Solicitation no. W5J9LE-11-R-0089

US Army Corps
of Engineers
Afghanistan Engineer District

Route Hezar Joft

Helmand Province, Afghanistan

Design/Build
Project Specifications
And Drawings

Proposal Requirements, Contract Forms, Conditions of the Contract

20 August 2011

THIS IS A SINGLE-PHASE REQUEST FOR PROPOSAL

SOLICITATION, OFFER, AND AWARD (Construction, Alteration, or Repair)	1. SOLICITATION NO. W5J9LE-11-R-0089	2. TYPE OF SOLICITATION [ ] SEALED BID (IFB) [X] NEGOTIATED (RFP)	3. DATE ISSUED 01-Aug-2011	PAGE OF PAGES 1 OF 54

IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO.	6. PROJECT NO. CP11-012

7. ISSUED BY CODE W5J9LE	8. ADDRESS OFFER TO (If Other Than Item 7) CODE
AFGHANISTAN DISTRICT SOUTH (AES) US ARMY CORPS OF ENGINEERS APO AE 09355 TEL: FAX:	See Item 7 TEL: FAX:

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):
Route Hezar Joft

This procurement is for the Design and Construction of Route Hezar Joft in Helmand Province, Afghanistan.

Project No: CP11-012

The Magnitude of Construction is between $1,000,000.00 and $5,000,000.00

Performance Period: 180 days

Solicitation POC:
Mr. Raymond Greenheck
USACE-TAS
US: 540-622-6183
raymond.r.greenheck@usace.army.mil

Courtesy Copy (CC)
Tas.contracting@usace.army.mil

11. The Contractor shall begin performance within 10 calendar days and complete it within 180 calendar days after receiving [ ] award, [X] notice to proceed. This performance period is [X] mandatory, [ ] negotiable. (See 52.211-10 .)

12 A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? (If "YES," indicate within how many calendar days after award in Item 12B.) [ ] YES [X] NO	12B. CALENDAR DAYS 10

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and 1 copies to perform the work required are due at the place specified in Item 8 by 02:00 PM (hour) local time 20 Sep 2011 (date). If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offerors name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee [ ] is, [X] 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 reference.

D. Offers providing less than 120 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

SOLICITATION, OFFER, AND AWARD (Continued)

(Construction, Alteration, or Repair)

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

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*	15. TELEPHONE NO. *(Include area code)*
	16. REMITTANCE ADDRESS *(Include only if different than Item 14)* **See Item 14**
CODE / FACILITY CODE	

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 requirements stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)*

AMOUNTS	SEE SCHEDULE OF PRICES

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)*	20B. 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 CODE		27. PAYMENT WILL BE MADE BY: CODE

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, requisitions 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 or 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)* TEL: EMAIL:
30B. SIGNATURE / 30C. DATE	31B. UNITED STATES OF AMERICA BY / 31C. AWARD DATE

TABLE OF CONTENTS

DESIGN/BUILD
ROUTE HAZAR JOFT
HELMAND PROVINCE, AFGHANISTAN

SECTION	TITLE
00010	PROPOSAL SCHEDULE
00100	BIDDING SCHEDULE/INSTRUCTIONS TO BIDDERS
00113	PROCEDURES FOR SUBMITTAL OF OFFERS AND PROPOSAL EVALUATION CRITERIA
00600	REPRESENTATIONS AND CERTIFICATIONS
00700	CONTRACT CLAUSES
00800	SPECIAL CONTRACT CLAUSES
00150	DESIGN-BUILD PROCESS
00555	DESIGN CONCEPT DOCUMENTS
01010	SCOPE OF WORK
01015	TECHNICAL REQUIREMENTS
01040	STANDARD SECURITY CONTRACT SECTION
01060	SPECIAL CLAUSES
01312	QUALITY CONTROL SYSTEM
01321	PROJECT SCHEDULE
01335	SUBMITTAL PROCEDURES
01335A	ATTACHMENTS-AED-S
01335B	E-SUBMITTAL FORMAT
01355	ENVIRONMENTAL PROTECTION
01415	METRIC MEASUREMENTS
01451	CONTRACTOR QUALITY CONTROL (WITH DESIGN)
01525	SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS
01770	CLOSEOUT PROCEDUREWS
01780A	CLOSEOUT SUBMITTALS
033000	CAST-IN-PLACE CONCRETE
42000.10	STONE MASONRY
310000	EARTHWORK
321116	AGGREGATE SUB BASE AND SLELCT-MATERAL FOR EMBANKMENTS
311123	AGGREGATE BASE COURSE FOR RIGID PAVEMENT
321124	GRADED CRUSHED AGGREGATE BASE COURSE FOR FLEXIBLE PAVEMENT
321210	BITUMINUOS TACK AND PRIME COATS
321216	HMA FOR ROADS
APPENDIX	HEZAR ZOFT

SECTION 00010

PROPOSAL SCHEDULE

Provide a price for all items. The Government will evaluate the Contractor's entire proposal to determine which CLINs represent the best value to the Government. The Government will award in accordance with the lowest price technically acceptable process in the basic contract which will be evaluated including the base and all optional items.

No.	Description	Qty	Unit	Unit Price	Total Amount
BASE PROPOSAL:					
Number	**Contract Line Item**				
0001	Site Survey / Existing Conditions Map	1	LS	XXX	$_____
0002	Geotechnical Report	1	LS	XXX	$_____
0003	A/E Design	1	LS	XXX	$_____
0004	As-Built Drawings	1	LS	XXX	$_____
0005	UXO/Mine Removal and Clearance	1	LS	XXX	$_____
0006	Mobilization/ Demobilization	1	LS	XXX	$_____
0007	Site Security	1	LS	XXX	$_____
0008	Roadway Construction	1	LS	XXX	$_____
0009	Canal Bank Reconstruction/Revetment	1	LS	XXX	$_____
0010	Culvert Denial	10	EA	XXX	$_____
0011	DBA Insurance	1	LS	XXX	$_____
TOTAL BASE BID ITEMS:					$_____
TOTAL PROPOSAL: (total of all above costs)					$_____

PROPOSAL SCHEDULE NOTES

1. Offeror shall submit prices on all items. Scope of work on each items are described in Section 01010. The quantities shown in the bid schedule shall take precedence and be used for developing the proposal.

2. Only one contract for the entire schedule will be awarded under this solicitation. This project will be awarded as a lump sum contract. This Proposal Schedule is an accounting tool for allocating funds to applicable budget.

3. Costs associated with this project shall include design and construction costs, site development, and utility installation.

4. DESIGN COSTS DEFINITION: Design costs shall consist of design analysis, drawings, and specifications for all facilities.

5. COST LIMITATION: The established design cost limitation for all Design Costs, as defined in paragraph 4, shall not exceed 6 percent of the total construction cost.

6. The government has the right to reduce the number of units in a bid item or choose to delete a base bid item entirely if necessary after the proposals are received.

7. PERIOD OF PERFORMANCE AND LIQUIDATED DAMAGES: See Section 00150 for performance schedule and liquidated damages. Period of performance is defined as the number of calendar days from receipt of notice to proceed. Liquidated damages are assessed at the stated rate per day for every day of delay past the period of performance until contract completion for either the Base Items or the Optional Items whichever is applicable.

8. Abbreviations:

LS = Lump Sum
EA = Each

-END OF SECTION-

Section 00100 - Bidding Schedule/Instructions to Bidders

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)

CLAUSES INCORPORATED BY FULL TEXT

52.215-1 INSTRUCTIONS TO OFFERORS--COMPETITIVE ACQUISITION (JAN 2004)

(a) Definitions. As used in this provision--

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

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

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

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

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

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

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

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

(i) The solicitation number;

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

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

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

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

(3) Submission, modification, or revision, of proposals.

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

(ii)(A) Any proposal, modification, or revision received at the Government office designated in the solicitation after the exact time specified for receipt of offers is “late” and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and--

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

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

(3) It is the only proposal received.

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

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

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

(v) Proposals may be withdrawn by written notice received at any time before award. Oral proposals in response to oral solicitations may be withdrawn orally. If the solicitation authorizes facsimile proposals, proposals may be withdrawn via facsimile received at any time before award, subject to the conditions specified in the provision at 52.215-5, Facsimile Proposals. Proposals may be withdrawn in person by an offeror or an authorized representative,

if the identity of the person requesting withdrawal is established and the person signs a receipt for the proposal before award.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(11) If a post-award debriefing is given to requesting offerors, the Government shall disclose the following information, if applicable:

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

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

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

(iv) A summary of the rationale for award.

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

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

(End of provision)

52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a Firm Fixed Price contract resulting from this solicitation.

(End of provision)

52.233-2 SERVICE OF PROTEST (SEP 2006)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the Government Accountability Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from **US Army Corps of Engineers, Kandahar, Afghanistan, APO, AE 09355.**

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

(End of provision)

52.236-27 SITE VISIT (CONSTRUCTION) (FEB 1995)

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

(b) An organized site visit has not been scheduled

(c) Participants can visit the site, at their discretion.

(End of provision)

52.236-28 PREPARATION OF PROPOSALS--CONSTRUCTION (OCT 1997)

(a) Proposals must be (1) submitted on the forms furnished by the Government or on copies of those forms, and (2) manually signed. The person signing a proposal must initial each erasure or change appearing on any proposal form.

(b) The proposal form may require offerors to submit proposed prices for one or more items on various bases, including--

(1) Lump sum price;

(2) Alternate prices;

(3) Units of construction; or

(4) Any combination of paragraphs (b)(1) through (b)(3) of this provision.

(c) If the solicitation requires submission of a proposal on all items, failure to do so may result in the proposal being rejected without further consideration. If a proposal on all items is not required, offerors should insert the words “no proposal” in the space provided for any item on which no price is submitted.

(d) Alternate proposals will not be considered unless this solicitation authorizes their submission.

(End of provision)

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

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its

quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):

http://farsite.hill.af.mil/

http://acquisition.gov/comp/far/index.html

(End of provision)

52.252-5 AUTHORIZED DEVIATIONS IN PROVISIONS (APR 1984)

(a) The use in this solicitation of any Federal Acquisition Regulation (48 CFR Chapter 1) provision with an authorized deviation is indicated by the addition of"(DEVIATION)" after the date of the provision.

(b) The use in this solicitation of any **Defense FAR supplement (48 CFR Chapter 2**) provision with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of provision)

SECTION 00113
PROCEDURES FOR SUBMITTAL OF OFFERS AND PROPOSAL EVALUATION CRITERIA

1.0 GENERAL

1.1 BASIS AND INTENT

The intent of this Request for Proposal (SOLICITATION) is to select one Contractor the design and construction Route Hezar Joft located in Helmand Province, Afghanistan.

The basis of award is lowest Price Technically Acceptable (LPTA). The Contracting Officer shall award a contract on the basis of the lowest evaluated price of proposals meeting or exceeding the acceptability.

2.0 STANDARDS FOR NON-COST FACTORS. SUBMITTALS

2.1 SUBMISSION REQUIREMENTS

2.2 GENERAL

Offerors submitting proposals for this project should limit submissions to data essential for evaluation of proposals so that a minimum of time and monies will have been expended in preparing information required herein. However, in order to be effectively and equitably evaluated, the proposals must include information sufficiently detailed to clearly describe the offeror's capabilities to successfully complete the project. Proposals should follow in the order of sequence set forth in the SOLICITATION. Information provided out of sequence may not be evaluated and may result in the offeror's disqualification from award. Requirements stated in this SOLICITATION are minimums.

Electronic (as email) inquiries to this solicitation must be received by this office not later than fifteen (15) calendar days prior to the due date of proposals. Questions received less than fifteen (15) days prior to the due date of proposals will not be entertained.

Proposals may be withdrawn by written or electronic (as email) notice at any time before award.

2.3 SUBMISSION ADDRESS

Electronic (softcopy) proposals (submitted as attachments to emails) must be submitted to the following email address: raymond.r.greenheck@usace.army.mil with a courtesy copy to tas.contracting@usace.army.mil.

All offers must be received by the closing date and time identified in Block #13 of the SF1442 (unless amended) in order to be considered for award.

Hand-carried offers will not be accepted.

2.4 SUBMITTAL FORMAT

1. Offerors are required to submit a proposal made up of the following two sections: Technical Proposal and a Price Proposal. All proposal materials shall be submitted with a table of contents. The sections should parallel the submission requirements identified in the below paragraphs.

2. The Government will not make assumptions concerning an Offeror's intent, capabilities, or experiences. Clear identification of proposal details shall be the Offeror's sole responsibility. The Government may reject incomplete proposals after initial evaluation without further consideration.

   The SSEB will evaluate proposals in the following order: 1. Factor 1 – Experience; 2. Factor 2 – Key Personnel; and 3. Factor 3 – Past Performance. In the technical/quality evaluation process, if any Factor is determined to be "Unacceptable", the entire proposal will be deemed "Unacceptable" and further evaluation will NOT be warranted by the SSEB.

   The proposal must meet the following basic requirements in addition to Factors 1-3 requirements at the time of submission:

   a. The Proposal shall be typed, submitted in English, and easy to read.

   b. Proposal shall be organized, concise, and submitted in the volumes and in the order indicated below. Volumes shall be clearly identified and tabbed. Each factor and sub-factor shall be described in a separate tabbed section.

   c. Proposals must be sent in two (2) separate volumes. Each volume shall be contained within a separate document. Each volume shall be identified by the solicitation number, volume number, and name, address, and telephone number of the prime Offeror on the cover. Each volume shall contain a Table of Contents and include at the bottom left side of each page the volume and page number.

   d. Offerors shall verify that the information for all forms submitted are current, correct and complete including names of the points of contact, email address, fax number, and telephone number.

   e. Proposal Schedule, Volume I, *Technical Proposal*, shall be completed in full and shall consist of Factor 1: *Experience*, Factor 2: *Personnel*, and Factor 3: *Past Performance*.

   f. Proposal Schedule, Volume II, *Price Proposal*, shall be completed in full.

   g. Offerors shall submit a signed Offer Standard Form 1442 in Volume II for this solicitation, including verification of all amendments received.

   h. Offerors will be discouraged from submitting elaborate corporate marketing information, formatting, and special reproduction techniques.

   i. If additional information is provided, it shall be with regard to the solicitation requirements only.

   j. Failing to submit attachments may result in rejection of the offer without further evaluation. Therefore, Offerors are urged to follow instructions and contact the Contracting Officer via email with questions regarding the instructions.

   k. Contractors are cautioned against submitting conditional proposals, or submitting proposals that contain reservations. Offerors should instead direct all questions and/or concerns to the Contract Specialist, in writing. Questions and/or comments received by the Contract Specialist later than fifteen (15) calendar days prior to the proposal due date shall not be entertained.

l. Proposal Expenses and Pre-Contract Costs: The solicitation does not commit the Government to pay any costs incurred in the preparation and submission of a proposal or for any other costs incurred by any firm submitting a proposal in response to these solicitations.

m. Volume I shall be limited to no more than **fifty (50) pages** in length. Each page of Volume I shall be numbered sequentially. Use only 8 ½ by 11 inch paper or A4 paper submissions, unless another paper size is specifically authorized elsewhere in this section for a particular submission. Do not use fold-outs (e.g., 11” x 14” or 11” x 17” sheets) unless specifically authorized in this section for a particular submission. A standard, 11-point minimum font size applies. Arial or Times New Roman fonts are required. Tables and illustrations may use a reduced font size of not less than 8-point and may be landscape-oriented. The use of hyperlinks to electronic materials in the proposal is prohibited.

n. Necessary charts and graphics may be larger than 8.5" x 11", but no larger than 11" x 17", and will count as one page. Charts and graphics should only contain the minimal text required to interpret the graphic (such as a concise caption or a map legend). Inclusion of excessive text on a graphic in an attempt to circumvent the page limitation will cause the graphic to be counted as more than one page.

o. All page margins must be at least 1-inch wide, but may include headers and footers. All pages shall be numbered and correlate to proposal index. For submissions with page limitations, the pages will be counted as follows: One side of the paper is one page; information on both the back and front of one sheet of paper will be counted as two pages. Where authorized, fold-out pages (11" x 14" or 11" x 17") will count as one page. Pages furnished for organizational purposes only, such as a “Table of Contents” or divider tabs, are not included in the page limitation.

p. The submission shall be clearly indexed and logically assembled. Each volume shall be clearly identified and shall begin at the top of a page. All pages of each volume shall be appropriately numbered and identified by the complete company name, date and solicitation number in the header and/or footer. A Table of Contents should be created.

q. All information shall be confined to the appropriate file. The offeror shall confine submissions to essential matters, sufficient to define the proposal and provide adequate basis for evaluation. Offerors are responsible for including sufficient details, in a concise manner, to permit a complete and accurate evaluation of each proposal. Proprietary information shall be clearly marked as such.

3. Joint Ventures

a. When proposing as a joint venture, all members of the joint venture shall sign the SF 1442 and the financial surety instrument unless a written agreement by the joint venture is furnished with the proposal designating one firm with the authority to bind the other member(s) of the joint venture. In addition, a copy of the joint venture agreement shall be submitted with the proposal. Failure to comply with the foregoing requirements may eliminate the proposal from further consideration. If a JV Agreement has not yet been finalized / approved, indicate its status. The JV Agreement will not count towards the 50 page limit.

b. If submitting a proposal as a Joint Venture, the experience, past performance, and management approach 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. Joint ventures shall submit the following additional documentation regarding their business entities:

1) A copy of their Joint Venture agreement in English.

2) JV Agreements shall clearly indicate the percentages of the JV participants, in particular the percent of the controlling party, a clear delineation of responsibilities and authorities between the JV parties, and provide that each party is jointly and severally liable for the performance of all contract requirements. A detailed statement outlining the following in terms of percentages, where appropriate.

   i. The relationship of the joint venture parties in terms of business ownership, capital contribution, and profit distribution or loss sharing.

   ii. The management approach of the joint venture in terms of who will conduct, direct, supervise and control the project and have custody and control of the assets of the joint venture and perform the duties necessary to complete the work.

   iii. The structure of the joint venture and decision-ranking responsibilities of the joint venture parties in terms of who will control the manner and method of performance of the work.

   iv. The bonding responsibilities of the joint venture parties.

   v. Identification of the key personnel having authority to legally bind the joint venture to subcontracts and state who will provide or contract for the labor and materials for the joint venture.

   vi. Identification of the key personnel having authority to legally bind the joint venture to subcontracts and state who will provide or contract for the labor and materials for the joint venture.

   vii. Identification of party maintaining the joint venture bank accounts for the payment of all expenses and the deposits of all receipts, keep the books and records, and pay applicable taxes for the joint venture.

   viii. Identification of party furnishing the facilities, such as office supplies and telephone service.

   ix. Identification of party having overall control of the joint venture.

c. Other sections of the proposal shall identify, where appropriate, whether key personnel are employees of the individual joint venture entities and identify the entity, or hired as employees of the joint venture.

d. If one of the joint venture parties possesses relevant experience and/or past performance, the experience and/or past performance of that firm will be considered as the experience and/or past performance of the joint venture

e. If the Joint Venture is not organized according to U.S. Law, the Government reserves the right to review the actual Joint Venture agreement to determine its basis.

f. A complete and legally binding document with all the information required under this section titled "Joint Ventures" shall be included.

4. Certifications and Representations: Each offeror shall complete (including signatures) the solicitation sections indicated below using the file (without modification to the file) provided with the solicitation. An authorized official of the firm shall sign the SF 33 and all certifications requiring original signature. An Acrobat PDF file shall be created to capture the signatures for submission.

- Standard Form 1442 (SF), Solicitation, Offer and Award
- Contract Administration Data
- Representations, Certifications and Other Statements of Offerors

2.5 SITE VISIT

There will be no site visit for this project. See site assessment report (Appendix C) for site information.

3.0 PROPOSAL EVALUATION PROCESS

A Source Selection Evaluation Board (SSEB) comprised of representatives of the Corps of Engineers, and other required personnel, will evaluate the proposals. Offerors are advised that the technical evaluation and rating of proposals will be conducted in strict confidence in that technical/quality proposals are reviewed and rated without knowledge of the price offered. The number and identities of offerors are not revealed to anyone who is not involved in the evaluation and award process or to other offerors. Proposals will be evaluated based on the factors described herein, and the basis of award is Lowest Price Technically Acceptable.

The evaluation process essentially consists of three parts: proposal compliance review and responsibility determination, technical/quality evaluation, and price evaluation.

The SSEB will evaluate and rate those proposals passing the first review, above. Proposals will be evaluated against the solicitation requirements. Factors will be rated either **'Acceptable' or 'Unacceptable'**. If a proposal is determined 'Unacceptable', further evaluation by the SSEB is not warranted.

3.1 PROPOSAL COMPLIANCE REVIEW

This is an initial review to ensure that all required forms and certifications are complete and that both a technical and price proposal were received. Any Offeror found to have not provided for all MINIMUM required documents will be removed from the competition at this time. Offerors failing to pass the proposal compliance review shall not be sent to the Technical and Cost Evaluation boards.

3.2 TECHNICAL/QUALITY EVALUATION

The SSEB will evaluate and rate those proposals passing the first review, above. Proposals will be evaluated against the SOLICITATION requirements. Factors will be rated either 'Acceptable' or 'Unacceptable'.

The SSEB will evaluate proposals in the following order: 1. Factor 1 – Experience; 2. Factor 2 – Key Personnel; and 3. Factor 3 – Past Performance. In the technical/quality evaluation process, if any Factor is determined to be "Unacceptable", the entire proposal will be deemed "Unacceptable" and further evaluation will NOT be warranted by the SSEB.

3.3 PRICE EVALUATION

The SSEB can evaluate price proposals independent of the technical/quality evaluation. The SSEB will not have access to price information until completion of the technical/quality evaluation.

