform to AWWA C110 and C111. Fittings and specials shall be cement mortar lined (standard thickness) in accordance with C104. High Density Polyethylene (HDPE) pipe, tubing, and heat-fusion fittings shall conform to AWWA C906 and ASTM F 714. HDPE shall be DR9 or DR11. Pipe less than 80mm (3 inch), screw joint, shall conform to dimensional requirements of ASTM D schedule 80. Elastomeric gasket-joint, shall conform to dimensional requirements of ASTM D 1785 Schedule 40, All pipe and joints shall be capable of 1.03 Mpa (150psi) working pressure and 1.38 Mpa (200psi) hydrostatic test pressure.

#### 2.3.5.4.4 Hydrostatic, Leakage and Disinfection tests

The Contracting Officer will be notified not less than 48 hours in advance of any water piping test and will be given full access for monitoring testing procedures and results. Where any section of water line is provided with concrete thrust blocking for fittings or hydrants tests shall not be made until at least 5 days after installation of the concrete thrust blocking, unless otherwise approved.

#### 2.3.5.4.5 Pressure Test

After the pipe is laid, the joints completed, and the trench partially backfilled leaving the joints exposed for examination, the newly laid piping or any valved section of piping shall, unless otherwise specified, be subjected for 1 hour to a hydrostatic pressure test of 1.03 MPa (150 psi). Each valve shall be opened and closed several times during the test. Exposed pipe, joints, fittings, hydrants and valves shall be carefully examined during the partially opened trench test. Joints showing visible leakage shall be replaced or remade as necessary. Cracked or defective pipe, joints, fittings, hydrants and valves discovered following this pressure test shall be removed and replaced and retested until the test results are satisfactory.

#### 2.3.5.4.6 Leakage Test

Leakage test shall be conducted after the pressure tests have been satisfactorily completed. The duration of each leakage test shall be at least 2 hours and during the test the water line shall be subjected to not less than 1.03 MPa (150psi). Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved or approved section, necessary to maintain pressure to within 34.5kPa (5 psi) of the specified leakage test pressure after the pipe has been filled with water and the air expelled. Pipe installation will not be accepted if leakage exceeds the allowable leakage, which is determined by the following formula:

$L = 0.0001351ND (P \text{ raised to } 0.5 \text{ power})$   
L = Allowable leakage in gallons per hour  
N = Number of joints in the length of pipeline tested  
D = Nominal diameter of the pipe in inches  
P = Average test pressure during the leakage test, in psi gauge

Should any test of pipe disclose leakage greater than that calculated by the above formula, the defective joints shall be located and repaired until the leakage is within the specified allowance, without additional cost to the government.

#### 2.3.5.4.7 Bacteriological Disinfection

##### 2.3.5.4.7.1 Disinfection Procedure

Before acceptance of potable water operation, each unit of completed waterline shall be disinfected as prescribed by AWWA C651. After pressure tests have been completed, the unit to be disinfected shall be thoroughly flushed with water until all entrained dirt and mud have been removed before introducing the chlorinating material. Flushing will be performed in a manner and sequence that will prevent recontamination of pipe that has previously been disinfected. The chlorinating material shall be liquid chlorine, calcium hypochlorite, or sodium hypochlorite. The chlorinating material shall provide a dosage of not less than 50 ppm and shall be introduced into the water lines in an approved manner. Polyvinyl Chloride (PVC) pipelines shall be chlorinated using only the above-specified chlorinating material in solution. The agent shall not be introduced into the line in a dry solid state. The treated water shall be retained in the pipe long enough to destroy all non-spore forming bacteria. Except where a shorter period is approved, the retention time shall be at least 24 hours and shall produce not less than 25 ppm of free chlorine residual throughout the line at the end of the retention period. Valves on the lines being disinfected shall be opened and closed several times

during the contact period. The line shall then be flushed with clean water until the residual chlorine is reduced to less than 1.0 ppm. During the flushing period, each fire hydrant on the line shall be opened and closed several times.

#### 2.3.5.4.7.2 Sampling

For each building connected to the water system, personnel from the Contractor's commercial laboratory shall take at least 3 water samples from different points, approved by the Contracting Officer, in proper sterilized containers and perform a bacterial examination in accordance with approved methods. The commercial laboratory shall be verified to be qualified by the appropriate authority for examination of potable water.

#### 2.3.5.4.7.3 Acceptance Requirements

The disinfection shall be repeated until tests indicate the absence of pollution for at least 2 full days. The unit will not be accepted until satisfactory bacteriological results have been obtained.

#### 2.3.5.4.8 Time for making Tests

Except for joint material setting or where concrete thrust blocks necessitate a 5-day delay, pipeline jointed with rubber gaskets, mechanical or push-on joints, or couplings may be subjected to hydrostatic pressure, inspected and tested for leakage at any time after partial completion of backfill.

#### 2.3.5.4.9 Concurrent Tests

The Contractor may elect to conduct the hydrostatic tests using either or both of the following procedures. Regardless of the sequence of tests employed, the results of pressure tests, leakage tests, and disinfection shall be recorded for submission and approval. Replacement, repair or retesting required shall be accomplished by the Contractor at no additional cost to the Government. a. Pressure test and leakage test may be conducted concurrently, b. Hydrostatic tests and disinfection may be conducted concurrently, using water treated for disinfection to accomplish the hydrostatic tests. If water is lost when treated for disinfection and air is admitted to the unit being tested, or if any repair procedure results in contamination of the unit, disinfection shall be re-accomplished.

#### 2.3.5.4.10 Valves

Valves (Gate valves w/box) shall be placed at all pipe network tee and cross intersections and the number of valves shall be one less than the number of lines leading into and away from the intersection. For isolation purposes valves shall be spaced not to exceed 3600 mm (12 feet). Gate valves shall be in accordance with AWWA C 500 and/or C509. Butterfly valves (rubber seated) shall be in accordance with C504 etal. The valves and valve boxes shall be constructed to allow a normal valve key to be readily used to open or close the valve. Provide traffic-rated valve boxes. Provide concrete pad, 1 meter (3'-4") square, for all valve boxes.

#### 2.3.5.4.11 Vacuum and Air Release Valves

Air release valves are required to evacuate air from the main high points in the line when it is filled with water, and to allow the discharge of air accumulated under pressure. Vacuum relief valves are needed to permit air to enter a line when it is being emptied of water or subjected to vacuum. Contractor shall submit manufacturer's data for properly sized combination air and vacuum release valves and determine their locations on the distribution system subject to review and approval of the Contracting Officer.

#### 2.3.5.4.12 Blow-Off Valves

The Contractor shall provide 40-50mm (1-5/8" – 2") blow-off valves at ends of dead end mains. Valves should be installed at low points in the mains where the flushing water can be readily discharged to natural or manmade drainage ditches, swales or other.

#### 2.3.5.4.13 Thrust Blocking

Contractor shall provide concrete thrust blocking at any point where the layout of the system changes the direction of the flow, increases the velocity, or decreases or stops the flow. At these points, the pipes and fittings must be anchored and kept from moving or pulling apart by the use of restrained joints.

#### 2.3.5.4.14 Protection of Water Supplies

The Contractor shall ensure that the water design meets the following criteria:

2.3.5.4.15 Sanitary sewers shall be located no closer than 15m (50 feet) horizontally to water wells or reservoirs to be used for potable water supply.

2.3.5.4.16 Sanitary sewers shall be no closer than 3 m (10 feet) horizontally to potable water lines; where the bottom of the water pipe will be at least 300mm (12 inches) above the top of the sanitary sewer, horizontal spacing shall be a minimum of 1.8 m (6 feet).

Sanitary sewers crossing above potable water lines shall be constructed of suitable pressure pipe or fully encased in concrete for a distance of 2.7m (9 feet) on each side of the crossing. Pressure pipe will be as required for force mains in accordance with local standards and shall have no joint closer than 1 meter (3 feet) horizontally to the crossing, unless the joint is encased in concrete.

### **3. ARCHITECTURAL REQUIREMENTS**

#### **3.1 GENERAL**

All material approved shall become standardized material to be used throughout the facilities under contract. Different sub-contractors shall not use different material or standards under the contract. Intent of the project is to use locally procured materials (unless specified

otherwise) and labor to the maximum extent possible while satisfying seismic building code. Conflicts between criteria shall be brought to the attention of the Contracting Officer for resolution. In such instances, the Contractor shall furnish all available information with justification to the Contracting Officer. **All building exterior walls shall be constructed with reinforced CMU, insulated concrete sandwich panels, reinforced concrete or approved equivalent.**

### **3.2 DESIGN CRITERIA**

The Codes, Standards, and Regulations listed herein shall be used in the construction of this project. The publications shall be the most recent editions. Standards other than those mentioned may be accepted provided they meet the minimum requirements and the contractor shall submit proof of equivalency to the Contracting Officer for approval.

IBC- International Building Code

NFPA-101- National Fire Protection Association, Life Safety Code.

### **3.3 LIFE SAFETY/ FIRE PROTECTION/ HANDICAPPED ACCESSIBILITY**

To the extent possible, all facilities will be designed in accordance with recognized industry standards for life safety and building egress. An adequate fire alarm system, fire extinguishers, and smoke alarms shall all be included as required. If a sprinkler system is required by building code, a waiver will have to be obtained before construction notice to proceed is issued. However, due to the lack of adequate water volume and pressure, sprinkler systems may not be feasible. The facility shall comply with all other safety requirements of NFPA 101. In keeping with the intended function of these facilities, handicapped accessibility will not be incorporated into this project. Due to the war contingency requirement, it is assumed that only able-bodied military and civilian personnel will use the facilities listed herein.

### **3.4 ANTITERRORISM/ FORCE PROTECTION**

Force protection/anti-terrorism measures for this location shall be followed and incorporated into this project in accordance with the referenced DoD Regulations. Information regarding force protection may be found herein and at the following link:

[www.tisp.org/files/pdf/dodstandards.pdf](http://www.tisp.org/files/pdf/dodstandards.pdf)

### **3.5 EXCAVATION**

Trench excavation shall be made for concrete footings. Trenches shall be a minimum of .8 meter deep. Trenches deeper than 1.5 meters shall have protective shoring to protect workers or have the sides of the trench sloped back at a slope of 1.5:1. Care shall be taken when backfilling of foundation trenches to avoid damage to walls. Any excess dirt shall become the property of the Contractor and shall be removed from the site to a location approved by the Contracting Officer.

### **3.6 CONCRETE**

Place 150 mm (6") of capillary water barrier below areas to receive a concrete slab on properly compacted soil free of organic material. Concrete flooring in wet areas shall slope to the floor drain and not allow for water to puddle. Concrete slabs in all areas shall not be placed prior to inspection and approval of piping and sub-surface by the Contracting Officer. Foundation trenches shall be level and free of loose material. Trenches shall be inspected and approved by the Contracting Officer prior to placing of any concrete foundations. See paragraph 5 for structural characteristics of concrete and reinforcing steel for foundations and slabs.

### **3.6.1 INSULATED CONCRETE SANDWICH WALL SYSTEM (3-D Building System)**

As an option to standard masonry construction, the Contractor may construct walls of single story buildings using an insulated concrete sandwich wall system. The insulated concrete sandwich wall system shall be field fabricated and composed of a 76 mm (3 inch) expanded polystyrene core that spans in a single piece from floor elevation to top of wall elevation. The polystyrene core shall have a welded wire fabric, 50 mm x 50 mm (2 inch x 2 inch) mesh, 2.52mm (12.5 gauge) wire, attached to both faces of the polystyrene core. The welded wire mesh shall be installed at 13mm from the face of the polystyrene core. The welded wire mesh on each face shall be attached to each other and the polystyrene core with diagonal truss wires. Apply sprayed concrete (shotcrete) to a minimum thickness of 45mm (1-3/4 inch) or as structural calculations require, whichever is greater. Method of placing the shotcrete shall be in conformance with ACI 506R-85. Concrete finishing shall be done by appropriate hand tools (darby, trowel, etc.) to provide the desired finish effect.

## **3.7 MASONRY**

Storage of masonry materials shall be in a dry place or materials shall be covered with a plastic protective layer. Cover open walls each day to keep them protected and dry. Concrete masonry units (CMU) for exterior walls shall be either 200 mm or 300 mm wide x 400 mm x 200 mm high as shown on drawings. **All cells shall be fully grouted and reinforced.** They shall be installed in running bond level and plumb. Mortar joints shall be 10 mm on all sides between CMU. Joints shall be struck with a concave tool to provide a smooth recessed curved surface. Install only quality units. The surface shall be free of chips, cracks, or other imperfections that would detract from the overall appearance of the finished wall. Defective CMU or mortar shall be rejected.

## **3.8 METAL**

### **3.8.1 STEEL ROOF JOISTS**

Steel roof joists shall be placed according to the roof design and roof manufacturer specifications. Steel purlins shall be installed perpendicular to the steel beams. Use continuous metal roof sheets from ridge to eave to avoid constructing roof seams. In lieu of the continuous metal roof sheets, the Contractor can submit a plan for roofing seams; however, the plan must show a detail of how leaks will be avoided, and the Contracting Officer before application must approve the plan. Steel "hat channels" shall be installed on the bottom side of steel beams for the installation of gypsum board with screws. Provide all necessary metal framing for roof fascia and soffits. See structural paragraph for structural

characteristics of steel joists.

### **3.8.2 METAL WINDOW SILLS**

Galvanized metal window sills, 1 mm (20 gage), shall be installed on the exterior of all windows. The metal window sills shall have a turn down of 50 mm over the exterior masonry and stucco. Metal sills shall extend from side to side of the masonry opening in a single piece. Extend the metal windowsill a minimum of 20 mm under the bottom of the aluminum windows. Install masonry mortar as required for a smooth surface under the window sills. Sills shall slope a minimum of 6mm to the exterior and not allow water to puddle.

### **3.9 ROOFING AND WEATHERPROOFING**

#### **3.9.1 SLOPED ROOFS**

On sloping roofs provide and install .70 mm (24 gauge) galvanized steel in either corrugated or standing seam design. Metal roofing shall be anchored to the steel "Z" purlins or wood deck sub-surface using exposed fasteners at 300 mm on center at all seams and at 600 mm on center in the panel field. Fasteners shall be placed at the top of the corrugation taking care not to dent panel. Roof sealant or adhesive shall be placed over each anchor head. Roofing system shall include all edge, ridge and penetration flashings necessary for a watertight installation and as described in this section. Roofing shall be galvanized mill finish. Panels shall be overlapped two corrugations side to side and be continuous sheets from ridge to eave. Provide continuous ridge vents on all gable roofs.

#### **3.9.2 LOW SLOPE ROOFS**

Provide and install 3 ply built up roofing over concrete deck. Contractor may propose to the Contracting Officer an alternate roofing system with justification for consideration and alternate pricing. Concrete roof deck shall slope 21mm per m.

##### **3.9.2.1 Built-up Roofing System**

A Insulated-Deck, Coal Tar, Glass-Fiber, Aggregate Roofing (ICGA-BUR): Provide built-up, aggregate-surfaced roof system with coal tar bitumen and glass-fiber ply felts (roof manufacturer's separation layers) for layup as indicated.

1. Primer: ASTM D 41 primer as recommended by roofing manufacturer.
2. Coal Tar Bitumen: ASTM D 450, Type III, as an option to asphalt.
3. Bitumen Membrane which meets the following:
  - a. ASTM D312 or the equivalent EN 1849-1 for thickness and unit weight,
  - b. ASTM D312 or the equivalent EN-1426 for penetration,
  - c. ASTM D312 or the equivalent EN-1427 for softening point
  - d. ASTM D312 or the equivalent TS 11758-1 for flash point or heat stability
  - e. ASTM D4601 or the equivalent TS 11758-1 for width and area of roll

- f. ASTM D4601 (moisture percentage) or the equivalent EN 1928 (water tightness)
- g. ASTM D226 (pliability) or the equivalent EN 1109 (cold bending).

4. Glass Roofing Felt: ASTM D 2178, Type IV or VI, except felts for coal tar systems shall be impregnated with a bituminous resin coating which is compatible with coal tar bitumen.

5. Organic Felt Base: ASTM D 2626 for use with asphalt roofing system.

6. Organic Felt Base: ASTM D 226 for use with asphalt roofing system and ASTM D 227 for use with coal tar roofing system. Organic felts may be used for bitumen stops and edge envelopes.

7. Insulation: 5cm (2 inch) thick extruded polystyrene rigid thermal insulation boards, conforming DIN, EN 13164 BS, EN 13164,  $k=0.2$  @ 75 degrees F mean temperature, 2.82 kg/sq cm (40 lbs/sq in) compressive strength, hydrophobic, Type VI.

### 3.9.2.2 Roof Membrane Installation

A. Prime surface of concrete deck with asphalt primer per manufacturers recommended application rate.

B. Cant Strips/Tapered-Edge Strips: Wood, not less than 89 mm (3-1/2 inches) high, 45-degree insulation cant strips at juncture of membrane with vertical surface. Provide tapered-edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

C. Base Layer: Install one lapped course of base sheet. Attach first layer of roofing membrane material to substrates and elsewhere as indicated. Mop to non-nailable substrate with hot bitumen or apply with torch method per manufacturer's specifications

D. Second Layer: Install second layer of roofing membrane material over the first course staggering joints and seams in both directions by at least 300 mm. Mop top layer of membrane to base layer, or attach via torch method per manufacturer's specifications.

### 3.9.2.3 Insulation Installation

Comply with insulation manufacturer's instructions and recommendations for handling, installing, and bonding or anchoring insulation to substrate. Insulation boards shall be installed loose, without glue, in staggered manner. Attention should be paid not to leave separation along edges. Where overall insulation thickness is 50 mm (2 inches) or greater, install required thickness in two layers with joints of second layer offset from joints of first layer a minimum of 300 mm (12 inches) each direction. Trim surface of insulation where necessary at roof drains so completed surface is flush with drain ring. Polyester felt or geotextile shall be installed over insulation layers as a filter layer to prevent the passage of fines in gravel layer to lower strata.

### 3.9.2.4 Composition Flashing And Stripping

A. Install composition flashing at cant strips, at other sloping and vertical surfaces, at

roof edges, and at penetrations through roof. Install composition flashing in accordance with membrane manufacturers specifications. Nail or provide other forms of mechanical anchorage of composition flashing to vertical surfaces as recommended by manufacturer of primary roofing materials.

B. Install composition stripping where metal flanges are set on roofing. Provide not less than two plies of woven glass-fiber fabric, each set in a continuous coating of roofing cement and extended onto the deck 100 mm to 150 mm (4 inches and 6 inches), respectively. Except where concealed by aggregate surfacing or elastic flashing, apply a heavy coating of roofing cement over composition stripping.

C. Roof Drains: Fill clamping ring base with a heavy coating of roofing cement. Set built up roofing membrane in to the clamping ring base and fix the drain top on it.

D. Allow for expansion of running metal flashing and edge trim that adjoins roofing. Do not seal or bond built-up roof membrane or composition flashing and stripping to metal flanges that are over 914 mm (3 feet) in length.

E. Counter flashings: Counter flashings, cap flashings, expansion joints and similar work to be coordinated with built-up roofing work, are specified in other sections of these specifications.

F. Roof Accessories: Miscellaneous sheet metal accessory items, including insulation vents and other devices and major items of roof accessories to be coordinated with built-up roofing work.

#### 3.9.2.5 Gravel Layer

A gravel layer of 16 to 32 mm diameter stone will be laid in at least 5cm thick on top of the filter layer in non-trafficable flat roofs. The gravel layer will be applied as soon as possible to prevent UV damage and/or wind damage to insulation and filter layers.

### **3.9.3 FLASHING AND SHEET METAL**

#### 3.9.3.1 Materials

Any metal listed by ASTM, DIN, BS or EN standards. Manual for a particular item may be used, unless otherwise specified or indicated. Materials shall conform to the requirements specified below and to the thicknesses and configurations established in ASTM, DIN, BS or EN standards. Different items need not be of the same metal, except that if copper is selected for any exposed item, all exposed items shall be copper.

#### 3.9.3.2 Steel Sheet, Zinc-Coated (Galvanized)

Zinc coated steel conforming to ASTM A 525, DIN BS or EN Standards.

#### 3.9.3.3 Aluminum wall capping and expansion joint profiles.

Aluminum wall capping conforming to ASTM B 209 M, DIN 18339, BS or EN Standards.

#### 3.9.3.4 General

Downspouts shall be designed and fabricated on site. Unless otherwise specified or indicated, exposed edges shall be folded back to form a 13 mm (1/2 inch) hem on the concealed side, and bottom edges of exposed vertical surfaces shall be angled to form drips. Bituminous cement shall not be placed in contact with roofing membranes other than built-up roofing.

#### 3.9.3.5 Wall, Floor, Ceiling Expansion Joints Over Plaster

Expansion joints shall be provided as specified in ASTM, DIN 18339, BS or EN Standards.

#### 3.9.3.6 Connections and Jointing

##### 3.9.3.6.1 Soldering

Soldering shall apply to copper, and stainless steel items. Edges of sheet metal shall be pre-tinned before soldering is begun. Soldering shall be done slowly with well heated soldering irons so as to thoroughly heat the seams and completely sweat the solder through the full width of the seam. Edges of stainless steel to be pre-tinned shall be treated with soldering acid flux. Soldering shall follow immediately after application of the flux. Upon completion of soldering, the acid flux residue shall be thoroughly cleaned from the sheet metal with a water solution of washing soda and rinsed with clean water.

##### 3.9.3.6.2 Seaming

Flat-lock and soldered-lap seams shall finish not less than 25 mm. wide. Unsoldered plain-lap seams shall lap not less than 75 mm. unless otherwise specified. Flat seams shall be made in the direction of the flow.

##### 3.9.3.6.3 Cleats

A continuous cleat shall be provided where indicated or specified to secure loose edges of the sheet metalwork. Butt joints of cleats shall be spaced approximately 3 mm. apart. The cleat shall be fastened to supporting wood construction with nails evenly spaced not over 300 mm. on centers. Where the fastening is to be made to concrete or masonry, screws shall be used and shall be driven in expansion shields set in concrete or masonry.

#### 3.9.3.7 Downspouts

Downspouts shall be installed as indicated. Downspouts shall be rigidly attached to the building. Supports for downspouts shall be spaced according to manufacturer's recommendations.

#### 3.9.3.8 Flashing

Flashing shall be installed at locations indicated and as specified below. Sealing shall be according to the flashing manufacturer's recommendations. Flashings shall be installed at intersections of roof with vertical surfaces and at projections through roof, except that flashing for heating and plumbing, including piping, roof and floor drains, and for electrical conduit projections through roof or walls are specified in other sections. Except as otherwise indicated, counter flashings shall be provided over base flashings. Perforations in flashings made by masonry anchors shall be installed on top of joint reinforcement. Lashing shall be formed to direct water to the outside of the system.

#### 3.9.3.8.1 Through-wall Flashing

Through-wall flashing includes sill, lintel, and spandrel flashing. The flashing shall be laid with a layer of mortar above and below the flashing so that the total thickness of the two layers of the mortar and flashing are the same thickness as the regular mortar joints. Flashing shall not extend further in to the masonry backup wall than the first mortar joint. Joints in flashing shall be lapped and sealed. Flashing shall be one piece for lintels and sills.

#### 3.9.3.8.2 Lintel Flashing

Lintel flashing shall extend the full length of lintel. Flashing shall extend through the wall one masonry course above the lintels and shall be bent down over the vertical leg of the outer steel lintel angle not less than 50 mm, or shall be applied over top of masonry and pre-cast concrete lintels. Bed joints of lintels at joints shall be under laid with sheet metal bond breaker.

#### 3.9.3.8.3 Sill Flashing

Sill flashing shall extend the full width of the sill and not less than 100 mm beyond ends of sill except at joint where the flashing shall be terminated at the end of the sill.

#### 3.9.3.9 Wall Capping

Wall Capping shall be installed according to the manufacturer's recommendations.

### **3.9.4 SEALANTS**

#### 3.9.4.1 Interior Sealant

ASTM C 834 or ASTM C 920, Type S or M, Grade NS, Class 12.5, Use NT, DIN, BS, or EN equal standards.

#### 3.9.4.2 Exterior Sealant

For joints in vertical and horizontal surfaces, provide ASTM C 920, Type S or M, Grade NS, DIN, BS, or EN equal standards.

#### 3.9.4.3 Floor Joint Sealant

(ASTM C 920) Type S or M, Grade P, class 25, use T

#### 3.9.4.4 Primers

Provide a non-staining, quick-drying type and consistency recommended by the sealant manufacturer for the particular application.

#### 3.9.4.5 Bond Breakers

Provide the type and consistency recommended by the sealant manufacturer to prevent adhesion of the sealant to backing or to bottom of the joint.

#### 3.9.4.6 Backstops

Backing shall be 25 to 33 percent oversize for closed cell and 40 to 50 percent oversize for open cell material, unless otherwise indicated.

#### 3.9.4.7 Cleaning Solvents

Provide type(s) recommended by the sealant manufacturer except for aluminum and bronze surfaces that will be in contact with sealant.

#### 3.9.4.8 Surface Preparation

Surfaces shall be clean, dry to the touch, and free from dirt, frost, moisture, grease, oil, wax, lacquer, paint, or other foreign matter that would tend to destroy or impair adhesion. Oil and grease shall be removed with solvent and surfaces shall be wiped dry with clean cloths. When resealing an existing joint, remove existing caulk or sealant prior to applying new sealant. For surface types not listed below, the sealant manufacturer shall be contacted for specific recommendations.

#### 3.9.4.9 Masking Tape

Masking tape shall be placed on the finish surface on one or both sides of a joint cavity to protect adjacent finish surfaces from primer or sealant smears. Masking tape shall be removed within 10 minutes after joint has been filled and tooled.

#### 3.9.4.10 Backstops

Install backstops dry and free of tears or holes. Tightly pack the back or bottom of joint cavities with backstop material to provide a joint of the depth specified.

#### 3.9.4.11 Primer

Immediately prior to application of the sealant, clean out loose particles from joints. Where recommended by sealant manufacturer, apply primer to joints in concrete masonry units, wood, and other porous surfaces in accordance with sealant manufacturer's instructions. Do not apply primer to exposed finish surfaces.

#### 3.9.4.12 Bond Breaker

Provide bond breakers to the back or bottom of joint cavities, as recommended by the sealant manufacturer for each type of joint and sealant used, to prevent sealant from adhering to these surfaces. Carefully apply the bond breaker to avoid contamination of adjoining surfaces or breaking bond with surfaces other than those covered by the bond breaker.

#### 3.9.4.13 Sealants

Provide a sealant compatible with the material(s) to which it is applied. Do not use a sealant that has exceeded shelf life or has jelled and can not be discharged in a continuous flow from the gun. Apply the sealant in accordance with the manufacturer's instructions with a gun having a nozzle that fits the joint width. Force sealant into joints to fill the joints solidly without air pockets. Tool sealant after application to ensure adhesion. Sealant shall be uniformly smooth and free of wrinkles. Upon completion of sealant application, roughen partially filled or unfilled joints, apply sealant, and tool smooth as specified. Sealer shall be applied over the sealant when and as specified by the sealant manufacturer.

#### 3.9.4.14 Protection

Protect areas adjacent to joints from sealant smears. Masking tape may be used for this purpose if removed 5 to 10 minutes after the joint is filled.

#### 3.9.4.15 Final Cleaning

Upon completion of sealant application, remove remaining smears and stains and leave the work in a clean and neat condition.

a. Masonry and Other Porous Surfaces: Immediately scrape off fresh sealant that has been smeared on masonry and rub clean with a solvent as recommended by the sealant manufacturer. Allow excess sealant to cure for 24 hour then remove by wire brushing or sanding.

b. Metal and Other Non-Porous Surfaces: Remove excess sealant with a solvent-moistened cloth.

### **3.10 WINDOWS, DOORS & GLAZING**

#### **3.10.1 WINDOWS**

##### 3.10.1.1 Materials

A. Aluminum Extrusions: Provide alloy and temper recommended by the window manufacturer for the strength, corrosion resistance, and application of required finish, meeting the DIN 1725 raw material requirements, but not less than 215 N/mm<sup>2</sup> ultimate tensile strength and not less than 1.5 mm thick at any location for main frame and sash

members.

B. Fasteners: Provide aluminum, nonmagnetic stainless steel, epoxy adhesive, or other materials warranted by the manufacturer to be non-corrosive and compatible with aluminum window members, trim, hardware, anchors, and other components of window units.

1. Reinforcement: Where fasteners screw-anchor into aluminum less than 0.125 inch thick, reinforce the interior with aluminum or nonmagnetic stainless steel to receive screw threads or provide standard non-corrosive pressed-in splined grommet nuts.

2. Exposed Fasteners: Except where unavoidable for application of hardware, do not use exposed fasteners. For application of hardware, use fasteners that match the finish of the member or hardware being fastened, as appropriate.

C. Anchors, Clips, and Window Accessories: Fabricate anchors, clips, and window accessories of aluminum, nonmagnetic stainless steel, or hot-dip zinc-coated steel or iron complying with the requirements of DIN 1748; provide sufficient strength to withstand design pressure indicated. As a minimum provide 3 anchors on each side of the frame.

D. Compression-Type Glazing Strips and Weather stripping: Unless otherwise indicated, and at the manufacturer's option, provide compressible stripping for glazing and weather stripping such as molded EPDM or neoprene gaskets.

E. Sealant: For sealants required within fabricated window units, provide type recommended by the manufacturer for joint size and movement. Sealant shall remain permanently elastic non-shrinking, and non-migrating. Comply with Sealants of these specifications for selection and installation of sealants.

### **3.10.1.2 Hardware**

A. General: Provide the manufacturer's standard hardware fabricated from aluminum, stainless steel, or other corrosion-resistant material compatible with aluminum and of sufficient strength to perform the function for which it is intended.

### **3.10.1.3 Fabrication**

Provide horizontally sliding aluminum windows with factory finish in all buildings to fit the masonry openings. Window openings shall be provided with insect screening permanently fixed to the exterior. Provide a locking device on the interior of each window. Provide anchors on each side of the frame into the adjoining masonry, 3 on each side. Provide weather stripping system for all exterior windows and doors.

### **3.10.1.4 Finishes**

Apply baked enamel in compliance with paint manufacturer's specifications for cleaning, conversion coating, and painting.

1) Color: White meeting the requirements of DIN 50018

#### 3.10.1.5 Inspection

Inspect openings before beginning installation. Verify that rough or masonry opening is correct and the sill plate is level. Masonry surfaces shall be visibly dry and free of excess mortar, sand, and other construction debris.

#### 3.10.1.6 Installation

Comply with manufacturer's specifications and recommendations for installation of window units, hardware, operators, and other components of the work. Set window units plumb, level, and true to line, without warp or rack of frames or sash. Provide proper support and anchor securely in place. Set sill members and other members in a bed of compound or with joint fillers or gaskets, as shown, to provide weather tight construction. Refer to the Sealant sections for compounds, fillers, and gaskets to be installed concurrently with window units. Coordinate installation with wall flashings and other components of the work.

#### 3.10.1.7 Adjusting

Adjust operating sash and hardware to provide a tight fit at contact points and at weather stripping for smooth operation and a weather tight closure.

#### 3.10.1.8 Cleaning

Clean aluminum surfaces promptly after installation of windows. Exercise care to avoid damage to protective coatings and finishes. Remove excess glazing and sealant compounds, dirt, and other substances. Lubricate hardware and other moving parts.

### **3.10.2 DOORS**

All exterior doors (entry and exist doors) shall be heavy duty metal doors with metal frames. Interior door shall be hollow metal doors with hollow metal frames. No wood doors allowed on this project. All glazed doors shall have 6 mm laminated glazing in the upper half of the door. Heavy gauge metal exterior doors are required for security of unmanned buildings, such as water treatment building, power station, warehouses, and other buildings requiring higher security. Commercial duty lock sets and hardware shall be used on all doors. Install required louvers, as called for in paragraph 6, in the lower portion of the door. Provide (3) hinges on all doors. Hinges shall be the 5 knuckle type or equivalent. Provide door handles and locksets that can be locked with a key on all doors. All door locks shall have a thumb latch on inside of door such that no key is necessary to exit the room or building. Coordinate the final keying schedule with Contracting Officer prior to ordering lock sets. Generally each building should have 8 master keys fitting all locks, 8 sub-master keys fitting all exterior doors and 3 keys each for each interior door. Include 25% spare key blanks for the amount of keys provided per building. Provide numbering system identifying key to associated room door. All glazing in or adjacent to doors shall be tempered per IBC. Provide weather

stripping system for all exterior doors.

### 3.10.2.1 Steel Doors

SDI A250.8, except as specified otherwise. Prepare doors to receive specified hardware. Undercut where indicated. Exterior doors shall have top edge closed flush and sealed to prevent water intrusion. Doors shall be 44.5 mm thick, unless otherwise indicated. Doors shall be constructed using heavy gauge steel with minimum thickness of 1.2 mm.

#### 3.10.2.1.1 Accessories

#### 3.10.2.1.2 Standard Steel Frames

SDI A250.8, except as otherwise specified. Form frames to sizes and shapes indicated, with welded corners or knock-down field-assembled corners. Provide steel frames for doors, transoms, sidelights, mullions, cased openings, and interior glazed panels, unless otherwise indicated.

#### 3.10.2.1.3 Welded Frames

Continuously weld frame faces at corner joints. Mechanically interlock or continuously weld stops and rabbets. Grind welds smooth.

#### 3.10.2.1.4 Stops and Beads

Form stops and beads from 0.9 mm thick steel. Provide for glazed and other openings in standard steel frames. Secure beads to frames with oval-head, countersunk Phillips self-tapping sheet metal screws or concealed clips and fasteners. Space fasteners approximately 300 to 400 mm on centers. Miter molded shapes at corners. Butt or miter square or rectangular beads at corners.

#### **3.10.2.1.5 Anchors**

Provide anchors to secure the frame to adjoining construction. Provide steel anchors, zinc-coated or painted with rust-inhibitive paint, anchors not lighter than 1.2 mm thick.

#### 3.10.2.1.6 Wall Anchors

Provide at least three anchors for each jamb. For frames which are more than 2285 mm in height, provide one additional anchor for each jamb for each additional 760 mm or fraction thereof.

a. Masonry: Provide anchors of corrugated or perforated steel straps or 5 mm diameter steel wire, adjustable or T-shaped;

b. Completed openings: Secure frames to previously placed concrete or masonry with expansion bolts

#### 3.10.2.1.6.1 Floor Anchors

Provide floor anchors drilled for 10 mm anchor bolts at bottom of each jamb member. [Where floor fill occurs, terminate bottom of frames at the indicated finished floor levels and support by adjustable extension clips resting on and anchored to the structural slabs.

#### 3.10.2.1.7 Weather-stripping, Integral Gasket

Black synthetic rubber gasket with tabs for factory fitting into factory slotted frames, or extruded neoprene foam gasket made to fit into a continuous groove formed in the frame, may be provided in lieu of head and jamb seals. Insert gasket in groove after frame is finish painted.

#### 3.10.2.1.8 Hardware Preparation

Provide minimum hardware reinforcing gages as specified in ANSI A250.6. Drill and tap doors and frames to receive finish hardware. Prepare doors and frames for hardware in accordance with the applicable requirements of SDI A250.8 and ANSI A250.6. For additional requirements refer to BHMA A115. Drill and tap for surface-applied hardware at the project site. Build additional reinforcing for surface-applied hardware into the door at the factory. Locate hardware in accordance with the requirements of SDI A250.8, as applicable. Punch door frames, with the exception of frames that will have weather-stripping or lightproof or soundproof gasketing, to receive a minimum of two rubber or vinyl door silencers on lock side of single doors and one silencer for each leaf at heads of double doors. Set lock strikes out to provide clearance for silencers.

#### 3.10.2.1.9 Finishes

All surfaces of doors and frames shall be thoroughly cleaned, chemically treated and factory primed with a rust inhibiting coating as specified in SDI A250.8, or paintable A25 galvanized steel without primer. Where coating is removed by welding, apply touchup of factory primer.

#### 3.10.2.1.10 Fabrication and Workmanship

Finished doors and frames shall be strong and rigid, neat in appearance, and free from defects, waves, scratches, cuts, dents, ridges, holes, warp, and buckle. Molded members shall be clean cut, straight, and true, with joints coped or mitered, well formed, and in true alignment. Dress exposed welded and soldered joints smooth. Design door frame sections for use with the wall construction indicated. Corner joints shall be well formed and in true alignment. Conceal fastenings where practicable. On wraparound frames for masonry partitions, provide a throat opening 3 mm larger than the actual masonry thickness. Design other frames in exposed masonry walls or partitions to allow sufficient space between the inside back of trim and masonry to receive calking compound.

#### 3.10.2.1.11 Grouted Frames

For frames to be installed in exterior walls and to be filled with mortar or grout, fill the stops

with strips of rigid insulation to keep the grout out of the stops and to facilitate installation of stop-applied head and jamb seals.

#### 3.10.2.1.12 Installation

##### 3.10.2.1.12.1 Frames

Set frames in accordance with SDI 105. Plumb, align, and brace securely until permanent anchors are set. Anchor bottoms of frames with expansion bolts or powder-actuated fasteners. Build in or secure wall anchors to adjoining construction. Backfill frames with mortar. When an additive is provided in the mortar, coat inside of frames with corrosion-inhibiting bituminous material. For frames in exterior walls, ensure that stops are filled with rigid insulation before grout is placed.

##### 3.10.2.1.12.2 Doors

Hang doors in accordance with clearances specified in SDI A250.8. After erection and glazing, clean and adjust hardware.

#### 3.10.2.1.13 Protection and Cleaning

Protect doors and frames from damage. Repair damaged doors and frames prior to completion and acceptance of the project or replace with new, as directed. Wire brush rusted frames until rust is removed. Clean thoroughly. Apply an all-over coat of rust-inhibitive paint of the same type used for shop coat. Upon completion, clean exposed surfaces of doors and frames thoroughly. Remove mastic smears and other unsightly marks.

### **3.10.3 GLAZING**

ASTM C 1036, or ASTM C 1172 or equal.

3.10.3.1 Temper Glass: Tempered glass shall be kind FT fully tempered flat type. Class 1 clear, condition A uncoated surface, Quality q3-glazing select, conforming to ASTM, DIN, BS or EN standards. Color shall be clear.

3.10.3.2 Laminated Glass: Shall be 6-mm thick glass for all single pane exterior windows, skylights and glazed doors which consist of two nominal 3-mm annealed glass panes bonded together with a minimum of a 0.75-mm polyvinyl-butyl interlayer. For insulating glass units, use 6 mm laminated glass for the inner pane as a minimum per the Unified Facilities Criteria, DoD Minimum Antiterrorism Standards for Buildings

#### 3.10.3.3 Glazing Accessories

##### 3.10.3.3.1 Sealant

Sealant shall be elastomeric conforming to ASTM, DIN, BS, or EN standards. Type S or M, Grade NS, Class 12.5, Use G, of type chemically compatible with setting blocks, preformed sealing tape and sealants used in manufacturing insulation glass. Color of sealant shall be as selected from manufacturer's full range of standard colors by Contracting Officer.

#### 3.10.3.3.2 Glazing Gaskets

Glazing gaskets shall be extruded with continuous integral locking projection designed to engage into metal glass holding members to provide a watertight seal during dynamic loading, building movements and thermal movements. Glazing gaskets for a single glazed opening shall be continuous one-piece units with factory-fabricated injection-molded corners free of flashing and burrs. Glazing gaskets shall be in lengths or units recommended by manufacturer to ensure against pull-back at corners.

#### 3.10.3.3.3 Fixed Glazing Gaskets

Fixed glazing gaskets shall be closed-cell (sponge) smooth extruded compression gaskets of cured elastomeric virgin neoprene compounds conforming to ASTM, DIN, BS. Or EN standards.

#### 3.10.3.3.4 Wedge Glazing Gaskets

Wedge glazing gaskets shall be high-quality extrusions of cured elastomeric virgin neoprene compounds, ozone resistant, conforming to ASTM, DIN, BS, or EN standards.

#### 3.10.3.3.5 Putty and glazing Compound

Glazing compound shall conform to ASTM, DIN, BS, or EN standards for face-glazing metal sash. Putty shall be linseed oil type conforming to DIN, BS, or EN standards for face-glazing primed wood sash. Putty and glazing compounds shall not be used with insulating glass or laminated glass.

#### 3.10.3.3.6 Setting and Edge Blocking

Neoprene setting blocks shall be dense extruded type conforming to ASTM, DIN, BS, or EN standards. Silicone setting blocks shall be required when blocks are in contact with silicone sealant. Profiles, lengths and locations shall be as required and recommended in writing by glass manufacturer.

#### 3.10.3.3.7 Preparation

Openings and framing systems scheduled to receive glass shall be examined for compliance with glass manufacturer's recommendations including size, squareness, offsets at corners, presence and function of weep system, face and edge clearance requirements and effective sealing between joints of glass-framing members. Detrimental materials shall be removed from glazing rabbet and glass surfaced and wiped dry with solvent. Glazing surfaces shall be dry and free of frost.

#### 3.10.3.3.8 Installation

Glass and glazing work shall be performed in accordance with, glass manufacturer's instructions and warranty requirements. Glass shall be installed with factory labels intact and

removed only when instructed. Edges and corners shall not be ground, nipped or cut after leaving factory. Springing, forcing or twisting of units during installation will not be permitted.

#### 3.10.3.3.9 Cleaning

Upon completion of project, outside surfaces of glass shall be washed clean and the inside surfaces of glass shall be washed and polished in accordance with glass manufacturer's recommendations.

#### 3.10.3.4 Protection

Glass work shall be protected immediately after installation. Glazed openings shall be identified with suitable warning tapes, cloth, or paper flags, attached with non-staining adhesives. Reflective glass shall be protected with a protective material to eliminate any contamination of the reflective coating. Protective material shall be placed far enough away from the coated glass to allow air to circulate to reduce heat buildup and moisture accumulation on the glass. Glass units which are broken, chipped, cracked, abraded, or otherwise damaged during construction activities shall be removed and replaced with new units.

### 3.11 FINISHES

All finishes, colors and materials in existing building and new buildings shall match. See Section 01335 for color submittals required. Provide color boards with all materials for COR approval prior to ordering materials.

3.11.1 The exterior of all buildings shall be stucco. A temperature of between 4 and 27 degrees C shall exist for a period of not less than 48 hours prior to application of plaster and for a period of at least 48 hours after plaster has set. Control joints shall be designed for expansion and contraction of plaster work due to thermal exposure. Control joints shall comprise of back to back casing beads. Install new stucco in 2 coats. The first coat shall be a scratch coat approximately 1 cm thick. Allow 7 days to cure. The second coat shall be finish stucco, smooth finish, approximately 1 cm thick. Allow 7 days to cure before painting. Stucco showing over sanding, cracks, blisters, pits, checks, discoloration or other defects is not acceptable. Defective plaster work shall be removed and replaced with new plaster at the expense of the Contractor. Patching of defective work will be permitted only when approved by the Contracting Officer. Patching shall match existing work in texture and color. All exterior color finish shall be integral with the stucco finish. No painted stucco shall be permitted due to minimize future maintenance. Color to be selected by the Contracting Officer from the color board provided by the Contractor.

3.11.2 Paint all exposed fascias, soffits, and doors with 2 coats of gloss enamel, white.

3.11.3 Exposed exterior steel trim, frames, doors and pipe railings: Paint with one coat oil-based primer, with 2 coats of oil-based alkyd gloss enamel, color to be selected by the Contracting Officer from the color board provided by the Contractor.

3.11.4 Tile: Tile work shall not be performed unless the substrate and ambient

temperature is at least 10 degrees C and rising. Temperature shall be maintained above 10 degrees C while the work is being performed and for at least 7 days after completion of work. Upon completion, tile surfaces shall be thoroughly cleaned in accordance with manufacturer's approved cleaning instructions. Acid shall not be used for cleaning glazed tile. Floor tile with resinous grout or with factory mixed grout shall be cleaned in accordance with instructions of the grout manufacturer. After the grout has set, tile wall surfaces shall be given a protective coat of a non-corrosive soap or other approved method of protection.

### 3.12 STANDARDS

The Contractor should use the following American standards to provide sound structural design if local standards are not available, relevant, or applicable. The Contractor shall follow American Concrete Institute Standards for design and installation of all concrete structures.

Concrete	210.0 kg./sq.cm (f'c) a minimum specified compressive strength @ 28 days (ASTM-. C 31M)
Steel Reinforcement	4218.0 kg./sq.cm(Fy= 60.0 ksi),yield strength.
Welded Wire Fabric	ASTM A185
Anchor Bolts	ASTM A307 using A36 steel.
Concrete Masonry Units	ASTM C90, Type I (normal wt, moisture Cntrl).
Mortar	ASTM C270, Type S (Ultimate compressive strength of 130.0 kg/sq. cm.)
Proportion	1 part cement, 0-1/2 part lime and 4-1/2 parts aggregate
Grout	ASTM C476 (Slump between 200 mm to 250 and Compressive Strength 14 MPa (2000 psi) at 28 days.
Joint Reinforcement	Standard 9 gage minimum, Ladder Type
Structural Steel	ASTM A36: 2530.0 kg./sq.cm (Fy = 36,000psi)
Welding	AWS (American Welding Society) D1.1-2002.

## 4. STRUCTURAL

### 4.1 GENERAL

The project consists of various structures. The new buildings shall be provided with a reinforced concrete slab foundation that is properly placed on suitable compacted ground area and shall be in accordance with the recommendations from the geotechnical investigation. The reinforced concrete foundation shall be designed by the Contractor. Building foundations shall be founded a minimum of 800 mm below grade.

### 4.2 DESIGN

Design shall be performed and design documents signed by a registered professional architect and/or engineer. Calculations shall be in SI (metric) units of measurements. All components of the building shall be designed and constructed to support safely all loads without exceeding the allowable stress for the materials of construction in the structural members and connections. [All building exterior walls shall be constructed with reinforced

CMU, shotcrete 3-D panels, or reinforced concrete unless otherwise stated in sections 1010 or 1015.]

#### **4.3 DEAD AND LIVE LOADS**

Dead loads consist of the weight of all materials of construction incorporated in the buildings. Live loads used for design shall be in accordance with the Structural Load Data, UFC-3-310-01, edition as referenced herein.

#### **4.4 WIND LOADS**

Wind loads shall be calculated using a "3-second gust" wind speed of 135 km/hr.

#### **4.5 SEISMIC**

The building and all parts thereof shall be designed for the seismic requirements as defined by the International Building Code referenced herein. Spectral ordinates shall be  $S_s = 1.28g$  and  $S_1 = 0.51g$ .

#### **4.6 STRUCTURAL CONCRETE**

Concrete structural elements shall be designed and constructed in accordance with the provisions of the American Concrete Institute, Building Code Requirements for Structural Concrete, ACI 318, latest edition. A minimum cylinder 28 day compressive strength of 21 MPa (3000 psi) shall be used for design and construction of all concrete, except that 24 MPa (3500 psi) shall be used for Shotcrete applications. Reinforcing steel shall be deformed bars conforming to American Society for Testing and Materials (ASTM) publication ASTM A 615, Deformed and Plain Billet-Steel Bars for Concrete Reinforcement. Concrete at or below grade shall have maximum water-cement ratio of 0.50. No concrete shall be placed when the ambient air temperature exceeds 32 degrees C (90 degrees F) unless an appropriate chemical retardant is used. In all cases when concrete is placed at 32 degrees C (90 degrees F) or hotter it shall be covered and kept continuously wet for a minimum of 48 hours. Concrete members at or below grade shall have a minimum concrete cover over reinforcement of 75 mm (3 inch).

#### **4.7 MASONRY**

Masonry shall be designed and constructed in accordance with the provisions of Building Code Requirements for Masonry Structures, ACI 530/ASCE 5/TMS 402, latest editions. Mortar shall be Type S and conform to ASTM C 270, latest edition. Masonry shall not be used below grade, unless for fully grouted and reinforced foundation stem walls. **All cells of CMU walls shall be fully grouted and reinforced.**

#### **4.8 STRUCTURAL STEEL**

Structural steel shall be designed and constructed in accordance with the provisions of American Institute of Steel Construction (AISC), Specifications for Structural Steel Buildings, 9th Edition. Design of cold-formed steel structural members shall be in accordance with the

provisions of American Iron and Steel Institute (AISI), Specifications for Design of Cold-Formed Steel Structural Members.

#### **4.9 METAL DECK**

Deck units shall conform to SDI Pub. No. 29. Panels of maximum possible lengths shall be used to minimize end laps. Deck units shall be fabricated in lengths to span three or more supports with flush, telescoped or nested 50 mm (2 inch) laps at ends, and interlocking, or nested side laps. Metal deck units shall be fabricated of steel thickness required by the design and shall be galvanized.

#### **4.10 OPEN WEB STEEL JOIST**

Open web steel joists shall conform to SJI Specifications and Tables. Joists shall be designed to support the loads given in the standard load tables of SJI Specifications and Tables.

#### **4.11 FOUNDATIONS**

Foundations shall be in accordance with the Geotechnical requirements of this RFP.

### **5. GEOTECHNICAL**

#### **5.1 SOIL INVESTIGATION**

Existing geotechnical information is not available at the project site. Any site-specific geotechnical data required to develop foundations, materials, earthwork, and other geotechnical related design and construction activities for this project shall be the Contractor's responsibility. The Contractor shall develop all pertinent geotechnical design and construction parameters by appropriate field and laboratory investigations and analyses. The Contractor shall produce a detailed geotechnical report containing field exploration and testing results, laboratory testing results (particle sizes and distribution, liquid and plastic limit test, and moisture and density test, etc.). Information in the report shall include, but not limited to: existing geotechnical (e.g. surface and subsurface) conditions, location of subsurface exploration logs on site plan, exploration point, allowable soil bearing capacity and foundations recommendations, bearing capacity, pavement design criteria (e.g. CBR values, K values), ground-water levels, and construction materials (e.g. concrete cement, asphalt, and aggregates). Two copies of the detailed geotechnical report shall be submitted to the Contracting Officer.

#### **5.2 Geotechnical Qualifications**

A geotechnical engineer or geotechnical firm responsible to the Contractor shall develop all geotechnical engineering design parameters. The geotechnical engineer or geotechnical firm shall be qualified by: education in geotechnical engineering; professional registration; and a minimum of ten (10) years of experience in geotechnical engineering design.

### **6. MECHANICAL**

## 6.1 GENERAL

The work covered by this section consists of design, supply, fabrication and installation of new building heating systems.

## 6.2 CODES, STANDARDS AND REGULATIONS

The equipment, materials and works covered under the heating services shall conform to the referenced standards, codes and regulations where applicable except where otherwise mentioned under each particular clause.

## 6.3 DESIGN CONDITIONS

Outside Design Conditions. **(Contractor shall verify the ambient conditions with available and reliable local weather data.)**

Latitude – (approx.) 34.55 deg. North  
Longitude – (approx.) 69.22 deg. East  
Elevation – (approx.) 1790 M (5876 ft.)  
Summer – 33.9 deg C (93 deg F) Dry Bulb (DB)  
19.4 deg C (67 deg F) Wet Bulb (WB)  
Winter – (-12.8 deg C/9 deg F)  
Daily Range – 19 F

Indoor Design Conditions:

Summer indoor design  
33.9 deg C (93 deg F) Dry Bulb (DB)

Winter Indoor design:  
19.4 deg C (67 deg F) Wet Bulb (WB)

### 6.3.1 INTERNAL LOADS

- a. Occupancy: Use ASHRAE standards to calculate sensible and latent heat from people
- b. Lighting (Fluor.): 21.5 W/m<sup>2</sup> (2 W/Ft<sup>2</sup>) maximum (however lighting levels shall meet minimum requirements)
- c. Outdoor Air: 34 CMH/Person (20 CFM) or “51 CMH/bedroom (30 CFM/bedroom)”; Latrine – 85 CMH/WC or Urinal (50 CFM) exhaust.
- d. Building Pressurization: 1.3 mm W.G. (0.05 in W.G.); Maintain negative pressure in latrine areas

## 6.4 Wall Penetrations

Building wall penetrations shall be carefully made so as not to deteriorate the structural integrity of the wall system. The Contractor shall consult with the building manufacturer, if

possible, to determine the best way to penetrate the wall. If the building manufacturer is not available, a structural engineer shall be consulted. In either case, the recommendations of the engineer shall be strictly adhered to.

## **6.5 ELECTRIC RESISTANCE HEATERS**

6.5.1 Unit Heater. Electric resistance heaters shall be installed in small spaces where only heating is required. Provide a self-contained electric heating unit, suspended from ceiling or structure, with fan and heating elements. Provide control-circuit terminals and single source of power supply with disconnect. Heating wire element shall be nickel chromium. Include limit controls for overheat protection of heaters. Provide tamper resistant integral thermostat.

6.5.2 Cabinet Heater. Cabinet heaters shall be installed in small spaces where only heating is required. Provide a self-contained electric heating unit, recessed mounted in wall or structure, with fan and heating elements. Provide control-circuit terminals and single source of power supply with disconnect. Heating wire element shall be nickel chromium. Include limit controls for overheat protection of heaters. Provide tamper resistant integral thermostat.

## **6.6 Submittals**

The Contractor shall submit the following for the equipment to be provided under this section of the specification: manufacturer's data including performance characteristics at design conditions; manufacturer's certificate stating that each unit will perform to the conditions stated, catalog cuts showing dimensions, performance data, electrical requirements, compliance with standards as stated in paragraph CODES, STANDARDS AND REGULATIONS; complete shop drawings indicating location and installation details.

The manufacturer shall also submit a 2 year warranty for each of the units.

## **7. ELECTRICAL**

### **7.1 GENERAL**

Contractor shall design and construct the electrical systems for the project. This includes design, construction, all necessary labor, equipment, and material for a fully functional system. Secondary electrical distribution shall be 220/380 Volt, 3-phase, 4 wire, 50 Hertz. Design of the electrical system shall include, but is not limited to (a) exterior electrical distribution, (b) interior secondary power distribution system, and (c) lighting and power branch circuit and devices. All systems shall be designed for the ultimate demand loads, plus 20% spare capacity.

### **7.2 Design Criteria**

#### **7.2.1 Applicable Standards**

- a. Design shall be in the required units as stipulated in the Contract.
- b. Conflicts between criteria and/or local standards shall be brought to the attention of the Contracting Officer for resolution. In such instances, all available information shall be

furnished to the Contracting Officer for approval.

c. All electrical systems and equipment shall be installed in accordance with NFPA code requirements.

d. Acceptance Testing: Contractor shall develop and submit for approval complete acceptance test procedures on all systems provided. As a minimum the testing procedures shall comply with the requirements of NFPA 70 (NEC) and International Electrical Testing Association Inc. (NETA).

e. Additional references including the following:

ANSI/IEEE Std 81-1983

ANSI/NETA ETT-2000

ANSI/NETA MTS 7.2.2-2001

EIA ANSI/TIA/EIA-607: (1994) Commercial Building Grounding/Bonding Requirement Standard.

Factory Mutual (FM) Approval Guide-Fire Protection (2002).

IBC - International Building Code

IEEE C2 National Electrical Safety Code (NESC)

IEEE Std 62™-1995 (R2005)

IEEE Std 81.2-1991

IEEE 100

IEEE 241 - 1990

IEEE 242 - 2001

IEEE standard 400-1991

IEEE standard 519-1992

IEEE C57.12.22

IEEE C57.12.34

IEEE C57.12.28

IEEE C57.12.80

IESNA Lighting Handbook

International Electrical Testing Association Inc. (NETA) Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems

NFPA 10, Portable Fire Extinguishers

NFPA 70, National Electrical Code

NFPA 101, Life Safety Code, 2003 edition

TM 5-811-1 Design: Electrical Power Supply and Distribution

UFC 3-520-01 Interior Electrical Systems, 10 June 2002

UFC 3-530-01AN Design: Interior and Exterior Lighting and Controls 19 Aug 2005

UFC 3-550-03FA Electrical Power Supply and Distribution

Underwriters' Laboratories (UL) Fire Protection Equipment Directory (2002).

### **7.3 Material:**

#### **7.3.1 General:**

Unless noted otherwise, all material used shall be in compliance with the requirements of UL standards. In the event that UL compliant materials are not available, Contractor may then select applicable British Standards (BS), IEC, CE, CSA, GS, DIN listed material (or equivalent), but the contractor must prove equivalence and must provide the government

with a full copy of the relevant specification(s)/standard(s). Material and equipment installed under this contract shall be for the appropriate application and installed in accordance with manufacturers recommendations.

Equipment enclosure types shall be in compliance with the National Electrical Manufacturer's Association (NEMA) or the International Electro-Technical Committee (IEC) standards.

Material and equipment installed under this contract shall be for the appropriate application. Materials and equipment shall be installed in accordance with recommendations of the manufacturer. Major components of equipment shall have the manufacturer's name, address, type or style, voltage and current rating, and catalog number on a non-corrosive and non-heat sensitive plate, securely attached to the equipment. All equipment delivered and placed in storage, prior to installation, shall be protected from the weather, humidity and temperature variation, dirt and dust, and any other contaminants. All equipment shall be in new condition, undamaged and unused.

### **7.3.2 Standard Product:**

All 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 two (2) years prior to bid opening.

**7.3.3 Design Conditions:** All equipment shall be rated and designed for 49 degrees Celsius (120 degrees Fahrenheit) and minimum elevation of 1800 meters (6000 feet) above sea level.

**7.3.4 Restrictions:** Aluminum conductors shall not be specified or used.

## **7.4 Design Requirements**

### **7.4.1 Electrical Distribution System**

The contractor shall provide and install properly sized service entrance feeder from the main distribution panel to the service entrance equipment located inside of the well house.

All panel boards shall be circuit breaker 'bolt-on' type panels. Minimum size circuit breaker shall be rated at no less than 20 amps. Circuit breakers shall be connected to bus bar(s) within the panel boards. Daisy chain (breaker-to-breaker) connection(s) are not acceptable. Indoor distribution panels shall be flush mounted in finished areas and surface mounted in unfinished areas. All circuit breakers shall be labeled with an identification number corresponding to the panel schedule. A 3-pole circuit breaker shall be a single unit and not made up of 3 single pole circuit breakers connected with a wire or bridged to make a 3-pole breaker. All wiring shall be copper, minimum 4mm<sup>2</sup> (12 AWG) installed in metal conduit. Wiring shall be recessed in finished areas and surface mounted in unfinished areas. All panels shall be provided with a minimum of 20% spare capacity for future load growth.

Power receptacles (outlets) shall be duplex type 220 V, 50 hertz, type CEE 7/7 with Earth

Ground rated for 20A or better and shall be compatible with the required secondary power. All splicing and terminations of wires shall be performed in a junction or device boxes. Proper wire nuts/connectors shall be used for splicing wire. No twist-wire connections with electrical tape wrapped around it shall be acceptable. For panels 225 amps and above, provide an ammeter, voltmeter and kilowatt-hour meter to monitor energy usage. Selector switch shall be provided for reading all 3 phases.

Contractor shall design and install circuits for all mechanical equipment and any other equipment that requires power and make the final connections. Receptacle locations shall be coordinated with architectural requirements.

All loads shall be coordinated to provide balanced loading. Phase imbalance at each panel shall not exceed 5%. Voltage drop for branch circuits shall be limited to no more than 3%. Voltage drop for branch and feeder circuits combined shall be limited to no more than 5%. All circuit breakers shall use down-stream coordination to ensure the breaker nearest a fault or overload is the first to trip.

#### **7.4.2 Lighting**

Minimum lighting design levels shall be per IES standards. For convenience, the following lighting levels are provided.

Mechanical/Electrical rooms	30 FC (325 Lux)
Egress path (incl. exterior)	10 Lux
Areas adjacent to egress path	0.5 Lux

FC = footcandle

H = horizontal component

V = vertical component

Indoor lighting for all areas shall consist of fluorescent light fixtures. Moisture resistant/waterproof fluorescent light fixtures shall be provided in high humidity and wet areas. Battery powered 'emergency' and 'exit' lights shall be provided where applicable, for safe egress during a power outage. Exterior building fixtures shall be installed in accordance with IES recommendations and consistent with existing fixtures located throughout the project site.

All light fixtures shall be factory finished, complete and operational, to include but shall not be limited to, lens, globe, lamp, ballast etc. Industrial type fluorescent light fixtures shall not be used. Each room shall be provided with a minimum of one light switch.

#### **7.4.3 Light Fixtures**

Light fixtures shall be mounted approximately 2.5-meters (8 feet) above finished floor (AFF), minimum. Fixtures may be pendant or ceiling mounted, depending on the ceiling type and height.

Lighting fixtures shall be a standard manufacturer's product. Fluorescent light fixtures shall be power factor corrected and equipped with electronic ballast(s). All light fixtures shall

properly operate using standard lamps available locally. Fixtures shall be fully factory wired and designed for appropriate application i.e. appropriate for that location where installed.

#### **7.4.4 Light Switches**

Light switches shall be single pole. A minimum of one light switch shall be provided in every room. Lighting in large rooms/areas may be controlled from multiple switches. Multiway lighting shall be provided in all rooms/areas with multiple entrances.

#### **7.4.5 Emergency "EXIT" Light Fixtures**

Emergency exit light fixtures shall be provided in accordance the NEC. Fixtures shall be single side and for wall/ceiling mounting. Unit shall illuminate continuously and be provided with self-contained nickel cadmium battery pack, to operate on floated-battery or trickle charge circuit. Fixture shall operate satisfactorily for 90 minutes during a power outage. Unit shall have test/reset buttons and lamp failure indication. Primary operating voltage shall be 220 volts. Lettering "EXIT" shall not less than 6 inches (150 mm) in height and on matte white background. Illumination shall be by LED.

#### **7.4.6 Not used**

#### **7.4.7 Emergency Lighting**

Battery powered emergency lights shall be provided within each building per NFPA for safe egress during power outage. Fixtures shall be provided with self-contained nickel cadmium battery pack to operate on stand-by circuit for 90-minute minimum. Unit shall have test/reset buttons and lamp failure indication. Primary operating voltage shall be 220 volts.

#### **7.4.8 Receptacles**

General-purpose receptacles shall be as provided as required. All receptacles shall be duplex, unless otherwise specified in this section, section 01010, the NEC, or other referenced standard.

In general, receptacles shall be placed at 3-meter (10 feet) intervals (maximum). Receptacles in wet/damp areas shall be ground fault circuit interrupter (GFCI) type or Residual Current Disconnect (RCD) type, with the trip setting of 10 milliamperes or less. Duplex receptacles shall be limited to six (6) per 20 amp circuit breaker.

#### **7.4.9 Conductors**

All cable and wire conductors shall be copper. Conductor jacket or insulation shall be color coded to satisfy NEC requirements. The use of 75 or 90 degree C (minimum) terminals and insulated conductors is required. Use of 75 degree C conductors on circuits with protective device terminals rated for 60 degree C shall not be accepted.

#### **7.4.10 Grounding and Bonding**

Grounding and bonding shall comply with the requirements of NFPA 70. Underground connections shall be exothermal welded. All exposed non-current carrying metallic parts of electrical equipment in the electrical system shall be grounded. An insulated grounding conductor shall be installed in all feeder and branch circuit raceways. Grounding conductor shall be green-colored, unless the local authority requires a different color-coded conductor. Ground rods shall be copper-clad steel. Final measurement of the ground resistance shall be in compliance with the requirements of the local authority but shall not exceed 25 ohms when measured less than 48 hours after rainfall.

#### **7.4.11 Enclosures**

Enclosures for exterior and interior applications shall be NEMA Type 3S (IEC Classification IP54) and NEMA Type 1 (IEC Classification IP10), respectively. Enclosures in wet damp locations shall be NEMA 4X (IEC Classification IP56) minimum.

#### **7.4.12 Transient Voltage Surge Suppression (TVSS)**

TVSS protection shall be provided at each panel. It is recommended that metal oxide varistor (MOV) technology be used for such application.

#### **7.4.13 Conduit Raceway System**

Metal conduit system shall be complete, to include but shall not be limited to, necessary junction and pull-boxes. Smallest conduit size shall be than 20mm (0.75 inch) in diameter. All empty conduits shall be furnished with pullwire. Exterior conductors shall be installed in PVC conduit at a depth consistent with applicable codes.

#### **7.4.14 Identification Nameplates**

Major electrical equipment, such as transformers, panel boards, and load centers, etc. shall be provided with permanently installed engraved identification nameplates.

#### **7.4.15 Schedules**

All panel boards and load centers shall be provided with a panel schedule. Schedule shall be typewritten in English.

#### **7.4.16 Single Line Diagram**

Complete single line diagrams shall be provided for all systems installed. All major items in each system shall be identified and labeled for respective rating. Single line diagrams for each system, installed in a clear plastic frame, shall be provided.

END OF SECTION

# **SPECIAL CLAUSES**

## **PART 1 GENERAL**

### **1.1 PRECONSTRUCTION CONFERENCE**

#### **1.1.1 Schedule of Meeting**

At the earliest practicable time, prior to commencement of the work, the Contractor and any Subcontractors whose presence is necessary or requested, shall meet in conference with representatives of the Contracting Officer to discuss and develop a mutual understanding relative to the details of the administration and execution of this contract. This will include but not necessarily be limited to the Contractor's Quality Control (CQC) Program, the Contractors Accident Prevention Program, submittals, correspondence, schedule, access to the work site, security requirements, interface requirements, temporary facilities and services, hazards and risks, working after normal hours or on weekends or holidays, assignment of inspectors, representations, special requirements, phasing, and other aspects of this project that warrant clarification and understanding.

#### **1.1.2 Meeting Minutes**

It shall be the responsibility of the Contractors CQC System Manager to prepare detailed minutes of this meeting and submit those minutes to the Contracting Officer for approval within three (3) workdays. Any corrections deemed necessary by the Contracting Officer shall be incorporated and resubmitted within two (2) calendar days after receipt. Upon approval of the minutes by the Contracting Officer, the Contractor shall distribute the minutes to all parties present or concerned.

### **1.2 AREA USE PLAN**

The Contractor shall submit to the Contracting Officer, within ten (10) calendar days after award of this contract, an Area Use Plan designating intended use of all areas within the project boundaries. This plan shall include, but not necessarily be limited to the following: the proposed location and dimensions of any area to be fenced and used by the Contractor; construction plant and building installations/the number of trailers and facilities to be used; avenues of ingress/egress to the fenced areas and details of the fence installation; drawings showing temporary electrical installations; temporary water and sewage disposal installations; material storage areas; hazardous storage areas. Any areas that may have to be graveled shall also be identified. The plan shall also include a narrative description of the building structural system, the site utility system and the office or administration facilities. The Contractor shall also indicate if the use of a supplemental or other staging area is desired. The Contractor shall not begin construction of the mobilization facilities prior to approval by the Contracting Officer of the Area Use Plan described herein.

### **1.3 CONTRACTOR'S MOBILIZATION AREA**

The Contractor will be permitted to use an area designated by the Contracting Officer within the contract limits for operation of his construction equipment and plants, shops, warehouses, and offices. The Contractor is responsible for obtaining any required additional mobilization area above that designated. The construction site shall be cleared of construction debris and other materials and the area restored to its final grade.

### **1.3.1 Contractor's Temporary Facilities**

#### **1.3.1.1 General**

All facilities within the Contractor's mobilization area shall be of substantial construction suitable for the local weather conditions. Sanitary facilities shall meet the requirements of Corps of Engineers, Safety and Health Requirements Manual EM 385-1-1. Local nationals will not be granted any privileges under this contract.

#### **1.3.1.2 Administrative Field Offices**

The Contractor may provide and maintain administrative field office facilities within the mobilization area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

#### **1.3.1.3 Storage Area**

The Contractor shall construct a temporary 1.8 meter (6 foot) high chain link fence around trailers and materials. The fence shall include plastic strip inserts, colored green or brown, so that visibility through the fence is obstructed. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Trailers, materials, or equipment shall not be placed or stored outside the fenced area unless approved in writing by the Contracting Officer.

#### **1.3.1.4 Plant Communication**

Whenever the Contractor has the individual elements of its plant so located that operation by normal voice between these elements is not satisfactory, the Contractor shall install a satisfactory means of communication, such as telephone or other suitable devices. If radio communication is approved by Contracting Officer / installation security office, frequency selection shall be approved by Contracting Officer to prevent interference with installation operations. Such devices shall be made available for use by Government personnel.

#### **1.3.1.5 Appearance of Mobilization Site Facilities and/or Trailers**

Mobilization Site Facilities and/or Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers or other transportable structures which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on the construction site until such work or maintenance has been performed to the satisfaction of the Contracting Officer.

### **1.3.1.6 Maintenance of Storage Area**

Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse unpaved areas which are not established roadways with construction equipment or other vehicles, such areas shall be covered with a layer of gravel as necessary to prevent rutting and the tracking of soil onto paved or established roadways; gravel gradation shall be at the Contractor's discretion.

### **1.3.1.7 Security Provisions**

Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security of its own facilities and equipment.

### **1.3.1.8 Sanitation**

a. Sanitary Facilities: The Contractor shall provide portable sanitation facilities for the Contractor's use. The Contractor shall be responsible for maintaining such facilities at no expense to the Government.

b. Trash Disposal: The Contractor shall be responsible for collection and disposal of trash from the work areas and from the mobilization area. General construction debris and demolition debris shall be collected and transported by the Contractor to a location designated by the Government. Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Loose debris capable of being windblown, shall be immediately placed in sealed or covered containers to prevent it from being blown onto taxiways or runways. Any dirt or soil that is tracked onto paved or surfaced roadways shall be cleaned daily. Materials resulting from demolition activities that are salvageable shall be stored within the fenced area described above. Stored material not indoors, whether new or salvaged, shall be neatly stacked when stored.

### **1.3.1.9 Telephone**

The Contractor shall make arrangements to install and pay all costs for telephone facilities desired.

### **1.3.1.10 Restoration of Storage Area**

Upon completion of the project and after removal of mobilization facilities, trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse unpaved areas shall be removed and all such areas restored to their original conditions.

### **1.3.2 Protection and Maintenance of Traffic**

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected

roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the Host Nation and base authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with base traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

#### **1.3.2.1 Use of Existing Roads as Haul Routes**

The Contractor shall be responsible for coordinating with the base authorities for use of any existing roads as haul routes. Construction, and routing of new haul roads, and/or upgrading of existing roads to carry anticipated construction traffic shall be coordinated with the Base authorities and is the sole responsibility of the Contractor.

#### **1.3.2.2 Employee Parking**

The Contractor's employees may be allowed parking on the military installation. The Contractor is responsible for transporting workers (local nationals) from off post to the worksite, coordinating security identification screening, and cooperating in gate searches with the base authorities. The government reserves the right to terminate any and all contractor parking at any time.