4.0 PROPOSAL INFORMATION AND RELATED EVALUATION FACTORS

Proposals will be evaluated (in English) in accordance with the evaluation factors. . The Government intends to evaluate and award this contract without discussions with offerors (except clarifications as described in FAR 15.306(a)). Therefore, Offerors are reminded to include their best technical and price terms in their initial offer and not to automatically assume that they will have an opportunity to participate in discussions or be asked to submit a revised offer. The Government reserves the right to conduct discussions, if the Contracting Officer later determines them to be necessary.

Volume I - Technical and Performance Capability:

Factor 1 Experience;
Factor 2 Personnel;
Factor 3 Past Performance.

Volume II - Price:

Tab A Standard Form 1442; and
Tab B Section 00010, Proposal Bid Schedule
Tab C Section 00600, Reps & Certs
Tab D Joint Venture (JV) Agreement (if applicable)

4.1 VOLUME 1 - TECHNICAL AND PERFORMANCE CAPABILITY

4.1.1 FACTOR 1-EXPERIENCE

4.1.1.1 SUBMISSION REQUIREMENTS

Each Offeror shall complete a **minimum of two (2), but no more than five (5),** project 'Prime Contractor Experience' form(s), attached at the end of this section. All blocks must be filled-in and all data must be accurate, current and complete. Submission requirements (in English) for experience are:

a. To meet Prime Contractor Experience, a Prime Contractor must have self performed, on site at least 25% of the direct contract labor, exclusive of other general condition or field overhead personnel, material, equipment, design or subcontractors.

b. At least one (1) project provided to demonstrate experience must have awarded contract value (at time of award, including options) of **over $5,000,000.00 (USD).** If the submitted proposal does not include an awarded project in the amount of **$5,000,000.00 (USD) or above, as the prime contractor, the Offeror's proposal will receive an "Unacceptable" evaluation.**

c. All other projects provide shall demonstrate experience awarded at value (at time of award, including options) **over $1,000,000.00 (USD), as a prime contractor.**

d. Each project used to demonstrate experience must be at least 50% complete or have been completed within the last 5 years from the date of this solicitation.

e. At least one (1) of the projects provided must be constructed in either Afghanistan or Iraq

f. At least one (1) of the projects provided must be a design-build type construction

g. Provide detail project descriptions to demonstrate experience with **ALL OF THE FOLLOWING** construction facilities, features or activities:

    1. Road construction including asphalt paving;

h. One project can be used to satisfy multiple features or activities. Each offeror is required to submit at least two (2) but not more than five (5) 'Prime Contractor Experience' forms. Regardless of the number of forms submitted (not to exceed 5), the offeror must demonstrate all of the above features/activities (items a through g).

i. Individual task order of a Multiple Award Task Order Contract (MATOC) may be submitted as a single project to demonstrate experience as defined in Section 4.1.1.1 a. thru e. Combining contract values of individual task orders of a MATOC is not allowed to meet criteria 4.1.1.1b and 4.1.1.1.c.

NOTE: The Prime Contractor is defined as the contractor identified in Block 14 of the Standard Form 1442. If more than one contractor is listed in Block 14, then a signed joint venture must be submitted with the proposal. For United States contractors, the joint venture shall be registered in the Central Contractor Registration (CCR).

All blocks of the 'Prime Contractor Experience' forms (attached at the end of this section) that are submitted must be completed, and all data must be accurate, current, and verifiable. Failure to provide a current and accurate point of contact on the 'Prime Contractor Experience' form will render the form and the project as unacceptable.

The Government reserves the right to contact the references listed on the submitted forms in order to verify the information submitted.

4.1.1.2 Factor 1 Evaluation Criteria

"Acceptable" Rating:
The SSEB will evaluate experience submitted per Section 4.1.1.1. Offerors must meet all of the experience requirements identified in Section 4.1.1.1 to receive an 'Acceptable' rating.

"Unacceptable" Rating:
Proposals that do not include substantial evidence that the offeror has experience, qualifications and production capability to successfully construct the proposed project will be considered to NOT meet the minimum requirements of the SOLICITATION and will be rated an 'Unacceptable'. Substantial evidence is defined as documenting experience in Section 4.1.1.1.

4.1.2 Factor 2 – Personnel

4.1.2.1 Submission Requirements

a. Provide resumes for the following key personnel:

1. Overall Project Manager;
2. Construction Superintendent;
3. Quality Control Manager, and;
4. Senior Civil Engineer.

b. Overall Project Manager, Construction Superintendent and Quality Control Manager shall have:

1. The key personnel resume shall demonstrate a minimum of 5 years of **relevant experience** in their assigned job position on this project as it relates to Design/Build and/or Site Adapt construction projects;

2. Provide documentation identifying each person as a current full-time employee of the Prime Contractor or a letter of intent signifying their employment for this project;

3. FOR OVERALL PROJECT MANAGER ONLY: In addition to 4.1.2.1(b)(1) & (2), also provide documentation by transcript or otherwise evidencing a 4-year college degree from an accredited university.

c. The key personnel resume for Structural and Civil Engineer shall:

1. Demonstrate that the Senior Civil Engineers has a minimum 10 years of relevant experience in their assigned job position on this project as it relates to Design/Build and/or Site Adapt construction projects AND must be a professional engineer with an active professional registration in their home of record (HOR). Provide documentation in the form of a certificate or otherwise evidencing a professional license number or registration. If the HOR country does not possess a professional registration practice, the key personnel resume must demonstrate a minimum of **15 years** of relevant experience in their assigned job position on this project as it relates to Design/Build and/or Site Adapt construction projects;

2. Provide documentation identifying each person as a current full-time employee of either the Prime Contractor or sub-contractor or a letter of intent signifying their employment for this project;

3. Provide documentation by transcript or otherwise evidencing a 4-year college Bachelor of Science or Engineering degree from an accredited university in the respective field of study and assigned job position.

NOTE: Identified personnel must be used on the project. Any substitution of identified persons will not be permitted without prior approval of the Contracting Officer. Identification of two individuals proposed for a single position will result in the evaluation of only the least qualified person. A single individual cannot be identified as 'key personnel' for more than one 'key personnel' position.

4.1.2.2 Factor 2 Evaluation Criteria

"Acceptable" Rating:
The SSEB will evaluate the resumes of the key personnel for compliance with requirements per Section 4.1.2.1. Offerors must meet all of the key personnel requirements identified in Section 4.1.2.1 to receive an 'Acceptable' rating.

"Unacceptable" Rating:
Proposals that fail to include substantial evidence that the offeror can provide key personnel with the qualifications and relevant experience as specified in Section 4.1.2.1 will be considered to NOT meet the minimum requirements of the SOLICITATION and will receive an 'Unacceptable' rating for this Factor.

4.1.3 Factor 3 – Past Performance

4.1.3.1 Submission Requirements

The offeror shall provide past performance information in one of two formats for each project provided under 4.1.1 Factor 1 - Experience.

(1) Copies of Contractor Performance Assessment Reports (CPARs – also commonly referred to as CCASS reports) for projects performed for the U.S. Government. If the project provided has a CPAR, it must be used by the offeror to demonstrate past performance. If CPAR submission is used to validate past performance, it will be the most recent evaluation in the system (i.e. for projects submitted as completed, the final 100% completed CPAR will be provided). If the offeror submits a CPAR, they are not required to submit a separate Past Performance Questionnaire for the specific project.

(2) If CPAR information is not available for a project provided for experience, a completed Past Performance Questionnaire (PPQ), attached at the end of this section (Form A-3) must be provided per the following guidance.

a. The PPQ with Part I completed by the offeror will be included in the offeror's proposal.

b. For each PPQ included in the offeror's proposal, the offeror will identify the point of contact (respondent) performing the evaluation in part II. This identification will consist of the name, organization (company), phone number, and email address of the respondent.

c. The respondent must be familiar with the project, but not affiliated with the offeror.

d. The respondent must be able to provide an independent evaluation of the offeror's performance on the referenced project.

e. The completed PPQ must be returned to the Government directly by the respondent to the email address identified in Part III of the PPQ. Completed PPQs submitted directly by the offeror or included in the offeror's proposal will not be evaluated.

It is the offeror's responsibility to ensure the Government will be able to contact the POCs using the contact information provided. Offerors are encouraged to send their request to the POC as soon as possible once a project is identified for experience under Factor 1.

4.1.3.2 Evaluation Criteria

The Source Selection Evaluation Board (SSEB) will evaluate past performance information received as follows:

"Acceptable" Rating

a. If CPAR is used, the overall rating of each assessment report provided is either satisfactory, above average, or outstanding.

b. If the PPQ is used, Item F (Overall Satisfaction) of each PPQ submitted has a rating of satisfactory or extremely satisfactory.

"Unacceptable" Rating

a. If CPAR is used, the overall rating of any assessment report provided is either marginal or unsatisfactory.

b. If the PPQ is used, Item F (Overall Satisfaction) of any PPQ submitted has a rating of unsatisfactory.

"Unknown" Rating

a. If a PPQ is not received by the Government for a particular project identified under 4.1.1 Factor 1 - Experience, the offeror shall be determined to have unknown past performance for that project.

b. In the context of Acceptable/Unacceptable "unknown" shall be considered an "Acceptable" for that individual project.

Note: In the case of an offeror without a record of relevant past performance or for whom information on past performance is not available or so sparse that no meaningful past performance rating can be reasonably assigned, the offeror may not be evaluated favorably or unfavorably on past performance (see FAR 15.305 (a)(2)(iv)). Therefore, the offeror shall be determined to have unknown past performance. In the context of acceptability/unacceptability, "unknown" shall be considered "Acceptable".

If the CPAR is used, the Government reserves the right to check the Past Performance Information Retrieval System (PPIRS) to verify the accuracy of the CPAR submitted. CPARs submitted by the offeror which do not match those in the system, or for which there is a more current CPAR available, may cause the offeror to receive an "Unacceptable" for this factor.

The Government reserves the right to use past performance information obtained from sources other than those identified by the offeror.

The Government may not obtain information from any or all of the listed contract references and/or may not contact all of the identified POCs

4.2 VOLUME II - PRICE

4.2.1 TAB A, STANDARD FORM 1442

4.2.1.1 SUBMISSION REQUIREMENTS

Submit original only in a separate sealed envelope. The offeror shall submit Standard Form 1442. This form is included in Section 00010 of this SOLICITATION.

4.2.1.2 EVALUATION CRITERIA

Standard form 1442 is to be completed and duly executed with an original signature by an official authorized to bind the company in accordance with FAR 4.102.

4.2.2 TAB B, SECTION 00010, PROPOSAL BID SCHEDULE

4.2.2.1 SUBMISSION REQUIREMENTS

The Offeror shall complete and submit in its entirety Section 00010, Proposal Bid Schedule. This form is included in Section 00010 of this SOLICITATION.

4.2.2.2 EVALUATION CRITERIA

The price (Proposal Bid Schedule) may be evaluated by the SSEB for reasonableness through the use of cost and or price analysis.

4.2.3 TAB C, SECTION 00600, REPRESENTATIONS AND CERTIFICATIONS

4.2.3.1 SUBMISSION REQUIREMENTS

The Offeror shall complete and submit in its entirety Section 00600, Representations and Certification.

4.2.4 TAB D, JOINT VENTURE (JV) AGREEMENT (IF APPLICABLE)

4.2.4.1 SUBMISSION REQUIREMENTS

The Offeror shall complete and submit a copy of the joint venture agreement with the proposal.

4.3 SOURCE SELECTION DECISION

The Source Selection Authority (SSA) will make an independent source selection decision using the findings presented by the SSEB. The SSA is not necessarily bound by the evaluation findings of the SSEB and reserves the right to review all available resources such as the Past Performance Information Management System (PPIMS), Past Performance Information Retrieval System (PPIRS), Federal Awardee Performance Information & Integrity System (FAPIIS), or any other databases or sources available to establish the overall acceptability of an offer using price and non-price factors prior to making award.

4.4 RESPONSIBILITY DETERMINATION

Prior to actual award, the Government will conduct an independent responsibility review of the apparent successful offeror in accordance with the provision of FAR Subpart 9.1.

Appendix A, Form A1, CONTRACTOR EXPERIENCE FORM

Your firm's name

_____

Project name and project location (city, state, country)

_____

Project owner's name (government agency, commercial firm, or other organization)

_____

Project owner's complete address

_____

Your company's role (prime contractor, joint venture, subcontractor) _____

Percentage of work your company performed: _____%

Contract number for this project: _____
Contract value, at time of award $ _____
Final invoiced amount (or amount invoiced to date): $ _____

Relevant dates
Date of contract: _____
Date work began: _____
Completion date, initial: _____
Completion date, actual: _____

Points of contact
English-speaking technical point of contact for the project owner
Name and title _____
Email address _____
Phone number _____

English-speaking technical point of contact for the project owner
Name and title _____
Email address _____
Phone number _____

Description of construction contract work

- Describe detailed nature and scope of work.
- Detail how the project demonstrates experience requirements in Section 00113, Paragraph 4.1.1.1.
- Also include an explanation of any performance problems or other conflicts with the customer. (Offerors will be evaluated for the ability to provide timely, complete work; be certain to explain any differences between the initial and actual completion dates above.)
- Use continuation sheet for additional information, if necessary.

_____
_____
_____
_____
_____
_____
_____
_____

Current status of the project (check one)

___ Work continuing, on schedule
___ Work continuing, behind schedule
___ Work completed, no further action pending
___ Work completed, routine administrative action pending
___ Work completed, claims negotiation pending/underway
___ Work completed, litigation pending/underway
___ Terminated for convenience
___ Terminated for default
___ Other (Explain, use additional sheets as necessary)

_____
_____
_____
_____

Appendix A, Form A2. PERSONNEL RESUME / EXPERIENCE FORM

NOTE

- Key personnel resumes shall not exceed two pages per key personnel
- Attach separate documentation of full time employment or letter of intent
- Attach separate documentation of college degree (photocopy, transcript, etc)

Name: _____

Title: _____

Name of your firm: _____

Number of years with this firm _____

Number of years with other firms _____

Number of years in field of work _____

Education

Degree(s) _____

Year(s) awarded _____

Specialization: _____

Registration/Accreditation

◯ YES No. _____ Country/State _____Year _____

◯ NO

*Note: If the HOR country does not possess a professional registration practice, the key personnel resume must demonstrate a minimum of **15 years** of relevant experience for Senior Civil Engineer and Structural Engineer.

Your assignment on this project _____

_____

Experience and qualifications relevant to this project

Include a POC with phone number for the two most recent projects described:

PROJECT #1

Project name and location: _____

General scope of project: _____

_____

_____

Your role in the project and a description of the duties you performed: _____

_____

_____

POC for reference (name and phone number):
Name: _____
Telephone Number: _____

PROJECT #2
Project name and location: _____
General scope of project: _____

_____

_____

Your role in the project and a description of the duties you performed: _____

_____

_____

POC for reference (name and phone number):
Name: _____
Telephone Number: _____

PROJECT #3
Project name and location: _____
General scope of project: _____

_____

_____

Your role in the project and a description of the duties you performed: _____

_____

_____

POC for reference (name and phone number):
Name: _____
Telephone Number: _____

PROJECT #4
Project name and location: _____
General scope of project: _____

_____

_____

Your role in the project and a description of the duties you performed: _____

_____

_____

POC for reference (name and phone number):
Name: _____
Telephone Number: _____

Appendix A, Form A3, PAST PERFORMANCE QUESTIONNAIRE

- *Part I of this form is to be completed by the Offeror*
- *Part II of this form is to be completed by a POC, Point of Contact (respondent)*

Notation to the Point of Contact:
Please provide your candid responses. The information that you provide will be used in the awarding of federal contracts. Therefore, it is important that your information be as factual, accurate and complete as possible to preclude the need for follow up by the evaluators. If you do not have knowledge of or experience with the company in question, please forward this questionnaire to the person who does.

Return Information
Please return this completed performance questionnaire prior to the solicitation due date via email to raymond.r.greenheck@usace.army.mil with a courtesy copy to tas.contracting@usace.army.mil.

PART I (Part I is to be completed by the Offeror)

A. Contract Identification

Contractor: _____
Company Name / Division: _____
Address: _____
_____
Contract/Project Identification/Title: _____
Contract Number: _____
Contract Type: _____
Prime Contractor Name (if different from the contractor name cited above): _____
_____
Contract Award Date: _____
Forecasted or Actual Contract Completion Date: _____
Nature of the Contractual Effort: _____

B. Identification of Offeror's Representative

Name: _____
Title: _____
Date: _____
Telephone number: _____
Fax number: _____
Email address: _____
Address: _____
_____

PART II – Evaluation (Part II is to be completed by Point of Contact - Respondent)

A. Compliance of products, services, documents, and related deliverables to specification requirements and standards of good workmanship

Select one:

- ◯ Exceeds contractual requirements (explanation must be provided in comments field below)
- ◯ Meets contractual requirements
- ◯ Failed to meet contractual requirements (explanation must be provided in comments field below)

Comments

_____
_____
_____
_____

B. Effectiveness of project management (to include use ad control of subcontractors)

Select one:

- ◯ Exceptional (explanation must be provided in comments field below)
- ◯ Satisfactory
- ◯ Unsatisfactory (explanation must be provided in comments field below)

Comments

_____
_____
_____
_____

C. Timeliness of performance for services and product deliverables

Select one:

- ◯ Exceeds contractual requirements (explanation must be provided in comments field below)
- ◯ Meets contractual requirements
- ◯ Failed to meet contractual requirements (explanation must be provided in comments field below)

Comments

_____
_____
_____

D. Effectiveness in forecasting and controlling project cost

Select one:

- ◯ Exceptional (explanation must be provided in comments field below)
- ◯ Satisfactory
- ◯ Unsatisfactory (explanation must be provided in comments field below)

Comments

_____
_____

_____
_____

E. Commitment to customer satisfaction and businesslike concern for its customers' interests

Select one:

- ◯ Exceptional (explanation must be provided in comments field below)
- ◯ Satisfactory
- ◯ Unsatisfactory (explanation must be provided in comments field below)

Comments

_____
_____
_____
_____

F. Overall satisfaction

Select one:

- ◯ Exceptional (explanation must be provided in comments field below)
- ◯ Satisfactory
- ◯ Unsatisfactory (explanation must be provided in comments field below)

Comments

_____
_____
_____
_____

G. General comments; provide any other relevant performance information

Comments

_____
_____
_____
_____
_____
_____

H. Other information sources; please provide the following information

Are you aware of other relevant past efforts by this company?

- ◯ Yes
- ◯ No

If yes, please provide the name and telephone number of appoint of contact.

Name _____

Telephone number _____

I. Respondent identification – please provide the following information:

Respondent's name: _____
Respondent's organization:_____
Respondent's title:_____
Telephone number: _____
Fax number: _____
Email:_____
Address: _____
_____

Section 00600 - Representations & Certifications

CLAUSES INCORPORATED BY FULL TEXT

52.203-2 CERTIFICATE OF INDEPENDENT PRICE DETERMINATION (APR 1985)

(a) The offeror certifies that --

(1) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other offeror or competitor relating to –

(i) Those prices,

(ii) The intention to submit an offer, or

(iii) The methods of factors used to calculate the prices offered:

(2) The prices in this offer have not been and will not be knowingly disclosed by the offeror, directly or indirectly, to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(b) Each signature on the offer is considered to be a certification by the signatory that the signatory --

(1) Is the person in the offeror's organization responsible for determining the prices offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provison _____ (insert full name of person(s) in the offeror's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the offeror's organization);

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision.

(c) If the offeror deletes or modifies subparagraph (a)(2) of this provision, the offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

(End of clause)

CLAUSES INCORPORATED BY FULL TEXT

52.203-11 CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (SEP 2007)

(a) Definitions. As used in this provision--``Lobbying contact'' has the meaning provided at 2 U.S.C. 1602(8). The terms ``agency,'' ``influencing or attempting to influence,'' ``officer or employee of an agency,'' ``person,'' ``reasonable compensation,'' and ``regularly employed'' are defined in the FAR clause of this solicitation entitled ``Limitation on Payments to Influence Certain Federal Transactions'' (52.203-12).

(b) Prohibition. The prohibition and exceptions contained in the FAR clause of this solicitation entitled ``Limitation on Payments to Influence Certain Federal Transactions'' (52.203-12) are hereby incorporated by reference in this provision.

(c) Certification. The offeror, by signing its offer, hereby certifies to the best of its knowledge and belief that no Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on its behalf in connection with the awarding of this contract.

(d) Disclosure. If any registrants under the Lobbying Disclosure Act of 1995 have made a lobbying contact on behalf of the offeror with respect to this contract, the offeror shall complete and submit, with its offer, OMB Standard Form LLL, Disclosure of Lobbying Activities, to provide the name of the registrants. The offeror need not report regularly employed officers or employees of the offeror to whom payments of reasonable compensation were made.

(e) Penalty. Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by 31 U.S.C. 1352. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure required to be filed or amended by this provision, shall be subject to a civil penalty of not less than $10,000, and not more than $100,000, for each such failure.

(End of provision)

CLAUSES INCORPORATED BY FULL TEXT

52.209-5 CERTIFICATION REGARDING RESPONSIBILITY MATTERS (APR 2010)

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that-

(i) The Offeror and/or any of its Principals-

(A) Are ( ) are not ( ) presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have ( ) have not ( ), within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) contract or subcontract; violation of Federal or State antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating Federal criminal tax laws, or receiving stolen property (if offeror checks “have”, the offeror shall also see 52.209-7, if included in this solicitation); and

(C) Are ( ) are not ( ) presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in paragraph (a)(1)(i)(B) of this provision.; and

(D) Have [ballot], have not [ballot], within a three-year period preceding this offer, been notified of any delinquent Federal taxes in an amount that exceeds $3,000 for which the liability remains unsatisfied.

(1) Federal taxes are considered delinquent if both of the following criteria apply:

(i) The tax liability is finally determined. The liability is finally determined if it has been assessed. A liability is not finally determined if there is a pending administrative or judicial challenge. In the case of a judicial challenge to the liability, the liability is not finally determined until all judicial appeal rights have been exhausted.