#### **1.3.3 Temporary Project Safety Fencing and Barricades**

The Contractor shall impose all measures necessary to limit public access to hazardous areas and to ensure the restriction of workers to the immediate area of the construction and mobilization site. The Contracting Officer may require in writing that the Contractor remove from the work any employee found to be in violation of this requirement.

##### **1.3.3.1 Barricades**

Barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night. Travel to and from the project site shall be restricted to a route approved by the Contracting Officer.

#### **1.3.4 Host Nation Authorizations, Permits and Licenses**

It shall be the Contractor's responsibility to obtain such local authorizations, permits and licenses necessary to establish his quarry operations, batching operations and haul routes (See Special Clause entitled: COMPLIANCE WITH HOST COUNTRY RULES AND CUSTOMS).

## **1.4 RESPONSIBILITY FOR PHYSICAL SECURITY**

Prior to mobilization, the Contractor shall submit his proposed means of providing project security to prevent unauthorized access to equipment, facilities, materials and documents, and to safeguard them against sabotage, damage, and theft. The Contractor shall be responsible for physical security of all materials, supplies, and equipment of every description, including property which may be Government-furnished or owned, for all areas occupied jointly by the Contractor and the Government, as well as for all work performed.

## **1.5 DUST CONTROL**

The Contractor shall be required to control objectionable dust in the work areas, access roadways, and haul roads by means of controlled vehicle speeds or dust palliatives. Vehicles transporting sand, cement, gravel or other materials creating a dust problem shall be covered, as directed by the Contracting Officer, or in accordance with local Laws, codes, and regulations.

## **1.6 DIGGING PERMITS**

### **1.6.1 Requirements for Digging Permits**

### **1.6.2 Requests for Digging Permits**

Requests for Digging Permits shall be submitted to Contracting Officer a minimum of seven (7) days prior to the start of the work activity covered by the permit. The request for a Digging Permit shall include a narrative description of the work to be performed and a detailed map of the area of the excavation clearly marking the location of all known utilities or other obstructions. If the work activity covered by the Digging Permit request also requires a utility outage, a separate request for the outage shall be submitted in accordance with the paragraph entitled CONNECTIONS TO EXISTING UTILITIES.

### **1.6.3 Preparation of Requests for Digging Permits**

Prior to submitting a request for a Digging Permit, the Contractor shall carefully review the area to be excavated to determine the location of existing utilities and other obstructions. The Contractor will review available drawings and will conduct a visual inspection of the site. The Contractor will utilize underground utility detecting devices such as metal and cable detectors to determine the location of existing utilities. All utility lines found shall be clearly flagged or marked and the location of the utility shall be shown on the drawing to be submitted with the request for Digging Permit.

### **1.6.4 Existing Underground Utilities**

The Contractor shall exercise utmost care in researching locations of existing utilities and reducing damage to existing utilities. Any utilities damaged by the Contractor shall be promptly repaired by the Contractor. The Contracting Officer will review and approve any proposed repairs. Any damage to existing utilities will be immediately reported to the

Contracting Officer and the Base Commander.

## **1.7 CONNECTIONS TO EXISTING UTILITIES**

### **1.7.1 General**

Any outage involving disruption of electrical service beyond the site area shall be requested in writing at least ten (10) days in advance of the date requested for the commencement of the outage. The Contractor shall provide a request, detailing the type of outage needed (electrical, etc.), the time needed to perform the work, the reason for the outage, and the known affected facilities. The Contracting Officer shall be contacted prior to the outage to confirm the time and date. If the Contractor fails to initiate work at the approved time, the Contracting Officer may cancel the approved outage and may direct the Contractor to resubmit a new request. No part of the time lost due to the Contractor's failure to properly schedule an outage shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

#### **1.7.1.2 Exterior Night Lighting**

Exterior night lighting shall be provided in conformance with EM-385-1-1 entitled Safety and Health Requirements Manual.

### **1.7.2 Existing Underground Utilities**

The Contractor is provided notice that existing utilities may be present in the construction area. The Contractor shall exercise the utmost care in researching locations of existing utility lines by implementing control measures to eliminate, or reduce to a level acceptable to the Contracting Officer, the chance of damaging or destroying existing utilities.

#### **1.7.2.1 Use of Underground Utility Detecting Device**

Prior to any excavation, a metal and/or cable-detecting device shall be used along the route of the excavation. All underground utilities discovered by this method will be flagged a minimum distance of one-half (1/2) meter on each side of the location.

#### **1.7.2.2 Hand Excavation**

Hand excavation methods and special supervisory care shall be used between any flagged markers, in areas of known or suspected hazards, and in areas known or suspected to have multiple and/or concentrated utility lines or connections.

### **1.7.3 Repair of Damaged Utilities**

The Contractor shall be responsible to repair any utilities damaged by him. The method of repair and schedule for performance of the repair shall be coordinated with, and subject to the approval of, the Contracting Officer. The repair work and any temporary work required to keep the system operational while repairs are being completed, shall be performed at no cost to the Government.

## **1.8 WATER**

The Contractor shall install and maintain necessary supply connections and piping for same, but only at such locations and in such manner as may be approved by the Contracting Officer. Before final acceptance of systems, or facilities, all temporary connections and piping installed by the Contractor shall be removed at his expense in a manner satisfactory to the Contracting Officer.

## **1.9 ELECTRICITY (CONTRACTOR PROVIDED)**

Electrical service is not available for use under this contract; therefore all electric current required by the Contractor shall be the responsibility of the Contractor, furnished at his own expense. The Contractor shall provide diesel generators to meet his demand requirements. Electricity required for final testing systems will be furnished by the Government. [The Government will provide permanent high voltage electricity to a point indicated by the Contracting Officer for use by the Contractor in the performance of final testing of systems.] The means of doing so, such as by temporary distribution systems, shall be the responsibility of the Contractor. All temporary connections for electricity shall be subject to the approval of the Contracting Officer and shall comply with Corps of Engineers manual EM 385-1-1 entitled Safety and Health Requirements Manual. All temporary lines shall be furnished, installed, connected and maintained by the Contractor in a workmanlike manner satisfactory to the Contracting Officer. Before final acceptance of systems, or facilities, all temporary connections installed by the Contractor shall be removed at his expense in a manner satisfactory to the Contracting Officer.]

## **1.10 WORK OUTSIDE REGULAR HOURS**

If the Contractor desires to carry on work outside regular base duty hours, or on holidays, including the following U.S. holidays: New Year's Day, Martin Luther King Jr Birthday, President's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving and Christmas. the Contractor shall submit an application to the Contracting Officer. Due to reliance upon local national laborers and time off due to local observances, there may be disruptions. Potentials dates are the following local observances: National Islamic Holiday of Ashura, Ramadan (actual date varies – check with local authorities). The Contractor shall allow ample time to enable satisfactory arrangements to be made by the Government for inspecting the work in progress. At night, exterior lighting shall be provided in conformance with EM-385-1-1 entitled "Safety and Health Requirements Manual".

## **1.11 SCHEDULING OF WORK IN EXISTING FACILITIES**

As soon as practicable, but in any event not later than thirty (30) calendar days after award of this contract, the Contractor shall meet in conference with the Contracting Officer, or his duly authorized representatives, to discuss and develop mutual understanding relative to the scheduling of work in and access to the existing facilities where work has to be performed under this contract, so that the Contractor's proposed construction schedule is coordinated with the operating and security requirements of the installation.

## **1.12 PREPARATION OF AS-BUILT DRAWINGS (CONTRACTOR)**

### **1.12.1 General**

Upon completion of each facility under this contract, the Contractor shall prepare and furnish as-built drawings to the Contracting Officer. The as-built drawings shall be a record of the construction as installed and completed by the Contractor. They shall include all the information shown on the contract set of drawings, and all deviations, modifications, or changes from those drawings, however minor, which were incorporated in the work, including all additional work not appearing on the contract drawings, and all changes which are made after any final inspection of the contract work. In the event the Contractor accomplished additional work that changes the as-built conditions of the facility after submission of the final as-built drawings, the Contractor shall furnish revised and/or additional drawings and drawing files as required depicting final as-built conditions. The requirements for these additional drawings shall be the same as for the as-built drawings specified in this paragraph.

### **1.12.2 Final As-Built Drawings**

The Contractor shall update the digital contract drawing files to reflect the approved final as-built conditions and shall furnish those updated drawing files and plots of the final as-built drawings to the Contracting Officer. *As-built drawings shall include the addition of the predominant native language of the region in addition to the English language.*

- a. Only personnel proficient in the use of Computer Assisted Design and Drafting (CADD) for the preparation of drawings shall be employed to modify the contract drawing files or prepare new drawing files.
- b. Existing digital drawing files shall be updated to reflect as-built conditions. Independent drawing files containing only as-built information are not acceptable. The modifications shall be made by additions and deletions to the original drawing files, and where additional drawings are necessary, they shall be developed in individual digital files for each new drawing. All additions and corrections to the contract drawing files shall be clear and legible, and shall match the adjacent existing line work and text in type, size, weight, and style. New or revised information placed into the design files shall be placed on the levels and in the colors used for placement of the corresponding initial data. Similarly, the drawing size, title block, and general format of new drawings shall be consistent with the format established by the original drawings.
- c. In the preparation of as-built drawings, the Contractor shall remove "Bubbles" used by the Government to highlight drawing changes made during design/construction. Triangles associated with those earlier drawing changes shall be left on the drawings and the Contractor shall not add triangles to designate modifications associated with representation of the as-built condition. The revision block identification of the drawing modifications shall be left intact and the date of completion and the words "REVISED AS-BUILT" shall be placed in the revision block above the latest existing notation. Each drawing shall have the words "DRAWING OF WORK AS-BUILT" in letters 4.5 mm (3/16") high placed below the

drawing title portion of the drawing title block, between the border and the trim line.

d. The Contractor shall check all final as-built drawing files for accuracy, conformance to the initial drawing scheme and the above instructions. The Contracting Officer will review the drawings and drawing files for conformance to these standards.

e. The Contractor shall furnish the digital as-built drawing files in the format as directed within Section 01335. The Government will only accept the final product for full operation, without conversion or reformatting, in these formats.

f. Digital drawing files shall be furnished to the Contracting Officer on CD-ROM or other media and format as approved by the Contracting Officer. A transmittal sheet containing the name of the files, the date of creation, the CD-ROM number, and a short description of the contents, shall accompany the CD-ROM.

g. A sample drawing shall be furnished to the Contracting Officer before delivery of final as-built drawings as a test to demonstrate compliance with the above instructions and file format compatibility with the described CADD software.

h. One (1) complete set of the updated final Record Copy digital drawing files and one (1) paper plot or copy of the final Record drawings shall be delivered to the Contracting Officer upon completion of each facility. If upon review of the final as-built drawings, errors or omissions are found, the drawings and drawing files will be returned to the Contractor for corrections. The Contractor shall complete the corrections and return both the digital files and the as-built prints to the Contracting Officer within ten (10) calendar days.

### **1.13 CERTIFICATES OF COMPLIANCE**

Any certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in accordance with Section 01335 SUBMITTAL PROCEDURES FOR DESIGN/BUILD. Each certificate shall be signed by an official authorized to certify in behalf of the manufacturing company involved and shall contain the name and address of the Contractor, the project name and location, description and the quantity of the items involved, and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material.]

### **1.14 ACCIDENT PREVENTION**

The Contractor shall comply with all applicable Host Country laws and with such additional measures as the Contracting Officer may find necessary in accordance with CONTRACT CLAUSE 52.236-13 entitled ACCIDENT PREVENTION (NOV1991)-ALTERNATE 1 (APR 1984). Applicable provisions of the Corps of Engineers manual entitled Safety and Health Requirements Manual EM 385-1-1 will be applied to all work under this contract. The referenced manual may be obtained from the Contracting Officer at the jobsite or from the Afghanistan Engineer District at Kabul, Afghanistan.

### **1.14.1 Accident Prevention Program**

Within fifteen (15) days after award of this contract, and at least ten (10) days prior to the accident prevention pre-work conference, four (4) copies of the Accident Prevention Plan required by the CONTRACT CLAUSE 52.236-13 entitled ACCIDENT PREVENTION (NOV 1991)- ALTERNATE I shall be submitted for review by the Contracting Officer. The Contractor shall not commence physical work at the site until the Accident Prevention Plan (APP) has been reviewed and accepted by the Contracting Officer. The APP shall meet the requirements listed in Appendix "A" of EM385-1-1. The program shall include the following: TAC Form 61 " Accident Prevention Program Hazard Analysis (Activity Hazard Analysis)" fully completed and signed by an executive officer of the company in block No. 13. The Activity Hazard Analysis is a method in which those hazards likely to cause a serious injury or fatality are analyzed for each phase of operations. Corrective action is planned in advance, which will eliminate the hazards. An analysis is required for each new phase of work. On large or complex jobs the first phase may be presented in detail with the submittal of the Accident Prevention Plan rather than presenting the complete analysis. If the plan is to be presented in phases, a proposed outline for future phases must be submitted as a part of the initial Accident Prevention Plan submittal. Accident Prevention Plans will be reviewed for timeliness and adequacy at least monthly with a signature sheet signed and dated documenting that these reviews took place. Copy of company policy statement of Accident Prevention and any other guidance as required by EM 385-1-1, Appendix A.

### **1.14.2 Ground Fault Circuit Interrupter (GFCI) Requirement – Overseas Construction**

The Corps of Engineers Health and Safety Manual, EM 385-1-1, section 11.C.05.a. states: "The GFCI device shall be calibrated to trip within the threshold values of 5 ma +/- 1 ma as specified in Underwriters Laboratory (UL) Standard 943." A variance from USACE has been granted allowing 10 ma, in lieu of 5 ma, for overseas activities that use 220 Volts (V)/50 hertz (Hz) electrical power.

### **1.14.3 Temporary Power - Electrical Distribution Boxes**

EM 385-1-1 section 11.A.01.a. states, "All electrical wiring and equipment shall be a type listed by a nationally recognized testing laboratory for the specific application for which it is to be used." This includes temporary electrical distribution boxes. Locally manufactured electrical boxes will not be allowed. Only manufactured electrical distribution boxes that meet the European CE requirements, with 10 ma CE type GFCIs installed shall be allowed.

Contractors shall:

- a. Make no modifications that might void any CE or manufacturer certification.
- b. Test the installed systems to demonstrate that they operate properly and provide the 10 ma earth leakage protection.
- c. Ensure GFCIs will have an integral push-to-test function. The testing shall be performed on a regular basis.

d. Check that proper grounding is checked regularly and flexible cords, connectors, and sockets inspected before each use.

## **1.15 HAZARDOUS MATERIALS**

Should the Contractor encounter asbestos or other hazardous materials, during the construction period of this contract, he shall immediately stop all work activities in the area where the hazardous material is discovered. The Contractor shall then notify the Contracting Officer; identify the area of danger; and not proceed with work in that area until given approval from the Contracting Officer to continue work activities. Hazardous material is considered to be asbestos, explosive devices, toxic waste, or material hazardous to health and safety. The Contractor shall secure the area from daily traffic until it is safe to resume normal activities.

## **1.16 SPARE PARTS**

### **1.16.1 General**

The requirements of this clause are in addition to any requirements for the provision of specific spare parts to be provided by the Contractor included in Technical Provisions. The Contractor shall furnish spare parts as directed by the Contracting Officer under the provisions of this clause for all equipment for which O&M data is to be provided under Clause OPERATION AND MAINTENANCE (O&M) DATA of this contract. The term "spare parts" as used herein shall include spare parts, special tools and test equipment.

### **1.16.2 Selection of Spare Parts to be Furnished**

The Contractor shall provide master parts lists, recommended spare parts lists and lists of special tools and test equipment as a part of the equipment O&M data required by Clause OPERATION AND MAINTENANCE (O&M) DATA. The master parts list shall include the supplier's price for each part. After review of the lists, the Contracting Officer will select spare parts and furnish written direction to the Contractor indicating quantities and types of spare parts to be furnished by the Contractor. Written directions for spare parts orders may be provided on an incremental basis as reviews of O&M data submitted by the Contractor are completed but will not necessarily be issued in the sequence in which the Contractor submitted the equipment O&M data.

### **1.16.3 Procurement and Delivery of Spare Parts**

The Contractor shall procure and be responsible for delivery, receipt, handling, placing in storage, inventory, and turnover to the Contracting Officer all spare parts selected by the Contracting Officer. In addition to the recommended spare parts list required in paragraph SELECTION OF SPARE PARTS TO BE FURNISHED above, the Contractor is responsible to have one (1) year supply of manufacturer's recommended spare parts on site ready to turn over to the Contracting Officer at the time of acceptance of the facility.

#### **1.16.3.1 Shipment and Delivery**

The Contractor shall be responsible for the shipment and delivery of spare parts to the location on or near the site in Afghanistan as selected by the Contracting Officer. The Contractor shall provide all manpower and equipment required to receive and place into designated storage areas all spare parts purchased under this clause. The Contractor shall give the Contracting Officer thirty (30) calendar days notice of arrival at the site of the first shipment.

#### **1.16.3.2 Turnover of Spare Parts**

The Contractor shall notify the Contracting Officer seventy-two (72) hours prior to delivery of spare parts to the designated storage area. The Contractor and the Contracting Officer will perform a joint inventory of the spare parts and the spare parts will be turned over to the Contracting Officer. Spare parts purchased under this clause shall not be used by the Contractor.

#### **1.16.3.3 Parts and Package Identification**

Prior to shipment from point of purchase, each spare part shall be tagged or otherwise marked or labeled. Such labeling may be placed or affixed to the container, box or packaging in which spare parts are located when it is not feasible to place or affix such labeling directly on each spare part. Tags or labels shall include, but not necessarily be limited to; part number, description, parent equipment name and number location, project and/or other data as directed by the Contracting Officer.

#### **1.16.3.4 Preservation and Packaging Instruction**

- a. Items ordered under this contract shall be preserved and packed for a minimum of three (3) years shelf life storage. All items shall be individually packaged except when the manufacturer specifies that the items are to be used in sets. Appropriate identification labels must be affixed to the items protective box or package. After the spare parts are packaged, the manufacturer shall weigh the spare parts and packaging and place the weight and size of the packaged container on the label with other information as outlined herein. Each item, not normally identified with manufacturer's name and part number, shall have an appropriate label affixed to it with manufacturer's name and part number.
- b. Machined spare parts shall be lubricated or coated in order to withstand extensive periods of storage in a highly corrosive atmosphere.
- c. Large items (greater than 22.7 kg (50 lbs.), or larger than 0.03 CM (one cubic foot) shall be packaged in waterproof wooden boxes and properly braced. Cushioning shall be used to prevent damage to the item and to the packaging material.
- d. Solid state components, such as diodes, transistors, integrated circuits or equipment consisting of such parts that can be damaged as a result of static electricity and other stray electro-magnetic fields shall be packaged in heat-sealed, aluminum foil, laminated, flexible packages.

e. All other spare parts shall be packaged in heat sealed plastic bags or wrap. Delicate and more fragile items such as test equipment shall be cushioned or wrapped with transparent bubble wrap material prior to being inserted into the plastic package.

#### **1.16.4 Warranty**

All spare parts provided by the Contractor under this clause are subject to the general warranty clauses of this contract.

#### **1.16.5 Payments for Spare Parts**

Payments for spare parts ordered under the paragraph entitled "Selection of Spare Parts To Be Furnished" will be made under the work item of the Work Breakdown Sheet entitled "Spare Parts". Payments for spare parts specifically required elsewhere in this contract shall be considered as part of those equipment costs and shall be included in other payment items as appropriate. Payments for spare parts ordered under this clause shall be based on the invoice price (FOB supplier) plus certified invoice price of surface shipment to the site in Afghanistan. The invoice price (FOB supplier) shall include the separately listed cost for preservation and packaging by the manufacturer as specified herein. The Contractor shall provide invoices and any additional backup, which may be required to demonstrate that the invoices presented represent the cost of spare parts, preservation and packaging, and cost of surface shipment to the site. Payment for handling, delivery, inventory, turnover, customs, overhead or profit shall not be paid or allowed under this Contract Provision, and shall be included in the cost for installation of this equipment under the other appropriate payment items of this contract. Price increases over prices furnished under paragraph SELECTION OF SPARE PARTS TO BE FURNISHED shall be fully substantiated. Payment for spare parts will be made after the spare parts have been accepted at the site by the Contracting Officer. If the total payments under the work item entitled "Spare Parts" does not reduce the balance of this work item to zero, the remaining balance will be deducted from the final contract amount. If orders exceed the work item entitled "Spare Parts", a modification for equitable adjustment will be issued in accordance with Contract Clause 52.243-4 entitled CHANGES. Payments for spare parts ordered under this clause shall constitute full payment for all cost of the spare parts and associated cost of preservation and packaging, and cost of surface shipment to the site. Other ancillary costs shall be included by the Contractor under the other appropriate work items of this contract and no additional cost except as provided herein will be allowed.

### **1.17 OPERATION AND MAINTENANCE (O&M) DATA**

#### **1.17.1 General**

The requirements contained herein are in addition to all shop drawings submission requirements stated in other sections of the specifications. The Contractor shall include the provisions for all items required under this clause in all purchase orders and sub-contract agreements. Submittals required hereinafter will not relieve the Contractor of any responsibilities under the Warranty of Construction Provisions of this contract or under the various Guarantee Clauses of the Technical Provisions.

#### **1.17.2 Submittals**

The Contractor shall submit all items requiring submission of O&M data under this and other sections of these specifications in accordance with Section 01335 SUBMITTAL PROCEDURES FOR DESIGN/BUILD of the specifications.

### **1.17.3 Operation and Maintenance (O&M) Data**

The Contractor shall furnish operation and maintenance manuals for all facilities constructed under this contract. The manuals shall be loose leaf, indexed and shall consist of manufacturer's brochures, manufacturer's operation and maintenance manuals, service and repair manuals, catalogs, service bulletins, instruction charts, diagrams, other information as necessary to support the operation and maintenance of the end items of equipment, assemblies and systems. Each type of facility (housing, barracks, mosque, etc.) shall be covered by a separate manual (or manuals) consisting of all data pertaining to the equipment and/or systems within that facility. Identical equipment within a single major system shall require only one submittal of data. The Contractor shall furnish all O&M manuals to the Contracting Officer not less than thirty (30) calendar days prior to contract completion. Required number of submittals (number of sets) shall be as specified in Section 01335 SUBMITTAL PROCEDURES FOR DESIGN/BUILD.

### **1.17.4 Recommended Spare Parts List**

The Contractor shall furnish a recommended spare parts list containing equipment manufacturers' recommendations for five (5) years; two (2) years and one (1) year spare parts stock levels in Afghanistan. Current unit price and effective date, lead time, shelf life for each individual part, and total cost of all recommended parts shall be furnished.

### **1.17.5 Supplemental Submittals of Data**

After initial submittal of O&M manuals and until final acceptance of all equipment, the Contractor shall prepare and deliver to the Contracting Officer supplemental technical data as previously described for all changes, modifications, revisions and substitutions to equipment and components. For equipment or systems introduced into the contract under change order, or modified by change order, supplemental data shall be furnished within forty-five (45) calendar days after issuance of the change order. The supplemental data furnished shall be properly prepared and identified for insertion into the O&M manuals.

### **1.17.6 Framed Instructions for Systems**

Approved wiring and control diagrams showing the complete layout of the entire system, including equipment, piping, valves and control sequence, framed under glass or in approved laminated plastic, shall be posted, where applicable, in all mechanical equipment rooms. In addition, detailed operating instructions explaining safe starting and stopping procedures for all systems shall be prepared in typed form along with the inspections required to insure normal safe operations. The instructions shall be framed as specified above for the wiring and control diagrams and posted beside the diagram. Proposed diagrams, instructions, and other sheets shall be submitted for approval prior to posting. Operating instructions shall be posted before acceptance testing of the systems and verified

during acceptance testing.

### **1.17.7 Additional Submittals/Re-submittals**

The Contracting Officer reserves the right to determine whether the above specified information, as furnished by the Contractor, is adequate and complete and to require such additional submittals by the Contractor as necessary to insure that adequate information has been furnished to provide the satisfactory operation and maintenance of the various items of equipment and to fulfill the intent of the specifications. Additional submittals or resubmittals supplementing incorrect or incomplete data shall be made within thirty (30) calendar days after receiving notice by the Contracting Officer. All costs arising from these resubmissions shall be borne by the Contractor.

## **1.18 INSTRUCTIONS AND TRAINING FOR OPERATION AND MAINTENANCE**

### **1.18.1 General**

The Contractor shall be responsible for the instruction and training of operating and maintenance personnel as specified below and in the Technical Provisions of the specifications. Unless otherwise indicated in the Technical Provisions, operating and maintenance instructions shall be given for a minimum period as follows:

Title	Duration of Training
Mechanical Systems	10 Days
Electrical Systems	10 Days

### **1.18.2 Operation and Maintenance Training**

The Contractor shall provide competent instructors for training of personnel designated by the Contracting Officer to operate mechanical and electrical building systems and equipment, perform the required preventive maintenance to minimize breakdown, and to perform necessary repairs when malfunction or breakdown of equipment occurs. Such training shall consist of classroom and on-the-equipment training for the period specified, which shall be completed prior to acceptance of a system or equipment, as applicable. The instructor(s) shall have no other duties during the period of training. Classroom instruction shall not exceed fifty percent (50%) of the total training time, with the balance devoted to on-the-equipment demonstration and familiarization. Emphasis will be given to both electrical and mechanical features, in accordance with approved training plans.

### **1.18.3 Arrangements**

The training shall be for not less than the periods of time specified, five (5) days per week, and eight (8) hours per day, subject to review and approval by the Contracting Officer. Each individual training session shall be presented one time only, shall be video taped in a television system compatible with the local area, and be scheduled in a manner acceptable to the Contracting Officer. At the completion of training, the videotapes shall become the property of the Government. In addition to the Contractor's requirements to video tape each training section, the Government reserves the right to record, in any manner, the subject

training material, or training sessions given by the Contractor, without additional cost to the Government.

Recordings obtained will be used in future training by the Government. The operating and maintenance manual data, as specified to be furnished in these Special Clauses, shall be used as the base material for training.

#### **1.18.4 Scheduling**

The Contractor shall contact the Contracting Officer for the purpose of preliminary planning, scheduling, and coordination of training, to maximize effectiveness of the training program for available operating and maintenance personnel. The Contractor shall initiate and make arrangements for such contact within thirty (30) calendar days after receipt of notification of award of contract; and shall include all significant times in scheduling and completing training in his PROJECT SCHEDULE. The Contractor shall provide a draft outline of training outline in sufficient detail to provide a broad indication of the type of scope of training to be given. It shall include but not be limited to; (a) a list of subjects to be presented; (b) estimated amounts of classroom and on-the-equipment instruction for each subject; (c) a list of minimum qualifications for instructors; and (d) discussions concerning the types and amounts of visual aids, reference materials, tools and test equipment, mock-up and other training materials that will be employed during training.

#### **1.18.5 Preliminary Plan**

The Contractor shall submit seven (7) copies of an outline of his proposed training plan to the Contracting Officer for review and approval not later than 60 calendar days after award of this contract. The plan will be reviewed and coordinated with the content of the O&M manuals.

#### **1.18.6 Plan**

The Contractor shall submit seven (7) copies of his proposed training plan to the Contracting Officer for approval not later than ninety (90) calendar days prior to start of any training. The plan shall include the following; (a) a weekly outline showing overall form and design of training presentation; (b) a day-by-day schedule showing time intervals, the major and subordinate subjects to be covered in each, the name of the instructor(s) and qualification summary of each, and identification of related handouts; (c) summary of the number of hours of classroom and on-the-equipment training; (d) a list of reference materials to be provided by the Contractor to the trainees; and (e) a list and description of the training materials to be used, such as text, visual aids, mock-up, tools, etc. The Contractor shall be responsible for furnishing all training materials except the following: The Government will provide space, chairs, and tables for classroom training, and three (3) sets of the five (5) sets of O&M Manuals required by the Contractor per Section 01335 SUBMITTAL PROCEDURES FOR DESIGN/BUILD of the specifications. Provision of these manuals is solely for reference purposes, and in no way relieves the Contractor from providing all instruction and materials necessary for training personnel designated by the Government. All costs for resubmission of training plans, training materials, etc., as requested by the Contracting Officer shall be borne by the Contractor. Resubmittals shall be made within

twenty (20) days of notice from the Contracting Officer.

### **1.18.7 Attendance Roster/TAC Form 356**

The Contractor shall develop an attendance roster or a similar document indicating each student's attendance, prior to the start of each class, subject and/or topic. This includes both "Hands-On" and classroom training. It is strongly recommended that each student trained be required to sign this document at the beginning of each class day for each and every class, subject and/or topic taught on that day. The Contractor's failure to have student attendance verified in writing may be cause for the Government to order the Contractor to repeat schooling where evidence of attendance cannot be verified. No part of the time lost due to such repeat instruction shall be made the subject of claim for extension of time or for excess costs or damage by the Contractor. Within ten (10) working days after completion of Operation and Maintenance Training conducted in accordance with this clause and/or applicable Technical Provision section, the Contractor shall complete and submit TAC Form 356 "Operation and Maintenance Training Validation Certificate". The attendance roster shall be included as an attachment to TAC Form 356.

### **1.19 CONTRACTOR FURNISHED EQUIPMENT LISTS**

The Contractor shall furnish a list of all items, other than integral construction type items, furnished under the contract. Items such as furniture, drapes, rugs, vehicles, office machines, appliances, etc., shall fall under this category. The Contractor's list shall describe the item; give the unit price and total quantities of each. Model and serial numbers for equipment shall be provided when applicable. The Contractor shall keep an up-to-date register of all covered items and make this information available to the Contracting Officer at all times. Prior to acceptance, the Contractor shall submit the complete register to the Contracting Officer.

### **1.19 TIME EXTENSIONS**

#### **1.19.1 General**

This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the Contract Clause 52.249-10 entitled DEFAULT (FIXED-PRICE CONSTRUCTION) APR 1984. The listing below defines the anticipated monthly unusually severe weather for the contract period and is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the geographic location of the project. The schedule of anticipated unusually severe weather will constitute the baseline for determining monthly weather time evaluations. Upon award of this contract and continuing throughout the contract each month, actual unusually severe weather days will be recorded on a calendar day basis (including weekends and holidays) and compared to the monthly anticipated unusually severe weather in the schedule below. The term "actual unusually severe weather days" shall include days actually impacted by unusually severe weather. The Contractor's schedule must reflect the anticipated unusually severe weather days on all weather dependent activities.

#### **MONTHLY ANTICIPATED UNUSUALLY SEVERE WEATHER CALENDAR DAYS**

January	4 Days
February	2 Days
March	2 Days
April thru December	0 Days

## **1.19.2 Time Extensions**

### **1.19.2.1 Weather**

The number of actual unusually severe weather days shall be calculated chronologically from the first to the last day in each month. Unusually severe weather days must prevent work for fifty percent (50%) or more of the Contractor's workday and delay work critical to the timely completion of the project. If the number of actual unusually severe weather days exceeds the number of days anticipated in the paragraph above, the Contracting Officer will determine whether the Contractor is entitled to a time extension. The Contracting Officer will convert any qualifying delays to calendar days and issue a modification in accordance with the Contract Clause 52.249-10 entitled DEFAULT (FIXED-PRICE CONSTRUCTION) APR 1984.

### **1.19.2.2 Other Delays**

Construction delays due to full or partial base closures due to incidents such as demonstrations, civil unrest and outright attacks will be examined on an individual basis for consideration of time extensions.

## **1.20 STANDARDIZATION**

Where two or more items of the same type or class of product, system or equipment furnished in this project are required, the units shall be products of the same manufacturer and shall be interchangeable when of the same size, capacity, performance characteristics, and rating. The only exception to this requirement is where the items are interchangeable due to conformance with industry standards (valves, fittings, etc.); they need not be by the same manufacturer. This requirement applies to all manufactured items in the project that normally require repair or replacement during the life of the equipment.

## **1.21 COMPLIANCE WITH HOST COUNTRY RULES AND CUSTOMS**

The laws of Host Country may prohibit access to certain areas of the country that are under military control. The Contractor shall furnish the Contracting Officer the names of personnel, type, and amounts of equipment, dates and length of time required at the site, and the purpose of entering the host country. It is understood that areas to which rights of entry are provided by the Host Government are to be used only for work carried out under the contract and no destruction or damages shall be caused, except through normal usage, without concurrence of the Host Government.

### **1.21.1 Contractor's Responsibilities**

The following items are the sole responsibility of the Contractor to investigate, estimate as to cost, and assume the risk, as normally encountered by Contractors. The Contractor shall be responsible for determining the effect of the following on his own cost of performance of the contract and for including sufficient amount in the contract price:

- a. Official language and type of accounts required to satisfy the officials of the Local Government.
- b. Entry and exit visas, residence permits, and residence laws applicable to aliens. This includes any special requirements of the Host Government, including those required by local Labor Offices, which the Contractor may have to fulfill before an application for a regular block of visas will be accepted.
- c. Passports, health and immunization certificates, and quarantine clearance.
- d. Compliance with local labor and insurance laws, including payment of employer's share of contribution, collecting balance from employee and paying into insurance funds.
- e. Strikes, demonstrations and work stoppage.
- f. Collection through withholding and payment to local Government, of any Host Country income tax on employees subject to tax.
- g. Arranging to perform work in the Host Country, to import personnel, to employ non-indigenous labor, to receive payments and to remove such funds from the country.
- h. Operating under local laws, practices, customs and controls, and with local unions, in connection with hiring and firing, mandatory wage scales, vacation pay, severance pay, overtime, holiday pay, 7th day of rest, legal notice or pay in lieu thereof for dismissal of employees, slowdown and curtailed schedules during religious holidays and ratio of local labor employed in comparison to others.
- i. Possibility of claims in local bureaus, litigation in local courts, or attachment of local bank accounts.
- j. Compliance with workmen's compensation laws and contributions into funds. Provisions of necessary medical service for Contractor employees.
- k. Special license required by the local Government for setting up and operating any manufacturing plant in the Host Country, e.g. concrete batching, precast concrete, concrete blocks, etc.
- l. Sales within the host country of Contractor-owned materials, and equipment.
- m. Special licenses for physicians, mechanics, tradesmen, drivers, etc.
- n. Identification and/or registration with local police of imported personnel.

- o. Stamp tax on documents, payments and payrolls.
- p. Base passes for permanent staff, day laborers, motor vehicles, etc.
- q. Compliance with all customs and import rules, regulations and restrictions, including, but not limited to, local purchase requirements.

### **1.21.1 Employee Identification**

The Contractor shall be responsible for furnishing to each employee and for requiring each employee engaged on the work, to display identification as approved and directed by the Contracting Officer. Prescribed identification shall immediately be delivered to the Contracting Officer for cancellation upon release of any employee. When required, the Contractor shall obtain and provide fingerprints of persons employed on the project. Contractor and subcontractor personnel shall wear identifying markings on hard hats clearly identifying the company for whom the employee works.

#### **1.21.1.1 Preparation of Identification Badges**

The Contractor shall be required to prepare a written application inclusive color photographs and provide all materials and labor necessary to prepare an identification badge, laminated in plastic, containing the employee's name, badge number, color photo, height and weight, the name of the Contractor's organization and for requiring each employee engaged on the work to display this identification as directed by the Contracting Officer. The Contractor shall submit each application and draft badge through the Contracting Officer to the Base Security Office. A minimum of thirty-five workdays shall be allowed for Government review and certification of badges. The Base Security Office will certify each draft badge by signature, stamp, seal or any combination thereof. Upon certification by the Base Security Office, the badges will be returned to the Contractor for final preparation, lamination, and issuance. Badges shall not be taken out of country during periods of travel or absence. During such periods, the Contractor may be permitted to issue temporary identification badges.

#### **1.21.1.2 Employee Background and Historical Information**

The Contractor shall be required to prepare and maintain personal background and historical information forms on each employee. These forms may be reviewed by the Base Security Office. The required information shall include but not necessarily be limited to the following:

- a. Full name.
- b. Place and date of birth.
- c. Three (3) current color photographs.
- d. Copy of Citizenship/Nationality identification.
- e. Copy of Passport.
- f. Copy of drivers license.
- g. Police Background Check.
- h. Work History.
- i. Personal background information.
- j. Copy of Work Permit and/or Visa.

- k. Permanent home of record and in-country address.
- l. Other information mandated by local law, the Base Security Regulations or that may be required to coordinate and process the necessary documentation with the government offices responsible for the approval.
- n. Registration, insurance company, policy number and expiration date for each vehicle.

### **1.21.2 Identification of Contractor Vehicles**

The Contractor shall be responsible for requiring each vehicle engaged in the work to display permanent vehicular identification as approved and directed by the Contracting Officer. If acceptable to the Base Security Office and approved by the Contracting Officer, the Contractor may institute a system of non-permanent temporary identification for one-time delivery and transit vehicles. Each Contractor vehicle, machine, piece of equipment, or towed trailers, shall show the Contractor's name such that it is clearly visible on both front doors of the vehicle and both sides of a towed trailer. A valid license plate shall be displayed at all times. Contractor vehicles operated on Government property shall be maintained in a good state of repair, shall be insured, and shall be registered in accordance with local host country Law.

### **1.21.3 Security Plan**

The Contractor shall submit to the Contracting Officer, within ten (10) calendar days after award of this contract, his proposed personnel and vehicular access plan. This plan shall cover all elements for issuance of the access passes, safeguarding of passes not issued, construction security operations, lost passes, temporary vehicle passes, and collection of passes for employee's and vehicles on 1)- temporary absence; 2)- termination or release; and 3)- termination or completion of contract. The plan shall address in detail the contractors proposed procedures, and organization necessary to produce and maintain effective security within the contract limits twenty-four (24) hours a day seven (7) days a week.

## **1.22 RADIO TRANSMITTER RESTRICTIONS**

To preclude accidental actuation of sensitive electronic equipment, the Contractor shall not use radio-transmitting equipment without prior approval of the Contracting Officer.

## **1.22 PUBLIC RELEASE OF INFORMATION**

### **1.22.1 Prohibition**

There shall be no public release of information or photographs concerning any aspect of the materials or services relating to this bid, contract, purchase order, or other documents resulting there from without the prior written approval of the Contracting Officer.

### **1.22.2 Subcontract and Purchase Orders**

The Contractor agrees to insert the substance of this clause in all purchase orders and subcontract agreements issued under this contract.

## **1.23 ATTACHMENTS**

TAC FORM 61 - Accident Prevention Program Hazard Analysis

TAC FORM 356 - Operation and Maintenance Training Validation Certificate

## **PART 2 LOCAL CLAUSES**

### **2.1 APPLICATION OF US CRIMINAL JURISDICTION**

Reference DODI 5525.11. The contractor is directed to provide all of its personnel working under this contract, and to require all of its subcontractors to provide their personnel, with written notification that - with the exception of nationals of Afghanistan and those ordinarily resident in Afghanistan - contractor and subcontractor personnel, and the dependents of contractor and subcontractor personnel who are residing with such personnel, may be subject to US criminal jurisdiction as provided for in the Military Extraterritorial Jurisdiction Act, 18 USC 3261-3267; see Section 3267(1)(A)(iii)(I) and (2)(A)(iii). A copy of the notice ***shall be furnished to the contracting officer upon award of the contract***, along with a certification by an authorized company representative attesting to the provision of the notification to contractor personnel.

### **2.2 ATTACKS FROM HOSTILE ENTITIES**

This contract is firm fixed-price. Costs incurred in the performance of project execution that arise from the attacks of hostile entities, such as costs arising from damage to or destruction of contractor equipment and facilities, and damage to or destruction of the project prior to Government acceptance, are the sole responsibility of the contractor. The Government makes no guarantee to provide the contractor with security, and bears no obligation to reimburse the contractor for costs arising from the attacks of hostile entities. When appropriate, the Contracting Officer may provide the contractor with an equitable adjustment with respect to time – but not cost – in accordance with clause 52.249-10; see 52.249-10(b)(1)(i) and (2).

### **2.3 INSTALLATION ACCESS AND BADGING**

This contract is firm fixed-price. It is the responsibility of the contractor to be knowledgeable of and to abide by any and all applicable installation access procedures and requirements, to include any and all badging procedures and requirements, that may be necessary for contractor access to the project site. Such procedures and requirements may change over the course of contract performance; it is the responsibility of the contractor to plan accordingly in order to meet its existing obligations under this contract. The US Army Corps of Engineers, Afghanistan Engineer District, neither controls nor is responsible for any such installation access procedures, requirements or changes thereto.

### **2.4 CUSTOMS CLEARANCE**

Reference clauses 52.229-6 and 52.225-13. This contract is firm fixed-price. It is the responsibility of the contractor to be knowledgeable of and to abide by any and all applicable customs clearance procedures and requirements that may be necessary for the transportation of supplies and equipment into Afghanistan. Such procedures and requirements may change over the course of contract performance; it is the responsibility of the contractor to plan accordingly in order to meet its existing obligations under this contract. The US Army Corps of Engineers, Afghanistan Engineer District, neither controls nor is responsible for any such customs clearance procedures, requirements or changes thereto.

## **2.5 TRAVEL WARNINGS**

The contractor shall provide all personnel working under this contract, and shall require subcontractors to provide their personnel, with a written notification advising such personnel to be aware of US State Department Travel Warnings with respect to Afghanistan, available at <http://travel.state.gov>, in the event they wish to consider bringing their dependants into Afghanistan. A copy of the notice ***shall be furnished to the contracting officer upon award of the contract***, along with a certification by an authorized company representative attesting to the provision of the notification to contractor personnel. At no time, subject to the written approval of the contracting officer, may the contractor allow such dependants, or any other unauthorized individuals, to be present on the project site grounds, whether in transit or otherwise.

## **2.6 DRUG-FREE WORKFORCE**

Documentation of the contractor's drug-free workforce program as required by clause 252.223-7004(b) ***shall be furnished to the contracting officer upon award of the contract***.

## **2.7 COMBATING TRAFFICKING IN PERSONS, COMMERCIAL SEX ACTS, FORCED LABOR**

A copy of the employee notification statement as required by clause 252.222-7006(d) ***shall be furnished to the contracting officer upon award of the contract***, along with a certification by an authorized company representative attesting to the provision of the notification to contractor personnel.

## **2.8 AGENT'S FEE AND COMMISSION**

The contractor certifies that the contract price (including any subcontracts awarded hereunder) does not include any direct or indirect costs of sales commissions or fees for contractor sales representatives for the solicitation or promotion or otherwise to secure the conclusion of the sale of any of the supplies or services called for by this contract to the Government of Afghanistan.

-- End of Section --

## **SECTION 01312**

### **QUALITY CONTROL SYSTEM (QCS)**

#### **PART 1: GENERAL**

##### **1.1 GENERAL**

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. The Contractor module, user manuals, updates, and training information can be downloaded from the RMS web site: the Contractor can obtain the current address from the Government. This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- Administration
- Finances
- Quality Control
- Submittal Monitoring
- Scheduling
- Import/Export of Data

### 1.1.1 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

### 1.1.2 Other Factors

Particular attention is directed to specifications "SUBMITTAL PROCEDURES", "CONTRACTOR QUALITY CONTROL", "PROJECT SCHEDULE", and Contract Clause, "Payments", which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

## 1.2 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available. It shall be the responsibility of the contractor to maintain the QCS software and install updates as they become available.

## 1.3 SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS. No separate payment shall be made for updating or maintaining the necessary hardware configurations necessary to run QCS:

#### Hardware

IBM-compatible PC with 1000 MHz Pentium or higher processor  
 256+ MB RAM for workstation / 512+ MB RAM for server  
 1 GB hard drive disk space for sole use by the QCS system  
 Digital Video Disk (DVD)-Compact Disk (CD) Reader-Writer (RW/ROM)  
 Monitor with a resolution of AT LEAST 1024x768, 16bit colors  
 Mouse or other pointing device  
 Windows compatible printer. (Laser printer must have 4 MB+ of RAM)  
 Connection to the Internet, minimum 56k BPS

#### Software

MS Windows 2000 or higher  
 QAS-Word Processing software: MS Word 2000 or newer

Internet browser supporting HTML 4.0 or higher  
Electronic mail (E-mail) MAPI compatible  
Virus protection software regularly upgraded with all issued manufacturer's updates

## **1.4 RELATED INFORMATION**

### **1.4.1 QCS User Guide**

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

### **1.4.2 Contractor Quality Control (CQC) Training**

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class. The government will provide QCS training if requested by the contractor.

## **1.5 CONTRACT DATABASE**

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by files attached to E-mail or via CD-ROM. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

## **1.6 DATABASE MAINTENANCE**

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. Data updates to the Government shall be submitted via either E-mail or electronic media with printed/file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer. The QCS database typically shall include current data on the following items:

### **1.6.1 Administration**

#### **1.6.1.1 Contractor Information**

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

#### **1.6.1.2 Subcontractor Information**

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format via E-mail.

#### 1.6.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

#### 1.6.1.4 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

#### 1.6.1.5 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

### 1.6.2 Finances

#### 1.6.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

#### 1.6.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy

with the electronic version.

### 1.6.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report.

#### 1.6.3.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by specification 01451 "CONTRACTOR QUALITY CONTROL".

#### 1.6.3.2 Deficiency Tracking.

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

#### 1.6.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

#### 1.6.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports.

#### 1.6.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances")

will only be linked to a single feature of work.

#### 1.6.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

#### 1.6.4 Submittal Management

The Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

#### 1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Specification Section Project Schedule. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF). The updated schedule data shall be included with each pay request submitted by the Contractor.

#### 1.6.6 Requests for Information (RFI)

The Contractor shall use the two-way RFI system contained in QCS for tracking all RFI's generated during the contract. Hard copies of all RFI's shall be provided to the government, and will govern in the event of a discrepancy between electronic and printed mediums.

#### 1.6.7 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data using SDEF.

### 1.7 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

### 1.8 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function.

## **1.9 MONTHLY COORDINATION MEETING**

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

## **1.10 NOTIFICATION OF NONCOMPLIANCE**

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

-- End of Section --

### SECTION 01321

## **SECTION 01321**

### **PROJECT SCHEDULE**

#### **PART 1 GENERAL**

##### **1.1 SUBMITTALS**

The following shall be submitted for Government approval in accordance with Section 01335

SUBMITTAL PROCEDURES: SD-07 Schedules Project Schedule; Horizontal Bar Chart and Periodic Payment Request Updates; and Projected Earnings Curve and Periodic Payment Request Updates. Revisions to the Project Schedule and Projected Earnings Curve for Modifications Issued to this Contract shall be coordinated with the Contracting Officer.

**PART 2 PRODUCTS (Not Applicable)****PART 3 EXECUTION****3.1 GENERAL**

The Contractor shall furnish a Project Schedule as described below. The scheduling of construction shall be the responsibility of the Contractor. Contractor management personnel shall actively participate in its development. Subcontractors and suppliers working on the project should also contribute in developing and maintaining an accurate Project Schedule. The approved Project Schedule shall be used to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis of all progress payments.

**3.2 BASIS FOR PAYMENT**

The schedule shall be the basis for measuring Contractor progress. Lack of an approved schedule or scheduling personnel shall result in an inability of the Contracting Officer to evaluate Contractor progress for the purposes of payment. Failure of the Contractor to provide all information, as specified below, shall result in the disapproval of the entire Project Schedule submission and the inability of the Contracting Officer to evaluate Contractor progress for payment purposes. In the case where Project Schedule revisions have been directed by the Contracting Officer and those revisions have not been included in the Project Schedule, then the Contracting Officer may hold retainage up to the maximum allowed by contract, each payment period, until revisions to the Project Schedule have been made.

**3.3 PROJECT SCHEDULE****3.3.1 Schedule of Construction**

Within seven (7) calendar days after notice to proceed, the Contractor shall prepare and submit a Construction Schedule to the Contracting Officer for approval. This schedule shall address each payment line item and/or sub-line item listed in the Proposal Schedule separately.

**3.3.2 Non-Compliance**

Failure of the Contractor to comply with the requirements of the Contracting Officer shall be grounds for determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of this contract.

**3.3.3 Horizontal Bar Chart**

The required schedule shall utilize an automated scheduling program and shall be in the form of a horizontal bar chart. The line or sub-line item schedule of activities shall be listed down the left side of the page. A time scale shall run across the bottom of the page. Each work item shall be represented by a bar starting with the schedule start date and running continuously to the completion date.

### **3.3.4 Cost**

Listed with each work item shall be a corresponding cost representing the total cost, such as material, labor, equipment, and overhead associated with that item. The total cost of the work items shall be equal to the Bid Price for that sub-line item of the Proposal Schedule.

### **3.3.5 Scheduled Project Completion**

The schedule interval shall extend from Notice-To-Proceed to the contract completion date.

### **3.3.6 Projected Earning Curve**

Submitted with the Construction Schedule shall be a Projected Earning Curve. The Projected Earning Curve is a plot of the Contractor's earnings on the vertical axis and the contract duration on the horizontal axis. The earnings figure shall relate to the complete value of the contract and need not reflect each facility separately.

### **3.3.7 Construction Schedule**

The Construction Schedule shall be on one page with a maximum dimension of 90 cm by 120 cm. The Contractor shall submit the Projected Earnings Curve on the same page. The initial submittal shall include one (1) reproducible and four (4) copies, one (1) copy of which will be returned to the Contractor when approved.

### **3.3.8 Submission With Partial Payment Estimate**

Each time the Contractor submits a payment request under this contract he shall also submit three (3) copies of the Bar Chart. The Bar Chart shall be annotated by indicating the percent complete for each activity directly on the bar. The Projected Earnings Curve shall be annotated by plotting actual earnings versus time on the same graph. Those work items reflecting performance which is behind schedule by fifteen (15) calendar days or more shall be fully explained in detail giving the reason for delay and the Contractor's plan for timely completion within the schedule.

### **3.3.9 Modifications**

The Construction Schedule and Projected Earning Curve shall be revised to reflect any and all modifications issued to this contract as they are issued. Format and numbers of copies as defined in paragraph CONSTRUCTION SCHEDULE shall be submitted for approval by the Contracting Officer.

### **3.4 PERIODIC PROGRESS MEETINGS**

Progress meetings to discuss payment shall include a monthly on-site meeting or shall be conducted at other regular intervals mutually agreed to at the preconstruction conference. During this meeting the Contractor shall describe, on an activity-by-activity basis, all proposed revisions and adjustments to the project schedule required to reflect the current status of the project. The Contracting Officer will approve activity progress, proposed revisions, and adjustments as appropriate.

#### **3.4.1 Update Submission Following Progress Meeting**

A complete update of the project schedule containing all approved progress, revisions, and adjustments, based on the regular progress meeting, shall be submitted not later than four (4) working days after the monthly progress meeting.

#### **3.4.2 Progress Meeting Contents**

Update information, including Actual Start Dates, Actual Finish Dates, Remaining Durations, and Cost to Date, shall be subject to the approval of the Contracting Officer.

#### **3.4.3 Earnings Report**

A compilation of the Contractor's Total Earnings on the project from the Notice-to-Proceed until the most recent Monthly Progress Meeting shall be recorded. This report shall reflect the Earnings of specific activities based on the agreements made in the field and approved between the Contractor and the Contracting Officer at the most recent Monthly Progress Meeting. Provided that the Contractor has provided a complete schedule update, this report shall serve as the basis of determining Contractor Payment. This report shall: sum all activities and provide a percent complete by individual activity and total project percent complete. The report shall contain, for each activity: activity identification, activity description, original budgeted amount, total quantity, quantity to date, percent complete (based on cost), and earnings to date.

#### **3.4.4 Cost Completion**

The earnings for each activity started shall be reviewed. Payment shall be based on earnings for each in-progress or completed activity. Payment for individual activities shall not be made for work that contains quality defects. A portion of the overall project amount may be retained based on delays of activities.

#### **3.4.5 Network Analysis System**

The Contractor may, as an option, submit to the Contracting Officer for approval, a time related network analysis in lieu of the previously specified bar chart.

**-- End of Section --**

SECTION 01335

**SECTION 01335**

**SUBMITTAL PROCEDURES FOR DESIGN-BUILD PROJECTS**

**PART 1 GENERAL**

**1.1 REFERENCE**

The publication listed below forms a part of this specification to the extent referenced. The publication is referenced to in the text by basic designation only.

CONSTRUCTION SPECIFICATIONS INSTITUTE

Manual of Practice  
Construction Specifications Institute  
[http://www.csinet.org/s\\_csi/index.asp](http://www.csinet.org/s_csi/index.asp)  
601 Madison Street  
Alexandria, Virginia  
22314-1791

NATIONAL INSTITUTE OF BUILDING SCIENCES (NIBS)

Unified Master Reference List (UMRL)  
National Institute of Building Sciences  
1090 Vermont Avenue, NW, Suite 700  
Washington, DC 20005-4905  
Email: [nibs@nibs.org](mailto:nibs@nibs.org)  
FAX: (202) 289-1092  
Tele: (202) 289-7800

AFGHANISTAN ENGINEER DISTRICT

AFGHANISTAN ENGINEER DISTRICT

<http://www.aed.usace.army.mil>  
U.S. Army Corps of Engineers  
Attn.: Qalaa House  
APO AE 09356

## TRANSATLANTIC PROGRAMS CENTER

### Design Instructions Manual

U.S. Army Corps of Engineers  
<http://www.tac.usace.army.mil/extranet/>  
Transatlantic Programs Center  
201 Prince Frederick Drive  
Winchester, Virginia 22602

## 1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

### 1.2.1 DESIGN SUBMITTALS

Contractor Furnished design submittals are the various design documents which primarily consist of specifications, drawings and design analysis and calculations. The Design-Build Contractor shall not begin construction work until the Government has reviewed the Design-Build Contractor's final design and has cleared it for construction. Clearance for construction shall not be construed as meaning Government approval. Unless otherwise indicated, the risk for the design is the sole responsibility of the Design-Build Contractor.

As a minimum, design submittals shall be submitted at the following intervals:

Concept design (35%): In addition to submission requirements, a design analysis/basis of design shall be required, including a proposed listing of specification sections.

General design (99%): In addition to submission of designs, the contractor shall provide the design analysis, design specifications and design calculations.

Final (100%): In addition to submission requirements, a final draft of specifications and design analysis/basis of design shall be required.

Minimum submission requirements for each phase submittal shall be as defined herein.

### 1.2.2 CONSTRUCTION SUBMITTALS

### 1.2.2.1 Contractor Furnished Government Approved Construction Submittals

Government approved construction submittals are primarily related to plans (Contractor Quality Control, Accident Prevention, Resident Management System, Area Use, etc.) schedules (Project Schedule/Network Analysis), and certificates of compliance. They may also include proposed variations to approved design documents in accordance with the paragraph entitled "VARIATIONS".

### 1.2.2.2 For Information Only Construction Submittals (FIO)

All submittals not requiring Designer of Record or Government approval will be for information only.

## 1.3 SUBMITTAL CERTIFICATION

The CQC organization shall be responsible for certifying that all submittals and deliverables have been reviewed in detail for completeness, are correct, and are in strict conformance with the contract drawings, specifications, and reference documents.

### 1.3.1 Effective Quality Control System

The Design-Build Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with Contract Clause 52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION - ALTERNATE I and specification section 01451 CONTRACTOR QUALITY CONTROL.

#### 1.3.1.1 Organizational Responsibility

The quality control system shall cover all design, construction, subcontractor, manufacturer, vendor, and supplier operations at any tier, both onsite and offsite.

#### 1.3.1.2 CQC System Manager Review and Approval

Prior to submittal, all items shall be checked and approved by the Design-Build Contractor's Quality Control (CQC) System Manager. If found to be in strict conformance with the contract requirement, each item shall be stamped, signed, and dated by the CQC System Manager. Copies of the CQC organizations review comments indicating action taken shall be included within each submittal.

#### 1.3.1.3 Determination of Compliance

Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements by the Contracting Officer. The contractor

shall submit all required documentation with submittals. The U.S. Army Corps of Engineer (USACE) will not accept partial submittals.

### 1.3.2 Responsibility for Errors or Omissions

It is the sole responsibility of the Design-Build Contractor to ensure that submittals do or do not comply with the contract documents. Government review, clearance for construction, or approval by the Contracting Officer shall not relieve the Design-Build Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract.

#### 1.3.2.1 Government Review

Government review, clearance for construction, or approval of post design construction submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory.

### 1.3.3 Substitutions

After design submittals have been reviewed and cleared for construction by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless justified as indicated in the paragraph entitled VARIATIONS.

### 1.3.4 Additional Submittals

In conjunction with Contract Clause 52.236-5 MATERIAL AND WORKMANSHIP. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work.

### 1.3.5 Untimely and Unacceptable Submittals

If the Design-Build Contractor fails to submit submittals in a timely fashion, or repetitively submits submittals that are incomplete or not in strict conformance with the contract documents, no part of the time lost due to such actions shall be made the subject of claim for extension of time or for excess costs or damages by the Design-Build Contractor.

### 1.3.6 Stamps

Stamps shall be used by the Design-Build Contractor on all design and post design construction submittals to certify that the submittal meets contract requirements and shall be similar to the following:

Design-Build Contractor (Firm Name)

Contract Number  
Contract Name

I certify that this submittal accurate, is in strict conformance with all contract requirements, has been thoroughly coordinated and cross checked against all other applicable disciplines to prevent the omission of vital information, that all conflicts have been resolved, and that repetition has been avoided and, it is complete and in sufficient detail to allow ready determination of compliance with contract requirements by the Contracting Officer.

Name of CQC System Manager: \_\_\_\_\_

Signature of CQC System Manager: \_\_\_\_\_

Date: \_\_\_\_\_

#### **1.4 ENGLISH LANGUAGE**

All specifications, drawings, design analysis, design calculations, shop drawings, catalog data, materials lists, and equipment schedules submitted shall be in the English language. However, the local language of host country shall be added to project as-built drawings.

#### **1.5 UNITS OF MEASUREMENT**

Design documents shall be prepared in accordance with the guidance offered in SECTION 01415 METRIC MEASUREMENTS.

The metric units used are the International System of Units (SI) developed and maintained by the General Conference on Weights and Measures (CGPM); the name International System of Units and the international abbreviation SI were adopted by the 11th CGPM in 1960.

##### **1.5.1 Drawings**

###### **1.5.1.1 Site Layout**

All site layout data shall be dimensioned in meters or coordinates, as appropriate. All details and pipe sizes shall be dimensioned in millimeters.

EXAMPLE: Masonry openings shall be a U.S. module to suit a standard U.S. door. The dimensions of the opening shall be given in SI units. Metric dimensions for site plans shall be in meters and fraction thereof. Dimensions for all other drawings shall be in millimeters using hard metric designations (example: 12 meters = 12 000). Hard metric is defined as utilizing standard metric products and the use of measurements in increments of fifty (50) and one hundred (100) millimeters.

### 1.5.1.2 Georeference

All site plans shall be geo-referenced using the WGS 1984 coordinate system, specifically the following: WGS 1984 UTM one 42 N. If the designer is not able to use the stated coordinate system the coordinate system used shall be correlated to the stated coordinate system. A table shall be provided within the site drawing set cross referencing the WGS84 system to that utilized. This is required to allow AED to incorporate the plans into GIS for storage, map production, and possible geospatial analysis of the different work sites.

### 1.5.2 Design Calculations

Calculations shall be in SI units to meet the requirements of the design. Quantities on the contract drawings stated in SI units, shall also be stated in SI units in the design analysis to match the drawings.

### 1.5.3 Specifications

All equipment and products shall be specified according to U.S. standards and described by appropriate units as required herein.

## **1.6 WITHHOLDING OF PAYMENT FOR SUBMITTALS**

### 1.6.1 Design Submittals

Payment for Design work will not be made in whole or in part until the Government has reviewed and cleared the design for construction.

### 1.6.2 Construction Submittals

Payment for materials incorporated in the work will not be made if required approvals have not been obtained. In event under separate clause of the contract, the Design-Build Contractor is allowed partial or total invoice payment for materials shipped from the Continental United States (CONUS), and/or stored at the site, the Design-Build Contractor shall with his request for such payment, submit copies of approvals (ENG Form 4025) certifying that the materials that are being shipped and/or stored have been approved and are in full compliance with the contract technical specifications.

## **PART 2 PRODUCTS**

### **2.1 GENERAL**

The following are contract deliverables which expound upon and finalize the design parameters/requirements outlined within the contract documents. They shall be

prepared in such a fashion that the Prime Contractor is responsible to the Government and not as an internal document between the Prime Contractor and its Subcontractors, Vendors, Suppliers, etc.

## **2.2 DESIGN ANALYSIS**

### **2.2.1 Submittal**

A design analysis, written in the English Language with SI units of measure shall be submitted for review by the Government. The design analysis is a written explanation of the project design which is expanded and revised (updated) as the design progresses. The design analysis shall contain all explanatory material giving the design rationale for any design decisions which would not be obvious to an engineer reviewing the final drawings and specifications. The design analysis contains the criteria for and the history of the project design, including criteria furnished by the Government, letters, codes, references, conference minutes, and pertinent research. Design calculations, computerized and manual, are included in the design analysis. Narrative descriptions of design solutions are also included. Written material may be illustrated by diagrams and sketches to convey design concepts. Catalog cuts and manufacturer's data for all equipment items, shall be submitted. Copies of all previous design phase review comments and the actions assigned to them shall be included with each submission of the design analysis. Specific requirements for the design analysis, listed by submittal phase, are contained hereinafter.

### **2.2.2 Format**

Format of design analysis shall closely match the standard format referenced within the request for proposal (RFP).

## **2.3 DESIGN CALCULATIONS**

When they are voluminous, they shall be bound separately from the narrative part of the design analysis. The design calculations shall be presented in a clean and legible form incorporating a title page and index for each volume. A table of contents, which shall be an index of the indices, shall be furnished when there is more than one volume. The source of loading conditions, supplementary sketches, graphs, formulae, and references shall be identified. Assumptions and conclusions shall be explained. Calculation sheets shall carry the names or initials of the computer and the checker and the dates of calculations and checking. No portion of the calculations shall be computed and checked by the same person.

### **2.3.1 Automatic Data Processing Systems (ADPS)**

When ADPS are used to perform design calculations, the design analysis shall include descriptions of the computer programs used and copies of the ADPS input

data and output summaries. When the computer output is large, it may be divided into volumes at logical division points.

#### 2.3.1.1 Computer Printouts

Each set of computer printouts shall be preceded by an index and by a description of the computation performed. If several sets of computations are submitted, they shall be accompanied by a general table of contents in addition to the individual indices.

#### 2.3.1.2 Preparation of the Description

Preparation of the description which must accompany each set of ADPS printouts shall include the following.

- a. Explain the design method, including assumptions, theories and formulae.
- b. Include applicable diagrams, adequately identified.
- c. State exactly the computation performed by the computer.
- d. Provide all necessary explanations of the computer printout format, symbols, and abbreviations.
- e. Use adequate and consistent notation.
- f. Provide sufficient information to permit manual checks of the results.

## 2.4 SPECIFICATIONS

Specifications shall be prepared in accordance with the Construction Specifications Institute (CSI) format. The Design-Build Contractor prepared specifications shall include as a minimum, all applicable specification sections referenced by the CSI. Where the CSI does not reference a specification section for specific work to be performed by this contract, the Design-Build Contractor shall be responsible for creating the required specification.

#### 2.4.1 Preparation of Proprietary Non-Generic Design Documents

During the course of design, the designer shall specify specific proprietary materials, equipment, systems, and patented processes by trade name, make, or catalog number. The subsequent use of construction submittals to supplant and/or supplement incomplete design effort is unacceptable. Design submittals containing non-proprietary and/or generic design criteria where proprietary items are available, will be returned for resubmission.

#### 2.4.2 Use of Unified Facilities Guide Specifications (UFGS)

If UFGS are used, it is the sole responsibility of the Design-Build Contractor to prepare these specifications in strict conformance with the paragraph entitled PREPARATION OF PROPRIETARY NON-GENERIC DESIGN DOCUMENTS. UFGS containing non-proprietary and/or generic design criteria, where proprietary items are available, will be returned for resubmission. If the UFGS contains a "SUBMITTALS" paragraph, the Design-Build Contractor shall delete it and incorporate all required information directly into the design documents. Under no circumstances will the Design-Build Contractor be permitted to use submittals and shop drawings to finalize an incomplete design. UFGS (Uniform Federal Guide Specifications) are required for this project when U.S. products and systems are required or used. Current UFGS information may be obtained at the following location: [http://www.wbdg.org/ccb/browse\\_org.php?o=70](http://www.wbdg.org/ccb/browse_org.php?o=70).

Specifications for UFGS are in SpecsIntact format. SpecsIntact is government sponsored software used to edit specifications for government contracts. The software is available at the following link: <http://specsintact.ksc.nasa.gov/index.asp>.

#### 2.4.3 Quality Control and Testing

Specifications shall include required quality control and further indicate all testing to be conducted by the Design-Build Contractor, its subcontractors, vendors and/or suppliers.

#### 2.4.4 Ambiguities and indefinite specifications

Ambiguities, indefinite specification requirements (e.g., highest quality, workmanlike manner, as necessary, where appropriate, as directed etc) and language open to interpretation is unacceptable.

#### 2.4.5 Industry Standards

##### 2.4.5.1 U.S. Industry Standards

The Specifications shall be based on internationally accepted U.S. industry Standards. Customarily accepted publications may be found in the UNIFIED MASTER REFERENCE LIST (UMRL) which may be located at the following URL: <http://www.hnd.usace.army.mil/techinfo/UFGS/UFGSref.htm>.

To access the UMRL select the "Unified Facilities Guide Specifications" tab and scroll down to Unified Master Reference List (UMRL) (PDF version).

Examples of U.S. standards are: National Fire Protection Association (NFPA), International Building Code (IBC), American Concrete Institute (ACI), American Water Works Association (AWWA), ADAAG (ADA Accessibility Guidelines) for

Buildings and Facilities, etc. Standards referenced shall be by specific issue; the revision letter, date or other specific identification shall be included.

This document lists publications referenced in the Unified Facilities Guide Specifications (UFGS) of the Corps of Engineers (USACE), the Naval Facilities Engineering Command (NAVFAC), the Air Force Civil Engineer Support Agency (AFCESA), and the guide specifications of the National Aeronautics and Space Administration (NASA). This document is maintained by the National Institute of Building Sciences (NIBS) based on information provided by the agencies involved and the standards producing organizations. The listing is current with information available to NIBS on the date of this publication.

Standards referenced in specifications and drawings prepared by the Design-Build Contractor shall be by specific issue; the revision letter, date or other specific identification shall be included.

#### 2.4.5.2 Non U.S. Industry Standards

If non U.S. industry standards (e.g., codes, regulations, or technical references and norms) are authorized for use under this contract and are incorporated in the Design-Build Contractor's design, one (1) copy of each standard referenced shall be provided to the Government.

Where a U.S. design and/or construction standard cannot be referenced due to non-availability of products and/or systems, another specification format using the CSI guidelines may be utilized for that particular product and/or system. If a majority of the specifications within this project reference non-U.S. products due to availability and/or other factors, the entire set of specifications are not required to be in UFGS and Specs Intact format.

#### 2.4.6 Incorporation of Government review comments

Subsequent to submission to the Government, the specifications shall be finalized by the incorporation of Government review comments.

### 2.5 DRAWINGS

Drawings, prepared in the English language with SI units of measure, are a part of each submittal. The working drawings shall be adequately labeled and cross-referenced for review. Complete, thoroughly checked and coordinated contract drawings shall be submitted. The contract drawings submitted for final review shall include the drawings previously submitted which have been revised and completed as necessary. The Design-Build Contractor shall have incorporated any design review comments generated by previous design review(s), have completed all of his constructability and coordination checks, and have the drawings in a Ready-to-Build

condition. The drawings shall be complete at this time and contain all the details necessary to ensure a clear understanding of the work throughout construction.

### 2.5.1 Drawing Size

Project is required to be in SI units, all drawings shall be prepared in size "A1" sheets (594mm by 841mm). If project is required to be in English units, all drawings shall be modified Architectural D size (24 inches by 36 inches) sheets. Design submissions may be prepared in half size (11 inches by 17 inches) to save paper and for ease of review. All final contract drawing sets shall be prepared with full size sheets. Drawings shall be trimmed to size if necessary.

### 2.5.2 Computer Assisted Design and Drafting (CADD)

Computer Assisted Design and Drafting (CADD) is required for all work related to this contract. The CADD deliverables shall meet the requirements of the AEC CAD Standard Release 2.0. Emphasis is on drawings meeting sheet layout standards, level/layer naming standards and sheet naming conventions. CAD standards may be found at the following link:

<https://tsc.wes.army.mil/products/standards/aec/aecstdweb.asp>. Transatlantic Programs Center Design Instructions Manual, Chapter 22 entitled COMPUTER ASSISTED DESIGN AND DRAFTING. The Contractor shall furnish the digital as-built drawing files in .DWG file format utilizing AutoDesk AutoCAD revision 2004 or later. Drawings prepared in any convention other than CADD, must have approval of the Contracting Officer.

### 2.5.3 Plotter Prepared Original Drawings

Plotter prepared original drawings shall be prepared on 20 pound bond paper, unless otherwise approved and shall be plotted on the matte side. Raster plotters must provide a minimum resolution of 400 dpi while vector plotters shall provide a minimum resolution of 0.0010 inch with an accuracy of +0.1% of the move and a repeatability error of not more than 0.005 inch. Drawings produced from dot matrix plotters are not acceptable. Plots accompanied by the digital design file may be prepared on vellum: translucent bond is not acceptable. Line density shall be equivalent to that produced by black India ink: half-tones and gray scale plots are not acceptable unless otherwise approved. Manual changes to plotted originals are not acceptable.

### 2.5.4 Half-Size Reduction

Preparation of all work shall accommodate half size reduction unless project is required to meet SI units or shall be instructed otherwise by the Contracting Officer.

### 2.5.5 Symbols and Abbreviations

Symbols and abbreviations shall be in accordance with AEC CAD Standard Release 2.0 or later /or conform to the symbols used with a CADD program such AutoDesk AutoCAD release 2004 or greater.