(ii) The taxpayer is delinquent in making payment. A taxpayer is delinquent if the taxpayer has failed to pay the tax liability when full payment was due and required. A taxpayer is not delinquent in cases where enforced collection action is precluded.

(2) Examples. (i) The taxpayer has received a statutory notice of deficiency, under I.R.C. Sec. 6212, which entitles the taxpayer to seek Tax Court review of a proposed tax deficiency. This is not a delinquent tax because it is not a final tax liability. Should the taxpayer seek Tax Court review, this will not be a final tax liability until the taxpayer has exercised all judicial appeal rights.

(ii) The IRS has filed a notice of Federal tax lien with respect to an assessed tax liability, and the taxpayer has been issued a notice under I.R.C. Sec. 6320 entitling the taxpayer to request a hearing with the IRS Office of Appeals contesting the lien filing, and to further appeal to the Tax Court if the IRS determines to sustain the lien filing. In the course of the hearing, the taxpayer is entitled to contest the underlying tax liability because the taxpayer has had no prior opportunity to contest the liability. This is not a delinquent tax because it is not a final tax liability. Should the taxpayer seek tax court review, this will not be a final tax liability until the taxpayer has exercised all judicial appeal rights.

(iii) The taxpayer has entered into an installment agreement pursuant to I.R.C. Sec. 6159. The taxpayer is making timely payments and is in full compliance with the agreement terms. The taxpayer is not delinquent because the taxpayer is not currently required to make full payment.

(iv) The taxpayer has filed for bankruptcy protection. The taxpayer is not delinquent because enforced collection action is stayed under 11 U.S.C. 362 (the Bankruptcy Code).

(ii) The Offeror has ( ) has not ( ), within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) Principal, for the purposes of this certification, means an officer, director, owner, partner, or a person having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a division or business segment; and similar positions).

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of provision)

CLAUSES INCORPORATED BY FULL TEXT

52.209-7 INFORMATION REGARDING RESPONSIBILITY MATTERS (JAN 2011)

(a) Definitions. As used in this provision--

Administrative proceeding means a non-judicial process that is adjudicatory in nature in order to make a determination of fault or liability (e.g., Securities and Exchange Commission Administrative Proceedings, Civilian Board of Contract Appeals Proceedings, and Armed Services Board of Contract Appeals Proceedings). This includes administrative proceedings at the Federal and State level but only in connection with performance of a Federal contract or grant. It does not include agency actions such as contract audits, site visits, corrective plans, or inspection of deliverables.

Federal contracts and grants with total value greater than $10,000,000 means--

(1) The total value of all current, active contracts and grants, including all priced options; and

(2) The total value of all current, active orders including all priced options under indefinite-delivery, indefinite-quantity, 8(a), or requirements contracts (including task and delivery and multiple-award Schedules).

Principal means an officer, director, owner, partner, or a person having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a division or business segment; and similar positions).

(b) The offeror ( ) has ( ) does not have current active Federal contracts and grants with total value greater than $10,000,000.

(c) If the offeror checked “has” in paragraph (b) of this provision, the offeror represents, by submission of this offer, that the information it has entered in the Federal Awardee Performance and Integrity Information System (FAPIIS) is current, accurate, and complete as of the date of submission of this offer with regard to the following information:

(1) Whether the offeror, and/or any of its principals, has or has not, within the last five years, in connection with the award to or performance by the offeror of a Federal contract or grant, been the subject of a proceeding, at the Federal or State level that resulted in any of the following dispositions:

(i) In a criminal proceeding, a conviction.

(ii) In a civil proceeding, a finding of fault and liability that results in the payment of a monetary fine, penalty, reimbursement, restitution, or damages of $5,000 or more.

(iii) In an administrative proceeding, a finding of fault and liability that results in--

(A) The payment of a monetary fine or penalty of $5,000 or more; or

(B) The payment of a reimbursement, restitution, or damages in excess of $100,000.

(iv) In a criminal, civil, or administrative proceeding, a disposition of the matter by consent or compromise with an acknowledgment of fault by the Contractor if the proceeding could have led to any of the outcomes specified in paragraphs (c)(1)(i), (c)(1)(ii), or (c)(1)(iii) of this provision.

(2) If the offeror has been involved in the last five years in any of the occurrences listed in (c)(1) of this provision, whether the offeror has provided the requested information with regard to each occurrence.

(d) The offeror shall post the information in paragraphs (c)(1)(i) through (c)(1)(iv) of this provision in FAPIIS as required through maintaining an active registration in the Central Contractor Registration database at http://www.ccr.gov (see 52.204-7).

(End of provision)

CLAUSES INCORPORATED BY FULL TEXT

52.222-22 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FEB 1999)

The offeror represents that --

(a) ( ) It has, ( ) has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;

(b) ( ) It has, ( ) has not, filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of provision)

CLAUSES INCORPORATED BY FULL TEXT

52.222-38 COMPLIANCE WITH VETERANS' EMPLOYMENT REPORTING REQUIREMENTS (SEP 2010)

By submission of its offer, the offeror represents that, if it is subject to the reporting requirements of 38 U.S.C. 4212(d) (i.e., if it has any contract containing Federal Acquisition Regulation clause 52.222-37, Employment Reports on Veterans), it has submitted the most recent VETS-100A Report required by that clause.

(End of provision)

CLAUSES INCORPORATED BY FULL TEXT

52.225-20 PROHIBITION ON CONDUCTING RESTRICTED BUSINESS OPERATIONS IN SUDAN--CERTIFICATION (AUG 2009)

(a) Definitions. As used in this provision--

Business operations means engaging in commerce in any form, including by acquiring, developing, maintaining, owning, selling, possessing, leasing, or operating equipment, facilities, personnel, products, services, personal property, real property, or any other apparatus of business or commerce.

Marginalized populations of Sudan means--

(1) Adversely affected groups in regions authorized to receive assistance under section 8(c) of the Darfur Peace and Accountability Act (Pub. L. 109-344) (50 U.S.C. 1701 note); and

(2) Marginalized areas in Northern Sudan described in section 4(9) of such Act.

Restricted business operations means business operations in Sudan that include power production activities, mineral extraction activities, oil-related activities, or the production of military equipment, as those terms are defined in the Sudan Accountability and Divestment Act of 2007 (Pub. L. 110-174). Restricted business operations do not include business operations that the person (as that term is defined in Section 2 of the Sudan Accountability and Divestment Act of 2007) conducting the business can demonstrate--

(1) Are conducted under contract directly and exclusively with the regional government of southern Sudan;

(2) Are conducted pursuant to specific authorization from the Office of Foreign Assets Control in the Department of the Treasury, or are expressly exempted under Federal law from the requirement to be conducted under such authorization;

(3) Consist of providing goods or services to marginalized populations of Sudan;

(4) Consist of providing goods or services to an internationally recognized peacekeeping force or humanitarian organization;

(5) Consist of providing goods or services that are used only to promote health or education; or

(6) Have been voluntarily suspended.

(b) Certification. By submission of its offer, the offeror certifies that the offeror does not conduct any restricted business operations in Sudan.

(End of provision)

CLAUSES INCORPORATED BY FULL TEXT

52.225-25 PROHIBITION ON ENGAGING IN SANCTIONED ACTIVITIES RELATING TO IRAN--CERTIFICATION (SEP 2010)

(a) Definition.

Person--

(1) Means--

(i) A natural person;

(ii) A corporation, business association, partnership, society, trust, financial institution, insurer, underwriter, guarantor, and any other business organization, any other nongovernmental entity, organization, or group, and any governmental entity operating as a business enterprise; and

(iii) Any successor to any entity described in paragraph (1)(ii) of this definition; and

(2) Does not include a government or governmental entity that is not operating as a business enterprise.

(b) Certification. Except as provided in paragraph (c) of this provision or if a waiver has been granted in accordance with FAR 25.703-2(d), by submission of its offer, the offeror certifies that the offeror, or any person owned or controlled by the offeror, does not engage in any activities for which sanctions may be imposed under section 5 of the Iran Sanctions Act of 1996. These sanctioned activities are in the areas of development of the petroleum resources of Iran, production of refined petroleum products in Iran, sale and provision of refined petroleum products to Iran, and contributing to Iran's ability to acquire or develop certain weapons.

(c) Exception for trade agreements. The certification requirement of paragraph (b) of this provision does not apply if--

(1) This solicitation includes a trade agreements certification (e.g., 52.225-4, 52.225-11 or comparable agency provision); and

(2) The offeror has certified that all the offered products to be supplied are designated country end products or designated country construction material.

(End of provision)

CLAUSES INCORPORATED BY FULL TEXT

252.209-7001 DISCLOSURE OF OWNERSHIP OR CONTROL BY THE GOVERNMENT OF A TERRORIST COUNTRY (JAN 2009)

(a) "Definitions."

As used in this provision --

(a) "Government of a terrorist country" includes the state and the government of a terrorist country, as well as any political subdivision, agency, or instrumentality thereof.

(2) "Terrorist country" means a country determined by the Secretary of State, under section 6(j)(1)(A) of the Export Administration Act of 1979 (50 U.S.C. App. 2405(j)(i)(A)), to be a country the government of which has repeatedly provided support for such acts of international terrorism. As of the date of this provision, terrorist countries subject to this provision include: Cuba, Iran, Sudan, and Syria.

(3) "Significant interest" means --

(i) Ownership of or beneficial interest in 5 percent or more of the firm's or subsidiary's securities. Beneficial interest includes holding 5 percent or more of any class of the firm's securities in "nominee shares," "street names," or some other method of holding securities that does not disclose the beneficial owner;

(ii) Holding a management position in the firm, such as a director or officer;

(iii) Ability to control or influence the election, appointment, or tenure of directors or officers in the firm;

(iv) Ownership of 10 percent or more of the assets of a firm such as equipment, buildings, real estate, or other tangible assets of the firm; or

(v) Holding 50 percent or more of the indebtness of a firm.

(b) "Prohibition on award."

In accordance with 10 U.S.C. 2327, no contract may be awarded to a firm or a subsidiary of a firm if the government of a terrorist country has a significant interest in the firm or subsidiary or, in the case of a subsidiary, the firm that owns the subsidiary, unless a waiver is granted by the Secretary of Defense.

(c) "Disclosure."

If the government of a terrorist country has a significant interest in the Offeror or a subsidiary of the Offeror, the Offeror shall disclosure such interest in an attachment to its offer. If the Offeror is a subsidiary, it shall also disclose any significant interest the government of a terrorist country has in any firm that owns or controls the subsidiary. The disclosure shall include --

(1) Identification of each government holding a significant interest; and

(2) A description of the significant interest held by each government.

(End of provision)

252.225-7031 SECONDARY ARAB BOYCOTT OF ISRAEL (JUN 2005)

(a) Definitions. As used in this provision--

(1) Foreign person means any person (including any individual, partnership, corporation, or other form of association) other than a United States person.

(2) United States means the 50 States, the District of Columbia, outlying areas, and the outer Continental Shelf as defined in 43 U.S.C. 1331.

(3) United States person is defined in 50 U.S.C. App. 2415(2) and means--

(i) Any United States resident or national (other than an individual resident outside the United States who is employed by other than a United States person);

(ii) Any domestic concern (including any permanent domestic establishment of any foreign concern); and

(iii) Any foreign subsidiary or affiliate (including any permanent foreign establishment) of any domestic concern that is controlled in fact by such domestic concern.

(b) Certification. If the offeror is a foreign person, the offeror certifies, by submission of an offer, that it--

(1) Does not comply with the Secondary Arab Boycott of Israel; and

(2) Is not taking or knowingly agreeing to take any action, with respect to the Secondary Boycott of Israel by Arab countries, which 50 U.S.C. App. 2407(a) prohibits a United States person from taking.

(End of provision)

252.225-7042 AUTHORIZATION TO PERFORM (APR 2003)

The offeror represents that it has been duly authorized to operate and to do business in the country or countries in which the contract is to be performed.

(End of provision)

252.247-7022 REPRESENTATION OF EXTENT OF TRANSPORTATION BY SEA (AUG 1992)

(a) The Offeror shall indicate by checking the appropriate blank in paragraph (b) of this provision whether transportation of supplies by sea is anticipated under the resultant contract. The term supplies is defined in the Transportation of Supplies by Sea clause of this solicitation.

(b) Representation. The Offeror represents that it:

____ (1) Does anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

____ (2) Does not anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

(c) Any contract resulting from this solicitation will include the Transportation of Supplies by Sea clause. If the Offeror represents that it will not use ocean transportation, the resulting contract will also include the Defense FAR Supplement clause at 252.247-7024, Notification of Transportation of Supplies by Sea.

(End of provision)

DBA INSURANCE

DEFENSE BASE ACT INSURANCE RATES – LIMITATION – FIXED-PRICE (APRIL 2011)

(a) The U.S. Army Corps of Engineers (USACE) has entered into a contract with **CNA Insurance** to provide all Defense Base Act (DBA) insurance to USACE, C-3 and the 408th CSB contractors and subcontractors at a contracted fixed rate. The fixed rates for this insurance are as follows:

Service	$3.50	per $100 of employee remuneration
Construction	$4.25	per $100 of employee remuneration
Security	$10.00	per $100 of employee remuneration
Aviation	$17.00	per $100 of employee remuneration

(b) Bidders/Offerors should **compute the total compensation or total payroll**, (salary, plus overseas recruitment incentive and post differential, but ***excludes*** per diem, housing allowance, travel expenses, temporary quarters allowance, education allowance and other miscellaneous post allowances to include fee or profit) to be paid to employees who will be covered by DBA insurance. Compute the cost of DBA Insurance by utilizing the spaces provided below for the base period and whatever extension there may be thereafter, if applicable.

(1) Compensation of Covered Employees: _____

(Total Payroll Not Total Contract Value) Ex: If total Payroll is $100,000.00

(2) Applicable DBA Rate: _____
(Use appropriate Rate) Ex: If a Service, the rate is $3.50/$100 or 3.5%

(3) Total DBA Cost: _____
(Amount of DBA Premium) Ex: $100 K multiplied by 3% is $3,000.00

(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 Rutherfoord International as their managing Broker. The primary POC is the USACE DBA Program Administrator is Nikki Houngmany, (703) 813-6571 usace@rutherfoord.com. The alternate POC is Sara Payne, Senior Vice President, (703) 813-6503 sara.payne@rutherfoord.com.

(e) Labor Category/Job Classification Definitions:

SERVICE: White-collar" workers providing IT, engineering/consulting services, and restaurant services. Security consultants are included in this category if they are only providing risk assessment services and no form of armed protection.

CONSTRUCTION: "Blue-collar" workers providing services such as carpentry, electrical, plumbing, mechanical, concrete/asphalt, de-mining, roofing, landscaping, janitorial, trash removal, Port-a-John/septic cleaning, pest exterminating, auto repair/dismantling, drivers/couriers, and heavy equipment operation and maintenance. Construction site supervisors/managers and life support service providers are included in this category as well as all Unskilled and Manual Labor Day Laborers. ** Most work will fall into this category**

SECURITY: Personal Security Detail (PSD) and Static or Convoy Guarding of property or personnel.

AVIATION: Pilot and Crew of any aircraft excluding ground personnel who provide maintenance or services and stay on the ground.

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
52.203-7	Anti-Kickback Procedures	OCT 2010
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	OCT 2010
52.204-10	Reporting Executive Compensation and First-Tier Subcontract Awards	JUL 2010
52.215-2	Audit and Records--Negotiation	OCT 2010
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
52.222-29	Notification Of Visa Denial	JUN 2003
52.222-35	Equal Opportunity for Veterans	SEP 2010
52.222-37	Employment Reports on Veterans	SEP 2010
52.222-50	Combating Trafficking in Persons	FEB 2009
52.225-13	Restrictions on Certain Foreign Purchases	JUN 2008
52.225-14	Inconsistency Between English Version And Translation Of Contract	FEB 2000
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	OCT 2010
52.232-27	Prompt Payment for Construction Contracts	OCT 2008
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
52.236-2	Differing Site Conditions	APR 1984
52.236-3	Site Investigation and Conditions Affecting the Work	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
52.236-15	Schedules for Construction Contracts	APR 1984
52.236-17	Layout of Work	APR 1984
52.236-21	Specifications and Drawings for Construction	FEB 1997
52.236-26	Preconstruction Conference	FEB 1995
52.242-13	Bankruptcy	JUL 1995
52.244-6	Subcontracts for Commercial Items	DEC 2010
52.245-1	Government Property	AUG 2010
52.245-9	Use And Charges	AUG 2010
52.246-21	Warranty of Construction	MAR 1994

52.248-3	Value Engineering-Construction	OCT 2010
52.249-2 Alt I	Termination for Convenience of the Government (Fixed-Price) (May 2004) - Alternate I	SEP 1996
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
252.203-7000	Requirements Relating to Compensation of Former DoD Officials	JAN 2009
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	DEC 2008
252.203-7002	Requirement to Inform Employees of Whistleblower Rights	JAN 2009
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.205-7000	Provision Of Information To Cooperative Agreement Holders	DEC 1991
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	DEC 2006
252.222-7002	Compliance With Local Labor Laws (Overseas)	JUN 1997
252.225-7005	Identification Of Expenditures In The United States	JUN 2005
252.225-7041	Correspondence in English	JUN 1997
252.229-7000	Invoices Exclusive of Taxes or Duties	JUN 1997
252.232-7003	Electronic Submission of Payment Requests and Receiving Reports	MAR 2008
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
252.243-7001	Pricing Of Contract Modifications	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

52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT (DEC 2010)

(a) Definition. Commercially available off-the-shelf (COTS) item, as used in this clause--

(1) Means any item of supply (including construction material) that is--

(i) A commercial item (as defined in paragraph (1) of the definition in FAR 2.101);

(ii) Sold in substantial quantities in the commercial marketplace; and

(iii) Offered to the Government, under a contract or subcontract at any tier, without modification, in the same form in which it is sold in the commercial marketplace; and

(2) Does not include bulk cargo, as defined in section 3 of the Shipping Act of 1984 (46 U.S.C. App. 1702), such as agricultural products and petroleum products.

(b) The Government suspends or debars Contractors to protect the Government's interests. Other than a subcontract for a commercially available off-the-shelf item, the Contractor shall not enter into any subcontract, in excess of

$30,000 with a Contractor that is debarred, suspended, or proposed for debarment by any executive agency unless there is a compelling reason to do so.

(c) The Contractor shall require each proposed subcontractor whose subcontract will exceed $30,000, other than a subcontractor providing a commercially available off-the-shelf item, to disclose to the Contractor, in writing, whether as of the time of award of the subcontract, the subcontractor, or its principals, is or is not debarred, suspended, or proposed for debarment by the Federal Government.

(d) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party (other than a subcontractor providing a commercially available off-the-shelf item) that is debarred, suspended, or proposed for debarment (see FAR 9.404 for information on the Excluded Parties List System). The notice must include the following:

(e) Subcontracts. Unless this is a contract for the acquisition of commercial items, the Contractor shall include the requirements of this clause, including this paragraph (e) (appropriately modified for the identification of the parties), in each subcontract that--

(1) Exceeds $30,000 in value; and

(2) Is not a subcontract for commercially available off-the-shelf items.

(End of clause)

52.209-9 Updates of Publicly Available Information Regarding Responsibility Matters (JAN 2011)
(a) The Contractor shall update the information in the Federal Awardee Performance and Integrity Information System (FAPIIS) on a semi-annual basis, throughout the life of the contract, by posting the required information in the Central Contractor Registration database at http://www.ccr.gov.

(b)(1) The Contractor will receive notification when the Government posts new information to the Contractor's record.

(2) The Contractor will have an opportunity to post comments regarding information that has been posted by the Government. The comments will be retained as long as the associated information is retained, i.e., for a total period of 6 years. Contractor comments will remain a part of the record unless the Contractor revises them.

(3)(i) Public requests for system information posted prior to April 15, 2011, will be handled under Freedom of Information Act procedures, including, where appropriate, procedures promulgated under E.O. 12600.

(ii) As required by section 3010 of Public Law 111-212, all information posted in FAPIIS on or after April 15, 2011, except past performance reviews, will be publicly available.

(End of clause)

52.232-34 PAYMENT BY ELECTRONIC FUNDS TRANSFER—OTHER THAN CENTRAL CONTRACTOR REGISTRATION (MAY 1999)

(a) Method of payment. (1) All payments by the Government under this contract shall be made by electronic funds transfer (EFT) except as provided in paragraph (a)(2) of this clause. As used in this clause, the term “EFT” refers to the funds transfer and may also include the payment information transfer.

(2) In the event the Government is unable to release one or more payments by EFT, the Contractor agrees to either--

(i) Accept payment by check or some other mutually agreeable method of payment; or

(ii) Request the Government to extend payment due dates until such time as the Government makes payment by EFT (but see paragraph (d) of this clause).

(b) Mandatory submission of Contractor's EFT information. (1) The Contractor is required to provide the Government with the information required to make payment by EFT (see paragraph (j) of this clause). The Contractor shall provide this information directly to the office designated in this contract to receive that information **no later than 15 days prior to submission of the first request for payment**. If not otherwise specified in this contract, the payment office is the designated office for receipt of the Contractor's EFT information. If more than one designated office is named for the contract, the Contractor shall provide a separate notice to each office. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the designated office(s).

(2) If the Contractor provides EFT information applicable to multiple contracts, the Contractor shall specifically state the applicability of this EFT information in terms acceptable to the designated office. However, EFT information supplied to a designated office shall be applicable only to contracts that identify that designated office as the office to receive EFT information for that contract.

(c) Mechanisms for EFT payment. The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated Clearing House Association, or the Fedwire Transfer System. The rules governing Federal payments through the ACH are contained in 31 CFR part 210.

(d) Suspension of payment. (1) The Government is not required to make any payment under this contract until after receipt, by the designated office, of the correct EFT payment information from the Contractor. Until receipt of the correct EFT information, any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

(2) If the EFT information changes after submission of correct EFT information, the Government shall begin using the changed EFT information no later than 30 days after its receipt by the designated office to the extent payment is made by EFT. However, the Contractor may request that no further payments be made until the updated EFT information is implemented by the payment office. If such suspension would result in a late payment under the prompt payment terms of this contract, the Contractor's request for suspension shall extend the due date for payment by the number of days of the suspension.

(e) Liability for uncompleted or erroneous transfers. (1) If an uncompleted or erroneous transfer occurs because the Government used the Contractor's EFT information incorrectly, the Government remains responsible for--

(i) Making a correct payment;

(ii) Paying any prompt payment penalty due; and

(iii) Recovering any erroneously directed funds.

(2) If an uncompleted or erroneous transfer occurs because the Contractor's EFT information was incorrect, or was revised within 30 days of Government release of the EFT payment transaction instruction to the Federal Reserve System, and--

(i) If the funds are no longer under the control of the payment office, the Government is deemed to have made payment and the Contractor is responsible for recovery of any erroneously directed funds; or

(ii) If the funds remain under the control of the payment office, the Government shall not make payment and the provisions of paragraph (d) shall apply.

(f) EFT and prompt payment. A payment shall be deemed to have been made in a timely manner in accordance with the prompt payment terms of this contract if, in the EFT payment transaction instruction released to the Federal Reserve System, the date specified for settlement of the payment is on or before the prompt payment due date, provided the specified payment date is a valid date under the rules of the Federal Reserve System.

(g) EFT and assignment of claims. If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee shall provide the EFT information required by paragraph (j) of this clause to the designated office, and shall be paid by EFT in accordance with the terms of this clause. In all respects, the requirements of this clause shall apply to the assignee as if it were the Contractor. EFT information that shows the ultimate recipient of the transfer to be other than the Contractor, in the absence of a proper assignment of claims acceptable to the Government, is incorrect EFT information within the meaning of paragraph (d) of this clause.

(h) Liability for change of EFT information by financial agent. The Government is not liable for errors resulting from changes to EFT information provided by the Contractor's financial agent.

(i) Payment information. The payment or disbursing office shall forward to the Contractor available payment information that is suitable for transmission as of the date of release of the EFT instruction to the Federal Reserve System. The Government may request the Contractor to designate a desired format and method(s) for delivery of payment information from a list of formats and methods the payment office is capable of executing. However, the Government does not guarantee that any particular format or method of delivery is available at any particular payment office and retains the latitude to use the format and delivery method most convenient to the Government. If the Government makes payment by check in accordance with paragraph (a) of this clause, the Government shall mail the payment information to the remittance address in the contract.

(j) EFT information. The Contractor shall provide the following information to the designated office. The Contractor may supply this data for this or multiple contracts (see paragraph (b) of this clause). The Contractor shall designate a single financial agent per contract capable of receiving and processing the EFT information using the EFT methods described in paragraph (c) of this clause.

(1) The contract number (or other procurement identification number).

(2) The Contractor's name and remittance address, as stated in the contract(s).

(3) The signature (manual or electronic, as appropriate), title, and telephone number of the Contractor official authorized to provide this information.

(4) The name, address, and 9-digit Routing Transit Number of the Contractor's financial agent.

(5) The Contractor's account number and the type of account (checking, saving, or lockbox).

(6) If applicable, the Fedwire Transfer System telegraphic abbreviation of the Contractor's financial agent.

(7) If applicable, the Contractor shall also provide the name, address, telegraphic abbreviation, and 9-digit Routing Transit Number of the correspondent financial institution receiving the wire transfer payment if the Contractor's financial agent is not directly on-line to the Fedwire Transfer System; and, therefore, not the receiver of the wire transfer payment.

(End of clause)

52.236-1 PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984)

The Contractor shall perform on the site, and with its own organization, work equivalent to at least Twelve (12%) percent of the total amount of work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.

(End of clause)

52.236-4 PHYSICAL DATA (APR 1984)

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

(a) The indications of physical conditions on the drawings and in the specifications are not the result of site investigations by the US Government. The contractor cannot rely upon indications of physical conditions on the drawings and in the specifications. Any comments are of a general nature and not site specific. Contractors must rely upon their own assessment of site conditions.

(b) Weather conditions are potentially difficult. Afghanistan is situated in the interior of Asia, lying on the Iranian Plateau. It is a country land-locked on all sides and surrounded by the rough and rugged Hindu Kush Mountains. Afghanistan has the typical arid to semi-arid climate of the Russian Steppes. Weather in Afghanistan is characterized by dry hot cloudless summers and severe winters. The areas lying in the northeastern part of the mountains experience sub-arctic conditions having dry, cold winters.

The Afghanistan weather is marked by great variance in temperatures from region to region. It is accompanied by huge differences in day and night temperatures and summer and winter temperatures. The drought-ridden regions of the southwestern plateau experience daytime temperatures of 35 degree Celsius. Jalalabad is among the hottest places in the country recording the maximum temperature of 49 degree Celsius in the month of July. January temperatures fall to -15°C or below in regions situated at high altitudes in the mountains.

There is a rise in the mean precipitation as one goes from the western side to the eastern side of the mountains, the average being 400mm in the southeastern monsoon areas. Mostly, the precipitation takes place from December to April. Highlands experience snowfall during December-March and the lowlands experience intermittent rainfall from December to May.

Kabul Weather: Kabul is situated at a height of 5900 feet above sea level. Kabul weather is characterized by summer temperatures varying from 16° C at sunrise to 38° C at noon. The average temperature in January is 0°C. Kabul has recorded the lowest temperature of -31 °C. Summers are accompanied with bright sunshine. The average rainfall varies from 25 cm to 30cm. Mostly the precipitation occurs in the form of snow in the winter and spring seasons.

The snow stays for three months in Kabul forcing the people to stay indoors and sleep nearer to the kitchen stoves.

Bagram Weather, Kandahar Weather, Herat Weather: At Kandahar, during summer the days are scorching hot and the nights are of no relief either. On the other hand Kabul is at least blessed with cool nights in summer. Herat experiences temperate summer temperatures with violent winds blowing from the northwest during May-September. The winters in Herat are not so severe with snow melting as it falls.

(c) Transportation facilities are limited and austere. Contractors must make their own determination of their transportation requirements. The US Government makes no guarantees regarding the availability of transportation facilities, which includes normal ground and air transportation.

(End of clause)

52.236-13 ACCIDENT PREVENTION (NOV 1991)

(a) The Contractor shall provide and maintain work environments and procedures which will

(1) safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to Contractor operations and activities;

(2) avoid interruptions of Government operations and delays in project completion dates; and

(3) control costs in the performance of this contract.

(b) For these purposes on contracts for construction or dismantling, demolition, or removal of improvements, the Contractor shall-

(1) Provide appropriate safety barricades, signs, and signal lights;

(2) Comply with the standards issued by the Secretary of Labor at 29 CFR Part 1926 and 29 CFR Part 1910; and

(3) Ensure that any additional measures the Contracting Officer determines to be reasonably necessary for the purposes are taken.

(c) If this contract is for construction or dismantling, demolition or removal of improvements with any Department of Defense agency or component, the Contractor shall comply with all pertinent provisions of the latest version of U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation.

(d) Whenever the Contracting Officer becomes aware of any noncompliance with these requirements or any condition which poses a serious or imminent danger to the health or safety of the public or Government personnel, the Contracting Officer shall notify the Contractor orally, with written confirmation, and request immediate initiation of corrective action. This notice, when delivered to the Contractor or the Contractor's representative at the work site, shall be deemed sufficient notice of the noncompliance and that corrective action is required. After receiving the notice, 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. The Contractor shall not be entitled to any equitable adjustment of the contract price or extension of the performance schedule on any stop work order issued under this clause.

(e) The Contractor shall insert this clause, including this paragraph (e), with appropriate changes in the designation of the parties, in subcontracts.

(End of clause)

52.243-4 CHANGES (JUN 2007)

(a) The Contracting Officer may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes--

(1) In the specifications (including drawings and designs);

(2) In the method or manner of performance of the work;

(3) In the Government-furnished property or services; or

(4) Directing acceleration in the performance of the work.

(b) Any other written or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating

(1) the date, circumstances, and source of the order and

(2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement, or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for an adjustment based on defective specifications, no adjustment for any change under paragraph (b) of this clause shall be made for any costs incurred more than 20 days before the Contractor gives written notice as required. In the case of defective specifications for which the Government is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after

(1) receipt of a written change order under paragraph (a) of this clause or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting to the Contracting Officer a written statement describing the general nature and amount of the proposal, unless this period is extended by the Government. The statement of proposal for adjustment may be included in the notice under paragraph (b) above.

(f) No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

(End of clause)

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

http://farsite.hill.af.mil/

http://acquisition.gov/comp/far/index.html

(End of clause)

52.252-6 AUTHORIZED DEVIATIONS IN CLAUSES (APR 1984)

(a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the clause.

(b) The use in this solicitation or contract of any **Defense FAR supplement (48 CFR Chapter 2**) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of clause)

252.225-7044 BALANCE OF PAYMENTS PROGRAM--CONSTRUCTION MATERIAL (OCT 2010)

(a) Definitions. As used in this clause--

Commercially available off-the-shelf (COTS) item--

(1) Means any item of supply (including construction material) that is--

(i) A commercial item (as defined in paragraph (1) of the definition of ``commercial item'' in section 2.101 of the Federal Acquisition Regulation);

(ii) Sold in substantial quantities in the commercial marketplace; and

(iii) Offered to the Government, under a contract or subcontract at any tier, without modification, in the same form in which it is sold in the commercial marketplace; and

(2) Does not include bulk cargo, as defined in section 3 of the Shipping Act of 1984 (46 U.S.C. 40102), such as agricultural products and petroleum products.

“Component” means any article, material, or supply incorporated directly into construction material.

“Construction material” means an article, material, or supply brought to the construction site by the Contractor or a subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

“Cost of components” means--

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the construction material.

“Domestic construction material” means--

(1) An unmanufactured construction material mined or produced in the United States; or

(2) A construction material manufactured in the United States, if--

(i) The cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic; or

(ii) The construction material is a COTS item.

``United States'' means the 50 States, the District of Columbia, and outlying areas.

(b) Domestic preference. This clause implements the Balance of Payments Program by providing a preference for domestic construction material. The Contractor shall use only domestic construction material in performing this contract, except for—

(1) Construction material valued at or below the simplified acquisition threshold in part 2 of the Federal Acquisition Regulation;

(2) Information technology that is a commercial item; or

(3) The construction material or components listed by the Government as follows: none

(End of clause)

252.225-7995 CONTRACTOR PERSONNEL PERFORMING IN THE UNITED STATES CENTRAL COMMAND AREA OF RESPONSIBILITY (DEVIATION 2011-O0004) (APR 2011)

(a) *Definition.* As used in this clause—

“Chief of mission” means the principal officer in charge of a diplomatic mission of the United States or of a United States office abroad which is designated by the Secretary of State as diplomatic in nature, including any individual assigned under section 502(c) of the Foreign Service Act of 1980 (Public Law 96-465) to be temporarily in charge of such a mission or office.

(b) *General.* (1) This clause applies when contractor personnel are required to perform in the United States Central Command (USCENTCOM) Area of Responsibility (AOR) and are not covered by the clause at DFARS 252.225-7040, Contractor Personnel Authorized to Accompany U.S. Armed Forces Deployed Outside the United States.

(2) Contract performance may require work in dangerous or austere conditions. Except as otherwise provided in the contract, the Contractor accepts the risks associated with required contract performance in such operations.

(3) Contractor personnel are civilians.

(i) Except as provided in paragraph (b)(3)(ii) of this clause, and in accordance with paragraph (i)(3) of this clause, contractor personnel are only authorized to use deadly force in self defense.

(ii) Contractor personnel performing security functions are also authorized to use deadly force when use of such force reasonably appears necessary to execute their security mission to protect assets/persons, consistent with the terms and conditions contained in the contract or with their job description and terms of employment.

(4) Service performed by contractor personnel subject to this clause is not active duty or service under 38 U.S.C. 106.

(c) *Support.* Unless specified elsewhere in the contract, the Contractor is responsible for all logistical and security support required for contractor personnel engaged in this contract.

(d) *Compliance with laws and regulations.* The Contractor shall comply with, and shall ensure that its personnel in the USCENTCOM AOR are familiar with and comply with, all applicable—

(1) United States, host country, and third country national laws;

(2) Treaties and international agreements;

(3) United States regulations, directives, instructions, policies, and procedures; and

(4) Force protection, security, health, or safety orders, directives, and instructions issued by the USCENTCOM Commander; however, only the Contracting Officer is authorized to modify the terms and conditions of the contract.

(e) *Preliminary personnel requirements*. (1) Specific requirements for paragraphs (e)(2)(i) through (e)(2)(vi) of this clause will be set forth in the statement of work or elsewhere in the contract.

(2) Before contractor personnel depart from the United States or a third country, and before contractor personnel residing in the host country begin contract performance in the USCENTCOM AOR, the Contractor shall ensure the following:

(i) All required security and background checks are complete and acceptable.

(ii) All personnel are medically and physically fit and have received all required vaccinations.

(iii) All personnel have all necessary passports, visas, entry permits, and other documents required for contractor personnel to enter and exit the foreign country, including those required for in-transit countries.

(iv) All personnel have received theater clearance, if required by the Combatant Commander.

(v) All personnel have received personal security training. The training must, at a minimum—

(A) Cover safety and security issues facing employees overseas;

(B) Identify safety and security contingency planning activities; and

(C) Identify ways to utilize safety and security personnel and other resources appropriately.

(vi) All personnel who are U.S. citizens are registered with the U.S. Embassy or Consulate with jurisdiction over the area of operations on-line at http://www.travel.state.gov.

(3) The Contractor shall notify all personnel who are not a local national or ordinarily resident in the host country that—

(i) Such employees, and dependents residing with such employees, who engage in conduct outside the United States that would constitute an offense punishable by imprisonment for more than one year if the conduct had been engaged in within the special maritime and territorial jurisdiction of the United States, may potentially be subject to the criminal jurisdiction of the United States (see the Military Extraterritorial Jurisdiction Act of 2000 (18 U.S.C. 3261 *et seq.*);

(ii) Pursuant to the War Crimes Act, 18 U.S.C. 2441, Federal criminal jurisdiction also extends to conduct that is determined to constitute a violation of the law of war when committed by a civilian national of the United States;

(iii) Other laws may provide for prosecution of U.S. nationals who commit offenses on the premises of United States diplomatic, consular, military, or other Government missions outside the United States (18 U.S.C. 7(9)).

(f) *Processing and departure points*. The Contractor shall require its personnel who are arriving from outside the area of performance to perform in the USCENTCOM AOR to—

(1) Process through the departure center designated in the contract or complete another process as directed by the Contracting Officer;

(2) Use a specific point of departure and transportation mode as directed by the Contracting Officer; and

(3) Process through a reception center as designated by the Contracting Officer upon arrival at the place of performance.

(g) *Registration of Contractor personnel and private security contractor equipment.*

(1) The Contractor is required to register in the automated web-based Synchronized Predeployment and Operational Tracker (SPOT) following the procedures in paragraph (g)(4) of this clause.

(2) Prior to deployment of contractor employees, or, if already in the USCENTCOM AOR, upon becoming an employee under this contract, the Contractor shall enter into SPOT, and maintain current data, including actual arrival date and departure date, for all contractor personnel, including U.S. citizens, U.S. legal aliens, third-country nationals, and local national contractor personnel, who are performing this contract in the USCENTCOM AOR as follows:

(i) In all circumstances, this includes any personnel performing private security functions.

(ii) For personnel other than those performing private security functions, this requirement excludes anyone—

(A) Hired under contracts valued less than $100,000;

(B) Who will be performing in the CENTCOM AOR less than 30 continuous days; or

(C) Who, while afloat, are tracked by the Diary message Reporting System

(3) Weapons, armored vehicles, helicopters, and other military vehicles used by personnel performing private security functions under this contract must be entered into SPOT, and the currency of such information must be maintained.

(4) Follow these steps to register in and use SPOT:

(i) SPOT registration requires one of the following login methods:

(A) A Common Access Card or a SPOT-approved digital certificate; or

(B) A Government-sponsored SPOT user ID and password or an Army Knowledge Online (AKO) account.

(ii) *To register in SPOT:*

(A) Contractor company administrators should register for a SPOT account at https://spot.altess.army.mil; and

(B) The customer support team must validate user need. This process may take two business days. Company supervisors will be contacted to validate Contractor company administrator account requests and determine the appropriate level of user access.

(iii) Upon approval, all users will access SPOT at https://spot.altess.army.mil/.

(iv) Refer SPOT application assistance questions to the Customer Support Team at 717-458-0747 or SPOT.helpdesk@us.army.mil. Refer to the SPOT Enterprise Suite Resource Center at http://www.resource.spot-es.net/ for additional training resources and documentation regarding registration for and use of SPOT.

(5) The Contractor shall submit aggregate contractor personnel counts at a minimum quarterly or as directed by the Contracting Officer by category (i.e. U.S. third country national or local national) of those contractor personnel who are on contracts valued greater than $100,000, but performing less that 30 days in the AOR (e.g. day laborers).

(6) The Contractor shall ensure that all contractor personnel in the database have a current DD Form 93, Record of Emergency Data Card, on file with both the Contractor and the designated Government official. The Contracting Officer will inform the Contractor of the Government official designated to receive the data card.

(h) *Contractor personnel*. The Contracting Officer may direct the Contractor, at its own expense, to remove and replace any contractor personnel who fail to comply with or violate applicable requirements of this contract. Such action may be taken at the Government's discretion without prejudice to its rights under any other provision of this contract, including termination for default or cause.

(i) *Weapons.*

(1) If the Contracting Officer, subject to the approval of the USCENTCOM Commander, authorizes the carrying of weapons—

(i) The Contracting Officer may authorize an approved Contractor to issue Contractor-owned weapons and ammunition to specified employees; or

(ii) **(N/A - USACE DOES NOT ISSUE WEAPONS TO CONTRACTORS)**

(2) The Contractor shall provide to the Contracting Officer a specific list of personnel for whom authorization to carry a weapon is requested.

(3) The Contractor shall ensure that its personnel who are authorized to carry weapons—

(i) Are adequately trained to carry and use them—

(A) Safely;

(B) With full understanding of, and adherence to, the rules of the use of force issued by the USCENTCOM Commander; and

(C) In compliance with applicable Department of Defense and agency policies, agreements, rules, regulations, and other applicable law;

(ii) Are not barred from possession of a firearm by 18 U.S.C. 922; and

(iii) Adhere to all guidance and orders issued by the USCENTCOM Commander regarding possession, use, safety, and accountability of weapons and ammunition.

(4) Upon revocation by the Contracting Officer of the Contractor's authorization to possess weapons, the Contractor shall ensure that all Government-furnished weapons and unexpended ammunition are returned as directed by the Contracting Officer.

(5) Whether or not weapons are Government-furnished, all liability for the use of any weapon by contractor personnel rests solely with the Contractor and the Contractor employee using such weapon.

(j) *Vehicle or equipment licenses*. Contractor personnel shall possess the required licenses to operate all vehicles or equipment necessary to perform the contract in the area of performance.

(k) *Military clothing and protective equipment.*

(1) Contractor personnel are prohibited from wearing military clothing unless specifically authorized by the USCENTCOM Commander. If authorized to wear military clothing, contractor personnel must wear distinctive patches, arm bands, nametags, or headgear, in order to be distinguishable from military personnel, consistent with force protection measures.

(2) Contractor personnel may wear specific items required for safety and security, such as ballistic, nuclear, biological, or chemical protective equipment.

(l) *Evacuation.*

(1) If the Chief of Mission or USCENTCOM Commander orders a mandatory evacuation of some or all personnel, the Government will provide to United States and designated third country national contractor personnel the level of assistance provided to private United States citizens.

(2) In the event of a non-mandatory evacuation order, the Contractor shall maintain personnel on location sufficient to meet contractual obligations unless instructed to evacuate by the Contracting Officer.

(m) *Notification and return of personal effects*.

(1) The Contractor shall be responsible for notification of the contractor personnel designated next of kin, and notification as soon as possible to the U.S. Consul responsible for the area in which the event occurred, if the individual—

(i) Dies;

(ii) Requires evacuation due to an injury; or

(iii) Is isolated, missing, detained, captured, or abducted.

(2) The Contractor shall also be responsible for the return of all personal effects of deceased or missing contractor personnel, if appropriate, to next of kin.

(n) *Mortuary affairs*. Mortuary affairs for contractor personnel who die in the area of performance will be handled in accordance with DoD Directive 1300.22, Mortuary Affairs Policy.

(o) *Changes*. In addition to the changes otherwise authorized by the Changes clause of this contract, the Contracting Officer may, at any time, by written order identified as a change order, make changes in place of performance or Government-furnished facilities, equipment, material, services, or site. Any change order issued in accordance with this paragraph shall be subject to the provisions of the Changes clause of this contract.

(p) *Subcontracts*. The Contractor shall incorporate the substance of this clause, including this paragraph (p), in all subcontracts that require subcontractor personnel to perform in the USCENTCOM AOR.

(End of clause)

252.225-7997 ADDITIONAL REQUIREMENTS AND RESPONSIBILITIES RELATING TO ALLEGED CRIMES BY OR AGAINST CONTRACTOR PERSONNEL IN IRAQ AND AFGHANISTAN (DEVIATION 2010-O0014)(AUGUST 2010)

(a) The Contractor shall report to the appropriate investigative authorities, identified in paragraph (c) below, any alleged offenses under—

(1) The Uniform Code of Military Justice (chapter 47 of title 10, United States code) (applicable to contractors serving with or accompanying an armed force in the field during a declared war or a contingency operation); or

(2) The Military Extraterritorial Jurisdiction Act (chapter 212 of title 18, United States Code).

(b) The Contractor shall provide to all contractor personnel who will perform work on a contract in Iraq or Afghanistan, before beginning such work, information on the following:

(1) How and where to report an alleged crime described in paragraph (a) of this clause.