### 2.5.6 Design Discipline Designation Format

Referencing AEC CAD Standard Release 2.0, the drawing package shall be divided into the following proposed divisions as shown in chronological order:

Use the following for AEC CAD Standard Release 2.0:

<u>Discipline</u>	<u>Designation</u>	<u>Discipline</u>
C		Civil
A		Architectural
S		Structural
P		Plumbing
M		Mechanical
E		Electrical
F		Fire Protection

Each drawing for the particular facility shall be designated by the discipline designation and sheet number and shall be consecutive within each discipline. AEC CAD Standard, referenced herein, shall be adhered to, especially with regard to sheet naming, numbering and level/layer naming standards. Copies of level/layer naming standards are available at the following locations (in comma delimited format - .CSV) and may be imported into Microstation and/or AutoCAD release 2000 or later:

Public FTP site:

[ftp://anonymous:anonymous@ftp.usace.army.mil/pub/aed/Standards/AEC\\_Nat\\_CA\\_D\\_Std/level\\_libs/](ftp://anonymous:anonymous@ftp.usace.army.mil/pub/aed/Standards/AEC_Nat_CA_D_Std/level_libs/)

SharePoint site:

[https://aedsharepoint.tac.usace.army.mil/C16/Drawings/Document%20Library/AEC\\_CAD\\_level\\_templates.ZIP](https://aedsharepoint.tac.usace.army.mil/C16/Drawings/Document%20Library/AEC_CAD_level_templates.ZIP)

### 2.5.7 Grouping Drawings

A building or individual facility design shall, except for site development drawings, be grouped in the design drawing package so that a single building may be withdrawn by deleting or removing a consecutive block of sheets.

### 2.5.8 Title and Revision Block

Title and revision block shall match FIGURES 1 through 5 furnished in the paragraph entitled ATTACHMENTS.

### 2.5.9 Drawing Scales

The scales indicated on the following list shall, in general, be used for all drawings. The Contractor may, at its option, make exceptions to scales indicated, if approved in writing by the Contracting Officer.

Site, Grading and Utility Plans - 1:500, if in SI units

Key Plans as large as practical

Cross Sections/elevations (as large scale as possible to adequately show required detail) - 1:100, if in SI units

Details - 1:10 minimum, if in SI units

#### 2.5.10 Binding

All volumes of drawing prints shall be firmly bound and shall have covers of heavier bond than the drawing sheets. If posts are used to fasten sheets together, the drilled holes on the bond edges of the sheets shall be on 8-1/2-inch centers.

#### 2.5.11 Typical Sheets

Typical sheets of standard details uniformly used on all buildings are authorized and encouraged. Sheets of standard details may be prepared so that they can be reused if the design package must be divided into separate construction packages. Each typical detail drawing sheet may be limited to a particular design discipline. Standard detail sheets shall be organized by discipline as are the other drawing sheets. Details peculiar to one facility shall not be shown in the standard details but with the group of drawings for the facility to which it pertains.

#### 2.5.12 Index Sheet(s)

The first sheet of each volume in a project shall be a cover sheet. In general, the second sheet shall be the first index. Multiple index sheets may be required, depending on the project size. All index sheets shall be included with each volume of drawings and shall be an index of all the individual drawings in all volumes. The index shall list sequentially the site development drawings, each facility's drawings, and the standard details drawings (if any), and shall locate them by volume and file number. Each index sheet shall be signed and stamped by a principal of the Design-Build Contractor.

#### 2.5.12 A Sheet page numbers

All discipline sheets shall be numbered in numbering sequence from 1 of #

Example: discipline =A

A

1 of 198 and followed numerically from 1 to (198 of 198)

#### 2.5.13 Drawing File Number

The File Number is unique to each drawing and is a combination of a project location code, project number, facility designator and the CADD file name. Unassigned numbers or skipped sheets shall be labeled as "Not Used" on the index sheets. Cover sheets are not numbered.

#### 2.5.14 Specifications Placed on the Drawings

Details of standard products or items which are adequately covered by specifications shall not be included on the drawings.

#### 2.5.15 Legends

For each submittal, legends of symbols and lists of abbreviations shall be placed on the drawings. They shall include all of the symbols and abbreviations used in the drawing set, but shall exclude any symbols and abbreviations not used. Since many symbols are limited to certain design disciplines, there is a definite advantage to the use of separate legends on the initial sheet of each design discipline or in the Standard Details package for each discipline. If legends have not been shown by discipline, a legend shall be placed on the first drawing.

#### 2.5.16 Location Grid

To facilitate the location of project elements and the coordination of the various disciplines' drawings, all plans shall indicate a column line or planning grid, and all floor plans (except structural plans) shall show room numbers.

#### 2.5.17 Composite and Key Plans

If the plan of a large building or structure must be placed on two or more sheets in order to maintain proper scale, the total plan shall be placed on one sheet at a smaller scale. Appropriate key plans and match lines shall appear on segmented drawings. Key plans shall be used not only to relate large scale plans to total floor plans but also to relate individual buildings to complexes of buildings. Key plans shall be drawn in a convenient location and shall indicate the relative location of the represented plan area by crosshatching.

#### 2.5.18 Revisions

Drawing revisions shall be prepared only on the original CADD files. A revision area is required on all sheets.

## **PART 3 EXECUTION**

### **3.1 GENERAL**

#### **3.1.1 Design Concept Coordination Meeting**

In addition to regular meetings with the Government the Contractor shall conduct formal status briefings on a monthly basis, as a minimum, to provide a management overview of design development. Shortly after contract award the Government may choose to conduct meetings with the Design-Build Contractor to refine proposal concept features. The purpose of the meeting is to assure attention to project requirements and to suggest ways of improving the design prior to tentative level submissions.

#### **3.1.2 Government Design Changes**

Government design changes which do not increase construction costs shall be made at no charge to the Government. The Contracting Officer may request design submittals in addition to those listed when deemed necessary to adequately describe the work covered in the contract documents. Submittals shall be made in the respective number of copies and to the respective addresses set forth in the paragraph entitled SUBMITTAL PROCEDURE. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

### **3.2 SUBMITTAL REGISTERS**

#### **3.2.1 Contractor-Furnished Design Documents Submittal Register (TAC Form 122-E)**

##### **3.2.1.1 General**

The Contractor shall submit as part of his Project Schedule, information regarding the submittal and clearance for construction of Contractor furnished design documents. In addition, the Contractor shall provide a complete submittal register in the sample format (TAC Form 122-E - Contractor Furnished Design Documents Submittal Register) which is attached to this section. The Contractor shall, within fifteen (15) calendar days after approval of the Project Schedule, submit 3 copies of his finalized Contractor Furnished Design Document Submittal Register to the Contracting Officer for approval. The submittal register shall consist of a tabulation of all the Contractor furnished design documents with the indicated dates integrated into the Design Progress Schedule. The Contractor shall post all actual dates of submittal actions (including clearance for construction) as they occur.

##### **3.2.1.2 Additions or Revisions**

Any additions or changes required to be made to the TAC Form 122-E as a result of the Contracting Officer's review shall be incorporated into the TAC Form 122-E by the Contractor and a re-submittal of 35% and 100% design submittals and (3) copies shall be affected within five (5) calendar days after receipt of the Contracting Officer's review comments.

### 3.2.1.3 Submission Requirements

A copy of the initial TAC Form 122-E and each monthly update prepared by the Contractor, shall be submitted to

#### AFGHANISTAN ENGINEER DISTRICT

(1) DHL, FEDEX, UPS or any other courier service:

U.S. Army Corps of Engineers  
Afghanistan Engineer District  
House # 1, St. #1 West  
West Wazir Akbar High School  
Behind Amani High School  
Kabul, Afghanistan  
Attn.: Tony Lijewski

(2) U.S. Postal Service:

U.S. Army Corps of Engineers  
Afghanistan Engineer District (CEAED-EC)  
Attn.: Qalaa House  
APO AE 09356]

#### TRANSATLANTIC PROGRAMS CENTER

U.S. Army Corps of Engineers  
Transatlantic Programs Center (CETAC-EC-TT-QC Attn: Judy Funkhouser)  
201 Prince Frederick Drive  
Winchester, Virginia 22602

### 3.2.2 Construction Submittal Register (ENG Form 4288)

Attached to this section is ENG Form 4288 which the Contractor is responsible for developing for this contract. All construction submittals shall be shown on this register. The submittal register shall be the controlling document and will be used to control all construction submittals throughout the life of the contract. The Contractor shall maintain and update the register on a monthly basis for the Contracting Officer's approval.

### 3.3 TRANSMITTAL FORM (ENG Form 4025)

The sample transmittal form (ENG Form 4025) attached to this section shall be used for submitting both design and construction submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care will be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

### **3.4 PROGRESS SCHEDULE**

The Contractor shall prepare and submit a design progress schedule to the Contracting Officer. The Critical Path Method (CPM) of network calculation shall be used to generate the Project Schedule. The progress schedule shall show, as a percentage of the total design price, the various items included in the contract and the order in which the Contractor proposes to carry on the work, with dates on which he will start the features of the work and the contemplated dates for completing same. Significant milestones such as review submittals shall be annotated. The Contractor shall assign sufficient technical, supervisory and administrative personnel to insure the prosecution of the work in accordance with the progress schedule. The Contractor shall correct the progress schedule at the end of each month and shall deliver Submittal section AED (3) copies to the Contracting Officer. The approved Project Schedule shall be used to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis of all progress payments.

### **3.5 SCHEDULING**

#### **3.5.1 Design Submittals**

Adequate time (a minimum of fourteen (14) calendar days exclusive of mailing time) shall be allowed for review and clearance for construction. If the Contractor fails to submit design submittals in a timely fashion, or repetitively submits design submittals that are not in strict conformance with the contract documents, no part of the time lost due to such actions shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

#### **3.5.2 Post Design Construction Submittals**

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of fourteen (14) calendar days exclusive of mailing time) shall be allowed for review and approval. If the Contractor fails to submit post design construction submittals in a timely fashion, or repetitively submits submittals that are not in strict conformance with the contract documents, no part of the time lost due to actions shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

### **3.6 SUBMITTAL PROCEDURE**

#### **3.6.1 Design Submittals**

##### **3.6.1.1 Afghanistan Engineer District (AED)**

Two (2) hard copies and one soft copy\_(1) copies of all design submittals shall be transmitted to the Government at the following address by means of ENG Form 4025:

#### **AFGHANISTAN ENGINEER DISTRICT**

(1) DHL, FEDEX, UPS or any other courier service:

U.S. Army Corps of Engineers  
Afghanistan Engineer District  
House # 1, St. #1 West  
West Wazir Akbar High School  
Behind Amani High School  
Kabul, Afghanistan  
Attn.:                     

(2) U.S. Postal Service:

U.S. Army Corps of Engineers  
Afghanistan Engineer District (CEAED-EC)  
Attn.: Qalaa House  
APO AE 09356

#### **TRANSATLANTIC PROGRAMS CENTER**

U.S. Army Corps of Engineers  
Transatlantic Programs Center  
ATTN: CETAC-EC-TT-QC (J. Funkhouser)  
201 Prince Frederick Drive  
Winchester, Virginia 22602

One (1) set of designs (3) copies of all design submittals shall be transmitted to the Government at the following address by means of ENG Form 4025:

#### **TRANSATLANTIC PROGRAMS CENTER**

U.S. Army Corps of Engineers  
Transatlantic Programs Center  
ATTN: CETAC-EC-TT-QC (J. Funkhouser)  
201 Prince Frederick Drive  
Winchester, Virginia 22602

The drawings shall be submitted in full size and half size formats unless otherwise noted.

For the Afghanistan Engineer District and/or field office, the Contractor shall submit two (1) full size and one (2) half size sets of drawings and a complete set of specification, design analysis and a soft copy on CD-ROM of all of the listed herein.

### 3.6.1.2 Resident/Area Engineer Office

Two (2) half size copies and one (1) full size additional copy of each design submittal shall be transmitted to the overseas field office administering the construction portion of the contract at the following address:

Transatlantic Program Center

The drawings shall be submitted in electronic file format unless otherwise noted.

### 3.6.1.3 Deliverables "Cleared for Construction"

Once the Design Documents have been "Cleared for Construction" by the Contracting Officer, the Design-Build Contractor shall clearly identify each document by annotating it as "Cleared for Construction". One (1) complete hardcopy and CD set of all finalized design documents shall be submitted to the Government as follows:

#### AFGHANISTAN ENGINEER DISTRICT

(1) DHL, FEDEX, UPS or any other courier service:

U.S. Army Corps of Engineers  
Afghanistan Engineer District  
House # 1, St. #1 West  
West Wazir Akbar High School  
Behind Amani High School  
Kabul, Afghanistan  
Attn: Engineering Section

(2) U.S. Postal Service:

U.S. Army Corps of Engineers  
Afghanistan Engineer District (CEAED-EC)  
Attn.: Qalaa House  
APO AE 09356

#### TRANSATLANTIC PROGRAMS CENTER

U.S. Army Corps of Engineers  
Transatlantic Programs Center  
ATTN: CETAC-EC-TT-QC (J. Funkhouser)

201 Prince Frederick Drive  
Winchester, Virginia 22602

Resident Area Engineer Office AED

Field office or site location of design project.

This is a Design-Build project and in accordance with Contract Clause 52.227-7022 GOVERNMENT RIGHTS (UNLIMITED), the Government has non-exclusive rights to use the design on other projects. Therefore, the As-Builts furnished to the Government must be in an editable format.

#### 3.6.1.4 Editable CADD Format As-Builts

In accordance with section 01060 SPECIAL CLAUSES clause PREPARATION OF AS-BUILT DRAWINGS (CONTRACTOR), one (1) set of the Government approved As-Builts shall be submitted to the following address in an editable CADD format:

AFGHANISTAN ENGINEER DISTRICT

(1) DHL, FEDEX, UPS or any other courier service:

U.S. Army Corps of Engineers  
Afghanistan Engineer District  
House # 1, St. #1 West  
West Wazir Akbar High School  
Behind Amani High School  
Kabul, Afghanistan  
Attn: Engineering Section

(2) U.S. Postal Service:

U.S. Army Corps of Engineers  
Afghanistan Engineer District (CEAED-EC)  
Attn.: Qalaa House  
APO AE 09356

This requirement is in addition to all other submission requirements stated elsewhere in the contract.

#### 3.6.1.5 Digital Transmission of Design Submittals

The Design-Build Contractor shall submit design deliverables addressed by this specification in digital format. The following procedure shall be followed:

a. **USE OF FILE TRANSFER PROTOCOL (FTP) SERVER.** The Design-Build contractor will download all design files on either its own File Transfer Protocol (FTP) Server, the Corps FTP Server or as otherwise directed. Afghanistan Engineer District (AED) prefers that the contractor provide the soft copy of design submittals be burned to CD-ROM and submitted as such. The procedure to be followed will be established at the Pre-Construction Conference and the appropriate log-in and password information will be exchanged between the Government and the Design-Build Contractor.

NOTE: AED accepts AutoCad release 2004 or higher drawing file format as the standard due to the fact that the local region does not support Microstation

b. **TRANSLATED OR CONVERTED FILES DRAWING FILES.** Digital drawing files shall be prepared as indicated in the paragraph entitled COMPUTER ASSISTED DESIGN AND DRAFTING (CADD). Under NO circumstances shall the Design-Build Contractor translate (or convert) the files from AutoDesk AutoCAD to Bentley Microstation.

c. **NOTIFICATION.** The Design-Build Contractor shall notify all recipients by email that the Design submittal has been downloaded to the designated FTP server or electronically provided on a CD and is ready for Government review. This email shall include a scanned copy of the ENG Form 4025 signed by the Design-Build Contractor's Contractor Quality Control (CQC) Organization. It shall also include an updated digital copy of TAC Form 122-E. The Government will use the digital submittal as an advance copy pending receipt of an official hardcopy version in accordance with the paragraph entitled SUBMITTAL PROCEDURE. Subsequent to a period of demonstrated successful performance, the Government may elect to eliminate the requirement to submit an official hardcopy version.

The TAC Form 122-E shall be prepared in a spread sheet software that readily allows the file to be saved as a \*.CSV file that can subsequently be imported into the Corps of Engineers Resident Management System (RMS) software.

d. **RETURN OF GOVERNMENT REVIEWED SUBMITTALS.** Subsequent to the Government review, the Eng Form 4025 with comments (if applicable) will be returned to the Design-build Contractor digitally by email. Hardcopies of these documents will subsequently be submitted to the Design-Build Contractor via the United States Postal Service (USPS). The Government may elect to stop sending hardcopies if it deems that digital transmission of design submittals is progressing satisfactorily.

e. **SUPPLEMENTAL ACTIONS.** All supplemental actions, resubmittals, and subsequently scheduled submissions shall be performed by the Design-Build contractor as indicated within this paragraph.

AED: As-builts shall be prepared and submitted in .DWG format utilizing AutoDesk AutoCad release 2004 or higher format.

### 3.6.2 Post Design Construction Submittals

Three (3) copies of all post design construction submittals shall be transmitted to the overseas district office administering the construction portion of the contract at the following address:

#### AFGHANISTAN ENGINEER DISTRICT

(1) DHL, FEDEX, UPS or any other courier service:  
U.S. Army Corps of Engineers  
Afghanistan Engineer District  
House # 1, St. #1 West  
West Wazir Akbar High School  
Behind Amani High School  
Kabul, Afghanistan  
Attn: Engineering Section

(2) U.S. Postal Service:  
U.S. Army Corps of Engineers  
Afghanistan Engineer District (CEAED-EC)  
Attn.: Qalaa House  
APO AE 09356

Submittal area of the AED engineering section

One (1) additional copy of each Post Design Construction submittal shall be transmitted to the Government at the following stateside address by means of ENG Form 4025:

#### TRANSATLANTIC PROGRAMS CENTER

U.S. Army Corps of Engineers  
Transatlantic Programs Center  
ATTN: CETAC-EC-TT-QC (J. Funkhouser)  
201 Prince Frederick Drive  
Winchester, Virginia 22602

Shop Drawing section

Submittals of Operations and Maintenance (O & M) Manuals in sets of (3) three copies shall be as follows:

#### AFGHANISTAN ENGINEER DISTRICT

(1) DHL, FEDEX, UPS or any other courier service:

U.S. Army Corps of Engineers  
 Afghanistan Engineer District  
 House # 1, St. #1 West  
 West Wazir Akbar High School  
 Behind Amani High School  
 Kabul, Afghanistan  
 Attn: Engineering Section

(2) U.S. Postal Service:

U.S. Army Corps of Engineers  
 Afghanistan Engineer District (CEAED-EC)  
 Attn.: Qalaa House  
 APO AE 09356

### 3.6.3 Submittal Numbering System

Instructions on the numbering system to be used for construction submittals follows:

#### 3.6.3.1 Submittals

Shop drawings and materials are listed on the Submittal Register (ENG Form 4288) as follows:

- a. List is prepared according to contract specifications and drawings, picking up all items involved in the project.
- b. This list is divided into sections as indicated in the specifications for example:

Sec 01015	"Technical Requirements"
Sec 01335	"Design Submittals"
Sec. 02831	"Chain-Link Fence"
Sec. 02710	"Subdrainage System"
Sec 03300	"Concrete For Building Construction"
Sec. 04200	"Masonry"

#### 3.6.3.2 Numbering procedures for transmittal on ENG FORM 4025

- a. Each section, may include a list of items. All these items will then be listed with a progressive number within the sections they belong to, for example:

Sec. 01015	will have 01015.00 (Basic number)
Item x	" " 01015.01
Item y	" " 01015.02
Item z	" " 01015.03

Sec. 01335 will have 01335.00 (Basic number)  
 35% design drawings " " 01335.01  
 100% design drawings " " 01335.03

Sec. 02710 will have 02710.00 (Basic number)  
 Item x " " 02710.01  
 Item y " " 02710.02  
 Item z " " 02710.03

Sec. 02600 will have 02600.00 (Basic number)  
 Item x " " 02600.01  
 Item y " " 02600.02

Sec. 03300 will have 03300.00 (Basic number)  
 Item x " " 03300.01  
 Item y " " 03300.02  
 etc.

b. It is evident a transmittal will never show a Section number i.e., 02831.00, 03300.00, etc., since these are only the basic numbers of the system. Numbers on transmittals will be the item numbers, i.e., 01015.01, 02710.01, 02710.02, 02710.03, 03300.01, 03300.02, etc. All items, as listed on the Submittal Register, will be submitted via a separate transmittal form ENG FORM 4025 thus avoiding getting together more than one item (as listed) and more than one number. There are items, on the other hand, which may be submitted all together on the same transmittal form. This must be established before submission is made.

c. Sec. 10800 "Toilet Accessories" - this section will have basic number 10800.00 - all items relative to it will be listed one by one on separate lines. ONLY one transmittal number will then be given for all of these "10800.01" which will include i.e., robe hook, toilet paper holder, mirror, soap holder, cabinet for paper towels, etc. Each one of these items will be listed on the same Transmittal Number 10800.01 as item 1, item 2, item 3, etc.

For design reviews the standard Corps of Engineers method of review is through DrChecks through projnet <https://www.projnet.org/projnet/binKornHome/index.cfm>  
 All of AED design submittal reviews shall be done through DrChecks.

### 3.6.3.3 Resubmittals

Should the Contractor be required to resubmit any transmittal, it will be accomplished by utilizing the same transmittal number followed by the number "-1" for the first resubmittal, "-2" for the second resubmittal, "-3" for the third resubmittal, etc. For example, a first resubmittal would be "SUBMITTAL PROCEDURES FOR DESIGN BUILD PROJECT" 01335.01-1, a second resubmittal 01335.01-2, etc. The

purpose of this system is to avoid deviations from Submittal Register and, to avoid confusion arising from the use of more than one number on transmittal when more than one item is submitted on the same form. This system will also facilitate the use, wherever required, on machine printouts.

#### 3.6.4 Variations

If design documents or construction submittals show variations from the contract parameters and/or requirements, the Contractor shall justify such variations in writing, at the time of submission. Additionally, the Contractor shall also annotate block "h" entitled "variation" of ENG FORM 4025. After design submittals have been reviewed and cleared for construction by the Contracting Officer, no resubmittal for the purpose of substituting materials, equipment, systems, and patented processes will be considered unless accompanied by the following:

- a. Reason or purpose for proposed variation, substitution, or revision.
- b. How does quality of variation compare with quality of the specified item? This shall be in the form of a technical evaluation tabulating differences between the item(s) originally specified and what is proposed.
- c. Provide a cost comparison. This shall include an acquisition and life cycle cost comparison.
- d. For proprietary materials, products, systems, and patented processes a certification signed by an official authorized to certify in behalf of the manufacturing company that the proposed substitution meets or exceeds what was originally specified.
- e. For all other actions, a certification signed by a licensed professional engineer or architect certifying that the proposed variation or revision meets or exceeds what was originally specified.
- f. Advantage to the Government, if variation is approved, i.e. Operation and Maintenance considerations, better product, etc.
- g. Ramifications and impact, if not approved.

If the Government review detects any items not in compliance with contract requirements or items requiring further clarification, the Contractor will be so advised. Lack of notification by the Contracting Officer of any non-complying item does not relieve the Contractor of any contractual obligation.

#### 3.6.5 Non-Compliance

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the worksite, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

### **3.7 REVIEW OF CONTRACTOR PREPARED DESIGN DOCUMENTS**

#### **3.7.1 General**

The work under contract will be subject to continuous review by representatives of the Contracting Officer. Additionally, joint design review conferences with representation by all organizations having a direct interest in the items under review may be held. The Design-Build Contractor shall furnish copies of all drawings and related documents to be reviewed at the review conference on or before the date indicated by the Government. Additional conferences pertaining to specific problems may be requested by the Design-Build Contractor or may be directed by the Contracting Officer as necessary to progress the work. The Design-Build Contractor shall prepare minutes of all conferences and shall furnish two copies to the Contracting Officer within seven (7) days after the conference.

#### **3.7.2 Independent Design Review**

The Design-Build Contractor shall have someone other than the Designer or Design Team perform an independent review of all specifications, drawings, design analysis, calculations, and other required data prior to submission to the Government. Upon completion of this review, the Design-Build Contractor shall certify that each design submittal is complete, accurate, is in strict conformance with all contract requirements, that repetition has been avoided, that all conflicts have been resolved, and that the documents have thoroughly coordinated and cross checked against all the applicable disciplines to prevent the omission of vital information.

#### **3.7.3 Contractor's Quality Control Organization Review**

This review shall be for the purposes of eliminating errors, interferences, and inconsistencies, and of incorporating design criteria, review comments, specifications, and any additional information required. Design submittals submitted to the Contracting officer without evidence of the Contractor's certified approval will be returned for resubmission. No part of the time lost due to such resubmissions shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

Action Code on Eng Form 4025 the "G – Other (specify)" Code must be used. ENG Forms 4025 and 4026 will be annotated as follows:

G – Cleared for Construction

G – Cleared for Construction, except as noted in attached comments

G – Cleared for Construction, except as noted in attached comments, resubmission required

G -- NOT Cleared for Construction, see attached comments, resubmission required

FX – Receipt acknowledged, does not comply as noted with contract requirements.

NOTE: Cleared for construction does not relieve the Design-Build Contractor from the responsibility for any errors or omissions in the design, nor from responsibility for complying with the requirements of this contract.

#### 3.7.4 Government Review

Within 14 days after Notice to Proceed, the Contractor shall submit, for approval, a complete design schedule with all submittals and review times indicated in calendar dates. The Contractor shall update this schedule monthly. After receipt, the Government will be allowed fourteen (14) days to review and comment on the 35% a design submittal and fourteen (14) days to review and comment on the 100% design submittal, except as noted below. For each design review submittal, comments from the various design sections and from other concerned agencies involved in the review process will be made in the on-line review management system DrChecks<sub>SM</sub> (<https://www.projnet.org/projnet/binKornHome/index.cfm> ). Contractor shall coordinate with the Contracting Officer and/or Representative(s) to register for DrChecks<sub>SM</sub> use. The review will be for conformance with the technical requirements of the solicitation and the Successful Offeror's (Contractor's) RFP proposal.

If a design submittal is deficient, it will be returned for correction and resubmission. The review time will begin when the corrected submittal is received.] The design-build contractor may be liable for liquidated damages owed to the Government for returned design submittals due to deficiencies.

[The contractor shall not begin construction work until the Government has reviewed the contractor's design and has cleared it for construction. Clearance for construction does not mean Government approval. Government review shall not be construed as a complete check but will evaluate the general design approach and

adherence to contract parameters. The Government Review is often limited in time and scope. Therefore, the Contractor shall not consider any review performed by the Government as an excuse for incomplete work. Upon completion of the review, all comments will be forwarded to the Contractor. The Contracting Officer will indicate whether the design submittal has or has not been cleared for construction using the following action codes:

- A – Cleared for Construction
- B – Cleared for Construction, except as noted in attached comments
- C – Cleared for Construction, except as noted in attached comments, resubmission required
- E - NOT Cleared for Construction, see attached comments, resubmission required
- FX – Receipt acknowledged, does not comply as noted with contract requirements.

These codes shall NOT be used by the Design-Build Contractor. Design-Build Contractor's Quality Control Organization will annotate Block "g" entitled "FOR CONTRACTOR USE CODE" of Eng Form 4025-R using the action codes listed on the reverse side of the form.

Design submittals Cleared for Construction by the Contracting Officer shall not relieve the Contractor from responsibility for any design errors or omissions and any liability associated with such errors, nor from responsibility for complying with the requirements of this contract.

#### 3.7.4.1 Incorporation of Government Review Comments

If the Contractor disagrees technically with any comment or comments and does not intend to comply with the comment, he must clearly outline, with ample justification, the reasons for noncompliance within five (5) days after close of review period in order that the comment can be resolved. The Contractor shall furnish disposition of all comments in DrChecks<sub>SM</sub>, with the next scheduled submittal. The disposition shall identify action taken with citation of location within the relevant design document. Generalized statements of intention such as "will comply" or "will revise the specification" are not acceptable. The Contractor is cautioned that if he believes the action required by any comment exceeds the requirements of this contract, that he should flag the comment in DrChecks<sub>SM</sub> as a scope change, and notify the COR in writing immediately. If a design submittal is over one (1) day late in accordance with the latest design schedule, the Government review period may be extended 7 days. Submittals date revisions must be made in writing at least five (5) days prior to the submittal. During the design review process, comments will be made on the

design submittals that will change the drawings and specifications. The Government will make no additional payments to the Contractor for the incorporation of comments. Review comments are considered part of the design-build process.

The Contractor will be furnished comments from the various design sections of the Corps of Engineers, Afghanistan Engineer District (AED) and / or Europe District (EUD) and / or Transatlantic Programs Center (TAC), as well as from other concerned agencies involved in the review process. The review will be for conformance with the technical requirements and parameters of the contract documents. The Contractor shall either incorporate each comment or, if the Contractor disagrees technically and does not intend to comply with the comment(s), the contractor shall clearly outline, with ample justification, its reasons for its noncompliance within five (5) days after receipt of the comment(s). Additionally, the Contractor is cautioned in that if it believes the action required by any comment exceeds the requirements of this contract, that he should take no action and notify the Contracting Officer in writing immediately. The disposition of all comments shall be furnished in writing with the next scheduled submittal. The review comments and the submittal material for each design review will become the basis for any ensuing design work. Copies of the design review comments with the action taken on each comment noted, shall be bound in all succeeding volumes of the design analysis.

#### 3.7.4.2 Conferences

As necessary, conferences will be conducted between the Design-Build contractor and the Government to resolve review comments.

A review conference will be held for each design submittal. The review conference will be held at the Corps District Office in Kabul, Afghanistan. The Contractor shall bring the personnel that developed the design submittal to the review conference.

#### 3.7.4.3 Design Deficiencies

Design deficiencies noted by the Government shall be corrected prior to the start of design for subsequent features of work which may be affected by, or need to be built upon, the deficient design work.

#### 3.7.5 Design Discrepancies

The Design-Build Contractor shall be responsible for the correction of incomplete design data, omissions, and design discrepancies which become apparent during construction. The Design-Build Contractor shall provide the Contracting Officer with a proposed recommendation for correcting a design error, within three (3) calendar days after notification by the Contracting Officer. The Contracting Officer will notify the Design-Build Contractor of any detected noncompliance with the foregoing requirements. The Design-Build Contractor shall take immediate corrective action

after receipt of such notice. Such notice, when delivered to the Design-Build Contractor at the worksite, shall be deemed sufficient for the purpose of notification. If the Design-Build Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Design-Build Contractor. Should extensions of design, fabrication plans and/or specific manufacturer's details be required as a result of a Government issued Change Order, the Government will make an equitable adjustment in accordance with Contract Clause 52.243-4 entitled CHANGES.

### 3.8 Phased or "Fast-Track" Design

#### 3.8.1 General

If approved by the Government, design and construction sequencing may be effected on an incremental basis as each approved phase or portion (e.g., demolition, geotechnical, site work, exterior utilities, foundations, substructure, superstructure, exterior closure, roofing, interior construction, mechanical, electrical, etc.) of the design is completed.

##### 3.8.1.1 Design Phases

Complete or partial design phasing may or may not have been specified by the Government elsewhere in this contract. For construction sequencing or phasing that the Government has not specifically mandated, the Design-Build Contractor may submit a proposed phasing plan. Design phasing proposed by the Design-Build Contractor shall be submitted to the Government for approval in accordance with TAC Form 122-E CONTRACTOR FURNISHED DESIGN DOCUMENTS.

#### 3.8.2 Sequence of Design-Construction (Fast-Track)

After receipt of the Contract Notice to Proceed (NTP) the Contractor shall initiate design, comply with all design submission requirements and obtain Government review of each submission. The contractor may begin construction on portions of the work for which the Government has reviewed the final design submission and has determined satisfactory for purposes of beginning construction. The Contracting Officer will notify the Contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal required when, in the opinion of the Government, the initial submission failed to meet the minimum quality requirements as set forth in the contract.

#### 3.8.3 Notice-to-Proceed for Limited Construction

If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed Final 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.

#### 3.8.4 In-Place Construction Payment

No payment will be made for any in-place construction until all required submittals have been made, reviewed and are satisfactory to the Government.

#### 3.8.5 Commencement of Construction

Construction of work may begin after receipt of the clearance for construction (Notice to Proceed) for each design phase. Any work performed by the Contractor prior to receipt of the clearance for construction, shall be at the Contractor's own risk and expense. Work cleared for construction that does not conform to the design parameters and/or requirements of this contract shall be corrected by the Contractor at no additional cost or time to the Government.

### 3.9 DESIGN STAGES

The Contractor shall schedule the number and composition of the design submittal phases. Design submittals are required at the Concept (35%) and Final 99% design stages and at the 100% Ready-to-Advertise stage. The requirements of each design stage are listed hereinafter. The number and contents of the design submittals phases shall be reflected in TAC Form 122-E as well as in the Contractor's design progress schedule.

#### 3.9.1 Concept Review Submittal (35%)

The review of this submittal is primarily to ensure that the Contractor has taken an inventory of the existing conditions at each proposed site, has established the most desirable functional relationships between the various project elements, has provided the technical solution to how the functional and technical requirements will be met, and to show Contractor compliance (or justify noncompliance) with the design parameters and/or requirements. Refer to requirements herein for specific submittal requirements. The following documents shall be submitted:

- Site topographic survey
- Grading plan
- 35% drawings for site plan, grading, utilities
- 35% drawings for buildings, facilities
- List of Specification Sections to be used
- Preliminary design analysis

#### 3.9.2 Final Review Submittal 100%

The review of this submittal is to insure that the design is in accordance with directions provided the Contractor during the design process. The only effort remaining between the FINAL DESIGN REVIEW SUBMITTAL and the "CLEARED FOR CONSTRUCTION" DESIGN REVIEW SUBMITTAL is the incorporation of the Government Review Comments. The Contractor shall submit the following documents for Final review:

- a. Design Analysis, developed to a 99% design stage. The Design Analysis shall be in its final form. It shall include all backup material previously submitted and revised as necessary. All design calculations shall be included. The Design Analysis shall contain all explanatory material giving the design rationale for any design decisions which would not be obvious to an engineer reviewing the Final Drawings and Specifications.
- b. 99% Complete Construction Specifications. The Draft Specifications on all items of work submitted for Final Review shall consist of marked-up proprietary specifications.
- c. 99% Complete Construction Drawings. The Contract Drawings submitted for Final Review shall include the drawings previously submitted which have been revised and completed as necessary. The Contractor is expected to have completed all of his coordination checks and have the drawings in a design complete condition. The drawings shall be finalized at this time including the incorporation of any design review comments generated by the Preliminary design review. The drawings shall contain all the details necessary to assure a clear understanding of the work throughout construction.
- d. The Government's 35% and 100% Design Review Comments with the Contractor's annotation to each comment.

#### 3.9.4 "Cleared for Construction" Design Review Submittal (100%)

After the FINAL DESIGN REVIEW SUBMITTAL review, the Contractor shall revise the Contract Documents by incorporating any comments generated during the FINAL DESIGN REVIEW SUBMITTAL and shall prepare final hard copy Construction Specifications. The Contractor shall submit the following documents for the design complete submittal:

- a. Design Analysis
- b. Construction Specifications
- c. Construction Drawings

d. A soft copy (CD) of the design drawings, specifications, and design analysis shall be submitted at this stage and all other subsequent stages of the design process.

e. The Government's FINAL (99%) DESIGN REVIEW SUBMITTAL comments with the Contractor's annotation to each comment.

Once the design documents have been "Cleared for Construction" by the Contracting Officer, the Design-Build Contractor shall clearly identify each document by annotating it as "Cleared for Construction."

### 3.9.5 Partial Design Submittals

In the interest of expediting construction, the Contracting Officer may approve partial design submittals, procurement of materials and equipment, as well as issue the Notice To Proceed (NTP) for construction of those elements of the design which have been cleared for construction. Such partial notices to proceed shall be solely at the discretion of the Contracting Officer.

### 3.9.6 Design Submittals not in compliance with the contract documents

The Contractor shall, without additional compensation, correct or revise any errors or deficiencies in its design analysis, specifications, and drawings, and promptly furnish a corrected submittal in the form and number of copies as specified for the initial submittal. No part of the time lost due to such resubmissions shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice shall be given promptly to the Contracting Officer.

## 3.10 GENERAL DESIGN INSTRUCTIONS

### 3.10.1 Responsibility of the Design-Build Contractor

#### 3.10.1.1 Professional Quality, Technical Accuracy, and Coordination

The Design-Build Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all design specifications, drawings, and other services furnished under this contract. Work must be organized in a manner that will assure thorough coordination between various details on drawings, between the various sections of the specifications, and between the drawings and specifications. The Design-Build Contractor shall thoroughly cross-check and coordinate all work until he is professionally satisfied that no conflicts exist, vital information has not been omitted, and that indefinite language open to interpretation has been resolved.

### 3.10.1.2 Deviating From The “Cleared-For-Construction” Design

(a.) The Contractor must obtain the approval of the Designer of Record (DOR) and the Government’s concurrence for any Contractor proposed revision to the professionally stamped and sealed design reviewed and Cleared for Construction by the Government, before proceeding with the 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 and cleared for construction design.

(c.) Any revision to the design, which deviates from the contract requirements (i.e., the RFP and the accepted proposal), will require a modification, pursuant to the Changes clause, in addition to Government concurrence. The Government reserves the right to disapprove such a revision.

(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 cleared for construction design and shall incorporate them into the as-built design documentation, in accordance with section 01060 SC entitled PREPARATION OF AS-BUILT DRAWINGS (CONTRACTOR). The Designer of Record shall document its professional concurrence on the As-Built for any revisions by affixing its stamp and seal on the drawings and specifications.

### 3.10.1.3 Government Oversight

The extent and character of the work to be done by the Design-Build Contractor shall be subject to the general oversight, supervision, direction, control, and review by the Contracting Officer.

### 3.10.1.4 Unlimited Drawing Rights

The Government shall have unlimited rights in all drawings, designs, specifications, notes and all other works developed in the performance of this contract, including the right to use same on any other Government design or construction without additional compensation to the Design-Build Contractor. The Design-Build Contractor hereby grants to the Government a paid-up license throughout the world to all such works to which he may assert or establish any claim under design patent or copyright laws.

### 3.10.1.5 Conflicts

Any conflicts, ambiguities, questions or problems encountered by the Design-Build Contractor in following the criteria shall be immediately submitted in writing to the Contracting Officer with the Design-Build Contractor's recommendations. Prior to submission to the Government the Design-Build Contractor shall take appropriate measures to obtain clarification of design criteria requirements, to acquire all pertinent design information, and to incorporate such information in the work being performed.

### 3.10.1.6 Design Specialists

Whenever a design specialist is required, the Design-Build Contractor shall submit for the approval by Contracting Officer, the name of the designated specialist along with the individual's educational background, experience, and licenses or registrations held, before design work commences. The design specialists shall be registered architects, registered professional engineers, or recognized consultants with a background of at least five (5) years design experience in the appropriate specialty. Services of design specialists may be required for the following specialties:

Fire Protection	Landscape Design
Medical Design	Stage/Theater Design
Acoustical Design	Interior Design
Educational Design	Security
Telecommunications	Audio Visual, PA, TV, etc.
Geotechnical Design	Hardened Structures
Asbestos Abatement	X-Ray Shielding
EMF Shielding	Site grading

### 3.10.2 Conduct of Work

In the performance of contract the Design-Build contractor shall:

#### 3.10.2.1 Performance

Perform the work diligently and aggressively, and promptly advise the Contracting Officer of all significant developments.

#### 3.10.2.2 Telephone Conversations

Prepare a summary, and promptly furnish a copy thereof to the Contracting Officer, of all telephone conversations relating to the design work under this contract.

#### 3.10.2.3 Cooperation with Others

Cooperate fully with other firms, consultants and contractors performing work under the program to which this contract pertains, upon being advised by the Contracting Officer that such firms or individuals have a legitimate interest in the program, have need-to-know status, and proper security clearance where required.

#### 3.10.2.4 Technical Criteria

All designs, drawings, and specifications shall be prepared in accordance with the contract documents and with the applicable publications referenced therein. As soon as possible, the Design-Build Contractor shall obtain copies of all publications applicable to this contract. Availability of publications (where to purchase) is contained in Specification Section 01420 entitled: SOURCES FOR REFERENCE PUBLICATIONS. Any deviations from the technical criteria contained in the contract documents or in the applicable publications, including the use of criteria obtained from the user or other sources, must receive prior approval of the Contracting Officer. Where the technical criteria contained or referred to herein are not met, the Design-Build Contractor will be required to conform his design to the same at his own time and expense.

#### 3.10.3 Design Priorities

The design of this project shall consider the remote location and harsh environment of this project and the impact this will have on sources of technical supply, the cost of construction, the low level of maintenance, and the difficulty of obtaining replacement parts. Unless stated otherwise in this contract, the following design priorities shall be followed:

##### **3.10.3.1 CONSTRUCTION LIFE-SPAN LEVELS**

**Permanent Construction.** Buildings and facilities shall be designed and constructed to serve a life expectancy of more than 25 years, to be energy efficient, and to have finishes, materials, and systems that are low maintenance and low life-cycle cost.

**Semi permanent Construction.** Buildings and facilities shall be designed and constructed to serve a life expectancy of more than 5 years but less than 25 years, to be energy efficient, and to have finishes, materials, and systems that require a moderate degree of maintenance using the life-cycle cost approach.

**Temporary Construction.** Buildings and facilities shall be designed and constructed to serve a life expectancy of 2 years or less using low-cost construction, with finishes, materials, and systems that are selected with maintenance factors being a secondary consideration.

**Mobilization, Emergency and Contingency Operations Construction.** Buildings and facilities shall be designed and constructed to serve a specific mobilization or emergency requirement. Buildings will be austere to minimize construction time and

maximize conservation of critical materials. Maintenance factors and longevity will be secondary considerations.

### 3.10.3.2 Operability

Systems including but not necessarily limited to mechanical, electrical, communications, etc., must be simple to operate and easy to maintain.

### 3.10.3.3 Standardization

Use of standardized materials, products, equipment, and systems is necessary to minimize the requirements for replacement parts, storage facilities, and service requirements.

### 3.10.3.4 Overseas Work

Use of construction materials or techniques shall be utilized which are suitable for overseas work in harsh climates and environments.

## 3.10.4 Topographic Surveys, Easements, and Utilities

Unless otherwise stated in the contract, the Design-Build Contractor will be responsible for detailed topographic mapping, available easements, and utility information for the project.

### 3.10.4.1 Horizontal and Vertical Control

The mapping shall be based on the base coordinate system. If the base system cannot be found, the surveyor shall use any established monuments. If monuments have been destroyed or do not exist, an assumed horizontal and vertical datum shall be established, using arbitrary coordinates of 10,000n and 10,000e and an elevation of 1,000 meters. The horizontal and vertical control established on site shall be a closed loop with third order accuracy and procedures. Provide three (3) concrete survey monuments at the survey site. All of the control points established at the site shall be plotted at the appropriate coordinate point and shall be identified by name or number, and adjusted elevations. The location of the project site, as determined by the surveyor shall be submitted in writing to the Contracting Officer. The site location shall be identified by temporary markers, approved by the Contracting Officer before proceeding with the surveying work.

### 3.10.4.2 Topography Requirements

A sufficient quantity of horizontal and vertical control shall be established to provide a detailed topographic survey at 1:500 scale with one quarter meter contour intervals minimum. Intermediate elevations shall be provided as necessary to show breaks in grade and changes in terrain.

The contours shall accurately express the relief detail and topographic shapes. In addition, 90 percent of the elevations or profiles interpolated from the contours shall be correct to within one-half of the contour interval and spot elevations shall be correct within plus or minus 20 millimeters.

Spot elevations affecting design of facilities shall be provided. Specifically, break points or control points in grades of terrain such as tops of hills, bottoms of ditches and gullies, high bank elevations, etc.

All surface and sub-surface structures features within the area to be surveyed shall be shown and identified on the topographic maps. In addition, these features shall be located by sufficient distance ties and labeled on the topographic sheets to permit accurate scaling and identification.

The location and sizes of potable, sanitary, electrical and mechanical utilities within the survey site shall be shown on the survey map. Sanitary manholes and appurtenances shall show top elevations and invert elevations.

### 3.10.5 Geotechnical Investigation

Unless otherwise stated in the contract, the Design-Build Contractor will be responsible for Geotechnical investigation, including subsurface explorations, sampling, field and laboratory testing, and water studies where applicable.

### 3.10.6 Cathodic Protection and Earth Resistance

Unless otherwise stated in the contract, the Design-Build Contractor will be responsible for determining whether cathodic protection on buried structures and underground utility systems are needed for special electrical grounding and counterpoise systems, and for gathering the field data necessary for design.

### 3.10.7 Water Supply and Quality Data

Unless otherwise stated in the contract, the Design-Build Contractor will be responsible for obtaining all water supply and water quality data. This data will include information on the locations and depths of all viable water supply sources at the site(s) involved and a water quantity and water quality analysis for each source.

### 3.10.8 Occupational Safety and Health Act

The facilities, systems, and equipment designed under this contract shall comply with the Occupational Safety and Health Act (OSHA), Code of Federal Regulations, Title 29, Chapter XVII, Parts 1910 and 1926. Any problems in incorporating these standards due to conflicts with other technical criteria shall be submitted to the Contracting Officer for resolution.

### 3.10.9 Asbestos Containing Materials

Asbestos containing material (ACM) will not be used in the design of new structures or systems. In the event no other material is available which will perform the required function or where the use of other material would be cost prohibitive, a waiver for the use of asbestos containing materials must be obtained from CETAC.

#### 3.10.9.1 Existing Construction

Asbestos containing materials (ACM) presently included in existing construction to be rehabilitated or otherwise modified as a result of this project, shall be removed and a non-asbestos containing material substituted in lieu thereof.

#### 3.10.9.2 Suspected Asbestos Containing Materials

All such structures and systems shall be inspected to determine the presence or probable presence of ACM. When ACM is suspected, a documented survey will be performed. The survey will be developed into an abatement design and will be made a part of the design documents. In the event no other material is available which will perform the required function or the use of a substitute material would be cost prohibitive due to initial cost and tear-out of existing construction, a waiver for the retention of the asbestos containing material must be obtained from the Contracting Officer.

## 3.11 VALUE METHODOLOGY/VALUE ENGINEERING

The Design-Build Contractor during the course of his design shall be alert for and shall identify those high-cost low-value items or areas which he considers may be accomplished in different ways that will increase the value of the project at the same or less cost. Potential value engineering study items shall be reported to the Value Engineer through the Contracting Officer.

### 3.11.1 Performance Oriented Value Engineering Change Proposal (VECP)

In reference to Contract Clause 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 Contract Documents which were addressed in the Design-Build Contractor's accepted contract proposal and which were evaluated in competition with other Proposers for award of this contract. For purposes of this clause, the term "performance oriented" refers to those aspects of the design criteria or other contract requirements which allow the Proposer or the Design-Build 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.

### 3.11.2 Prescriptive Oriented Value Engineering Change Proposal (VECP)

The Government may consider a VECP for those "prescriptive" aspects of the Solicitation documents, not addressed in the Design-Build Contractor's accepted contract proposal or addressed but evaluated only for minimum conformance with the Solicitation requirements. 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 materials, approaches, systems and/or processes to be used. Prescriptive aspects typically allow the Proposers little or no freedom in the choice of design approach, materials, fabrication techniques, methods of installation or other approach to fulfill the contract requirements.

## 3.12 SUBMITTAL OF CONTRACTOR FURNISHED DESIGN DOCUMENTS

The requirements of this paragraph pertain to the submittal of design documents, specifications, design calculations, surveys, testing reports and other documents prepared by the Design-Build Contractor to meet the design requirements of this project.

### 3.12.1 Geo-technical

#### 3.12.1.1 Design Analysis

The Design-Build Contractor shall submit in the design analysis catalog cuts, manufacturer's data for the following:

#### 3.12.1.2 Specifications

Specifications for all civil utilities shall include:

#### 3.12.1.3 Design Drawings

1 ea. Full Size, 2 ea. Half-Size Design drawings shall be submitted for the following:

Afghanistan Engineer District (AED)

#### 3.12.1.4 Manufacturer's recommendations, instructions, and certifications

Shall be submitted for the following:

Afghanistan Engineer District (AED)

#### 3.12.1.5 Samples

Samples shall be submitted for the following:

Afghanistan Engineer District (AED)

#### 3.12.1.6 Schedules

Schedules shall be submitted for the following:

Afghanistan Engineer District (AED)

#### 3.12.1.7 Reports

Reports shall be submitted for the following:

Afghanistan Engineer District (AED)

#### 3.12.1.8 Records

Records shall be submitted for the following:

Afghanistan Engineer District (AED)

Engineering Studies. Occasionally, in addition to the items previously mentioned, engineering studies that relate to specific problems or surveys may be required. The necessary instructions regarding the preparation of such reports must be added by the Specification Writer as appropriate.

#### 3.12.2 Civil, Site Planning and Layout

#### 3.12.3 Water, Wastewater, and Solid Waste Systems

#### 3.12.4 Architectural/Interior Design

#### 3.12.5 Structural

#### 3.12.6 Force Protection Design Procedures for the Protection of United States Forces

#### 3.12.7 Fire Protection and Life Safety

#### 3.12.8 Heating, Ventilating, and Air Conditioning

#### 3.12.9 Plumbing

#### 3.12.10 Special Mechanical Systems and Equipment

3.12.11 Electrical

3.12.12 Power Generation

3.12.13 Power Transmission and Distribution

3.12.14 Communications

3.12.15 Corrosion Prevention and Control

3.12.16 Renovation Design

3.12.17 Accident Prevention and Safety

### **3.13 SUBMITTAL OF CONTRACTOR FURNISHED DESIGN DRAWINGS**

3.13.1 Geo-technical

3.13.2 Civil, Site Planning and Layout

3.13.3 Water, Wastewater, and Solid Waste Systems

3.13.4 Architectural/Interior Design

3.13.5 Structural

3.13.6 Force Protection Design Procedures for the Protection of United States Forces

3.13.7 Fire Protection and Life Safety

3.13.8 Heating, Ventilating, and Air Conditioning

3.13.9 Plumbing

3.13.10 Special Mechanical Systems and Equipment

3.13.11 Electrical

3.13.12 Power Generation

3.13.13 Power Transmission and Distribution

3.13.14 Communications

3.13.15 Corrosion Prevention and Control

### 3.13.16 Renovation Design

### 3.13.17 Accident Prevention and Safety

## **3.14 GOVERNMENT APPROVED CONSTRUCTION SUBMITTALS (Required During Construction)**

### 3.14.1 General

Since this contract requires that the drawings and specifications specify specific proprietary materials, equipment, systems, and patented processes by trade name, make, or catalog number, it is anticipated that construction shop drawings will primarily be limited to testing, construction plans (e.g., Contractor Quality Control, Accident Prevention, Resident Management System, Area Use etc), schedules (Project Schedule/Network Analysis), certificates of compliance, reports, records/statements and variations.

#### 3.14.1.1 Variations

After design submittals have been reviewed and cleared for construction by the Contracting Officer, no submittal for the purpose of substituting materials, equipment, systems, and patented processes will be considered by the Government unless submitted in accordance with the paragraph entitled VARIATIONS.

#### 3.14.1.2 Additional Shop Drawings and Submittals

In accordance with the paragraph entitled DESIGN DISCREPANCIES, the Government may request the Design-Build Contractor to provide additional shop drawing and submittal type data subsequent to completion of the design.

### 3.14.2 Incomplete Design

The Design-Build Contractor shall not use construction submittals as a means to supplant and/or supplement an incomplete design effort.

### 3.14.3 Government Approval of Construction Submittals

The approval of construction submittals by the Contracting Officer shall not be construed as a complete check, but will indicate only that the general method of design construction, materials, detailing and other information are satisfactory. Approval will not relieve the Design-Build Contractor of the responsibility for any error which may exist, as it is the sole responsibility of the Design-Build Contractor to certify that each submittal has been reviewed in detail and is in strict conformance with all the contract documents and design criteria referenced therein.

Virtually all design related construction submittals can and must be incorporated directly into the design specifications and drawings prepared by the Design-Build Contractor. Since the Design-Build Contractor has sole responsibility for the design, procurement, and construction, impediments do not exist which would impair his ability to specifically identify what is being furnished to the Government prior to the start of construction. Generic/non-proprietary specifications are indicative of an incomplete design effort and as such must be rejected as unacceptable

#### 3.14.4 Submittals

Submittals (other than shop drawings) shall be limited to items such as Plans (e.g., Quality Control Plan, Accident Prevention Plan, Area Use Plan etc.), Certificates of Compliance, Installation Instructions, Manufacturer's Catalog Data, Descriptive Literature/Illustrations, Factory and Field Test Reports, Performance and Operational Test Data Reports, Records, Operation and Maintenance Manuals, and required variations.

#### 3.14.5 Government Review

Upon completion of review of construction submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. two (2) copies of the submittal will be retained by the Contracting Officer and one (1) copy of the submittal will be returned to the Design-Build Contractor.

### **3.15 FOR INFORMATION ONLY SUBMITTALS**

These submittals shall be checked, stamped, signed and dated by the Design-Build Contractor's Quality Control Engineer, certifying that such submittal complies with the contract requirements. All Contractor submittals shall be subject to review by the Government at any time during the course of the contract. Any Contractor submittal found to contain errors or omissions shall be resubmitted as one requiring "approval". No adjustment for time or money will be allowed for corrections required as a result of noncompliance with plans or specifications. Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. These submittals will be used for information purposes. The Government reserves the right to require the Design-Build Contractor to resubmit any item found not to comply with the contract. This does not relieve the Design-Build Contractor from the obligation to furnish material conforming to the plans and specifications and will not prevent the Contracting Officer from requiring removal and replacement if nonconforming material is incorporated in the work.

### **3.16 ATTACHMENTS**

The following attachments form an integral part of this specification:

ENG FORM 4025 - Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificate of Compliance (2 pages)

TAC FORM 122-E - Contractor Furnished Design Documents Submittal Register

ENG FORM 4288 - Submittal Register

Select one of the following:

AED projects:

Figure 1 – From AEC CADD Standards all sheet/number description; AED title block

Figure 2 - From AEC CADD Standards all A-E logo/designed by/submitted by; AED title block

Figure 3 - From AEC CADD Standards all revision block; AED title block

Figure 4 - From AEC CADD Standards all Finished Format Size

-- End of Section -

SECTION 01415

**SECTION 01415**

**METRIC MEASUREMENTS**

**1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM E 621	(1994; R 1999e1) Use of Metric (SI) Units in Building Design and Construction (Committee E-6 Supplement to E380)
ASTM SI 10	(2002) American National Standard for Use of the International System of Units (SI): The Modern Metric System

## 1.2 GENERAL

This project includes metric units of measurements. The metric units used are the International System of Units (SI) developed and maintained by the General Conference on Weights and Measures (CGPM); the name International System of Units and the international abbreviation SI were adopted by the 11th CGPM in 1960. A number of circumstances require that both metric SI units and English inch-pound (I-P) units be included in a section of the specifications. When both metric and I-P measurements are included, the section may contain measurements for products that are manufactured to I-P dimensions and then expressed in mathematically converted metric value (soft metric) or, it may contain measurements for products that are manufactured to an industry recognized rounded metric (hard metric) dimensions but are allowed to be substituted by I-P products to comply with the law. Dual measurements are also included to indicate industry and/or Government standards, test values or other controlling factors, such as the code requirements where I-P values are needed for clarity or to trace back to the referenced standards, test values or codes.

## 1.3 USE OF MEASUREMENTS IN SPECIFICATIONS

Measurements in specifications shall be either in SI or I-P units as indicated, except for soft metric measurements or as otherwise authorized. When only SI or I-P measurements are specified for a product, the product shall be procured in the specified units (SI or I-P) unless otherwise authorized by the Contracting Officer. The Contractor shall be responsible for all associated labor and materials when authorized to substitute one system of units for another and for the final assembly and performance of the specified work and/or products.

### 1.3.1 Hard Metric

A hard metric measurement is indicated by an SI value with no expressed correlation to an I-P value. Hard metric measurements are often used for field data such as distance from one point to another or distance above the floor. Products are considered to be hard metric when they are manufactured to metric dimensions or have an industry recognized metric designation.

### 1.3.2 Soft Metric

(6) A soft metric measurement is indicated by an SI value which is a mathematical conversion of the I-P value shown in parentheses (e.g. 38.1 mm (1-1/2 inches)). Soft metric measurements are used for measurements pertaining to products, test values, and other situations where the I-P units are the standard for manufacture, verification, or other controlling factor. The I-P value shall govern while the metric measurement is provided for information.

(7) A soft metric measurement is also indicated for products that are manufactured

in industry designated metric dimensions but are required by law to allow substitute I-P products. These measurements are indicated by a manufacturing hard metric product dimension followed by the substitute I-P equivalent value in parentheses (e.g., 190 x 190 x 390 mm (7-5/8 x 7-5/8 x 15-5/8inches)).

### 1.3.3 Neutral

A neutral measurement is indicated by an identifier which has no expressed relation to either an SI or an I-P value (e.g., American Wire Gage (AWG) which indicates thickness but in itself is neither SI nor I-P).

## 1.4 COORDINATION

Discrepancies, such as mismatches or product unavailability, arising from use of both metric and non-metric measurements and discrepancies between the measurements in the specifications and the measurements in the drawings shall be brought to the attention of the Contracting Officer for resolution.

## .5 RELATIONSHIP TO SUBMITTALS

Submittals for Government approval or for information only shall cover the SI or I-P products actually being furnished for the project. The Contractor shall submit the required drawings and calculations in the same units used in the contract documents describing the product or requirement unless otherwise instructed or approved. The Contractor shall use ASTM SI 10 and ASTM E 621 as the basis for establishing metric measurements required to be used in submittals.

-- End of Section --

### SECTION 01451

## **SPECIFICATION SECTION 01451**

## **CONTRACTOR QUALITY CONTROL**

### **PART 1: GENERAL**

#### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

ER 1110-1-12 (1993)

Quality Management

EM 385-1-1

## Safety and Health Requirements Manual

**1.2 PAYMENT**

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

**PART 2 PRODUCTS (Not Applicable)****PART 3 EXECUTION****3.1 GENERAL REQUIREMENTS**

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clauses and this specification section. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

**3.2 CQM TRAINING REQUIREMENT**

Before project design and construction begin, the Contractor's Quality Control Manager is required to have completed the U.S. Army Corps of Engineers CQM course, or equivalent. The Construction Trades Training Center (CTTC) in Jalalabad, Afghanistan provides a course that satisfies the requirement. Courses are offered at regular intervals. For enrollment and course information contact CTTC at the following:

Mhd. Haris

e-mail: [mharis@afghanreconstruction.org](mailto:mharis@afghanreconstruction.org)

Telephone: 0700 08 0602

Pervaiz

e-mail: [adpzmuj@yahoo.com](mailto:adpzmuj@yahoo.com)

Telephone: 0700 61 3133

### 3.3 QUALITY CONTROL PLAN

The Contractor shall furnish for review by the Government, not later than five (5) days after receipt of Notice-to-Proceed (NTP) the proposed Contractor Quality Control (CQC) Plan. The plan shall identify personnel, procedures, control, instructions, records, and forms to be used.

#### 3.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both on site and off-site, including work by subcontractors, fabricators, suppliers and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, consultants, and purchasing agents. These procedures shall be in accordance with Specification 01335 SUBMITTAL PROCEDURES.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test.
- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- h. Reporting procedures, including proposed reporting formats.

- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

### 3.2.2 Additional Requirements for Design Quality Control (DQC) Plan

The following additional requirements apply to the Design Quality Control

(DQC) plan:

(1) The Contractor shall provide and maintain a Design Quality Control (DQC) Plan as an effective quality control program which will assure that all services required by this design contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, all documents shall be technically reviewed by competent, independent reviewers identified in the DQC Plan. The same element that produced the product shall not perform the independent technical review (ITR). The Contractor shall correct errors and deficiencies in the design documents prior to submitting them to the Government.

(2) The Contractor shall include the design schedule in the master project schedule, showing the sequence of events involved in carrying out the project design tasks within the specific contract period. This should be at a detailed level of scheduling sufficient to identify all major design tasks, including those that control the flow of work. The schedule shall include review and correction periods associated with each item. This should be a forward planning as well as a project monitoring tool. The schedule reflects calendar days and not dates for each activity. If the schedule is changed, the Contractor shall submit a revised schedule reflecting the change within 7 calendar days. The Contractor shall include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. These completed checklists shall be submitted at each design phase as part of the project documentation. Example checklists can be found in ER 1110-1-12.

(3) The DQC Plan shall be implemented by an Design Quality Control Manager who has the responsibility of being cognizant of and assuring that all documents on the project have been coordinated. This individual shall be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect. The Contractor shall notify the Contracting Officer, in writing, of the name of the individual, and the name of an alternate person assigned to the position.

The Contracting Officer will notify the Contractor in writing of the acceptance of the DQC Plan. After acceptance, any changes proposed by the Contractor are subject to the acceptance of the Contracting Officer.

### 3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in the CQC plan and operations including removal of personnel, as necessary, to obtain the quality specified.

### 3.2.4 Notification of Changes

Notification of Changes. After acceptance of the QC plan, the Contractor shall notify the Contracting Officer in writing a minimum of seven calendar days prior to any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

## 3.3 COORDINATION MEETING

After the Pre-construction Conference, before start of construction, and prior to acceptance by the Government of the Quality Control Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 5 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both on-site and off-site work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures, which may require corrective action by the Contractor.

## 3.4 QUALITY CONTROL ORGANIZATION

### 3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager, and sufficient number of additional qualified personnel to ensure safety and contract compliance. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, shop drawing

submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

#### 3.4.2 CQC System Manager

The Contractor shall identify an individual within his organization at the site of the work who shall be responsible for overall management of the CQC and have the authority to act in all CQC matters for the Contractor. The CQC system manager shall be a graduate engineer, graduate architect, or a graduate construction manager, with experience on construction projects similar in type to this contract OR a construction person with a minimum of ten (10) years in related work. The CQC System Manager shall be on the site at all times during construction and shall be employed by the Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager will be identified in the plan to serve in the event of the CQC system manager's absence. The requirements for the alternate will be the same as for the designated CQC manager.

#### 3.4.3 Not Used.

#### 3.4.4 Additional Requirement

In addition to the above experience and/or education requirements, the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". This course is periodically offered by the government, and inquiries as to the next course offering may be directed to the local construction field office.

#### 3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

### **3.5 SUBMITTALS AND DELIVERABLES**

Submittals, if needed, shall be made as specified in the STR titled SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

### **3.6 CONTROL**

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by

the CQC System Manager for each definable feature of the construction work as follows:

### 3.6.1 Preparatory Phase.

This phase shall be performed prior to beginning work on each definable feature of work, after all required documents and materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards, in the English language unless specifically approved otherwise by the Contracting Officer, applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. A check to assure that provisions have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to verify that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. Reviews of the appropriate activity hazard analysis to ensure safety requirements are met.
- h. Discussion of procedures for constructing the work including repetitive deficiencies, construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the Contracting Officer has accepted the portion of the plan for the work to be performed.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 24 hours in advance of beginning any of the required action of the preparatory phase. This phase shall include a meeting conducted by the CQC system manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman

responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC system manager and attached to the daily QC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

### 3.6.2 Initial Phase.

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of preliminary work to ensure that it is in compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verification of full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC system manager and attached to the daily QC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work on-site, or any time acceptable specified quality standards are not being met.

### 3.6.3 Follow-up Phase.

Daily checks shall be performed to assure continuing compliance with contract requirements, including control testing, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted, and all noted deficiencies corrected, prior to the start of additional features of work that may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

### 3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases may be required by the Contracting Officer on the same definable features of work if the quality of on-going work is unacceptable; if there are changes in the applicable QC staff or in the on-site

production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

### **3.7 TESTS**

#### **3.7.1 Testing Procedure**

The Contractor shall perform tests specified or required to verify that control measures are adequate to provide a product that conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Costs incidental to the transportation of samples or materials shall be borne by the Contractor.

Testing includes operation and/or acceptance tests when specified. A list of tests to be performed shall be furnished as a part of the CQC plan. The list shall give the test name, frequency, specification paragraph containing the test requirements, the personnel and laboratory responsible for each type of test, and an estimate of the number of tests required. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the Quality Control report for the date taken. Specification paragraph/item reference, location where tests were taken, and the sequential control number identifying the test will be given. Actual test reports may be submitted later, if approved by the Contracting Officer, with a reference to the test number and date taken. An information copy of tests performed by an off-site or commercial test facility will be provided directly to the Contracting Officer. Failure to submit timely test reports, as stated, may result in nonpayment for related work performed and disapproval of the test facility for this contract.

### **3.8 COMPLETION INSPECTION**

#### **3.8.1 Punch-Out Inspection**

Near the end of the work, or any increment of the work established by a time stated in the SPECIAL CONTRACT REQUIREMENTS Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform

to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

### 3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

### 3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

## 3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.

- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.
- g. Offsite surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within forty-eight (48) hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

### **3.10 SAMPLE FORMS**

In accordance with Specification 01312 QUALITY CONTROL SYSTEM, the contractor shall use the forms produced by and printed from QCS. Samples of any forms required to meet the requirements of this section which are not produced by that system shall be included in the contractors Quality Control Plan.

### **3.11 NOTIFICATION OF NONCOMPLIANCE**

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --

#### SECTION 01525

### **SECTION 01525**

## **SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS**

### **PART 1 GENERAL**

For contractor safety on projects associated with this program, compliance with EM 385-1-1 safety requirements will be the long-term goal reached by growing a safety culture. This compliance will, by necessity, be achieved through a phased-in process. In the Commander's letter at the preface of the EM 385-1-1, he acknowledges that in OCONUS locations, strict compliance with the manual may not be possible – and through the hazard analysis process, safety measures can be developed to attain the same degree of safety.

This specification consists of two parts:

- 1) Sections 1.1 through 3.12.1, which are the standard safety specifications for work in Europe District and;
- 2) Appendix A, Phasing approach for safety in emerging countries where there is little or no national safety standards.

### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A10.32	Personal Fall Protection - Safety Requirements for Construction and Demolition Operations
ANSI Z359.1(1992; R 1999)	Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
ANSI/ASSE A10.34(2001)	Protection of the Public on or Adjacent to Construction Sites
ASME B30.3(1996)	Construction Tower Cranes
ASME INTERNATIONAL (ASME)	
ASME B30.22(2000)	Articulating Boom Cranes
ASME B30.5(2004)	Mobile and Locomotive Cranes
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)	
NFPA 10(2002)	Portable Fire Extinguishers
NFPA 241(2000)	Safeguarding Construction, Alteration, and Demolition Operations
NFPA 51B(2003)	Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 70(2005)	National Electrical Code
NFPA 70E(2004)	Electrical Safety in the Workplace
U.S. ARMY CORPS OF ENGINEERS (USACE)	
EM 385-1-1(2003) Safety	Safety and Health Requirements
U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)	
29 CFR 1910 (OSHA)	Occupational Safety and Health Standards
29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1915	Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment
29 CFR 1919	Gear Certification
29 CFR 1926	Safety and Health Regulations for Construction

29 CFR 1926.500

Fall Protection

## 1.2 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 SR SUBMITTAL PROCEDURES:

### SD-01 Preconstruction Submittals

Accident Prevention Plan (APP); G, ACC

Activity Hazard Analysis (AHA); G, ACC

Crane Critical Lift Plan; G, ACC

Proof of qualification for Crane Operators; G, ACC

### SD-06 Test Reports

Reports: Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

Accident Reports

Monthly Exposure Reports

Crane Reports

Regulatory Citations and Violations

### SD-07 Certificates

Confined Space Entry Permit

Contractor Safety Self-Evaluation Checklist; G, ACC

Submit one copy of each permit/certificate attached to each Daily Quality Control Report.

## 1.3 DEFINITIONS

a. Competent Person for Fall Protection. A person who is capable of identifying hazardous or dangerous conditions in the personal fall arrest system or any component thereof, as well as their application and use with related equipment, and has the authority to take prompt corrective measures to eliminate the hazards of falling.

- b. High Visibility Accident. Any mishap which may generate publicity and/or high visibility.
- c. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.
- d. Qualified Person for Fall Protection. A person with a recognized degree or professional certificate, extensive knowledge, training and experience in the field of fall protection who is capable of performing design, analysis, and evaluation of fall protection systems and equipment.
- e. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:
  - (1) Death, regardless of the time between the injury and death, or the length of the illness;
  - (2) Days away from work (any time lost after day of injury/illness onset);
  - (3) Restricted work;
  - (4) Transfer to another job;
  - (5) Medical treatment beyond first aid;
  - (6) Loss of consciousness; or
  - (7) A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.
- f. "USACE" property and equipment specified in USACE EM 385-1-1 should be interpreted as Government property and equipment.

#### **1.4 DRUG PREVENTION PROGRAM**

Conduct a proactive drug and alcohol use prevention program for all workers, prime and subcontractor, on the site. Ensure that no employee uses illegal drugs or consumes alcohol during work hours. Ensure there are no employees under the influence of drugs or alcohol during work hours. After accidents, collect blood, urine, or saliva specimens and test the injured and involved employees for the influence of drugs and alcohol. A copy of the test shall be made available to the Contracting Officer upon request.

#### **1.5 REGULATORY REQUIREMENTS**

In addition to the detailed requirements included in the provisions of this contract, work performed shall comply with USACE EM 385-1-1, and in particular, the

requirements of the European Union Council Directive 92/57/EEC of 24 June 1992 on the implementation of minimum safety and health requirements at temporary or mobile construction sites. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

## **1.6 SITE QUALIFICATIONS, DUTIES AND MEETINGS**

### **1.6.1 Personnel Qualifications**

#### **1.6.1.1 Site Safety and Health Officer (SSHO)**

Site Safety and Health Officer (SSHO) shall be provided at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The Contractor Quality Control (QC) person can only be the SSHO on this project if approved by the Contracting Officer. Any project exceeding 1 Million US dollars in value shall have a full time SSHO. The SSHO shall meet the following requirements: A minimum of 5 years safety work on similar projects; 30-hour OSHA construction safety class or European Union equivalent within the last 5 years; an average of at least 24 hours of formal safety training each year for the past 5 years. Competent person training as needed.

#### **1.6.1.2 Competent Person for Confined Space Entry**

Provide a competent person meeting the requirements of EM 385-1-1 who is assigned in writing by the Government Designated Authority (GDA) to assess confined spaces and who possesses demonstrated knowledge, skill and ability to:

- a. Identify the structure, location, and designation of confined and permit-required confined spaces where work is done;
- b. Calibrate and use testing equipment including but not limited to, oxygen indicators, combustible gas indicators, carbon monoxide indicators, and carbon dioxide indicators, and to interpret accurately the test results of that equipment;
- c. Perform all required tests and inspections specified in Section 06.I of EM 385-1-1;
- d. Assess hazardous conditions including atmospheric hazards in confined space and adjacent spaces and specify the necessary protection and precautions to be taken;
- e. Determine ventilation requirements for confined space entries and operations;

- f. Assess hazards associated with hot work in confined and adjacent space and determine fire watch requirements; and,
- g. Maintain records required.

### 1.6.1.3 Crane Operators

Crane operators shall meet the requirements in USACE EM 385-1-1, Section 16 and Appendix G. In addition, crane operators shall be designated as qualified by a source that qualifies crane operators (i.e., union, a government agency, or and organization that tests and qualifies crane operators). Proof of current qualification shall be provided.