(2) Where to seek victim and witness protection and assistance available to contractor personnel in connection with an alleged offense described in paragraph (a) of this clause.

(c) The appropriate investigative authorities to which suspected crimes shall be reported include the following officials--

(i) US Army Criminal Investigative Division at http://www.cid.army.mil/reportacrime.html;

(ii) Air Force Office of Special Investigations at http://www.osi.andrews.af.mil/library/factsheets/factsheet.asp?id=14522;

(iii) Navy Criminal Investigative Service at http://www.ncis.navy.mil/Pages/publicdefault.aspx; or

(iv) To the command of any supported military element or the command of any base.

(d) Personnel seeking whistleblower protection from reprisals for reporting criminal acts shall seek guidance through the DoD Inspector General hotline at (800) 424-9098 or www.dodig.mil/HOTLINE/index.html. Personnel seeking other forms of victim or witness protections should contact the nearest military law enforcement office.

(End of clause)

252.236-7001 CONTRACT DRAWINGS AND SPECIFICATIONS (AUG 2000)

(a) The Government will provide to the Contractor, without charge, one set of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Officer.

(b) The Contractor shall--

(1) Check all drawings furnished immediately upon receipt;

(2) Compare all drawings and verify the figures before laying out the work;

(3) Promptly notify the Contracting Officer of any discrepancies;

(4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and

(5) Reproduce and print contract drawings and specifications as needed.

(c) In general--

(1) Large-scale drawings shall govern small-scale drawings; and

(2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified on the following index of drawings:

00150	The Design-Build Process
00555	Design Concept Documents
01010	Scope of Work
01015	Technical Requirements
01040	Security
01060	Special Clause
01060A	MOI Project Sign
01312	Quality Control System (QCS)
01321	Project Schedule
01335	Submittal Procedures for Design/Build Projects
01335A	Attachment AED
01335B	E-Submittal Format
01355	Environmental Protection
01415	Metric Measurements
01451	Contractor Quality Control
01525	Safety & Occupational Health Requirements
01770	Closeout Procedures
01780A	Closeout Submittals
01781	Operation and Maintenance Data
003300	Cast-in-Place Concrete
004200	Stone Masonry
031000	Earthwork

321116	Aggregate Sub Base and Select-Material for Embankments
321123	Aggregate Base Course For Rigid Pavement
321124	Graded Crushed Aggregate Base Course for Flexible Pavement
321210	Bituminuos Tack and Prime Coats
321216	HMA for Roads

Appendix

(End of clause)

252.246-7004 SAFETY OF FACILITIES, INFRASTRUCTURE, AND EQUIPMENT FOR MILITARY OPERATIONS (OCT 2010)

(a) Definition. Discipline Working Group, as used in this clause, means representatives from the DoD Components, as defined in MIL-STD-3007F, who are responsible for the unification and maintenance of the Unified Facilities Criteria (UFC) documents for a particular discipline area.

(b) The Contractor shall ensure, consistent with the requirements of the applicable inspection clause in this contract, that the facilities, infrastructure, and equipment acquired, constructed, installed, repaired, maintained, or operated under this contract comply with Unified Facilities Criteria (UFC) 1-200-01 for--

(1) Fire protection;

(2) Structural integrity;

(3) Electrical systems;

(4) Plumbing;

(5) Water treatment;

(6) Waste disposal; and

(7) Telecommunications networks.

(c) The Contractor may apply a standard equivalent to or more stringent than UFC 1-200-01 upon a written determination of the acceptability of the standard by the Contracting Officer with the concurrence of the relevant Discipline Working Group.

(End of clause)

Section 00800 - Special Contract Requirements

CLAUSES INCORPORATED BY REFERENCE

52.211-13	Time Extensions	SEP 2000
52.236-5	Material and Workmanship	APR 1984
52.242-14	Suspension of Work	APR 1984
52.246-12	Inspection of Construction	AUG 1996

CLAUSES INCORPORATED BY FULL TEXT

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than 180 Days from Notice to Proceed. The time stated for completion shall include final cleanup of the premises.

(End of clause)

52.211-12 LIQUIDATED DAMAGES--CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of $2,171.00 for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

252.236-7004 PAYMENT FOR MOBILIZATION AND DEMOBILIZATION (DEC 1991)

(a) The Government will pay all costs for the mobilization and demobilization of all of the Contractor's plant and equipment at the contract lump sum price for this item.

(1) 60 percent of the lump sum price upon completion of the contractor's mobilization at the work site.

(2) The remaining 40 percent upon completion of demobilization.

(b) The Contracting Officer may require the Contractor to furnish cost data to justify this portion of the bid if the Contracting Officer believes that the percentages in paragraphs (a) (1) and (2) of this clause do not bear a reasonable relation to the cost of the work in this contract.

(1) Failure to justify such price to the satisfaction of the Contracting Officer will result in payment, as determined by the Contracting Officer, of --

(i) Actual mobilization costs at completion of mobilization;

(ii) Actual demobilization costs at completion of demobilization; and

(iii) The remainder of this item in the final payment under this contract.

(2) The Contracting Officer's determination of the actual costs in paragraph (b)(1) of this clause is not subject to appeal.

C3 CLAUSES

C3 CLAUSE 952.222-0001 PROHIBITION AGAINST HUMAN TRAFFICKING, INHUMANE LIVING CONDITIONS, AND WITHHOLDING OF EMPLOYEE PASSPORTS (JUL 2010)

(a) All contractors ("contractors" refers to both prime contractors and all subcontractors at all tiers) are reminded of the prohibition contained in Title 18, United States Code, Section 1592, against knowingly destroying, concealing, removing, confiscating, or possessing any actual or purported passport or other immigration document, or any other actual or purported government identification document, of another person, to prevent or restrict or to attempt to prevent or restrict, without lawful authority, the person's liberty to move or travel, in order to maintain the labor or services of that person.

(b) Contractors are also required to comply with the following provisions:

(1) Contractors shall only hold employee passports and other identification documents discussed above for the shortest period of time reasonable for administrative processing purposes.

(2) Contractors shall provide all employees with a signed copy of their employment contract, in English as well as the employee's native language that defines the terms of their employment/compensation.

(3) Contractors shall not utilize unlicensed recruiting firms, or firms that charge illegal recruiting fees.

(4) Contractors shall be required to provide adequate living conditions (sanitation, health, safety, living space) for their employees. Fifty square feet is the minimum acceptable square footage of personal living space per employee. Upon contractor's written request, contracting officers may grant a waiver in writing in cases where the existing square footage is within 20% of the minimum, and the overall conditions are determined by the contracting officer to be acceptable. A copy of the waiver approval shall be maintained at the respective life support area.

(5) Contractors shall incorporate checks of life support areas to ensure compliance with the requirements of this Trafficking in Persons Prohibition into their Quality Control program, which will be reviewed within the Government's Quality Assurance process.

(6) Contractors shall comply with International and Host Nation laws regarding transit/exit/entry procedures, and the requirements for visas and work permits.

(c) Contractors have an affirmative duty to advise the Contracting Officer if they learn of their employees violating the human trafficking and inhumane living conditions provisions contained herein. Contractors are advised that contracting officers and/or their representatives will conduct random checks to ensure contractors and subcontractors at all tiers are adhering to the law on human trafficking, humane living conditions and withholding of passports.

(d) The contractor agrees to incorporate the substance of this clause, including this paragraph, in all subcontracts under his contract.

C3 CLAUSE 952.223-0001 REPORTING KIDNAPPINGS, SERIOUS INJURIES AND DEATHS (JUL 2010)

Contractors shall notify the Contracting Officer, as soon as practicable, whenever employee kidnappings, serious injuries or deaths occur.

Report the following information:

Contract Number
Contract Description & Location
Company Name

Reporting party:
Name
Phone number
e-mail address

Victim:
Name
Gender (Male/Female)
Age
Nationality
Country of permanent residence

Incident:
Description
Location
Date and time

Other Pertinent Information

C3 CLAUSE 952.225-0001 ARMING REQUIREMENTS AND PROCEDURES FOR PERSONAL SECURITY SERVICES CONTRACTORS AND FOR REQUESTS FOR PERSONAL PROTECTION (AUG 2010)

(a) ***General.*** Contractor and its subcontractors at all tiers that require arming under this contract agree to obey all laws, regulations, orders, and directives applicable to the use of private security personnel in Iraq and Afghanistan, including U.S. CENTCOM, United States Forces – Iraq (USF-I) and United States Forces – Afghanistan (USFOR-A) Commander orders, instructions and directives. Contractors will ensure that all employees, including employees at any tier of subcontracting relationships, who will seek individual authorization to be armed under the provisions of this contract (requests for blanket authorization for groups or organizations will not be approved), comply with the contents of this clause and with the requirements set forth in the following:

(1) DODI 3020.50, Private Security Contractors (PSCs) Operating in Contingency Operations;
(2) DODI 3020.41, Program Management for Acquisition and Operational Contract Support in Contingency Operations;
(3) DFARS 252.225-7040, Contractor Personnel Supporting a Force Deployed Outside the United States;
(4) Class Deviation 2007-O0010, Contractor Personnel in the United States Central Command Area of Responsibility
(5) USFOR-A, FRAGO 09-206, Outlines Management of Armed Contractors and Private Security Companies Operating in the Combined Joint Operating Area - Afghanistan (CJOA-A)
(6) USF-I OPORD 10-01, Annex C, Appendix 13
(7) U.S. CENTCOM Message, USCENTCOM Policy and Delegation of Authority for Personal Protection and Contract Security Service Arming of DoD Civilian Personnel and Contractors for Iraq and Afghanistan, dated 23 Dec 2005
(8) U.S. CENTCOM Message, Modification to USCENTCOM Civilian and Contractor Arming Policy and Delegation of Authority for Iraq and Afghanistan, dated 07 Nov 2006

(9) U.S. CENTCOM Message, Modification 3 to USCENTCOM Civilian and Contractor Arming Policy and Delegation of Authority in Iraq and Afghanistan, dated 09 Jun 2009

(b) ***Required Government Documentation*.** An O-6 or GS-15 (or above) from the unit requesting the contractor security shall provide a description of the following to the arming approval authority via the contracting officer representative (COR) in sponsoring each individual request for arming (under paragraph (c) below:

(1) The specific location where the PSC employee will operate;
(2) The persons and/or property that require protection;
(3) The anticipated threat;
(4) The requested weapon type(s), including serial number when possible;
(5) The reason current security/police forces are unable to provide adequate protection; and
(6) Verification, under paragraph (e) below, that background checks have been conducted and that no records were found of convictions or other acts that should be known to the arming authority.

(c) ***Required Contractor Documentation***. Contractors and their subcontractors at all tiers that require arming approval shall provide to the arming approval authority via the COR consistent documentation (signed and dated by the employee and employer as applicable) for each of their employees who will seek authorization to be armed under the contract as follows:

(1) Weapons Qualification/Familiarization. All employees must meet the weapons qualification requirements on the requested weapon(s) established by any DoD or other U.S. government agency, Law of Armed Conflict (LOAC); Rules for the Use of Force (RUF), as defined in the U.S. CENTCOM Policy, dated 23 December 2005; and distinction between the above-prescribed RUF and the Rules of Engagement (ROE), which are applicable only to military forces.

(2) Completed DD Form 2760 (or equivalent documentation) for each armed employee, indicating that the employee is not otherwise prohibited under U.S. law from possessing the required weapon or ammunition.

(3) Written acknowledgement by the individual of the fulfillment of training responsibilities and the conditions for the authorization to carry firearms. This document includes the acknowledgement of the distinctions between the ROE applicable to military forces and RUF that control the use of weapons by DoD civilians, DoD contractors and PSCs.

(4) Written acknowledgement signed by both the armed employee and by a representative of the employing company that use of weapons could subject both the individual and company to U.S. and host nation prosecution and civil liability.

(5) A copy of the contract between the contractor's company and the U.S. Government that verifies the individual's employment and addresses the need to be armed.

(6) One (1) copy of a business license from the Iraqi or Afghani Ministry of Trade or Interior.

(7) One (1) copy of a license to operate as a PSC (or a temporary operating license) from the Ministry of Interior.

(d) The contractor will submit to the COR a communications plan that, at a minimum, sets forth the following:

(1) The contractor's method of notifying military forces and requesting assistance where hostilities arise, combat action is needed or serious incidents have been observed;

(2) How relevant threat information will be shared between contractor security personnel and U.S. military forces; and

(3) How the contractor will coordinate transportation with appropriate military authorities.

(e) Prior to requesting arming approval, the contractor will submit to the COR an acceptable plan for accomplishing background checks on all contractor and subcontractor employees who will be armed under the contract. The contractor shall, at a minimum, perform the following (which will be specifically addressed in its plan and which will be documented and furnished to the COR upon completion):

(1) Use one or more of the following sources when conducting the background checks: Interpol, FBI, Country of Origin Criminal Records, Country of Origin U.S. Embassy Information Request, CIA records, and/or any other records available;

(2) Verify with USF-I or USFOR-A, as applicable, that no employee has been barred by any commander within Iraq or Afghanistan; and

(3) All local nationals and third country nationals will voluntarily submit to full biometric enrollment in accordance with theater biometric policies within 60 days of their arming request. While biometric collection and screening is voluntary, CORs will immediately notify the arming approval authority of any individuals who do not meet this requirement and any arming authorization will be revoked until all requirements are met.

(f) ***Penalties for Non-Compliance***. Failure of contractor or subcontractor employee(s) to comply with the laws, regulations, orders, and rules (including those specified herein) governing the use of force, training, arming authorization, and incident reporting requirements may result in the revocation of weapons authorization for such employee(s). Where appropriate, such failure may also result in the total revocation of weapons authorization for the contractor (or subcontractor) and sanctions under the contract, including termination.

(g) ***Criminal and Civil Liability.*** Arming of contractor or subcontractor employees under this contract may subject the contractor, its subcontractors, and persons employed by the same, to the civil and criminal jurisdiction of the U.S. and Host Nation. "Host Nation" refers to the nation or nations where services under this contract are performed.

(h) ***Lapses in Training or Authorization.*** Failure to successfully retrain an employee who has been properly authorized to be armed under this contract within twelve (12) months of the last training date will constitute a lapse in the employee's authorization to possess and carry the weapon. All unauthorized employees will immediately surrender their weapon and authorization letter to the contractor and will remain unarmed until such time as they are retrained and newly approved by the arming authority. Additionally, the arming authority's authorization letter is valid for a maximum of twelve (12) months from the date of the prior letter (unless authorization is earlier invalidated by a lapse in training).

(i) ***Authorized Weapon & Ammunition Types***. Unless DCDRUSCENTCOM (or a designee) expressly provides otherwise, all arming requests and authorizations for contractor or subcontractor employees under this contract shall be limited to U.S. Government-approved weapons and ammunition. Notwithstanding Host Nation laws or regulations that would allow use of heavier weapons by contract security/PSC, all DoD security service / PSC contractors must have weapons approved by DCDRUSCENTCOM (or a designee) before use. This restriction applies to all weapons in the possession of contractor employees, even if such weapons are required for personal protection. The following weapons and ammunition are currently authorized by the U.S. Government for use in Iraq and Afghanistan:

(1) The M9, M4, M16, or equivalent (e.g. .45 CAL, AK-47).

(2) The M9 or equivalent sidearm will be the standard personal protection weapon unless other weapons are specifically requested and approved.

(3) U.S. government Ball ammunition is the standard approved ammunition.

(j) ***Requirements for Individual Weapons Possession.*** All employees of the contractor and its subcontractors at all tiers who are authorized to be armed under this contract must:

(1) Possess only those U.S. Government-approved weapons and ammunition for which they are qualified under the training requirements of section (c) and subsequently authorized to carry;

(2) Carry weapons only when on duty or at a specific post (according to their authorization);

(3) Not conceal any weapons, unless specifically authorized;

(4) Carry proof of authorization to be armed. Employees not possessing such proof will be deemed unauthorized and must surrender their weapon to their employer; and

(5) IAW USCENTCOM G.O. #1, consumption of alcohol in Iraq or Afghanistan is prohibited. In the event of a suspension or an exception to G.O. #1, employees shall not consume any alcoholic beverage while armed or within eight (8) hours of the next work period when they will be armed. There are no circumstances under which a person will be authorized to consume any alcoholic beverage when armed for personal protection.

(k) ***Weapons/Equipment Restrictions and Responsibilities.*** *Unless otherwise provided, the U.S.* Government will not provide any weapons or ammunition to contractors, their subcontractors, or any employees of the same. The Contractor will provide all weapons and ammunition to those employees that will be armed under the contract. The contractor and its subcontractors at all tiers will also provide interceptor body armor, ballistic helmets, and the Nuclear, Biological, and Chemical (NBC) protective masks to those employees that require such equipment in the performance of their duties.

(l) ***Rules for the Use of Force (RUF).*** In addition to the RUF and ROE training referenced in paragraph (c), the contractor and its subcontractors at all tiers will monitor and report all activities of its armed employees that may violate the RUF and/or otherwise trigger reporting requirements as serious incidents. Prompt reporting demonstrates a desire by the contractor and its subcontractors to minimize the impact of any violations and, therefore, will be given favorable consideration. Violations of the RUF include, though are not limited to:

(1) Taking a direct part in hostilities or combat actions, other than to exercise self-defense;

(2) Failing to cooperate with Coalition and Host Nation forces;

(3) Using deadly force, other than in self-defense where there is a reasonable belief of imminent risk of death or serious bodily harm;

(4) Failing to use a graduated force approach;

(5) Failing to treat the local civilians with humanity or respect; and

(6) Detaining local civilians, other than in self-defense or as reflected in the contract terms.

(m) ***Retention and Review of Records***. The Contractor and all subcontractors at all tiers shall maintain records on weapons training, LOAC, RUF and the screening of employees for at least six (6) months following the expiration (or termination) of the contract. The Contractor and its subcontractors at all tiers shall make these records available to the Contracting Officer or designated representative, at no additional cost to the government, within 72 hours of a request.

(n) ***Contractor Vehicles.*** Vehicles used by contractor and subcontractor personnel in the course of their security duties shall not be painted or marked to resemble U.S./Coalition or host nation military and police force vehicles.

(o) ***Quarterly Reporting.*** The prime contractor will report quarterly (i.e. NLT 1 January, 1 April, 1 July and 1 October for each quarter of the calendar year) to the Contracting Officer responsible for this contract, and any other organization designated by the Contracting Officer, the following information under this contract:

(1) The total number of armed civilians and contractors;

(2) The names and contact information of its subcontractors at all tiers; and

(3) A general assessment of the threat conditions, adequacy of force numbers, and any problems that might require a change to force levels. Note: this information is in addition to the information the contractor promises to immediately provide under the communications plan referenced at paragraph (d).

C3 CLAUSE 952.225-0002 ARMED PERSONNEL INCIDENT REPORTS (SEP 2010)

(a) All contractors and subcontractors in the United States Forces-Iraq (USF-I) or United States Forces-Afghanistan (USFOR-A) theater of operations shall comply with and shall ensure that their personnel supporting USF-I or USFOR-A forces are familiar with and comply with all applicable orders, directives, and instructions issued by the respective USF-I or USFOR-A Commanders relating to force protection and safety.

(b) **AFGHANISTAN**: Contractors shall immediately report all incidents and use of weapons through their Contracting Officers Representative (CORs) who will notify the Contracting Officer. Contracting Officers are responsible to notify the SCO-A Chief of Operations and the SAR @ USFOR-A (SAR SHIFT DIRECTOR, DSN: 318-237-1761) Information should include: the name of the company, where the incident occurred, time when the incident occurred, a brief description of the events leading up to the incident, and a point of contact for the company. The PARC-A Chief of Operations in coordination with the SAR will issue guidance for further reporting requirements.

(c) Contractors shall provide first aid and request MEDEVAC of injured persons, and remain available for U.S. or Coalition response forces, based upon the situation. In the event contractor personnel are detained by U.S. or Coalition Forces, prolonged detention due to lack of proper identification can be alleviated by contractor personnel possessing on their person information that includes the contractor's name, the contract number, a contractor management POC, and the phone number of the CONOC/ SAR Watch.

C3 CLAUSE 952.225-0003 FITNESS FOR DUTY AND MEDICAL/DENTAL CARE LIMITATIONS (NOV 2010)

(a) The contractor shall perform the requirements of this contract notwithstanding the fitness for duty of deployed employees, the provisions for care offered under this section, and redeployment of individuals determined to be unfit. Contractor personnel who deploy for multiple tours, for more than 12 months total must be re-evaluated for fitness to deploy. An examination will remain valid for 15 months from the date of the physical. The contractor bears the responsibility for ensuring all employees are aware of the conditions and medical treatment available at the performance location. The contractor shall include this information and requirement in all subcontracts with performance in the theater of operations

(b) The contractor shall not deploy an individual with any of the following conditions unless approved by the appropriate CENTCOM Service Component (ie. ARCENT, AFCENT, etc.) Surgeon: Conditions which prevent the wear of personal protective equipment, including protective mask, ballistic helmet, body armor, and chemical/biological protective garments; conditions which prohibit required theater immunizations or medications; conditions or current medical treatment or medications that contraindicate or preclude the use of chemical and biological protective's and antidotes; diabetes mellitus, Type I or II, on pharmacological therapy; symptomatic coronary artery disease, or with myocardial infarction within one year prior to deployment, or within six months of coronary artery bypass graft, coronary artery angioplasty, or stenting; morbid obesity (BMI >/= 40); dysrhythmias or arrhythmias, either symptomatic or requiring medical or electrophysiological control; uncontrolled hypertension, current heart failure, or automatic implantable defibrillator; therapeutic anticoagulation; malignancy, newly diagnosed or under current treatment, or recently diagnosed/treated and requiring frequent subspecialist surveillance,

examination, and/or laboratory testing; dental or oral conditions requiring or likely to require urgent dental care within six months' time, active orthodontic care, conditions requiring prosthodontic care, conditions with immediate restorative dentistry needs, conditions with a current requirement for oral-maxillofacial surgery; new onset (< 1 year) seizure disorder, or seizure within one year prior to deployment; history of heat stroke; Meniere's Disease or other vertiginous/motion sickness disorder, unless well controlled on medications available in theater; recurrent syncope, ataxias, new diagnosis (< 1year) of mood disorder, thought disorder, anxiety, somatoform, or dissociative disorder, or personality disorder with mood or thought manifestations; unrepaired hernia; tracheostomy or aphonia; renalithiasis, current; active tuberculosis; pregnancy; unclosed surgical defect, such as external fixeter placement; requirement for medical devices using AC power; HIV antibody positivity; psychotic and bipolar disorders. (Reference: Mod 10 to USCENTCOM Individual Protection and Individual/Unit Deployment Policy, Tab A: Amplification of the Minimal Standards of Fitness for Deployment to the CENTCOM AOR).