## 1.6.2 Personnel Duties

### 1.6.2.1 Site Safety and Health Officer (SSHO)/Superintendent

- a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Safety inspection logs shall be attached to the Contractors' daily quality control report.
- b. Conduct mishap investigations and complete required reports. Maintain an accident/injury log such as the OSHA Form 300 or host nation equivalent, and Daily Production reports for prime and sub-contractors.
- c. Maintain applicable safety reference material on the job site.
- d. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.
- e. Implement and enforce accepted APPS and AHAs.
- f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. A list of unresolved safety and health deficiencies shall be posted on the safety bulletin board.
- g. Ensure sub-contractor compliance with safety and health requirements.

Failure to perform the above duties will result in dismissal of the superintendent and/or SSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

## 1.6.3 Meetings

### 1.6.3.1 Preconstruction Conference

- a. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).
- b. The Contractor shall discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer's representative as to which phases will require an analysis. In addition, a schedule for the preparation, submittal, review, and acceptance of AHAs shall be established to preclude project delays.
- c. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Work shall not begin until there is an accepted APP.
- d. The functions of a Preconstruction conference may take place at the Post-Award Kickoff meeting for Design Build Contracts.

#### 1.6.3.2 Safety Meetings

Shall be conducted and documented as required by EM 385-1-1. Minutes showing contract title, signatures of attendees and a list of topics discussed shall be attached to the Contractors' daily quality control report.

### 1.7 TRAINING

#### 1.7.1 New Employee Indoctrination

New employees (prime and sub-contractor) will be informed of specific site hazards before they begin work. Documentation of this orientation shall be kept on file at the project site.

#### 1.7.2 Periodic Training

Provide Safety and Health Training in accordance with USACE EM 385-1-1 and the accepted APP. Ensure all required training has been accomplished for all onsite employees.

#### 1.7.3 Training on Activity Hazard Analysis (AHA)

Prior to beginning a new phase, training will be provided to all affected

## 1.8 ACCIDENT PREVENTION PLAN (APP)

The Contractor shall use a qualified person to prepare the written site-specific APP in both English and in the host nation language. Prepare the APP in accordance with the format and requirements of USACE EM 385-1-1 and as supplemented herein. Cover all paragraph and subparagraph elements in USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Accident Prevention Plan". Specific requirements for some of the APP elements are described below. The APP shall be job-specific and shall address any unusual or unique aspects of the project or activity for which it is written. The APP shall interface with the Contractor's overall safety and health program. Any portions of the Contractor's overall safety and health program referenced in the APP shall be included in the applicable APP element and made site-specific. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the on-site superintendent, the designated site safety and health officer.

Submit the APP to the Contracting Officer 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP.

Once accepted by the Contracting Officer, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and quality control manager. Should any hazard become evident, stop work in the area, secure the area, and develop a plan to remove the hazard. Notify the Contracting Officer within 24 hours of discovery. In the interim, all necessary action shall be taken to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public, and the environment.

Copies of the accepted plan will be maintained at the Contracting Officer's office and at the job site.

The APP shall be continuously reviewed and amended, as necessary, throughout the life of the contract. Unusual or high-hazard activities not identified in the original APP shall be incorporated in the plan as they are discovered.

### 1.8.1 EM 385-1-1 Contents

In addition to the requirements outlines in Appendix A of USACE EM 385-1-1, the following is required:

- a. Names and qualifications (resumes including education, training, experience and certifications) of all site safety and health personnel designated to perform work on this project to include the designated site safety and health officer and other competent and qualified personnel to be. The duties of each position shall be specified.
- b. Qualifications of competent and of qualified persons. As a minimum, competent persons shall be designated and qualifications submitted for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; personal protective equipment and clothing to include selection, use and maintenance.
- c. Confined Space Entry Plan. Develop a confined space entry plan in accordance with USACE EM 385-1-1, Section 06.I, and any other federal, state and local regulatory requirements identified in this contract. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)
- d. Crane Critical Lift Plan. Prepare and sign weight handling critical lift plans for lifts over 75 percent of the capacity of the crane or hoist (or lifts over 50 percent of the capacity of a barge mounted mobile crane's hoists) at any radius of lift; lifts involving more than one crane or hoist; lifts of personnel; and lifts involving non-routine rigging or operation, sensitive equipment, or unusual safety risks. The plan shall be submitted 15 calendar days prior to on-site work and include the requirements of USACE EM 385-1-1, paragraph 16.C.18. and the following:
  - (1) For lifts of personnel, the plan shall demonstrate compliance with the requirements of EM 385-1-1, Section 22.F.
  - (2) For barge mounted mobile cranes, barge stability calculations identifying barge list and trim based on anticipated loading; and load charts based on calculated list and trim. The amount of list and trim shall be within the crane manufacturer's requirements.
- e. Fall Protection and Prevention (FP&P) Plan. The plan shall be site specific and address all fall hazards in the work place and during different phases of construction. It shall address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 1.8 m (6 feet). A

qualified person for fall protection shall prepare and sign the plan. The plan shall include fall protection and prevention systems, equipment and methods employed for every phase of work, responsibilities, assisted rescue, self-rescue and evacuation procedures, training requirements, and monitoring methods. Fall Protection and Prevention Plan shall be revised every six months for lengthy projects, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. The accepted Fall Protection and Prevention Plan shall be kept and maintained at the job site for the duration of the project. The Fall Protection and Prevention Plan shall be included in the Accident Prevention Plan (APP).

## **1.9 ACTIVITY HAZARD ANALYSIS (AHA)**

The Activity Hazard Analysis (AHA) format shall be in accordance with USACE EM 385-1-1, and shall be written in both English and the host nation language. Submit the AHA for review at least 15 calendar days prior to the start of each phase. Format subsequent AHAs as amendments to the APP. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls.

The AHA list will be reviewed periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.

The activity hazard analyses shall be developed using the project schedule as the basis for the activities performed. Any activities listed on the project schedule will require an AHA. The AHAs will be developed by the contractor, supplier or subcontractor and provided to the prime contractor for submittal to the Contracting Officer.

## **1.10 DISPLAY OF SAFETY INFORMATION**

Within 1 calendar day after commencement of work, erect a safety bulletin board at the job site. The safety bulletin board shall include information and be maintained as required by EM 385-1-1, section 01.A.06.

## **1.11 SITE SAFETY REFERENCE MATERIALS**

Maintain safety-related references applicable to the project. Maintain applicable equipment manufacturer's manuals.

## **1.12 EMERGENCY MEDICAL TREATMENT**

Contractors will arrange for their own emergency medical treatment. The Government has no responsibility to provide emergency medical treatment. Military medical clinics may provide emergency treatment for serious injuries; the contractor is responsible for coordination with the local military medical clinic prior to mobilization.

## **1.13 REPORTS**

### **1.13.1 Accident Reports**

For recordable injuries and illnesses, and property damage accidents resulting in at least \$2,000 in damages, the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the USACE Accident Report Form 3394 and provide the report to the Contracting Officer within 5 calendar day(s) of the accident. The Contracting Officer will provide copies of any required or special forms.

### **1.13.2 Accident Notification**

Notify the Contracting Officer as soon as practical, but not later than four hours, after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than \$2,000. Information shall include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted.

### **1.13.3 Monthly Exposure Reports**

Monthly exposure reporting to the Contracting Officer is required to be attached to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. The Contracting Officer will provide copies of any special forms.

### **1.13.4 Crane Reports**

Submit crane inspection reports required in accordance with USACE EM 385-1-1, Appendix H and as specified herein with Daily Reports of Inspections.

## **1.14 HOT WORK**

Prior to performing "Hot Work" (welding, cutting, etc.) or operating other flame-producing/spark producing devices, a written permit shall be requested from the Installation. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The Contractor will provide at least two (2) six kilogram ABC rated extinguishers for normal "Hot Work". All extinguishers shall be current inspection tagged, approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch shall be trained in fire fighting techniques and remain on-site for a minimum of 120 minutes after completion of the task or as specified on the hot work permit.

When starting work in the facility, Contractors shall require their personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency phone numbers. ANY FIRE, NO MATTER HOW SMALL, SHALL BE REPORTED TO THE RESPONSIBLE FIRE DIVISION/DEPARTMENT IMMEDIATELY.

## **PART 2 PRODUCTS**

Not used.

## **PART 3 EXECUTION**

### **3.1 CONSTRUCTION AND/OR OTHER WORK**

Before initiation of work at the job site, an accident prevention plan, written by the Contractor for the specific work and hazards of the contract and implementing in detail the pertinent requirements of EM 385-1-1, will be reviewed and found acceptable by designated Government personnel. Specific requirements for development of the accident prevention plan are found in sections 01.A and Appendix A of EM 385-1-1.

Before beginning each activity involving a type of work presenting hazards not experienced in previous project operations or where a new work crew or subcontractor is to perform the work, activity hazard analysis (AHA) shall be prepared by the Contractor performing the work activity. See paragraph 01.A.09 of EM 385-1-1.

The Contractor shall require subcontractors to submit their plan of operations showing methods they propose to use in accomplishing major phases of work.

The Contractor shall be prepared to discuss the plans in conferences convened by the Contracting Officer prior to starting work on each major phase of operation. Plans shall include all pertinent information such as layout of haul roads, access roads, storage areas, electrical distribution lines, methods of providing minimum exposure to overhead loads, and methods of access to work areas. The plan for accomplishing the initial work phase shall be submitted within 15 calendar days after award of the contract. Plans for subsequent major phases of work shall be submitted not later than 15 calendar days prior to initiation of work on each major phase.

All areas where construction, demolition, alteration, building, or similarly related activities take place, all workers shall have the following minimum personal protective clothing and equipment:

1. Short sleeve shirt.
2. Long trousers.
3. Steel-toed safety boots.
4. Hard hat.

### 3.1.1 Falling Object Protection

All areas must be barricaded to safeguard employees. When working overhead, barricade the area below to prevent entry by unauthorized employees. Construction warning tape and signs shall be posted so they are clearly visible from all possible access points. When employees are working overhead all tools and equipment shall be secured so that they will not fall. When using guardrail as falling object protection, all openings shall be small enough to prevent passage of potential falling objects.

### 3.1.2 Hazardous Material Use

Each hazardous material must receive approval prior to being brought onto the job site or prior to any other use in connection with this contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material. Any work or storage involving hazardous chemicals or materials must be done in a manner that will not expose Government or Contractor employees to any unsafe or unhealthful conditions. Adequate protective measures must be taken to prevent Government or Contractor employees from being exposed to any hazardous condition that could result from the work or storage. The Prime Contractor shall keep a complete inventory of hazardous materials brought onto the work-site. Approval by the Contracting Officer of protective measures and storage area is required prior to the start of the work.

### 3.1.3 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with USACE EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials.

### 3.1.4 Unforeseen Hazardous Material

The design should have identified materials such as PCB, lead paint, and friable and non-friable asbestos. If material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

## 3.2 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

The Contractor shall establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. The program shall include company policy, identify responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures.

### 3.2.1 Training

The Contractor shall institute a fall protection training program. As part of the Fall Hazard Protection and Prevention Program, the Contractor shall provide training for each employee who might be exposed to fall hazards. A competent person for fall protection shall provide the training. Training requirements shall be in accordance with USACE EM 385-1-1, section 21.A.16.

### 3.2.2 Fall Protection Equipment and Systems

The Contractor shall enforce use of the fall protection equipment and systems designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is exposed to a fall hazard. Employees shall be protected from fall hazards as specified in EM 385-1-1, section 21. In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with USACE EM 385-1-1, paragraphs 05.H. and 05.I. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, or travel. Fall protection must comply with USACE EM 385-1-1 and host nation requirements, whichever is more stringent.

#### 3.2.2.1 Personal Fall Arrest Equipment

Personal fall arrest equipment, systems, subsystems, and components shall meet ANSI Z359.1 or European Union equivalent. Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed 1.8 m (6 feet). The total fall distance and any swinging of the worker (pendulum-like motion) that can occur during a fall

shall always be taken into consideration when attaching a person to a fall arrest system.

### 3.2.3 Fall Protection for Roofing Work

Fall protection controls shall be implemented based on the type of roof being constructed and work being performed. The roof area to be accessed shall be evaluated for its structural integrity including weight-bearing capabilities for the projected loading.

#### a. Low Sloped Roofs:

- (1) For work within 1.8 m (6 feet) of an edge, on low-slope roofs, personnel shall be protected from falling by use of personal fall arrest systems, guardrails, or safety nets. A safety monitoring system is not adequate fall protection and is not authorized.
- (2) For work greater than 1.8 m (6 feet) from an edge, warning lines shall be erected and installed in accordance with USACE EM 385-1-1.

b. Steep-Sloped Roofs: Work on steep-sloped roofs requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also includes residential or housing type construction.

### 3.2.4 Existing Anchorage

Existing anchorages, to be used for attachment of personal fall arrest equipment, shall be certified (or re-certified) by a qualified person for fall protection in accordance with ANSI Z359.1 or European Union equivalent. Existing horizontal lifeline anchorages shall be certified (or re-certified) by a registered professional engineer with experience in designing horizontal lifeline systems.

### 3.2.5 Horizontal Lifelines

Horizontal lifelines shall be designed, installed, certified and used under the supervision of a qualified person for fall protection as part of a complete fall arrest system which maintains a safety factor of 2.

### 3.2.6 Guardrails and Safety Nets

Guardrails and safety nets shall be designed, installed and used in accordance with EM 385-1-1 or Host Nation requirements, whichever is more stringent.

### 3.2.7 Rescue and Evacuation Procedures

When personal fall arrest systems are used, the contractor must ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. A Rescue and Evacuation Plan shall be prepared by the contractor and include a

detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. The Rescue and Evacuation Plan shall be included in the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP).

### **3.3 SCAFFOLDING**

Employees shall be provided with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Access to scaffold platforms greater than 6 m in height shall be accessed by use of a scaffold stair system. Vertical ladders commonly provided by scaffold system manufacturers shall not be used for accessing scaffold platforms greater than 6 m in height. The use of an adequate gate is required. Contractor shall ensure that employees are qualified to perform scaffold erection and dismantling. Do not use scaffold without the capability of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward. Special care shall be given to ensure scaffold systems are not overloaded. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material is prohibited. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of the scaffold base. Work platforms shall be placed on mud sills. Scaffold or work platform erectors shall have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet. Delineate fall protection requirements when working above six feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

### **3.4 EQUIPMENT**

#### **3.4.1 Material Handling Equipment**

- a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.
- b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.
- c. Operators of forklifts or power industrial trucks shall be trained/licensed in accordance with Host Nation requirements.

#### **3.4.2 Weight Handling Equipment**

- a. Cranes and derricks shall be equipped as specified in EM-385-1-1 section 16.

- b. The Contractor shall notify the Contracting Officer 15 days in advance of any cranes entering the activity so that necessary quality assurance spot checks can be coordinated. Contractor's operator shall remain with the crane during the spot check.
- c. The Contractor shall comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Erection shall be performed under the supervision of a designated person. All testing shall be performed in accordance with the manufacturer's recommended procedures.
- d. Under no circumstance shall a Contractor make a lift at or above 90% of the cranes rated capacity in any configuration.
- e. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and shall follow the requirements of USACE EM 385-1-1 section 11.
- f. Crane suspended personnel work platforms (baskets) shall not be used unless the Contractor proves to the satisfaction of the Contracting Officer that using any other access to the work location would provide a greater hazard to the workers or is impossible. Personnel shall not be lifted with a line hoist or friction crane.
- g. Portable fire extinguishers shall be inspected, maintained, and recharged.
- h. All employees shall be kept clear of loads about to be lifted and of suspended loads.
- i. The Contractor shall use cribbing when performing lifts on outriggers.
- j. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.
- k. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.
- l. Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by Contracting Officer personnel.
- m. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by Contracting Officer personnel.
- n. Certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

o. Take steps to ensure that wind speed does not contribute to loss of control of the load during lifting operations. Prior to conducting lifting operations the contractor shall set a maximum wind speed at which a crane can be safely operated based on the equipment being used, the load being lifted, experience of operators and riggers, and hazards on the work site. This maximum wind speed determination shall be included as part of the activity hazard analysis plan for that operation.

### **3.5 EXCAVATIONS**

The competent person for excavations performed as a result of contract work shall be on-site when excavation work is being performed, and shall inspect, and document the excavations daily prior to entry by workers. The competent person must evaluate all hazards, including atmospheric, that may be associated with the work, and shall have the resources necessary to correct hazards promptly.

#### **3.5.1 Utility Locations**

Prior to any excavation, all underground utilities in the work area must be positively identified by the contractor utilizing a) a private utility locating service in addition to any station locating service, and/or b) a metal and/or cable-detecting device along the route of the excavation. All underground utilities discovered will be flagged a distance of one-half (1/2) meter on each side of the location, and any markings made during the utility investigation must be maintained throughout the contract.

Damage occurring to existing utilities, when the above procedures are not followed, will be repaired at the Contractor's expense.

#### **3.5.2 Utility Location Verification**

The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system. Digging within 0.61 m (2 feet) of a known utility must not be performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility the utility shall be exposed by hand digging every 30.5 m (100 feet) if parallel within 1.5 m (5 feet) of the excavation.

#### **3.5.3 Shoring Systems**

Trench and shoring systems must be identified in the accepted safety plan and AHA. Manufacture tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on-site for review. Job-made shoring or shielding shall have the registered professional engineer stamp, specifications, and tabulated data. Extreme care must be used when excavating near direct burial electric underground cables.

#### **3.5.4 Trenching Machinery**

Trenching machines with digging chain drives shall be operated only when the spotters/laborers are in plain view of the operator. Operator and spotters/laborers shall be provided training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Documentation of the training shall be kept on file at the project site.

### **3.6 UTILITIES WITHIN CONCRETE SLABS**

Utilities located within concrete slabs or pier structures, bridges, and the like, are extremely difficult to identify due to the reinforcing steel used in the construction of these structures. Whenever contract work involves concrete chipping, saw cutting, or core drilling, the existing utility location must be coordinated with station utility departments in addition to a private locating service. Outages to isolate utility systems shall be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate the contractor from meeting this requirement.

### **3.7 ELECTRICAL**

#### **3.7.1 Conduct of Electrical Work**

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Positive cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the Contracting Officer and Station Utilities for identification. The Contracting Officer will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified electrical workers shall be permitted to enter. When work requires Contractor to work near energized circuits as defined by the NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. In addition, provide electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA.

#### **3.7.2 Portable Extension Cords**

Portable extension cords shall be sized in accordance with manufacturer ratings for the tool to be powered and protected from damage. All damaged extension cords

shall be immediately removed from service. Portable extension cords shall meet the requirements of NFPA 70 or European Union equivalent.

### **3.8 WORK IN CONFINED SPACES**

The Contractor shall comply with the requirements in Section 06.I of USACE EM 385-1-1. Any potential for a hazard in the confined space requires a permit system to be used.

- a. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. (See Section 06.I.06 of USACE EM 385-1-1 for entry procedures). All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.
- b. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level.
- c. Ensure the use of rescue and retrieval devices in confined spaces greater than 1.5 m (5 feet) in depth. Conform to Sections 06.I.08, 06.I.09 and 06.I.10 of USACE EM 385-1-1.
- d. Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.
- e. Include training information for employees who will be involved as entrants and attendants for the work. Conform to Section 06.I.07 of USACE EM 385-1-1.
- f. Daily Entry Permit. Post the permit in a conspicuous place close to the confined space entrance.

### **3.9 CRYSTALLINE SILICA**

Grinding, abrasive blasting, and foundry operations of construction materials containing crystalline silica, shall comply with USACE EM 385-1-1, Appendix C. The Contractor shall develop and implement effective exposure control and elimination procedures to include dust control systems, engineering controls, and establishment of work area boundaries, as well as medical surveillance, training, air monitoring, and personal protective equipment.

### **3.10 DEMOLITION**

#### **3.101.1 Demolition Plan**

The Contractor shall submit a written demolition plan for all demolition work to be carried on the site. In addition, the demolition plan shall be signed by a Professional

Registered Engineer and meet the requirements of the Corps of Engineers Safety and Health Manual, EM 385-1-1, section 23. The demolition plan shall be submitted to the COR at least 1 week before the beginning of the work, including structural calculations for the demolition, if necessary. The demolition work shall not begin before the Contractor has received a written approval from the COR.

### 3.12.1 Protection of Personnel

During the demolition work the Contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site. No area, section, or component of floors, roofs, walls, columns, pilasters, or other structural element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workers remove debris or perform other work in the immediate area.

### 3.10.1 Protection of Structures

Floors, roofs, walls, columns, pilasters, and other structural components that are designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, shall remain standing without additional bracing, shoring, or lateral support until demolished, unless directed otherwise by the COR. The Contractor shall ensure that no elements determined to be unstable are left unsupported and shall be responsible for placing and securing bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

Interior concrete or masonry walls shall be demolished from the top down unless a Registered Engineer can demonstrate that an alternate method poses no additional safety hazards

## 3.11 HOUSEKEEPING

### 3.11.1 Clean-Up

The Contractor shall be responsible for cleaning up. The Contractor shall require his personnel to keep the immediate work site clean of all dirt and debris resulting from work under this contract. Accumulated dirt and debris shall be hauled off and disposed of in accordance with local law and at least once a week by the Contractor. Additionally, all debris in work areas shall be cleaned up daily or more frequently if necessary. Construction debris may be temporarily located in an approved location, however garbage accumulation must be removed each day.

Stairwells used by the Contractor during execution of work shall be cleaned daily. Cloths, mops, and brushes containing combustible materials shall be disposed of or stored outside of the buildings in tight covered metal containers. Paints and thinners shall not be poured into inlets of the interior or exterior sewage system. Paint, stains, and other residues on adjacent surfaces or fixtures caused by the Contractor shall be carefully removed and cleaned to original finish. Upon completion of the

work, the Contractor shall remove all construction equipment, materials and debris resulting from the work. The entire work site and the area used by Contractor personnel shall be left clean.

**ATTACHMENT**

STR 015250 – SAFETY AND OCCUPATIONAL HEALTH PHASING PLAN

- End of Section -

## A. PURPOSE AND RESPONSIBILITIES:

1. The purpose of this SOH Phasing Plan is to establish controls and procedures to reduce the safety and occupational health risks on associated projects to an acceptable level. This SOH Phasing Plan is not intended to address all program SOH requirements, but provides general emphasis to certain procedures and requirements addressed in: EM 385-1-1, U.S. Army Corps of Engineers Safety and Health Requirements Manual

2. For contractor safety on projects associated with this program, compliance with EM 385-1-1 safety requirements will be the long-term goal reached by growing a safety culture. This compliance will, by necessity, be achieved through a phased-in process. In the Commander's letter at the preface of the EM 385-1-1, he acknowledges that in OCONUS locations, strict compliance with the manual may not be possible – and through the hazard analysis process, safety measures can be developed to attain the same degree of safety.

a. The exact timeline and methods of compliance, based generally on the Phase plan below will be determined by in-theater Project Delivery Team (PDT) partners responsible for safety, to include USACE Field Engineering/Construction/ Safety personnel, Prime Contractors and Local Subcontractors. The Prime Contractor, in partnership with the USACE and subcontractors, will develop a Safety and occupational Health Plan (SOHP) consisting of a specific Accident Prevention Plan (APP) and Activity Hazard Analysis for each project.

b. Each project SOHP will evolve as a living document, starting by dividing into phases to provide a goal with a timeline. Focus for the project safety program areas will be based on the following time-based phases.

Phase I: "Saving Lives". Establish achievable compliance methods and basic worker safety education to eliminate or reduce to an acceptable level the life-threatening conditions associated with high hazard construction activities.

- The initial high-hazard focus areas shall include:
  - Excavations
  - Fall Hazards
  - Electrical Work
  - Mobile Construction Equipment
  - Machinery
  - Confined Spaces
- Develop a basic worker safety and health practices manual/ guide and associated mandatory training for each Focus area listed above. These will be in English and local language, based on local conditions and practices and targeted at high-hazard activities.
- On all contract sites, the basic life-support will include First Aid Kits, and emergency communication.
- Contractor Accident Prevention Plans, Activity Hazard Analyses, and other safety-related systems under development with assistance by PDT

Phase II: “Building A Safety Culture” (Approximately one year, beginning at end of Phase I) Advanced safety education of local contractors and LN work force. Full contractor compliance with USACE safety standards related to high-hazard situations, increased application of standards on all work.

- Workforce education and training to include all applicable requirements of EM 385-1-1 and International Safety Standards
- All required Personal Protective Equipment (PPE) available and used by workers in applicable work practices, as outlined in the EM 385-1-1.
- Contractor Accident Prevention Plans, Activity Hazard Analyses, and other safety-related systems refined to meet standard USACE expectations with assistance by PDT
- Standard Contractor Safety administrative responsibilities required, i.e.: Accident reporting, man-hour tracking, training documentation, First Aid personnel certification, fire protection, etc.

Phase III, “Full Performance” (beginning at end of Phase II) Full performance in compliance with EM 385-1-1 and other applicable laws, regulations, design codes and standards.

Where standard compliance is not possible, local methods may be used in accordance with implementing letter of EM 385-1-1 or through formal waiver process.

3. The PDT shall employ the “Plan, Do, Check, Act” process for implementing this SOHP as a living document. Each PDT member is responsible for planning for safety and health management within their area of responsibility, implementing agreed-on mitigation, checking to assure that the SOHP is being implemented and acting to adjust plans and implementation with a goal of continuous improvement. This plan will be reviewed and revised as needed at the initiation of each Phase listed above.

4. The PDT members shall cooperate in developing a listing of potential hazards associated with each project.

#### B. GOALS AND OBJECTIVES:

1. Goals. The safety and health goals of all projects are:
  - a. Be accident free
  - b. Detect and address safety and health problems early in the life of each project
  - c. Do not accept unnecessary risk
  - d. Every team member, to include contractors shall contribute to the safety and health of their fellow team members and assure that the product is free of inherent hazards to the user.
  - e. Educate the workforce and promote Safety as a new way of doing business, show how the project and the employee benefit from Safety.
2. Objectives. The safety and health objectives of this program are:
  - a. Managers, supervisors, and workers shall be held accountable, based on the current Phase, for safety and health.

- b. Safety and health expectations shall be communicated with the work force in their native language through the use of banners, flyers, and periodic safety meetings
- c. The work force shall have the safety and health training needed to perform the work at hand, based on the Phase.
- d. Injury and property damage shall be avoided through early detection and management of hazards

#### Phase I Interim Safety and Occupational Health Work Practices for USACE Contractor Projects

#### Phase I Safety Program

1. Contractors shall strive to maintain full compliance with the USACE Safety Requirements Manual, EM 385-1-1. This may not be easily achieved during this Phase, due to a number of factors. The focus for safety and health efforts during this Phase is Saving Lives – the prevention of deaths, permanently disabling injuries, and major property loss. The goal during this period is to provide the equipment and methods needed to save lives and to train the workforce in working safely and using the correct personal Protective Equipment (PPE).
2. In order to assist in achieving this goal immediately, the following interim standards shall be used (as a minimum acceptable standard) when full compliance with the EM 385-1-1 is not possible. Contractors shall provide these standards in to their workforce in the local language and shall provide training as needed to ensure worker awareness.

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#### Basic Safety and Health Standards for Construction

- A. USACE and the contractors must form a team to assure safety on every job site and prevent serious accidents. All unsafe conditions must be reported and the hazard reduced before work may proceed.
- B. Personal Protective Equipment (PPE) may not always be available to every worker during this Phase. Where the equipment required by the USACE Safety Manual, EM 385-1-1, cannot be provided in a timely manner, the contractor shall develop methods that will provide a similar degree of safety (as accepted by USACE) and not expose the workers to serious risk. The mandatory minimum standards for all PPE are:
  - Footwear: Closed-toe durable shoes or boots shall be worn by all workers on the project site. No sandals or sports shoes will be allowed, at no time will workers be allowed on the project site with bare feet. Safety footwear (steel-toe or other protection) should be worn by workers using steel rollers, tampers, jack hammers or carrying heavy objects (metal, concrete, stone)
  - Head Protection: When they are available, hard hats should be worn by all construction workers when they are at the project. Hard Hats must be worn in overhead hazard areas including material hoisting/ lifting operations, areas below scaffolds and other elevated work, in excavations, and low ceiling areas that have sharp or hazardous projections. If they are not available, then workers must be kept away from these and other overhead hazard areas.

- **Respirators:** Workers exposed to toxic chemicals, vapors, gases and dusts must wear proper respiratory protection. Such exposure is expected in asbestos removal/ repair work, working with paints and solvents in rooms or enclosed spaces, and fuel production facilities. The employer must train the workers in the uses of the respirator and how to properly wear it. The minimum acceptable respirator is a negative pressure filter or cartridge half-face respirator that is correctly equipped for the hazard. Contractors shall consult and follow the ACGIH guidance for length of allowable exposure to the contaminant and workers shall not exceed the recommended time for exposure. Dust Masks will be worn when the work is producing visible dust.
  - **Eye Protection:** Workers shall wear protective glasses, goggles, or visors when exposed to eye hazards. These hazards include concrete dust, stone and concrete chips from hammering, sandblasting, and power tool cutting or milling. Workers performing welding and cutting with torches or arc-welding equipment shall wear the proper shaded lenses in face shields and/ or goggles.
  - **Hearing Protection:** Protective ear plugs shall be worn when workers are exposed to potentially damaging noise including jack hammers, flight line operations, power saws and grinders, and combustion engines without mufflers.
  - **Gloves:** All workers shall have protective gloves appropriate to the task.
  - **Clothing:** Workers shall wear clothing that protects their skin from damage – shirts and long pants at a minimum. Workers exposed to welding operations, chemicals, abrasive blasting, wet concrete, asbestos, and other hazardous contaminants will wear appropriate clothing for the hazard. Workers using power tools or operating equipment shall not wear very loose or flowing clothing that may get caught in the equipment.
- C. **Work Methods for Highly Hazardous Work:** The following types of work and hazards are recognized as the leading cause of serious injuries and deaths in construction work. Each type of work has specific PPE and safety equipment that is required to do the work and also specific procedures that must be followed every time the work is done. These interim measures are the minimum acceptable precautions. For each project, an Activity Hazard Analysis (AHA) shall be completed and, when possible, compliance with more restrictive methods of the EM 385-1-1 shall be achieved.

Workers shall be trained on the following safety precautions, the nature of the hazards involved, and any additional work methods used before performing each type of work

- **Excavations**
  - The Site Safety and Health Officer will be contacted for inspection of the work prior to digging. The SSHO will assist in any safety equipment or techniques that are required to avoid injury. They will also provide a safety check on the location to assure there are no underground hazards at the site.

- All excavations or unsafe areas will be marked with barricades or warning tape. These warnings must be maintained and visible until the area is restored to a safe condition.
  - When workers will enter trenches, the walls shall be sloped according to the type of soil or shoring, trench boxes, or other structures will be used to protect workers from collapsing walls
  - Soil removed from trenches will not be placed at the edge of the trench – it must be placed back at least 1 meter from the edge.
  - Vehicles and construction equipment must not be parked closer than 2 meters from the edge of an excavation.
  - Excavation walls shall be inspected regularly during each day to check for cracks, bulges, large stones, sandy areas, and failure of the wall. If these conditions are found, nobody may enter the excavation and the damaged area must be dug out or braced.
- Fall Hazards
    - When working above 2 meters from the ground or another level, all workers shall be protected from falling. The SSHO will inspect prior to beginning work to be sure the work methods are safe. Inspection will include work on ladders, scaffolds, and other elevated work areas.
    - Protection systems shall be sturdy railings, walls, or other structures
    - If there are no structures to protect workers, body belts or harnesses shall be used along with lanyards.
    - Body belts should be mainly be used only to prevent a worker from falling over an edge or off a structure.
    - Body belts and harnesses can both be used as fall protection (stopping a falling worker). The lanyard shall be rope strong enough to withstand the shock of stopping the worker's weight, and they shall be as short as possible, to limit the shock force. Lanyards shall never allow a worker to fall more than 2 meters. It is recommended that lanyards without shock absorber devices be no longer than 1 meter.
- Electrical Work
    - All circuits, wires, and electrical devices shall be tested with a volt meter and found to be de-energized before workers touch the energized parts
    - Controls, switches, and other means for energizing the circuit or equipment shall be tagged "do not operate"
    - Workers shall not work closer to energized systems than the distances listed in the USACE manual.
    - Temporary electrical systems shall be grounded and tested for good ground resistance before use.
    - Power tools shall be protected from water and damage, and their cords must be insulated. Cords must be factory installed or equivalent replacements, including safety grip plug and cord boot.
    - Extension cords will be in safe, good working order.
- Mobile Construction Equipment

- If equipment, particularly cranes, are damaged the repairs shall be done by a competent repair person and verified by the SSHO prior to being brought back into service.
- Nobody may ride outside the cab of construction equipment. Specifically, no riders may ever be in loader buckets, bulldozer blades, on forklift forks, or suspended by a crane.
- When workers are nearby, construction equipment must have reverse signal alarms or shall use a spotter standing away from the equipment. The spotter must be visible by the driver and positioned to see the area behind the equipment.
- Construction equipment must work a safe distance from electrical systems, based on the voltage.
- Cranes must be used according to the manufacturer. If no manufacturer data is available, a load chart shall be developed by a qualified engineer.
- Workers should stay out of the radius of the crane boom during a lift.
- Lifting ropes shall be inspected daily for breaks and failure of hardware and fittings.
- Nobody shall ever ride the hook or load of a crane.
- Machinery
  - Rotating shafts, wheels, blades, and other hazardous parts shall have guards to prevent workers from being injured.
  - Fuel-powered machinery must not be operated indoors or near enclosed areas without using powered ventilation to prevent toxic CO build-up.
  - Metal housings of electrically powered equipment must be grounded
- Confined Spaces
  - The SSHO will pre-approve any work in a confined space, such as in a tank, sewer, manhole or any other enclosed area. The SSHO will inspect the work and assist with any safety equipment or techniques that are required.
  - All permit-required confined spaces (PRCS) on a project shall have signs prohibiting entry.
  - Entrants, supervisors, and attendants for PRCS shall be properly trained.
  - When available, oxygen/flammable/toxic gas meters shall be used for all PRCS. This equipment must be used to evaluate the air in all spaces known or suspected to have contained flammable or toxic chemicals or contain sewage, rotting vegetation or other organic matter.
  - For spaces not meeting the above criteria, mechanical ventilation fans shall be used to clear the air in the space when meters are not available. Based on the air flow of the fan, it shall exhaust the total volume of the space a minimum of seven times prior to entry.
  - All entrants shall wear a harness, body belt, or other device attached to a rope sufficient to retrieve the worker in an emergency.
  - Permits should be used during PRCS entry. If not possible, then some visible means, such as flags or tags outside the entrance, shall be used so supervisors can see when workers are in the space.

- Gas Cylinders
  - Pressurized gas cylinders, such as Oxygen and Acetylene tanks will be stored in a holding stand/ cart to prevent them from falling over. Cylinders will not be placed free on the ground or standing free. If the bottle is not in use the valve will be removed.

D. Child Labor. Minors under the age of 18 may not perform any of the above hazardous work. Additionally, these minors can not perform any hazardous work such as operating dangerous power tools (circular saws, jack hammers, lathes, etc), driving vehicles, be exterior assistants for vehicle operators or operating mobile construction equipment, explosives work, work at heights over 2 meters without standard railings, electrical work, entering excavations, and work with toxic substances.