(c) In accordance with military directives (DoDI 3020.41, DoDI 6000.11, CFC FRAGO 09-1038, DoD PGI 225.74), resuscitative care, stabilization, hospitalization at Level III (emergency) military treatment facilities and assistance with patient movement in emergencies where loss of life, limb or eyesight could occur will be provided. Hospitalization will be limited to emergency stabilization and short-term medical treatment with an emphasis on return to duty or placement in the patient movement system.

(d) Routine and primary medical care is not authorized. Pharmaceutical services are not authorized for routine or known, routine prescription drug needs of the individual. Routine dental care, examinations and cleanings are not authorized.

(e) Notwithstanding any other provision of the contract, the contractor shall be liable for any and all medically-related services or transportation rendered. To view reimbursement rates that will be charged for services at all DoD deployed medical facilities please go to the following website: http://comptroller.defense.gov/rates/fy2011.html (change fiscal year as applicable).

C3 CLAUSE 952.225-0004 COMPLIANCE WITH LAWS AND REGULATIONS (JUL 2010)

(a) The Contractor shall comply with, and shall ensure that its employees and its subcontractors and their employees, at all tiers, are aware of and obey all U.S. and Host Nation laws, Federal or DoD regulations, and Central Command orders and directives applicable to personnel in Iraq and Afghanistan, including but not limited to USCENTCOM, Multi-National Force and Multi-National Corps operations and fragmentary orders, instructions, policies and directives.

(b) Contractor employees shall particularly note all laws, regulations, policies, and orders restricting authority to carry firearms, rules for the use of force, and prohibiting sexual or aggravated assault. Contractor employees are subject to General Orders Number 1, as modified from time to time, including without limitation, their prohibition on privately owned firearms, alcohol, drugs, war souvenirs, pornography and photographing detainees, human casualties or military security measures.

(c) Contractor employees may be ordered removed from secure military installations or the theater of operations by order of the senior military commander of the battle space for acts that disrupt good order and discipline or violate applicable laws, regulations, orders, instructions, policies, or directives. Contractors shall immediately comply with any such order to remove its contractor employee.

(d) Contractor employees performing in the USCENTCOM Area of Responsibility (AOR) may be subject to the jurisdiction of overlapping criminal codes, including, but not limited to, the Military Extraterritorial Jurisdiction Act (18 U.S.C. Sec. 3261, et al) (MEJA), the Uniform Code of Military Justice (10 U.S.C. Sec. 801, et al)(UCMJ), and the laws of the Host Nation. Non-US citizens may also be subject to the laws of their home country while performing in the USCENTCOM AOR. Contractor employee status in these overlapping criminal jurisdictions may be modified from time to time by the United States, the Host Nation, or by applicable status of forces agreements.

(e) Under MEJA, a person who engages in felony misconduct outside the United States while employed by or accompanying the Armed Forces is subject to arrest, removal and prosecution in United States federal courts. Under

the UCMJ, a person serving with or accompanying the Armed Forces in the field during a declared war or contingency operation may be disciplined for a criminal offense, including by referral of charges to a General Court Martial. Contractor employees may be ordered into confinement or placed under conditions that restrict movement within the AOR or administratively attached to a military command pending resolution of a criminal investigation.

(f) Contractors shall immediately notify military law enforcement and the Contracting Officer if they suspect an employee has committed an offense. Contractors shall take any and all reasonable and necessary measures to secure the presence of an employee suspected of a serious felony offense. Contractors shall not knowingly facilitate the departure of an employee suspected of a serious felony offense or violating the Rules for the Use of Force to depart Iraq or Afghanistan without approval from the senior U.S. commander in the country.

C3 CLAUSE 952.225-0005 MONTHLY CONTRACTOR CENSUS REPORTING (JUL 2010)

Contractor shall provide monthly employee census information to the Contracting Officer, by province, for this contract. Information shall be submitted either electronically or by hard-copy. Information shall be current as of the 25th day of each month and received by the Contracting Officer no later than the first day of the following month. The following information shall be provided for each province in which work was performed:

(1) The total number (prime and subcontractors at all tiers) employees.
(2) The total number (prime and subcontractors at all tiers) of U.S. citizens.
(3) The total number (prime and subcontractors at all tiers) of local nationals (LN).
(4) The total number (prime and subcontractors at all tiers) of third-country nationals (TCN).
(5) Name of province in which the work was performed.
(6) The names of all company employees who enter and update employee data in the Synchronized Pre-deployment & Operational Tracker (SPOT) IAW DFARS

C3 CLAUSE 952.225-0009 - MEDICAL SCREENING AND VACCINATION REQUIREMENTS FOR THIRD COUNTRY NATIONALS OR LOCALLY HIRED EMPLOYEES OPERATING IN THE CENTCOM AREA OF RESPONSIBILITY (AOR) (NOV 2010)

(a) Contractors, and subcontractors at any tier shall ensure and provide satisfactory evidence that all locally hired employees, including Local National (LN), Third Country National (TCN), and U.S. employees, working on bases have been screened for and do not currently have active tuberculosis (TB).

(1) Contractors may initially utilize a testing method of either a chest x-ray or TB skin test (TST), depending on the originating country a contracted employee.

(i) Chest x-rays (CXR's), symptom survey, and Body Mass Index (BMI) shall be taken, and TSTs administered within 12 months prior to the start of deployment/employment. Contractors are required to bring in a physical copy of the pre-employment CXR film as it is the only way to verify interval changes should an active case of TB occur.

(A) Third Country Nationals (TCNs) and Local Nationals (LNs) cannot be screened with the TST. They need the pre-employment screening with a quality CXR, Body Mass Index (BMI) and symptom survey

(B) Small-Risk Nationals (SRNs), those with less than 25 TB cases per 100,000 persons annually (mostly expats from Europe and US), can be screened via the TST.

(ii) Annual re-screening for TCNs, and LNs will be performed with a CXR conducted by the Contractors medical provider or local economy provider, who will look for interval changes from prior CXR’s and review any changes in the symptom survey.

(iii) SRN's do not require annual TB re-screening. However, for a TB contact investigation, a TST or Interferon Gamma Release Assay (IGRA) is required.

(iv) For a contact investigation, all personnel with a positive TST or IGRA will be evaluated for potential active TB with a symptom screen, exposure history, BMI, and CXR. All cases of suspected or confirmed active TB must be reported to the theater Preventive Medicine (PM) physician and/or TB Consultant as soon as possible. TB reporting is required within 24 hours to the PM POC. Contact tracing, and medical coding have specific requirements. All Small-Risk National (SRN) contract personnel are required to be MEDEVAC'd out of theater, at the contractor's expense, for treatment of active TB, after consultation with the Theater PM or TB Consultant at the USF-I Surgeon's office. For SRN personnel, the contractor is responsible for management and compliance with all prescribed public health actions.

(v) Screening may be performed either by a licensed medical provider from the local economy or by the contractors' licensed medical staffs. Contractors shall maintain medical screening documentation and make it available to the Contracting Officer upon request.

(2) TB screening and documentation is a requirement prior to receiving badges to work in the Iraq Joint Operations Area. A copy of the TB screening documentation shall be provided to the responsible Base Operations Center (BOC) prior to issuance of base access badges.

(b) Contractor employees, including subcontractors at any tier, who work in positions where they are working in food service, water and ice production facilities, shall have current Typhoid and Hepatitis "A" (full series) immunizations in accordance with the Centers for Disease Control and Prevention guidelines (e.g. typhoid vaccination booster is required every 2 years), in addition to the required TB tests. The contractor medical provider must complete a pre-placement examination to include a stool sample test for ova and parasites, and annual medical screening form or equivalent for food service, ice and water production workers.

(c) Proof of individual employee vaccinations shall be provided to the Contracting Officer and COR showing that their employees and their subcontractor employees at any tier have received the above vaccinations. The contractor shall maintain their employees' vaccination records for examination by the Contracting Officer. The contractor shall ensure that their subcontractors at any tier maintain their respective employees' vaccination records for examination by the Contracting Officer.

(d) The contractor is responsible for management and compliance with all prescribed public health actions regarding TB in the contracted personnel. The contractor also bears the responsibility of ensuring that adequate health management for TB (screening / diagnosis / treatment / isolation) is available at the contractor's chosen health care provider for their contracted and subcontracted personnel.

NOTE: Contractors are reminded of the requirement to comply with their contract and all regulatory guidance (DoD Instructions/Regulations, Federal Acquisition Regulation/Defense Federal Acquisition Regulation Supplement, and FRAGO's) as applicable regarding Medical Screening and Vaccination Requirements.

C3 CLAUSE 952.225-0011 GOVERNMENT FURNISHED CONTRACTOR SUPPORT (JUL 2010)

The following is a summary of the type of support the Government will provide the contractor, on an "as-available" basis. In the event of any discrepancy between this summary and the description of services in the Statement of Work, this clause will take precedence.

U.S. Citizens Accompanying the Force

___APO/FPO/MPO/Postal Services	___DFACs	___Mil Issue Equip
___Authorized Weapon	___Excess Baggage	___MILAIR
___Billeting	___Fuel Authorized	___MWR
___CAAF	___Govt Furnished Meals	_X_Resuscitative Care
_X_Controlled Access (CAC)/ID Card	___Military Banking	___Transportation

___Commissary	___Military Clothing	___All
___Dependents Authorized	___Military Exchange	___None

Third-Country National (TCN) Employees

___APO/FPO/MPO/Postal Services	___DFACs	___Mil Issue Equip
___Authorized Weapon	___Excess Baggage	___MILAIR
___Billeting	___Fuel Authorized	___MWR
___CAAF	___Govt Furnished Meals	_X_Resuscitative Care
_X_Controlled Access (CAC)/ID Card	___Military Banking	___Transportation
___Commissary	___Military Clothing	___All
___Dependents Authorized	___Military Exchange	___None

Local National (LN) Employees

___APO/FPO/MPO/Postal Services	___DFACs	___Mil Issue Equip
___Authorized Weapon	___Excess Baggage	___MILAIR
___Billeting	___Fuel Authorized	___MWR
___CAAF	___Govt Furnished Meals	_X_Resuscitative Care
_X_Controlled Access (CAC)/ID Card	___Military Banking	___Transportation
___Commissary	___Military Clothing	___All
___Dependents Authorized	___Military Exchange	___None

C3 CLAUSE 952.225-0013 CONTRACTOR HEALTH AND SAFETY (NOV 2010)

(a) Contractors shall comply with all National Electrical Code (NEC 2008), Specifications as outlined, and MIL Standards and Regulations. All infrastructure to include, but not limited to, living quarters, showers, and restrooms shall be installed and maintained in compliance with these standards and must be properly supported and staffed to ensure perpetual Code compliance, prevent hazards and to quickly correct any hazards to maximize safety of those who use or work at the infrastructure (NEC Table 352.20). Specifically, the use of magnetic ballasts in lighting for new construction or replacement of existing magnetic ballasts during refurbishment, alterations or upgrades with new magnetic ballasts is prohibited. The government has the authority to enter and inspect contractor employee living quarters at any time to ensure the prime contractor is complying with safety compliance standards outlined in the 2008 National Electric Code (NEC).

(b) The contractor shall correct all deficiencies within a reasonable amount of time of contractor becoming aware of the deficiency either by notice from the government or a third party, or discovery by the contractor. Further guidance on mandatory compliance with NFPA 70: NEC 2008 can be found on the following link http://www.nfpa.org.

C3 CLAUSE 952.225-0016 CONTRACTOR DEMOBILIZATION (JUN 2011)

(a) Full demobilization of contractors and subcontractor(s) in the Afghanistan Combined Joint Operations Area (CJOA) is critical to Responsible Drawdown. The prime contractor is required to submit a demobilization plan to the Contracting Officer a minimum of 120 days prior to the end of the contract performance period or when requested by the Contracting Officer. The demobilization plan shall address, as a minimum, the following procedures detailed below. The procedures outline specific guidance to ensure a timely and responsible exit from theater. Prime contractors are responsible and accountable to ensure their subcontractor(s) at all tiers comply with responsible and timely exit from theater immediately following contract performance completion or termination.

(1) Exit from Afghanistan: The prime contractor shall follow the exit guidance issued by the United States (U.S.) Embassy Baghdad and shall ensure subcontractor(s) at all tiers also follow the exit procedures. The prime contractor is responsible to remain cognizant of Afghan laws regarding exit from Afghanistan. Currently, all foreigners traveling out of Iraqi airports via commercial air transportation must have exit visas. Department of Defense, U.S. Forces-Iraq, Letters of Authorization (LOAs), and/or Embassy Badges are no longer the accepted means of exiting Iraq. All U.S. citizens and foreign national contractors must obtain an Iraqi exit sticker before departing the country. The exit sticker may be obtained from selected police stations or Ministry of Interior (MOI)

offices. It is the prime contractor's responsibility to ensure that the most recent exit procedures are followed and to ensure that subcontractor(s) at all tiers are in compliance with exit procedures. Assistance for this procedure may be obtained by e-mailing baghdadregmgt@state.gov or phone 240-553-0581, ext 2782 or ext 2092.

(2) Letter of Authorization (LOA): The prime contractor is responsible for demobilizing its workforce, including subcontractor employees at all tiers, and all contractor owned and subcontractor owned equipment out of theater as part of the prime contractor's exit strategy. This exit strategy must include reasonable timeframes starting with the end of the contract performance period and not exceeding 30 days. The Contracting Officer has the authority to extend selected LOAs up to, but not exceeding 30 calendar days after the contract completion date to allow the prime contractor to complete demobilization of its workforce and contractor owned equipment, as well as subcontractor(s) workforce and owned equipment, out of the Afghanistan CJOA. The prime contractor shall notify the Contracting Officer a minimum of 30 days prior to the end of the contract period to request up to a 30-day extension of selected LOAs beyond the contract completion date to complete demobilization. The request shall include at a minimum:

(i) the name of each individual requiring a new LOA;
(ii) the number of days for the LOA (no more than 30 calendar days); and
(iii) justification for the request (e.g., what function the individual(s) will be performing during the demobilization period).

The Contracting Officer may request additional information for an LOA extension. Any LOA extension granted beyond the contract completion date shall not exceed 30 days and the contractor is not entitled to additional compensation for this period. If approved by the contracting officer, this is a no cost extension of an employee's LOA due to demobilization and in no way is an extension of the contract performance period.

(3) Badging: The prime contractor is responsible to ensure all employee badges, including subcontractor employees at all tiers, are returned to the local Access Control Badging Office for de-activation and destruction. The prime contractor shall submit a Badge Termination Report to ensure each record is flagged and the badge is revoked. If a prime and/or subcontractor employee's badge is not returned, the prime contractor shall submit a Lost, Stolen or Unrecovered Badge Report to the appropriate Access Control Badging Office. Contractor employees in possession of a Common Access Card (CAC) shall be responsible for turning in the CAC upon re-deployment through a CONUS Replacement Center in the U.S. Failure to return employee badges in a timely manner may result in delay of final payment.

(4) Contractor Controlled Facility Space: If the prime contractor has entered into a Memorandum of Understanding with the Installation Mayor or Garrison for site space, buildings, facilities, and/or Containerized Housing Units (CHU) to house prime and/or subcontractor employees (at all tiers), the prime contractor is responsible to notify the Installation Mayor or Garrison Commander of intent to vacate at least 90 calendar days prior to the end of the contract performance period. All United States Government (USG) provided property in the prime contractor's possession must be returned to the USG in satisfactory condition. The prime contractor is responsible and liable for any and all damages to USG property caused by prime and/or subcontractor employees, and shall be further liable for all cleanup, clearing, and/or environmental remediation expenses incurred by the USG in returning prime contractor and/or subcontractor facilities including surrounding site to a satisfactory condition, including expenses incurred in physically moving property, trash, and refuse from such premises, removing/ remediating hazardous wastes on the premises, and repairing structures, buildings, and facilities used by the prime contractor and/or subcontractor. The prime contractor shall provide notification to the Installation Mayor or Garrison Commander to perform an inspection of all facilities as soon as practicable, but no more than 30 days, after the end of the contract period. If damages are discovered, the prime contractor shall make the necessary repairs. The prime contractor shall notify the Installation Mayor or Garrison Commander for re-inspection of the facilities upon completion of the repairs. If the Installation Mayor or Garrison Commander inspects the property, site space, buildings, facilities, and/or CHUs and finds they have not been properly cleaned, cleared, and/or environmentally remediated, or if the prime contractor fails to repair any damages within 30 calendar days after the end of the contract performance period, the final contract payment shall be reduced by the amount of the specified damages/repairs or the expenses incurred by the USG to properly clean, clear, and/or environmentally remediate the premises.

(5) Government Furnished Equipment/Materials: The prime contractor is responsible to return all USG furnished equipment, as defined in Federal Acquisition Regulation (FAR) Part 45, clauses 52.245-1, if included in the contract. Prime contractors who are not in compliance with the FAR, Defense Federal Acquisition Regulation Supplement, Department of Defense Directives and Instructions, United States Forces-Afghanistan (USFOR-A) FRAGOs, policies, or procedures will be responsible and liable for damages to the government property. The prime contractor may apply for a "relief of responsibility" from the Contracting Officer anytime during the contract performance period. A joint inventory shall be conducted of the equipment by the prime contractor, USG representative, and the Contracting Officer or their representative, within 10 calendar days after the end of the contract performance period. The prime contractor shall report lost, damaged or destroyed property immediately to the Contracting Officer, but no later than the joint inventory at the end of the contract period. If the prime contractor fails to report lost, damaged or destroyed equipment or materials during the contract performance period, the prime contractor shall be responsible for the replacement and/or repair of the equipment or materials. The replaced equipment shall be new, of the same quality, and shall perform at the same functional level as the missing piece of equipment. If the prime contractor fails to repair and/or replace damaged or missing equipment, the final payment shall be reduced by the appropriate amount of the specified damages or cost to replace missing equipment with new.

(6) Synchronized Predeployment Operational Tracker (SPOT): The prime contractor is responsible to close out the deployment of personnel, including subcontractor employees at all tiers, at the end of the contract completion period and to release the personnel from the prime contractor's company in the SPOT database. The release of employee information must be accomplished no more than 30 calendar days after the end of the contract completion date.

(7) Accountability of Prime and Subcontractor Personnel: Whether specifically written into the contract or not, it is the expectation of the USG that for any persons brought into the Afghanistan CJOA for the sole purposes of performing work on USG contracts, contract employers will return employees to their point of origin/home country once the contract is completed or their employment is terminated for any reason. If the prime contractor fails to re-deploy an employee, or subcontractor employee at any tier, the USG shall notify the applicable U.S. Embassy to take appropriate action. Failure by the prime contractor to re-deploy its personnel, including subcontractor personnel at any tier, at the end of the contract completion date, could result in the contractor being placed on the Excluded Parties List System (EPLS) and not be allowed to propose on future U.S. contracts anywhere in the world.

(b) CENTCOM - Joint Theater Support Contracting Command (C-JTSCC) and external agencies will utilize all available contracting remedies to guarantee compliance with demobilization requirements. Such actions include, but are not limited to withholding payment, issuing a cure notice, issuing a negative Contractor Performance Assessment Reporting System (CPARS) evaluation, reduction of award fee, debarment, reimbursement of U.S. Government expenses, and/or any other legal remedy available to a contracting officer. The USG reserves the right to **withhold payment** from the prime contractor not in compliance with the above procedures included herein. Additionally, the Contracting Officer shall document all unresolved contractor compliance issues in CPARS, which shall have an adverse past performance affect on future contracts with the USG, anywhere in the world.

C3 CLAUSE 952.236-0001 ELECTRICAL AND STRUCTURAL BUILDING STANDARDS FOR CONSTRUCTION PROJECTS (JUL 2010)

(a) The standards set forth herein are the minimum requirements for the contract. These standards must be followed unless a more stringent standard is specifically included. In such case the most stringent standard shall be required for contract acceptance.

(b) The contractor, in coordination with the Contracting Officer, Base Camp Mayor, Base/Unit Engineers, and requiring activity shall evaluate, upgrade, build, and/or refurbish buildings to a safe and livable condition. This work may include refurbishment, construction, alterations, and upgrades. All work shall be in accordance with accepted standards of quality.

(c) As dictated by the Unified Facilities Criteria (UFC) the contract shall meet:

(1) "the minimum requirements of United States' National Fire Protection Association (NFPA) 70,
(2) 2008 National Electrical Code (NEC),
(3) American National Standards Institute (ANSI) C2, and
(4) United States' National Electrical Safety Code (NESC).

(d) These standards must be met when it is reasonable to do so with available materials. When conditions dictate deviation, then provisions within the International Electrical Code (IEC) or British Standard (BS 7671) shall be followed. Any deviations from the above necessary to reflect market conditions, shall receive prior written approval from a qualified engineer and the Contracting Officer.

(e) The following internet links provide access to some of these standards:

UFC: http://65.204.17.188/report/doc_ufc.html
NFPA 70: http://www.nfpa.org
NESC: http://www.standards.ieee.org/nesc

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.

(End of clause)

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.

(End of clause)

DBA INSURANCE
WORKERS COMPENSATION INSURANCE (DEFENSE BASE ACT) (APRIL 2011)

(a) This Special Contract Requirement supplements FAR Clause 52.228-3 Workers' Compensation Insurance (Defense Base Act).

(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 Insurance** unless the contractor has a DBA self-insurance program approved by the Department of Labor. Proof of this self-insurance shall be provided to the Contracting Officer. The contractor shall submit proof of a valid DBA Insurance policy with CNA Insurance for the Prime and their Subcontractor's at every tier prior to performance of the contract. The current rates under the USACE, C3 and 408th CSB contract are as follows:

Service	$3.50	per $100 of employee remuneration
Construction	$4.25	per $100 of employee remuneration
Security	$10.00	per $100 of employee remuneration
Aviation	$17.00	per $100 of employee remuneration

(c) **Labor Category/Job Classification Definitions:**

SERVICE: White-collar" workers providing IT, engineering/consulting services, and restaurant services. Security consultants are included in this category if they are only providing risk assessment services and no form of armed protection.

CONSTRUCTION: "Blue-collar" workers providing services such as carpentry, electrical, plumbing, mechanical, concrete/asphalt, de-mining, roofing, landscaping, janitorial, trash removal, Port-a-John/septic cleaning, pest exterminating, auto repair/dismantling, drivers/couriers, and heavy equipment operation and maintenance. Construction site supervisors/managers and life support service providers are included in this category as well as all Unskilled and Manual Labor Day Laborers.

SECURITY: Personal Security Detail (PSD) and Static or Convoy Guarding of property or personnel.

AVIATION: Pilot and Crew of any aircraft excluding ground personnel who provide maintenance or services and stay on the ground.

NOTE: More than one rate may be applicable as more than one type of labor may be applicable for a particular contract.

(d) The contractor agrees to insert a Special Contract Requirement substantially the same as this one in all subcontracts (at every tier) to which DBA is applicable. Every subcontractor shall procure its own DBA Insurance coverage directly from CNA Insurance Co.

(e) 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.

(f) CNA's Broker (Rutherfoord International) shall provide proof of confirmation of coverage within 3 working days of receipt of a complete insurance application. This confirmation should be used by the Contracting Officer to issue notice to proceed with performance.

(g) Premiums will be reimbursed only if coverage is purchased through the USACE mandatory requirements DBA contract administered by CNA Insurance and their Managing Broker, Rutherfoord International.

(h) Claims Reporting - The Contractor shall make timely Defense Base Act insurance claims on behalf of each employee who is injured or killed in the course of their employment under this contract, and shall ensure that similar language is in each Subcontractor's contract. The Contractor's Safety Officer shall, in addition to any other duties required to be performed under the contract, perform the following:

(i) Make timely Defense Base Act insurance claims on behalf of each employee who is injured or killed in the course of their employment under this contract; and

(ii) Make monthly written reports to the Contracting Officer, Administrative Contracting Officer, and the District/Center Safety and Occupational Health Manager, providing the names of each such injured or deceased employee, the circumstances surrounding each injury or death, the dates of each injury or death, the date the insurance claim was made on behalf of each employee, and the current status of each claim.

The District/Center Safety and Occupational Health Manager POC is:

Susan R. Fox, Email: Susan.R.Fox@usace.army.mil

(i) The Insurance carrier/Broker will conduct periodic audits of actual contractor payroll amounts. When a return is due for over-payment of premium on a specific audit, such returned premium shall be returned to the U.S. Department of Treasury.

(j) Failure to comply and purchase Defense Base Act (DBA) Insurance in accordance with FAR Clauses 52.228-3 Workers' Compensation Insurance (Defense Base Act), from the U.S. Army Corps of Engineers mandatory Insurance Carrier/Broker (CNA Insurance/Rutherfoord International) for the Prime and all of the Subcontractors at every tier, shall be considered a material breach and could cause your contract to be terminated for default/cause.

(End of clause)

SECTION 00150

THE DESIGN/BUILD PROCESS

1.0 DESIGN/BUILD (DB) PROCESS

The road 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 Engineers either employed by or subcontracted to the DB contractor. Licensing jurisdiction of Engineers of record shall be shall be verifiable. The DB contractor shall be the Engineer-of-Record, whether the DB contractor utilizes services of licensed engineers employed by its firm or subcontracts with independent 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. For this specification, the term "Government" is defined as the Contracting Officer for the US Army Corps of Engineers, Afghanistan District North.

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.

2.0 OUTLINE DESCRIPTION OF THE DB PHASE

No work can begin on any phase of the process until authorization to proceed for that phase is issued. Authorization shall be issued by the Contracting Officer Representative.

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, a Preliminary Design 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 POST-NTP, SURVEY AND DESIGN PHASE

The successful DB Contractor shall develop and submit for review five submittals: Two Post Notice-to-Proceed (NTP) submittals, consisting of Community Relations Plan and Security Protection Plan, and four Design submittals, consisting of the 15% Survey Verification, and 65%, 95% and 100% Designs. The DB Contractor is encouraged to develop and submit multiple cost saving proposals for innovative design alternatives. It is recommended that the design phases be submitted incrementally in 3km to 8km sections. All submittals shall comply with SECTION 01335.

2.2.1 COMMUNITY RELATIONS PLAN AND SECURITY PROTECTION PLAN

The Post-NTP submittals shall include the Community Relations Plan and Security Protection Plan. <u>The Contractor shall not commence any field activities until both submittals have been reviewed and accepted by the Afghanistan Engineer District – South (AES).</u>

2.2.2 65% DESIGN

The 65% design submittal shall include, completed survey and existing conditions maps, determine existing conditions, completed geotechnical report, 65% complete drawings/designs for the layout of the horizontal and vertical road alignment, 65% design for canal re-construction, identify existing

drainage structures, and perform drainage evaluations. A complete Design Analysis shall be submitted, which includes complete geotechnical, hydraulics, and site grading/drainage.

2.2.3 95% DESIGN

The 95%design submittal shall include all design services required to complete the 95% Design. The 95% Design shall not begin until the 65% Design submittal is submitted for review and acceptance. This submittal stage shall include complete drawings with specifications, Design Analysis, and all other requirements for completion of the road design**.** All comments from the 65% Design shall be incorporated into the 95% Design.

2.2.4 100% DESIGN

The 100% design submittal shall include all design services required to complete the 100% Design. The 100% Design shall not begin until 95% Design submittal is submitted for review and acceptance. All comments from the 95% Design shall be incorporated into the 100% Design. The 100% Design comments shall be incorporated in the final design package.

2.2.5 BUILD PHASE

The Build Phase will be initiated by an authorization letter. Only the Administrative Contracting Officer (ACO) or Contracting Officer (KO) has the authority to issue the partial or full clearance for construction for each phase of the work. 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 verification of the horizontal and vertical survey. 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.

Following Engineering Branch acceptance the 65% Design submittal, the field office will request the ACO to issue the partial clearance for construction for clearing, widening, grading and preparing the sub-grade work only.

After the 95% Design submittal, sub-grade compaction, sub-base and base materials are accepted by AED, the field office will request the ACO to issue another partial clearance for construction for placing sub-base and base courses. Other items like culverts and retaining structures may be approved at the ACO's discretion.

After the 100% Design submittal is accepted by AED, the field office will request the ACO to issue a final full clearance construction for completing the road such as structures.

Prior to completion of the 95% and 100% submittals, the Contractor may also submit a design plan for any particular structure with design calculations if required for review and acceptance. This separate design submittal shall physically identify the name of the structure (culvert, wadi crossing, retaining wall, etc) the location (station, coordinates) and detailed sections. After this stand alone design submittal is accepted by AED, the field office will request the ACO to issue another partial clearance for construction for that particular structure.

3.0 BUILD PHASE

The Build Phase will be initiated by an authorization letter by the Contracting Officer.

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.

4.0 PROJECT SCHEDULE:

The following is an 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 (NTP)	following Contract Award (upon written notification)
Begin Survey Phase-Basic Services Pre-Design Meeting	Within 7 days from NTP
Survey Submittal Due	Within 30 days following NTP
Begin Design Phase	Upon approval of survey
65% Design Submittal Due	Within 45 days after 15% NTP
65% Submittal Review Conference	Within 7 days after 65% Design Submittal is completed
Authorization to Commence to 95% Design	Upon approval of 65% Design Submittal
95% Design Submittal Due	Within 30 days after 65% Design Submittal is approved
95% Submittal Review Conference	Within 7 days after 65% Submittal Review is Complete
Begin Build Phase-	Upon approval of 95% Design Submittal
100% Design Submittal Due	Within 30 days after 95% Design Submittal is approved
Build Phase Authorization for Remainder of Work	Upon approval of 100% Design Submittal
Total Survey, Design, and Construction Period	180 days (performance period includes survey, design, and build phases)

5.0 LIQUIDATED DAMAGES:

Liquidated damages in the amount of **$2,389.00** every calendar day of delay shall be assessed and charged to the Contractor.

All days are in calendar days.

--END OF SECTION--

SECTION 00555

DESIGN CONCEPT DOCUMENTS

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.

1.1 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.

1.2 APPENDIX DOCUMENTS

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

1.3 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 in the 65% Design Submittal of the Design Phase in accordance with Section 00150 THE DESIGN/BUILD PROCESS.

1.4 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. Minimum requirements of the RFP.
2. Contract documents.
3. Written requirements supersede drawings, except site adapt, standard design building drawings must be followed

1.5 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.

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

-- END OF SECTION --

SECTION 01010

SCOPE OF WORK

1. GENERAL

The project consists of the survey, design, material, labor, and equipment to construct a new 6.5 km two lane asphalt surfaced roadway, Route Hezar Zoft, located near the village of Qurya in Helmand Province, Afghanistan. See Appendix A for project details. Route Hezar Zoft is currently a gravel road in fair to good condition.

The roadway shall consist of a seven (7) meter wide paved carriageway with one (1) meter wide gravel shoulders as shown in the attached drawings, see Appendix A. The alignment for the new road has relatively flat terrain and has a large irrigation canal along the west side of the road alignment. The road alignment shall shift to a one lane road along the ANP checkpoint, refer to the drawings in the Appendix for the general concept. At the end location of the road there shall be an additional paved lane as indicated on the drawings in the Appendix to allow easier traffic flow to the existing bridge. The road passes through heavily irrigated terrain and must be designed and constructed to minimize disruption of the irrigation. The Contractor shall be responsible for canal bank reconstruction/revetment work at the two locations as shown in the drawings of the Appendix. Furthermore the Contractor shall provide additional canal bank reconstruction/ revetment and embankment work, as required to accommodate the footprint of the asphalt road. All design parameters shall be in accordance with Section 01015.

In the event there is a discrepancy between the Section 01010 and Section 01015, Section 01010 shall supersede.

The Contractor shall develop new horizontal road geometry based on the alignment shown in Appendix. The alignment suggested in Appendix is for reference only and shall be adjusted as necessary to meet horizontal geometry requirements of all curves and tangents. Horizontal geometry shall be designed to meet the requirements set forth in section 01010. **The Contractor shall not assume to follow the alignment and grade for the entire length of roadway. The alignments suggested in Appendix are for reference only. The Contractor shall determine the optimal alignment that meets the minimum design requirements set forth in this contract.**

The normal road grade shall be less than 8%. The maximum road grade shall be 10%. Any grade greater than 8% shall not be sustained for more than 100m.

No construction activity shall be allowed until the proposed roadway alignment and profile have been approved by the COR.

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.

The design shall be performed and design documents signed by a registered professional engineer that has a minimum of 10 years experience with the design and construction of the same magnitude and complexity as required in this project.

2. SEQUENCE OF WORK

The Contractor shall only construct one lane at a time and leave one lane open for traffic flow at all times. Once the contractor has finished construction of one lane, and traffic flow utilizes the completed lane, the contractor shall construct the other lane. This requirement may be changed based on the approval of the USACE Resident Engineer/COR.

3. CONTRACTOR REQUIREMENTS

The Contractor shall design a construct in accordance with specifications set forth in this Statement of Work. The Contractor will provide a project technical design, survey drawings and electronic survey files, construction drawings, geotechnical report, and applicable specifications. This project may require coordination with other agencies including, but not limited to, the GIRoA Ministry of Education, Ministry of Public Works, Ministry of Health, and the Afghanistan Engineer District - South prior to final approval. The Contractor must receive written approval of his proposed design from the Regional Contracting Center (RCC) (ISAF) Engineer and/or the Project Purchasing Officer (PPO) before beginning any work. The Contractor shall not be entitled to payment for work performed before receiving written approval of the project design**.**

4. SECURITY

Security is critical to construction in Afghanistan, especially on roads and remote areas away from Coalition Force bases. The risk/threat level for the area surrounding this project site is moderate/low relative to the chance of attack, improvised explosive devices (IEDs), kidnapping, theft, and vandalism. The Contractor must have an appropriate amount of security/protection to match the threat in the project area and along the supply routes. A detailed security plan in accordance with Section 01040 SECURITY shall be approved by the Government before construction notice to proceed.

5. COMMUNITY RELATIONS PLAN

The Contractor is required to submit and implement a Community Relations Plan which includes the following:

1.5.1-Identify all communities along the route within 5 kilometers of the new road alignment.

1.5.2-Hold initial meeting with local and provincial officials and the local PRT Commander to discuss the project and Community Relations Plan.

1.5.2.1-Hold an initial organizational kick-off meeting with each village.

1.5.2.2-Hold regularly scheduled monthly meeting with the communities. Ensure that there is representation from all major tribal elements.

1.5.2.3-Determine the number of available skilled and unskilled workers in the region.

1.5.2.4-Solicit comments and concerns about the project.

1.5.2.5-Provide meeting minutes to the Contracting Officer's Representative.

1.5.2.5.1-Include names and phone numbers of community leaders in attendance.

1.5.2.5.2-Issues that were discussed, proposed solutions to issues, and an assessment and commentary of the community's support of the project.

1.5.2.5.3-Meeting minutes shall be provided to the Contracting Officer Representative within seven (7) days after the meeting is held.

1.5.3-Contractor's plan to actively and continuously solicit community support for the project.

6. AED DESIGN REQUIREMENTS DOCUMENTS

AED Design Requirements documents shall be adhered to in this contract. These documents are listed in Section 01015 and are available from the COR. These documents shall be used as the basis for design and construction, and for selecting options within the United Facilities Guide Specifications (UFGS) discussed below. Data and requirements in the AED Design Requirements documents shall supersede UFGS language where there are conflicts.

7. LOCATION

The site is located in the town of Qurya, Helmand Province, Afghanistan, as shown on attached drawings. The start and end points of the road are as follows in UTM:

Start of Project*	N 3439023.38	E 611890.95
End of Project*	N 344724.50	E 614858.11

*Approximate coordinates. Field locate End of Project.

8. UNEXPLODED ORDNANCE (UXO) REMOVAL AND CLEARANCE

The contractor shall search for, identify and clear all mines and unexploded ordnance (UXO) from the entire site. The contractor may only provide clearance/removal services via UN Mine Action Center for Afghanistan (UNMACA) accredited entities, and clearance shall be accomplished to the anticipated foundation depth as indicated in the contract. If sub-surface construction activities are to be performed on this site the minimum clearance depth will be 1 meter. Sub-surface clearance for construction activities in excess of 1 meter as defined by the contract parameters will also be the responsibility of the contractor. Clearance by definition is an investigation and clearance of all sub-surface metallic anomalies on the site. Clearance/removal may only be undertaken in accordance with International Mine Action Standards (IMAS), Afghanistan Mine Action Standards (AMAS), and applicable U.S. Army Corps of Engineer (USACE) Ordnance & Explosives (OE) safety standards. When mines and/or UXO's are identified, the Contractor shall place them in a location in accordance with IMAS/AMAS/USACE until destruction of the items can take place. Construction work shall not occur inside the safety exclusion zone based on the most probable munition (MPM) expected on the site. Construction will not commence in any area that has not been cleared to the specified depth. If sub-surface activities

The contractor will provide a standard UXO/Demining safety work plan to the US Army Corps of Engineers UXO / Demining COR for review prior to commencement of all UXO clearance / demining activities on the project sites. Once the UXO/ Demining clearance has concluded, the contractor shall provide the US Army Corps of Engineers UXO / Demining COR a clearance certificate for review and approval before any construction activities are to commence.

NOTE 1: The USACE does not need written clearance certificate approval from the UNMACA to approve the construction start activities. However, the contractor is responsible for providing a copy of the clearance certificate to the UNMACA for entry into their country wide database. A final signed copy of the UNMACE certificate must then be provided to the USACE UXO/Demining COR.

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 under the IMAS/AMAS from the UNMACA.

If a UXO/mine is encountered after a UNMACA-approved clearance certificate is provided to the Government, UXO/mine disposal shall be handled in accordance with Section 01015, Technical Requirements.

NOTE 2: Point of Contact for UXO/Demining Safety Work Plan review and approval shall be directed to the US Army Corps of Engineers Demining Safety/COR:

UXO Safety/ Demining COR, USACE
tan.uxo.demining.safety@usace.army.mil, Roshan: 079-403-1452 Comm: 540-722-6129

Unexploded Ordnance (UXO) Removal and Clearance shall be paid for under item 0006 of the proposal schedule

9. SUMMARY OF WORK

The contractor shall accomplish required work at the aforementioned site within the contract as a Design-Build contract in accordance with the requirements stated in Section 01015: TECHNICAL REQUIREMENTS and other sections herein. Refer to Section 01015 for further direction.

9.1 SITE SURVEY / EXISTING CONDITIONS MAP

The Site Survey/Existing Conditions Map shall consist of all labor, equipment and supplies necessary to produce the topographical data in accordance with the requirements specified in Sections 01015 and 01335.

Site Survey /Existing Conditions Map shall have a unit of measure lump sum and paid for under item 0001 of the Proposal Schedule.

9.2 GEOTECHNICAL REPORT

The Geotechnical Report shall contain the results of a geotechnical investigation conducted in accordance with the requirements specified in Section 01015. All labor, equipment and supplies necessary to conduct a geotechnical investigation shall be considered a part of the geotechnical report.

The Geotechnical Report shall have a unit of measure lump sum and paid for under item 0002 of the Proposal Schedule.

9.3 A/E DESIGN

A/E Design shall consist of all labor, equipment and supplies required to furnish the project design in accordance with the requirements specified in Section 01015 and Section 01335.

A/E Design shall be have a unit of measure lump sum and paid for under item 0003 of the Proposal Schedule.

9.4 AS-BUILT DRAWINGS

As-built drawings shall consist of all labor, equipment and supplies required to produce as-build drawings in accordance with the requirements specified in Section 01335 and 01780A.

As-build drawings shall have a unit of measure lump sum and paid for under item 0004 of the Proposal Schedule.

9.5 UXO/MINE REMOVAL AND CLEARANCE

The Contractor shall be responsible for UXO/Mine removal and Clearance as required per paragraph 8 of Section 1010, Scope of Work.

UXO/Mine Removal and Clearance shall have a unit of measure lump sum and paid for under item 0005 of the Proposal Schedule.

9.6 MOBILIZATION/DEMOBILIZATION

Mobilization, Demobilization shall consist of all labor, equipment, supplies and facilities required to stage all equipment and facilities needed for construction of this project.

Mobilization/Demobilization shall have a unit of measure lump sum and paid for under item 0006 of the Proposal Schedule.

9.7 SITE SECURITY

Site Security shall include all labor, equipment, supplies and facilities necessary to meet the requirements of Section 01040 of this contract. Security operational expenses shall be considered a part of Site Security.

Site Security shall have a unit of measure lump sum and paid for under item 0007 of the Proposal Schedule.

9.8 ROADWAY CONSTRUCTION

Roadway Construction shall consist of all labor, materials, equipment and testing necessary to construct the project in accordance with the requirements of the contract. The Contractor shall refer to the drawings provided in the Appendix, for reference only, to aid in design and construction of the road alignment. Traffic control shall be included under roadway construction.

The Contractor shall be responsible for asphalt paved transitions to the two (2) bridges that intersect the road. Furthermore the Contractor shall provide a minimum of 5 meter gravel transition at the start and end locations of the road with a minimum thickness of 100mm.

Roadway Construction shall have a unit of measure lump sum and paid for under bid item 0008 of the Proposal Schedule that shall include all items as required in paragraphs 9.8.1, 9.8.2, 9.8.3, and 9.8.4.

9.8.1 DEMOLITION/DEBRIS REMOVAL

The contractor shall be responsible for demolish and debris removal of any obstructions within the asphalt road carriageway and should. Demolition and Debris Removal shall be in accordance with the requirements specified in Section 01015. The Contractor should aspect minimum demolition and debris removal for this project. No demolition is to begin until 90 days after Award. **Prior to demolition of any structures the Contractor must receive approval in writing from the COR.**

9.8.2 SITE GRADING AND DRAINAGE

The site grading and drainage shall consist of scarifying existing ground, excavation of existing ditches for positive drainage, shoulder excavation, embankment, and compaction of subgrade in accordance with the requirements specified in Section 01015. The contractor shall design the site grading plan to prevent ponding or flooding of the adjacent properties and intersecting roads impacted by the project footprint. The Contractor is encouraged to utilize the existing gravel/aggregate surfacing for the design of the asphalt paved the road.

9.8.3 PAVEMENT STRUCTURE

The asphalt roadway pavement construction shall be in accordance with the requirements specified in Section 01015 and as shown in the Road Typical Section in the Appendix.

9.8.4 MAINTENANCE OF TRAFFIC

The Contractor shall maintain access to all residences and businesses affected by project construction. This may be accomplished by providing controlled access through the work site or identifying alternate routes. Traffic need not be maintained through portions of the project where there was no previously existing road. Contractor shall submit a traffic control plan for government approval prior to initiation of any construction activities that will restrict access on existing roadways. The Contractor shall submit a, "Traffic Control Plan," for government approval prior to initiation of any construction activities that will restrict access on existing roadways. There will be no separate measurement or payment for maintenance of traffic.