-- End of Section --

SECTION 01770

**SPECIFICATION SECTION 01770**

**CLOSEOUT PROCEDURES**

**PART 1: GENERAL**

**1.1 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 01335 SUBMITTAL PROCEDURES:

SD-10 Operation and Maintenance Data

Equipment/Product Warranty List; G

Submit Data Package 1 in accordance with Section 01781 OPERATION AND MAINTENANCE DATA.

SD-11 Closeout Submittals

As-Built Drawings; G

Record Of Materials; G

Equipment/Product Warranty Tag; G

**1.2 PROJECT RECORD DOCUMENTS**

**1.2.1 As-Built Drawings**

As built drawings shall be submitted in accordance with Section 01780A CLOSEOUT SUBMITTALS

**1.2.2 As-Built Record of Materials**

Furnish a record of materials.

Where several manufacturers' brands, types, or classes of the item listed have been used in the project, designate specific areas where each item was used. Designations shall be keyed to the areas and spaces depicted on the contract drawing. Furnish the record of materials used in the following format:

MATERIALS DESIGNATION	SPECIFICATION	MANUFACTURER	MATERIALS USED (MANUFACTURER'S DESIGNATION)	WHERE USED

**1.3 EQUIPMENT/PRODUCT WARRANTIES**

**1.3.1 Equipment/Product Warranty List**

The Contractor shall develop a warranty management plan which shall contain information relevant to the clause Warranty of Construction. At least 30 days before the planned pre-warranty conference, the Contractor shall submit the warranty management plan for Government approval. The warranty management plan shall include all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan shall be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below shall include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase shall be submitted to the Contracting Officer for approval prior to each monthly pay estimate. Approved information shall be assembled in a binder and shall be turned over to the Government upon acceptance of the work. The construction warranty period shall begin on the date of project acceptance and shall continue for the full product warranty period. A joint 4 month and 9 month warranty inspection shall be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and the Customer Representative. Information contained in the warranty management plan shall include, but shall not be limited to, the following:

- a. Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subcontractors, manufacturers or suppliers involved.
- b. Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.

- c. A list for each warranted equipment, item, feature of construction or system indicating:
1. Name of item.
  2. Model and serial numbers.
  3. Location where installed.
  4. Name and phone numbers of manufacturers or suppliers.
  5. Names, addresses and telephone numbers of sources of spare parts.
  6. Warranties and terms of warranty. This shall include one-year overall warranty of construction. Items which have extended warranties shall be indicated with separate warranty expiration dates.
  7. Cross-reference to warranty certificates as applicable.
  8. Starting point and duration of warranty period.
  9. Summary of maintenance procedures required to continue the warranty in force.
  10. Cross-reference to specific pertinent Operation and Maintenance manuals.
  11. Organization, names and phone numbers of persons to call for warranty service.
  12. Typical response time and repair time expected for various warranted equipment.
- d. The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.
- e. Procedure and status of tagging of all equipment covered by extended warranties.
- f. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

### 1.3.2 Performance of Warranty Work

In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

Following oral or written notification of required construction warranty repair work, the Contractor shall respond in a timely manner. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Contracting Officer to proceed against the Contractor.

### 1.3.3 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Contracting Officer, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section. Communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty shall be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor shall furnish the name, telephone number and address of a licensed and bonded company which is

authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warranted construction, shall be continuously available, and shall be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

1.3.4 Warranty Tags

At the time of installation, each warranted item shall be tagged with a durable, oil and water resistant tag approved by the Contracting Officer. Each tag shall be attached with a copper wire and shall be sprayed with a silicone waterproof coating. The date of acceptance and the QC signature shall remain blank until project is accepted for beneficial occupancy. The tag shall show the following information.

- a. Type of product/material \_\_\_\_\_
- b. Model number \_\_\_\_\_
- c. Serial number \_\_\_\_\_
- d. Contract number \_\_\_\_\_
- e. Warranty period \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_
- f. Inspector's signature \_\_\_\_\_
- g. Construction Contractor \_\_\_\_\_  
 Address \_\_\_\_\_  
 Telephone number \_\_\_\_\_
- h. Warranty contact \_\_\_\_\_  
 Address \_\_\_\_\_  
 Telephone number \_\_\_\_\_
- i. Warranty response time priority code \_\_\_\_\_
- j. WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL

MAINTENANCE DURING THE WARRANTY PERIOD.

**1.4 MECHANICAL TESTING AND BALANCING**

All contract requirements for testing/adjusting/balancing shall be fully completed, including all testing, prior to contract completion date. The time required to complete all testing/adjusting/balancing is included in the allotted calendar days for completion.

**1.5 FINAL CLEANING**

The premises shall be left broom clean. Stains, foreign substances, and temporary labels shall be removed from surfaces. Carpet and soft surfaces shall be vacuumed. Equipment and fixtures shall be cleaned to a sanitary condition. Filters of operating equipment shall be replaced. Debris shall be removed from roofs, drainage systems, gutters, and downspouts. Paved areas shall be swept and landscaped areas shall be raked clean. The site shall have waste, surplus materials, and rubbish removed. The project area shall have temporary structures, barricades, project signs, and construction facilities removed. A list of completed clean-up items shall be submitted on the day of final inspection.

**PART 2 PRODUCTS**

Not used.

### **PART 3 EXECUTION**

Not used.

-- End of Section --

#### SECTION 01780A

## **SECTION 01780A CLOSEOUT SUBMITTALS**

### **PART 1 GENERAL**

#### **1.1 SUBMITTALS**

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. 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 01335 SUBMITTAL PROCEDURES:

##### SD-02 Shop Drawings

###### As-Built Drawings

Drawings showing final as-built conditions of the project. The final CADD as-built drawings shall consist of one set of electronic CADD drawing files in the specified format, and one set of the approved working as-built drawings.

##### SD-03 Product Data

###### As-Built Record of Equipment and Materials

Two copies of the record listing the as-built materials and equipment incorporated into the construction of the project.

###### Warranty Management Plan

One set of the warranty management plan containing information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. The Contractor shall furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

###### Warranty Tags

Two record copies of the warranty tags showing the layout and design.

Final Cleaning

Two copies of the listing of completed final clean-up items.

## **1.2 PROJECT RECORD DOCUMENTS**

### **1.2.1 As-Built Drawings**

This paragraph covers as-built drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working as-built drawings" and "final as-built drawings" refer to contract drawings which are revised to be used for final as-built drawings.

#### **1.2.1.1 Government Furnished Materials**

One set of electronic CADD files in the specified software and format revised to reflect all bid amendments will be provided by the Government at the preconstruction conference for projects requiring CADD file as-built drawings.

#### **1.2.1.2 Working As-Built and Final As-Built Drawings**

The Contractor shall revise 2 sets of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. These working as-built marked drawings shall be kept current on a weekly basis and at least one set shall be available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. Final as-built drawings shall be prepared after the completion of each definable feature of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project). The working as-built marked prints and final as-built drawings will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working and final as-built drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the as-built drawings. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of updated drawings. The working and final as-built drawings shall show, but shall not be limited to, the following information:

a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the as-built drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.

b. The location and dimensions of any changes within the building structure.

c. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

d. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

e. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

f. Changes or modifications which result from the final inspection.

g. Where contract drawings or specifications present options, only the option selected for construction shall be shown on the final as-built prints.

h. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, the Contractor shall furnish a contour map of the final borrow pit/spoil area elevations.

i. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.

j. Modifications (change order price shall include the Contractor's cost to change working and final as-built drawings to reflect modifications) and compliance with the following procedures.

(1) Directions in the modification for posting descriptive changes shall be followed.

(2) A Modification Circle shall be placed at the location of each deletion.

(3) For new details or sections which are added to a drawing, a Modification Circle shall be placed by the detail or section title.

(4) For minor changes, a Modification Circle shall be placed by the area changed on the drawing (each location).

(5) For major changes to a drawing, a Modification Circle shall be placed by the title of the affected plan, section, or detail at each location.

(6) For changes to schedules or drawings, a Modification Circle shall be placed either by the schedule heading or by the change in the schedule.

(7) The Modification Circle size shall be 12.7 mm 1/2 inch diameter unless the area where the circle is to be placed is crowded. Smaller size circle shall be used for

crowded areas.

#### 1.2.1.3 Drawing Preparation

The as-built drawings shall be modified as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working as-built prints, and adding such additional drawings as may be necessary. These working as-built marked prints shall be neat, legible and accurate. These drawings are part of the permanent records of this project and shall be returned to the Contracting Officer after approval by the Government. Any drawings damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Government.

#### 1.2.1.4 Computer Aided Design and Drafting (CADD) Drawings

Only personnel proficient in the preparation of CADD drawings shall be employed to modify the contract drawings or prepare additional new drawings. Additions and corrections to the contract drawings shall be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols shall be the same as the original line colors, line weights, lettering, layering conventions, and symbols. If additional drawings are required, they shall be prepared using the specified electronic file format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final as-built drawings shall be identical to that used on the contract drawings. Additions and corrections to the contract drawings shall be accomplished using CADD files. The Contractor shall be responsible for providing all program files and hardware necessary to prepare final as-built drawings. The Contracting Officer will review final as-built drawings for accuracy and the Contractor shall make required corrections, changes, additions, and deletions.

a. CADD colors shall be the "base" colors of red, green, and blue. Color code for changes shall be as follows:

(1) Deletions (red) - Deleted graphic items (lines) shall be colored red with red lettering in notes and leaders.

(2) Additions (Green) - Added items shall be drawn in green with green lettering in notes and leaders.

(3) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes shall be in blue.

b. The Contract Drawing files shall be renamed in a manner related to the contract number (i.e., 98-C-10.DGN) as instructed in the Pre-Construction conference. Marked-up changes shall be made only to those renamed files. All changes shall be made on the layer/level as the original item. There shall be no deletions of existing lines; existing lines shall be over struck in red. Additions shall be in green with line weights the same as the drawing. Special notes shall be in blue on layer#63.

c. When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the Contractor in letters at least 5 mm 3/16 inch high. All other contract drawings shall be marked either "AS-Built" drawing denoting no revisions on the sheet or "Revised As-Built" denoting one or more revisions. Original contract drawings shall be dated in the revision block.

d. Within 20 days for contracts \$5 million and above after Government approval of all of the working as-built drawings for a phase of work, the Contractor shall prepare the final CADD as-built drawings for that phase of work and submit two sets of prints of these drawings for Government review and approval. The Government will promptly return one set of prints annotated with any necessary corrections. Within 10 days for contracts \$5 million and above the Contractor shall revise the CADD files accordingly at no additional cost and submit one set of final prints for the completed phase of work to the Government. Within 20 days for contracts \$5 million and above of substantial completion of all phases of work, the Contractor shall submit the final as-built drawing package for the entire project. The submittal shall consist of one set of electronic files on compact disc, read-only memory (CD-ROM), two sets of prints and one set of the approved working as-built drawings. They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any transactions or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CADD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final as-built drawing files and marked prints as specified shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

1.2.1.5 Payment

No separate payment will be made for as-built drawings required under this contract, and all costs accrued in connection with such drawings shall be considered a subsidiary obligation of the Contractor.

1.2.2 As-Built Record of Equipment and Materials

The Contractor shall furnish one copy of preliminary record of equipment and materials used on the project 15 days prior to final inspection. This preliminary submittal will be reviewed and returned 2 days after final inspection with Government comments. Two sets of final record of equipment and materials shall be submitted 10 days after final inspection. The designations shall be keyed to the related area depicted on the contract drawings. The record shall list the following data:

RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA

Description	Specification Section	Manufacturer and Catalog, Model, and Serial Number	Composition and Size Used	Where Used
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### 1.2.3 Final Approved Shop Drawings

The Contractor shall furnish final approved project shop drawings 30 days after transfer of the completed facility.

### 1.2.4 Construction Contract Specifications

The Contractor shall furnish final as-built construction contract specifications, including modifications thereto, 30 days after transfer of the completed facility.

### 1.2.5 Real Property Equipment

The Contractor shall furnish a list of installed equipment furnished under this contract. The list shall include all information usually listed on manufacturer's name plate. The "EQUIPMENT-IN-PLACE LIST" shall include, as applicable, the following for each piece of equipment installed: description of item, location (by room number), model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty. A draft list shall be furnished at time of transfer. The final list shall be furnished 30 days after transfer of the completed facility.

## 1.3 WARRANTY MANAGEMENT

### 1.3.1 Warranty Management Plan

The Contractor shall develop a warranty management plan which shall contain information relevant to the clause Warranty of Construction. At least 30 days before the planned pre-warranty conference, the Contractor shall submit the warranty management plan for Government approval. The warranty management plan shall include all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan shall be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below shall include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase shall be submitted to the Contracting Officer for approval prior to each monthly pay estimate. Approved information shall be assembled in a binder and shall be turned over to the Government upon acceptance of the work. The construction warranty period shall begin on the date of project acceptance and shall continue for the full product warranty period. A joint 4 month and 9 month warranty inspection shall be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and the Customer Representative. Information contained in the warranty management plan shall include, but shall not be limited to, the following:

a. Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the contractors, subcontractors, manufacturers or suppliers involved.

b. Listing and status of delivery of all Certificates of Warranty for extended warranty

items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.

c. A list for each warranted equipment, item, feature of construction or system indicating:

1. Name of item.
2. Model and serial numbers.
3. Location where installed.
4. Name and phone numbers of manufacturers or suppliers.
5. Names, addresses and telephone numbers of sources of spare parts.
6. Warranties and terms of warranty. This shall include one-year overall warranty of construction. Items which have extended warranties shall be indicated with separate warranty expiration dates.
7. Cross-reference to warranty certificates as applicable.
8. Starting point and duration of warranty period.
9. Summary of maintenance procedures required to continue the warranty in force.
10. Cross-reference to specific pertinent Operation and Maintenance manuals.
11. Organization, names and phone numbers of persons to call for warranty service.
12. Typical response time and repair time expected for various warranted equipment.

d. The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.

e. Procedure and status of tagging of all equipment covered by extended warranties.

f. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

### 1.3.2 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Contracting Officer, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section. Communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty shall be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor shall furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warranted construction, shall be continuously available, and shall be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

### 1.3.3 Contractor's Response to Construction Warranty Service Requirements

Following oral or written notification by the Contracting Officer, the Contractor shall respond to construction warranty service requirements in accordance with the "Construction Warranty Service Priority List" and the three categories of priorities listed below. The Contractor shall submit a report on any warranty item that has been repaired during the warranty period. The report shall include the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframes specified, the Government will perform the work and back charge the construction warranty payment item established.

- a. First Priority Code 1. Perform onsite inspection to evaluate situation, and determine course of action within 4 hours, initiate work within 6 hours and work continuously to completion or relief.
- b. Second Priority Code 2. Perform onsite inspection to evaluate situation, and determine course of action within 8 hours, initiate work within 24 hours and work continuously to completion or relief.
- c. Third Priority Code 3. All other work to be initiated within 3 work days and work continuously to completion or relief.
- d. The "Construction Warranty Service Priority List" is as follows:

#### Code 1-Doors

- 1) Overhead doors not operational, causing a security, fire, or safety problem.
- 2) Interior, exterior personnel doors or hardware, not functioning properly, causing a security, fire, or safety problem.

#### Code 3-Doors

- 1) Overhead doors not operational.
- 2) Interior/exterior personnel doors or hardware not functioning properly.

#### Code 1-Electrical

- 1) Power failure (entire area or any building operational after 1600 hours).
- 2) Security lights
- 3) Smoke detectors

#### Code 2-Electrical

- 1) Power failure (no power to a room or part of building).
- 2) Receptacle and lights (in a room or part of building).

#### Code 3-Electrical

Street lights.

#### Code 1-Heat

- 1) Area power failure affecting heat.

2) Heater in unit not working.

Code 3-Interior

- 1) Floors damaged.
- 2) Paint chipping or peeling.
- 3) Casework.

Code 1-Roof Leaks

Temporary repairs will be made where major damage to property is occurring.

Code 2-Roof Leaks

Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

Code 2-Water (Exterior)

No water to facility.

Code 2-Water (Hot)

No hot water in portion of building listed.

Code 3-All other work not listed above.

1.3.4 Warranty Tags

At the time of installation, each warranted item shall be tagged with a durable, oil and water resistant tag approved by the Contracting Officer. Each tag shall be attached with a copper wire and shall be sprayed with a silicone waterproof coating. The date of acceptance and the QC signature shall remain blank until project is accepted for beneficial occupancy. The tag shall show the following information.

- a. Type of product/material\_\_\_\_\_.
- b. Model number\_\_\_\_\_.
- c. Serial number\_\_\_\_\_.
- d. Contract number\_\_\_\_\_.
- e. Warranty period\_\_\_\_\_ from\_\_\_\_\_ to\_\_\_\_\_.
- f. Inspector's signature\_\_\_\_\_.
- g. Construction Contractor\_\_\_\_\_.
- Address\_\_\_\_\_.
- Telephone number\_\_\_\_\_.
- h. Warranty contact\_\_\_\_\_.

Address \_\_\_\_\_.

Telephone number \_\_\_\_\_.

- i. Warranty response time priority code \_\_\_\_\_.
- j. WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

#### **1.4 OPERATION AND MAINTENANCE MANUALS**

Operation manuals and maintenance manuals shall be submitted as specified. Operation manuals and maintenance manuals provided in a common volume shall be clearly differentiated and shall be separately indexed.

#### **1.5 FINAL CLEANING**

The premises shall be left broom clean. Stains, foreign substances, and temporary labels shall be removed from surfaces. Carpet and soft surfaces shall be vacuumed. Equipment and fixtures shall be cleaned to a sanitary condition. Filters of operating equipment shall be replaced. Debris shall be removed from roofs, drainage systems, gutters, and downspouts. Paved areas shall be swept and landscaped areas shall be raked clean. The site shall have waste, surplus materials, and rubbish removed. The project area shall have temporary structures, barricades, project signs, and construction facilities removed. A list of completed clean-up items shall be submitted on the day of final inspection.

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION (NOT USED)**

-- End of Section -

SECTION 01781

### **SECTION 01781**

## **OPERATION AND MAINTENANCE DATA**

### **PART 1 GENERAL**

#### **1.1 SUBMISSION OF OPERATION AND MAINTENANCE DATA**

Submit Operation and Maintenance (O&M) Data specifically applicable to this contract and a complete and concise depiction of the provided equipment, product, or system. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level. Include an index preceding each submittal. Submit in accordance with this section and Section 01335 SUBMITTAL PROCEDURES.

### 1.1.1 Package Quality

Documents must be fully legible. Poor quality copies and material with hole punches obliterating the text or drawings will not be accepted.

### 1.1.2 Package Content

Data package content shall be as shown in the paragraph titled "Schedule of Operation and Maintenance Data Packages." Comply with the data package requirements specified in the individual technical sections, including the content of the packages and addressing each product, component, and system designated for data package submission.

### 1.1.3 Changes to Submittals

Manufacturer-originated changes or revisions to submitted data shall be furnished by the Contractor if a component of an item is so affected subsequent to acceptance of the O&M Data. Changes, additions, or revisions required by the Contracting Officer for final acceptance of submitted data, shall be submitted by the Contractor within 30 calendar days of the notification of this change requirement.

## 1.2 TYPES OF INFORMATION REQUIRED IN O&M DATA PACKAGES

### 1.2.1 Operating Instructions

Include specific instructions, procedures, and illustrations for the following phases of operation:

#### 1.2.1.1 Safety Precautions

List personnel hazards and equipment or product safety precautions for all operating conditions.

#### 1.2.1.2 Operator Prestart

Include procedures required to set up and prepare each system for use.

#### 1.2.1.3 Startup, Shutdown, and Post-Shutdown Procedures

Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.

#### 1.2.1.4 Normal Operations

Provide narrative description of Normal Operating Procedures. Include Control Diagrams with data to explain operation and control of systems and specific equipment.

#### 1.2.1.5 Emergency Operations

Include Emergency Procedures for equipment malfunctions to permit a short period of

continued operation or to shut down the equipment to prevent further damage to systems and equipment. Include Emergency Shutdown Instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance and procedures for emergency operation of all utility systems including required valve positions, valve locations and zones or portions of systems controlled.

#### 1.2.1.6 Operator Service Requirements

Include instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gage readings.

#### 1.2.1.7 Environmental Conditions

Include a list of Environmental Conditions (temperature, humidity, and other relevant data) that are best suited for the operation of each product, component or system. Describe conditions under which the item equipment should not be allowed to run.

### 1.2.2 Preventive Maintenance

Include the following information for preventive and scheduled maintenance to minimize corrective maintenance and repair.

#### 1.2.2.1 Lubrication Data

Include preventative maintenance lubrication data, in addition to instructions for lubrication provided under paragraph titled "Operator Service Requirements":

- a. A table showing recommended lubricants for specific temperature ranges and applications.
- b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities.
- c. A Lubrication Schedule showing service interval frequency.

#### 1.2.2.2 Preventive Maintenance Plan and Schedule

Include manufacturer's schedule for routine preventive maintenance, inspections, tests and adjustments required to ensure proper and economical operation and to minimize corrective maintenance. Provide manufacturer's projection of preventive maintenance work-hours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft. For periodic calibrations, provide manufacturer's specified frequency and procedures for each separate operation.

### 1.2.3 Corrective Maintenance (Repair)

Include manufacturer's recommended procedures and instructions for correcting problems and making repairs.

#### 1.2.3.1 Troubleshooting Guides and Diagnostic Techniques

Include step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought.

Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.

#### 1.2.3.2 Wiring Diagrams and Control Diagrams

Wiring diagrams and control diagrams shall be point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type, identically to actual installation configuration and numbering.

#### 1.2.3.3 Maintenance and Repair Procedures

Include instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards.

#### 1.2.3.4 Removal and Replacement Instructions

Include step-by-step procedures and a list required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings and adjustments required. Instructions shall include a combination of text and illustrations.

#### 1.2.3.5 Spare Parts and Supply Lists

Include lists of spare parts and supplies required for maintenance and repair to ensure continued service or operation without unreasonable delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead-time to obtain.

#### 1.2.4 Corrective Maintenance Work-Hours

Include manufacturer's projection of corrective maintenance work-hours including requirements by type of craft. Corrective maintenance that requires completion or participation of the equipment manufacturer shall be identified and tabulated separately.

#### 1.2.5 Appendices

Provide information required below and information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment. Include the following:

#### 1.2.6 Parts Identification

Provide identification and coverage for all parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views

to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing shall show the index, reference, or key number that will cross-reference the illustrated part to the listed part. Parts shown in the listings shall be grouped by components, assemblies, and subassemblies in accordance with the manufacturer's standard practice. Parts data may cover more than one model or series of equipment, components, assemblies, subassemblies, attachments, or accessories, such as typically shown in a master parts catalog

#### 1.2.6.1 Warranty Information

List and explain the various warranties and include the servicing and technical precautions prescribed by the manufacturers or contract documents in order to keep warranties in force. Include warranty information for primary components such as the compressor of air conditioning system.

#### 1.2.6.2 Personnel Training Requirements

Provide information available from the manufacturers that is needed for use in training designated personnel to properly operate and maintain the equipment and systems.

#### 1.2.6.3 Testing Equipment and Special Tool Information

Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components.

#### 1.2.6.4 Contractor Information

Provide a list that includes the name, address, and telephone number of the General Contractor and each Subcontractor who installed the product or equipment, or system. For each item, also provide the name address and telephone number of the manufacturer's representative and service organization most convenient to the project site. Provide the name, address, and telephone number of the product, equipment, and system manufacturers.

## **PART 2 PRODUCTS**

Not used.

## **PART 3 EXECUTION**

### **3.1 TRAINING**

Unless provided for elsewhere, the Contractor shall provide operational and maintenance training for all systems furnished under this contract in accordance with this section. The training shall not take place until the operation and maintenance manuals are submitted and approved.

Training will be given to personnel responsible for the operation and maintenance of the system at the installation. Orient training to the specific system being installed under this

contract. Use operation and maintenance manual as the primary instructional aid in contractor provided activity personnel training. Manuals shall be delivered for each trainee with two additional sets delivered for archiving at the project site. Submit a training course schedule, syllabus, and training materials 14 days prior to the start of training. Obtain approval of the training course before beginning that phase of training. Furnish a qualified instructor approved by the system manufacturer to conduct training for the specific system.

Training manuals shall include an agenda, defined objectives and a detailed description of the subject matter for each lesson. Furnish audio-visual equipment and all other training materials and supplies. A training day is defined as 8 hours of classroom or lab instruction, including two 15 minute breaks and excluding lunch time, Monday through Friday, during the daytime shift in effect at the training facility. For guidance, the Contractor should assume the attendees will have a high school education.

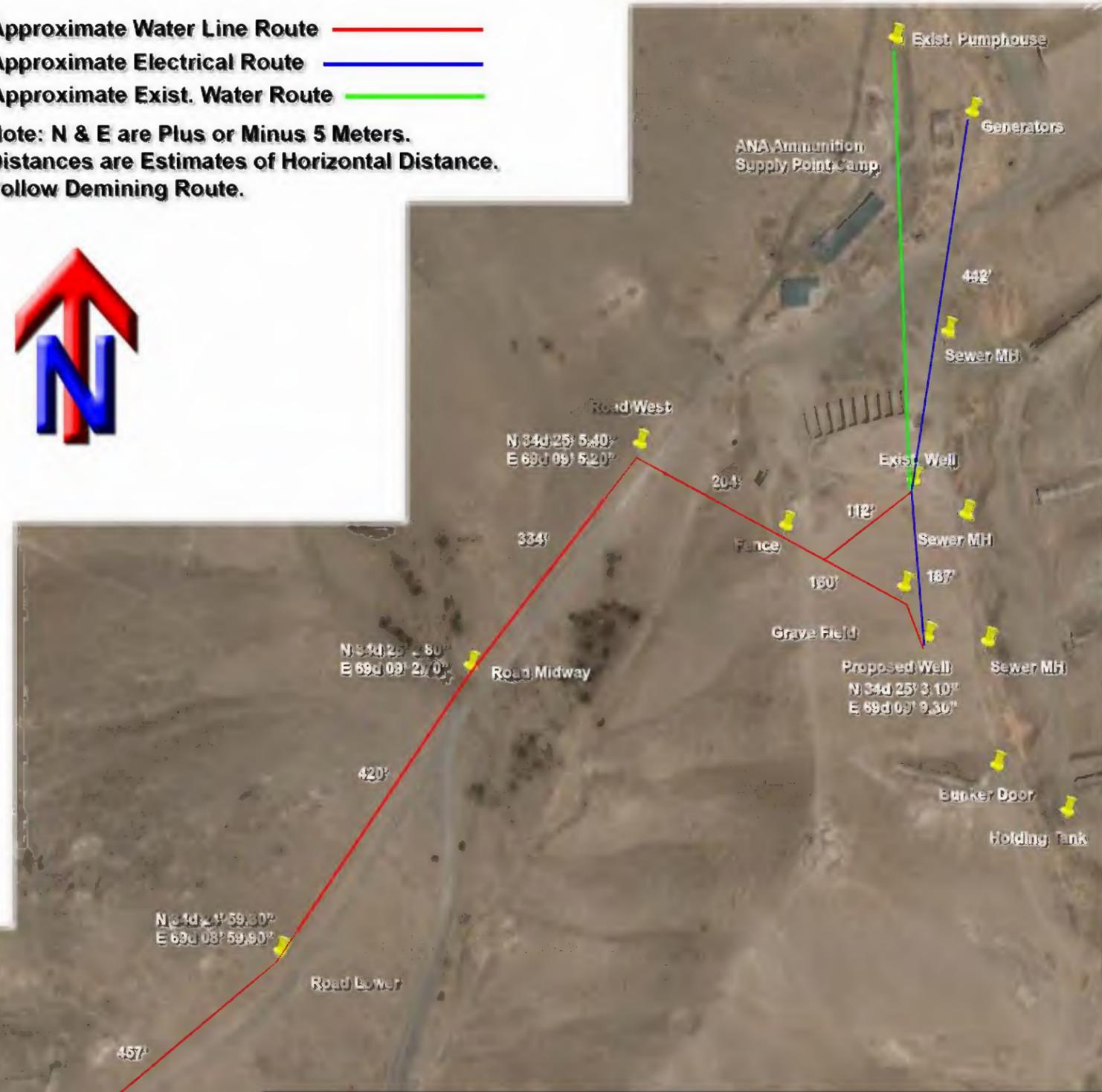
The Contractor shall videotape the training session on VHS tapes and provide the tapes to the Government.

-- End of Section --



Approximate Water Line Route —  
 Approximate Electrical Route —  
 Approximate Exist. Water Route —

Note: N & E are Plus or Minus 5 Meters.  
 Distances are Estimates of Horizontal Distance.  
 Follow Demining Route.



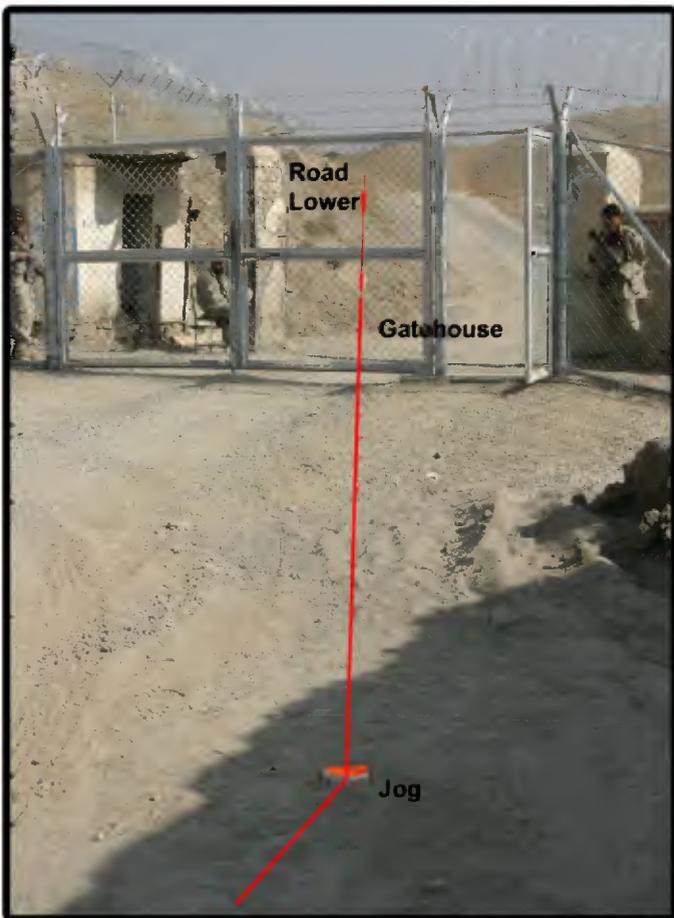
# Commando Water Supply Appendix A



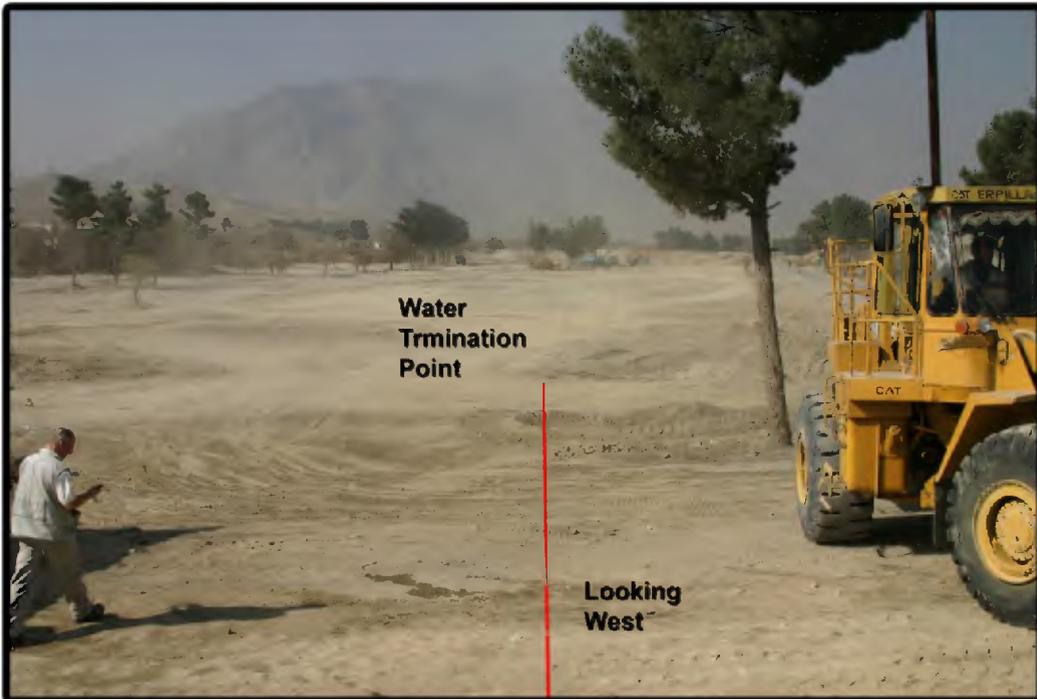
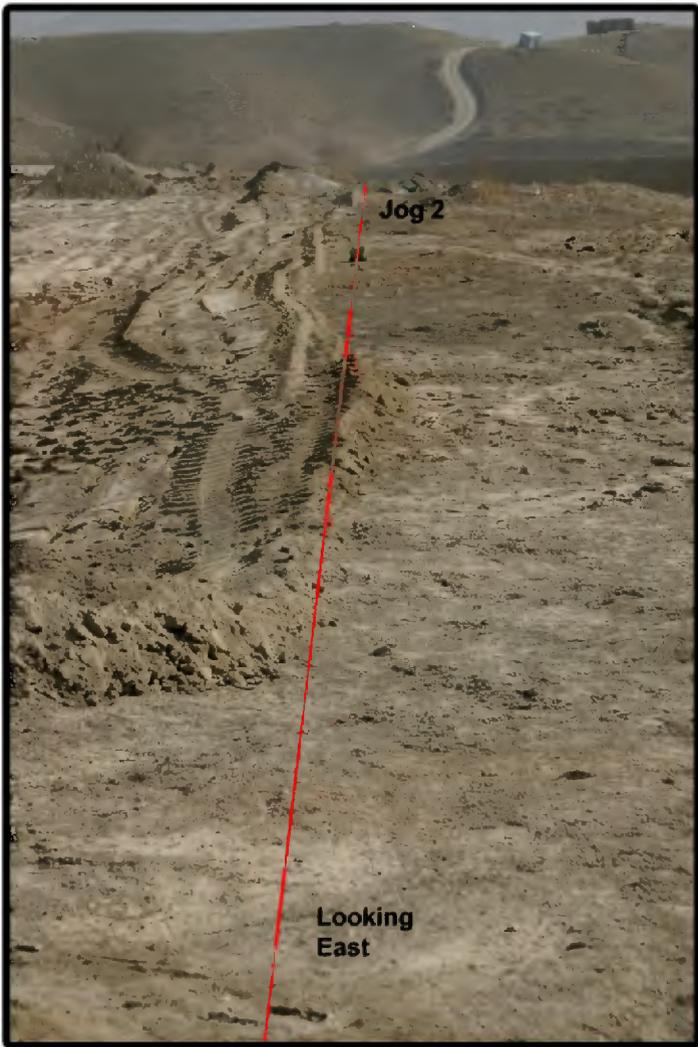
# Appendix B-1



**Appendix B-2**



## Appendix B-3



# Appendix B-4