9.9 CANAL BANK RECONSTRUCTION/ REVETMENTS

The Contractor shall design and construct to the canal bank and place revetments at the locations show in the Appendix. The Contractor shall also be responsible for addition canal bank reconstruction/revetment work required per the Contractor's design for stability of the road footprint. The canal revetment shall include a minimum of 300lb, angular, stone riprap.

Canal Bank Reconstruction/Revetments shall have a unit of measure lump sum and paid for under item 0009 of the Proposal Schedule.

9.10 CULVERT DENIAL

The Contractor shall place culvert denial system on the existing culverts along the road alignment, anticipate ten (10) existing culverts. The access denial system shall consist of all labor, materials, equipment and testing necessary to install the culvert denial grates required by this contract, refer to the culvert denial drawings in the Appendix.

Culvert Denial shall a unit of measure of each and paid for under item 0010 of the proposal schedule.

10. COMPLETION OF WORK

All work required under this contract shall be completed within 180 calendar days including government review time from Notice to Proceed for site work.

11. WARRANTY

Contractor shall warranty all asphalt pavement, compaction, culverts, bridges and other drainage structures for a period of one year after final acceptance of the project. The contractor shall warranty all other work for a period of one year after the final acceptance of the project. Warranty work shall include grading, repairing and upgrading eroded areas, structures and drainages as necessary to bring the road back to 100% serviceability.

-- END OF SECTION --

SECTION 01015

TECHNICAL REQUIREMENTS – DESIGN/BUILD

1.0 GENERAL

1.1 COMPLIANCE

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 MINIMUM & ALTERNATE REQUIREMENTS

The design and product requirements stated in these documents are minimum requirements. Exceeding the minimum requirements as improvements to the design stated herein is highly encouraged at no additional cost and as approved by the government. The technical requirements listed in Section 01015 Paragraph 1.8, apply to this project. Any deviation from the technical requirements shall be approved by the Contracting Officer. Request for deviations shall be submitted for approval. The Contractor is encouraged to propose alternate design or products (equipment and material) that are more commonly used in the region; but these variations shall be equal in performance from a technical standpoint as well as more cost effective or allow for more timely completion. Variations shall furnish the same system safety, durability, ease of maintenance and environmental compatibility. The Contractor will be required to submit information as specified in Section 01335 for all proposed variations with which to make a comprehensive comparison of the proposed alternate. All variations of approved designs 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)

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. If during construction, the contractor becomes aware of or encounters UXO/mines or potential UXO/mines, the contractor shall immediately notify the COR, mitigate any delays to scheduled or unscheduled contract work, and clear/remove the UXO/mines. The contractor may only provide clearance/removal services via UNMACA accredited entities. Clearance/removal may only be undertaken in accordance with IMAS/AMAS/USACE standards. 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, and a copy of the clearance certification the following points of contact from the UN Mine Action Center of Afghanistan are provided:

Mohammad Sediq, Chief of Operations,

Email: sediq@unmaca.org

Cell: +93 (0) 705 966 400

Flora Sutherland, Chief Information Officer,

Email: flora.sutherland@macca.org.af

Cell: +93 (0)700 295 207

1.4.2 UNEXPLODED ORDNANCE (UXO) SAFETY SUPPORT 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 after the entire site has been cleared of UXO/mines per the International Mine Action Standards (IMAS) and clearance is done to the anticipated foundation depth, the Contractor becomes aware of or encounters UXO or potential UXO during construction, the Contractor shall immediately stop work at the site of the encounter, move to a safe location, notify the COR and Mine clearance Contractor/ Mine clearance Sub-Contractor, and mitigate any delays to scheduled or unscheduled contract work. The Mine clearance Contractor/ Mine clearance Sub-Contractor shall remove and dispose of UXO's per the International Mine Action Standards (IMAS). These standards can be found at http://www.mineactionstandards.org. The Contractor assumes the risk of any and all personal injury, property damage or other liability, arising out of and resulting from any Contractor action hereunder. In these cases the contractor shall be required to identify and dispose of the ordnance.

1.5 LIMITATION OF WORKING SPACE

The Contractor shall, except where required for special reasons, 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 are likely to 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. If there is conflict in the criteria the most stringent requirement shall be applied. This list is not exclusive and is not necessarily complete. The publications to be taken into consideration shall be those of the most recent editions, except where specific publication years are noted.

Ministry of Rural Rehabilitation and Development (MRRD) and Ministry of Public Works (MPW) Standards

MRRD Standard Drawings

AASHTO American Association of State Highway and Transportation Officials

AASHTO Green Book – A policy on Geometric Design of Highways and Streets, 2004 Edition

AASHTO LRFD Bridge Design Specifications

AASHTO Manual on Uniform Traffic Control Devices

AASHTO Model Drainage Manual

ACI 301M Specifications for Structural Concrete

ACI 318M-08 Building Code Requirements for Structural Concrete, 2008 Edition

ACI 360R-06 Design of Slabs-on-Ground, 2006 Edition

ACI 530/ASCE 5/TMS 402, Building Code Requirements for Masonry Structures

ASCE 7-05, Minimum Design Loads for Buildings and Other Structures, 2005 Edition

ASTM - American Society for Testing and Materials

AWS D1.1, Structural Welding Code – Steel, American Welding Society

NFPA 1, General Fire Protection

NFPA 1141, Site Fire Protection

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

TM 5-785 Weather Data

TM 5-802-1 Economic Studies

UFC 1-300-07A Design Build Technical Requirements

UFC 3-220-03FA Soils and Geology

UFC 3-320-05FA Design: Structural Design Criteria for Structures Other than Buildings

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

UFC 3-250-01FA, Pavement Design for Roads, Streets, Walks and Open Storage Areas

UFC 3-250-18FA, General Provisions and Geometric Design for Roads, Streets, Walks and Open Storage Areas

UFC 1-301-01, Structural Engineering

USCINCCENT OPORD 97-1

EM 1110-3-136 Drainage and Erosion Control – Mobilization Construction

EM 1110-2-1902 Slope Stability

Overseas Environmental Baseline Guidance Document, Department of Defense, May 2007

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

Unified Facility Criteria (UFC) is available online at http://www.wbdg.org/ccb/browse_cat.php?o=29&c=4

Engineering Manuals and other Corps of Engineers Publications are available online at: http://www.hnd.usace.army.mil/TECHINFO/engpubs.htm

In addition, technical criteria provided in USACE-AED Design Requirements (most recent version) shall be required for use in design and construction specifications as indicated in the following documents. The following design criteria shall be used:

AED Design Requirements – Hydrology, latest version

AED Design Requirements - Culvert and Causeway Design, latest version

AED Design Requirements - Vertical Curves, latest version

AED Design Requirements – Horizontal Curves & Super Elevation, latest version

AED Design Requirements – Geotechnical Investigations for USACE Projects, latest version

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.

1.9 AED DESIGN REQUIREMENTS DOCUMENTS

AED Design Requirements documents (latest version) listed above shall be adhered to in this contract. These documents are available from the COR. These documents shall be used as the basis for design and construction, and for selecting options within the United Facilities Guide Specifications (UFGS). It is the contractor's option to use specifications contained in the AED Design Requirements Documents, when provided, or to adapt the UFGS specifications to match the requirements provided in the AED Design Documents and specifications. Site or project specific data and requirements in the AED Design Requirements documents shall supersede UFGS language where there are differing criteria which must be evaluated and selected.

1.10 ENVIRONMENTAL PROTECTION

1.10.1 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.

1.10.2 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.

1.10.3 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.

1.10.4 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.

2.0 CIVIL

2.1 ROADWAY

2.1.1 HORIZONTAL AND VERTICAL CONTROL

Universal Transverse Mercator Grid Zone 41, World Geodetic System (WGS84) and the elevation shall be height above ellipsoid (WGS84) and sea level (EGM96). If there have been gravitational surveys performed nearby, these shall be noted. A survey database file for all features should show ellipsoid height and geoid height and WGS84 latitude/longitude as well as UTM coordinates. WGS84 data shall be corrected to WGS84 (G1150) datum reference. GPS benchmarks shall be documented at ITRF2000 coordinates referenced to epoch 1997. Basic project control surveys will be performed using precise differential carrier-phase tracking Navstar GPS measurement procedures.

The Contractor shall submit raw GPS survey files in the RINEX format. The GPS files shall be submitted using the following naming convention for RINEX files: (ssssdddf.yyt)

ssss: 4-character station name designator

ddd: day of the year of first record

f: file sequence number within day

0: file contains all the existing data of the current day

yy: year

t: file type:

O: Observation file

N: Navigation file

M: Meteorological data file

G: GLONASS Navigation file

H: Geostationary GPS payload nav mess file

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. If monuments have been destroyed or do not exist, an assumed horizontal and vertical datum shall be established. Permanent survey monuments shall be established at approximately 5 kilometer intervals. The horizontal and vertical control established on site shall be a closed loop with third order accuracy and procedures. 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.

2.1.1.1 TOPOGRAPHY REQUIREMENTS

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.

2.1.2 SURVEY AND EXISTING CONDITIONS MAP

The contractor shall prepare an Existing Conditions Map of the property/roadway right-of-way (ROW) including a Boundary Survey. The survey shall show the property boundary along the alignment of the proposed roadway consisting of identifying all property corners, establishing horizontal and vertical control, listing all bearing and distances of property lines from all property corners, and curve data, and tie-ins on every sheet (showing bearing and distance) from at least two (2) major offsite man-made or natural features. The contractor shall place a steel pipe property corner marker (50 mm diameter, 500 mm long) on every corner and a monument on one property corner every 1km showing the elevation, coordinate grid system, and WGS 84 latitude longitude. This survey shall meet the requirements of World Geodetic System 1984 (WGS 84 UTM Zone 41 N in decimal degrees). Existing roads shall be properly stationed and profiles of the centerline of existing road alignments shall be provided. The Existing Conditions Map shall be no less than 1:500 scale and shall include topographic information no less than 20 meters outward in each direction from the property lines with existing contour lines. If the terrain requires grading, blasting or deep fills, the survey and topographic information shall include the entire extents of the affected area plus 5 meters outward. Drainage areas affecting the roadway shall surveyed with topographic information as well. The Contractor shall survey cross section of all rivers, streams and wadis to the highest evident water level at least 25m from the centerline of the road. The Existing Conditions Map shall show the locations of all on-site and nearby offsite existing features including but not limited to buildings, structures, streams (intermittent and perennial), rivers, washes/wadis, major trees, road pavements and connecting road pavement and right of ways, names of roads, widths of roads, easements, and existing underground and aboveground utilities etc. The topographic contour interval shall be no greater than 0.2 meter difference in elevation. In the event the terrain is so steep that contour lines with a 0.2 meters interval are illegible, the contour interval shall be increased to show topographic data clearly. Intermediate elevations shall be provided as necessary to show breaks in grade and changes in terrain. 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, top and toe of retaining walls, flowline and headwalls of existing culverts, etc.

2.1.3 ROADWAY PLAN & PROFILE

Based on the Boundary Survey and Existing Conditions Map a separate Roadway Plan & Profile shall be prepared in plan and profile sheet format at a scale no larger than 1: 500 showing the property boundary and all proposed surface features including but not limited to the road, shoulder, culverts, swales, causeways, retaining walls, guard rails, location of signage, pavement markings etc. Any feature that

cannot be legibly seen on the Roadway Plan shall have a detail made of that particular area. Shown on the Roadway Plan shall be proposed contour lines and how these proposed contour lines shall meet with existing contour lines. The contour interval shall be no greater than .5 meters difference in elevation. Also shown on the Roadway Plan shall be pertinent existing features (on-site and off-site) that will have an influence or impact on the development of the site. All site features shall be clearly defined and dimensioned on the Roadway Plan. The Roadway Plan shall be properly stationed and show complete geometric design of the road with a tables showing curve data. Centerline stationing shall be set at intervals of 50m. The Roadway Plan 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 41 N

2.1.4 CROSS SECTIONS, AND KEY MAP

Based on the survey, Existing Conditions Map and Roadway Plan & Profile, cross sections shall be generated at 50m intervals throughout the project. Additional cross sections shall be provided through any existing and proposed drainage structures and road features. These cross sections shall be obtained through the flowline of the drainage system and note the angle from the road centerline noted. Cross section shall also be provided at the beginning, middle, and end of each superelevation.

Cross sections shall provide design slope angles for road bed and road drainage and design slopes for areas adjacent to the road alignment. Cross Sections drawings shall show the location and height of retaining walls.

Cross sections of rivers will be provided at 25 meters & 50 meters left and right of the proposed bridge alignment.

A typical cross-section shall include 1) pavement thickness, base thickness, and ditching criteria; 2) cross slope; 3) roadway widths; 4) showing the back angles, the slope that must be constructed from the road, based on material type; and 5) slopes tying into existing grade.

An overall site key map that depicts project design area with respect to the project shall be provided.

2.1.5 DETAIL DRAWINGS

Detail drawings for ALL structures including but not limited to erosion control, open drainage ditching, culverts, gabion walls, causeways, bridges, retaining walls, revetments, and other slope stability measures, signage, etc., shall be incorporated into the design.

2.1.6 DEMOLITION

Demolition shall include removal of all structures, foundations, pavements, and utilities, and clearing and grubbing in the alignment of the new road. All refuse and debris shall be disposed of off of the site. 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, and SW. Minimum soil compaction shall be 95 percent of maximum density as defined in ASTM D 1557. Most of the length of the existing roadway is a dirt road. The entire length of roadway shall be demolished and reconstructed according to the design requirements set forth in this contract. Re-use of existing roadway materials is allowed provided it meets the specified requirements for the material type required at the intended location.

2.1.7 ROAD DESIGN

Contractor is responsible for verifying information and quantities before bidding this project and shall design and construct the new road as specified in this RFP. The attachments indicate the location of the beginning and ending point for the roadway. **Information provided in the attachments is for**

informational purposes only. The roadway alignment shown is for illustrative purposes only. The Contractor is responsible for locating the proposed roadway alignment between the beginning and ending point.

The work within this contract shall meet and be constructed in accordance with the Ministry of Rural Rehabilitation and Development (MRRD) and Ministry of Public Works (MPW) "Road and Highway Standards," safety and security standards and other references as stated in this Section 01015 "Technical Requirements." In the event of discrepancies between the contract documents and the MRRD/MPW Standards, the requirements of this contract take precedence.

2.1.7.1 CURRENT CONDITIONS

Sections of existing roadways may meet proposed design requirements for profile and alignment.

2.1.7.2 END STATE

This work includes design and construction of the road starting and ending as described in Section 1010. The roadway shall be constructed with good drainage and erosion protection. High erosion areas, such as shallow drainage crossing and wadi crossings, shall be armored with a hard surfaced crossing such as an at-grade concrete crossing structure. Erosion structures shall be constructed in slide and flood areas to prevent road blockage and wash-out; this includes the construction of check dams and groynes upstream and downstream of low water crossing (aka fords, aka causeways). Dry stacking for retaining walls, bridges, and associated structures will not be allowed.

2.1.7.3 DESIGN VEHICLE AND DESIGN SPEED

The road shall be designed and constructed for a design to carry an average daily traffic volume up to 13,000 vehicles with 50% of the traffic load consisting of trucks conforming to AASHTO HS-25.

The design vehicle shall conform to AASHTO WB-20 and the design speed shall be 80 km/hr.

2.1.7.4 TYPICAL ROAD SECTION

The length of road is approximately 6.5 kilometers long. This road shall be a two lane asphalt paved road with a 7 meter wide carriageway with 1 meter wide gravel shoulders. The road shall be constructed with a minimum cross-slope or crown of 2.0%. The road shall be designed to carry traffic load according to AASHTO HS-25. Reference UFC 3-250-01FA and UFC 3-250-18FA for pavement sections.

2.1.7.5 PAVEMENT STRUCTURE

The asphalt road surface section shall have a minimum of the following: 100 mm hot mix asphalt, placed above 150mm thick aggregate base course material compacted to 100% maximum proctor density, placed above 150mm of subbase compacted to 100% maximum dry density, placed above scarified subgrade compacted to 95% maximum proctor density or base on the results of the Contractor's geotechnical investigation. The Contractor shall adhere to the material gradations noted in the technical specifications but shall select asphalt concrete binder based on the requirements of the job mix.

Shoulders shall be a minimum of 250mm base compacted to 100% maximum dry density, placed above scarified subgrade compacted to 95% maximum dry density.

In the event that the geotechnical investigation reveals that the pavement structure for the road surface and shoulder is insufficient to carry the design load, the Contractor shall design and construct a proper subgrade thickness by excavating and replacing with an embankment or classified materials in 150mm lifts compacted to 95% maximum dry density.

The Contractor shall submit a Hot Mix Asphalt Job Mix Formula to the USACE-AED Engineering Branch through the COR for review and approval prior to commencement of any paving operations.

2.1.7.6 HORIZONTAL ALIGNMENT

The contractor shall straighten road alignment as much as possible. The plans shall show the horizontal alignment for the finished road, to include the edge of the proposed road surface and the proposed edge of shoulder. All intersecting roads, paths, and driveways are required to have a smooth transition to the new road alignment. A minimum turning radius of 15 meters shall be used when designing transitions to existing roads.

The horizontal alignment shall be labeled with the following as a minimum as follows:

Tangents-Bearing and distance on each segment

Curves - Point of Curve (PC) station

Point of Tangent (PT) station

Point of Intersection (PI)

PI Station

Deflection Angle

Tangent (T)

Length (L)

Deflection Angle (Delta)

Degree of Curve (Dc) – Shall not exceed 10 unless on a switchback, if in excess of 10, the minimum outer turning radius shall be 20m.

Radius (R)

Begin of Curve (BC)

End Curve (EC)

2.1.7.7 VERTICAL ALIGNMENT

Based on the survey, centerline profile drawings of the existing and proposed alignment shall be provided. Plan and profile views of project segments shall be shown on the same plan sheet. Detailed requirements for vertical alignment are listed as follows:

- The profiles shall show the vertical alignment for the finished road with the existing grade along this vertical alignment.
- The road shall be built up above existing grade for storm water protection. In agricultural areas, the finished road surface shall be a minimum of 450 mm above the adjoining fields to reduce the potential of damage when irrigating fields.
- **The normal road grade shall be less than 8%. The maximum road grade shall be 10%. Any grade above 8% shall not be sustained for more than 100m.**
- The vertical profile shall be labeled with the following at a minimum:

Tangents- Percent of slope - Shall not exceed 10%, normal maximum grade 8%

Curves - Point of Vertical Intersection Station (PVI-S) - At an even meter stations

Point of Vertical Intersection Elevation (PVI-E)

Algebraic Difference (AD)

Rate of Curvature (K) – Shall meet AASHTO minimums

Curve Length (L) - In even meter increments

Begin Vertical Curve Station (BVC-S)

Bevin Vertical Curve Elevation (BVC-E)

End Vertical Curve Station (EVC-S)

End Vertical Curve Elevation (EVC-E)

Crest (high point) or Sag (low point) station & elevation

2.1.7.8 ROAD CONSTRUCTION ALONG THE CANAL

The conceptual road alignment parallels an existing canal structure along the east side of a large irrigation canal. Canal bank reconstruction/embankment shall be designed and constructed as required to stabilize the new road footprint. Embankments built in or along the canal MUST utilize erosion control measures.

2.1.7.9 CULVERTS

If required, culverts or other related structures shall be constructed. Road sections that cross wide drainages, flood areas, or wadis shall be designed and constructed with additional water and erosion control measures to allow the road to be passable during rain and flood conditions. High erosion areas, such as shallow drainage crossings and wadis, shall be armored with a hard surfaced crossing such as a reinforced concrete crossing slab.

Culverts shall be shown in both the plan and the profile view of the plans and will include notes on the proposed sizes. Design detail drawings of culverts or other related structures shall be included in the plans. Locations and dimensions of all proposed structures shall be shown.

Culverts 1m by 1m or smaller shall not be built. All culverts shall be equipped with denial system. The denial system shall be installed on both ends of the culverts. When constructing box culverts, space the horizontal and vertical bars at 80mm; under no circumstances shall a 90mm sphere be able to pass through the debris/trash screen.

Erosion structures shall be constructed in slide and flood areas to prevent road blockage and wash-out. A minimum of 300mm of compacted road sub-structure shall be placed on top of the culverts. The roadway profile shall have a smooth transition over the concrete culvert and the aggregate surface width and thickness shall be maintained throughout the crossing.

2.1.7.9.1 CULVERT ACCESS DENIAL SYSTEM

All existing new culverts shall be equipped with access denial system. The denial system shall be installed on both ends of the culverts as shown in Appendix.

2.1.7.10 SITE GRADING AND DRAINAGE

The road shall be built up above existing grade for storm water drainage and protection where necessary. Poor subgrade material shall be removed and replaced with clean, compactable gravel. Drainage of the area should be compatible with the existing terrain. The contractor shall use USGS topographic maps to

delineate all watersheds and verify that all drainage areas are accounted for. The site shall be designed to provide positive drainage and minimize the requirement for major structures in a cost effective manner.

Rainfall data shall be based on data obtained from meteorological records collected in Afghanistan. National agencies may be consulted for data. In the absence of site specific data, intensity-duration-frequency curves contained in the AED Design Requirements – Hydrology, most recent version shall be used by extrapolating the rainfall intensity information from the stations in closest proximity to the project.

Drainage ditching is required on both sides of the road and ditches shall terminate in areas where water can drain away from road structure. Hydrology of the region shall be used to determine drainage ditch and structure sizes.

Embankments, at approaches to curves and wadi crossings, shall be cut and sloped to allow good sight distance. Blind corners shall be corrected so oncoming traffic can be seen and to allow for better sight distance for approaching traffic with a minimum sight distance of 50m or as stated within the MRRD and MPW standards, whichever is greater.

Built up road sections (with rock or structures) shall be structurally sound to meet seismic requirements.

2.1.7.10.1 STORM DRAINS

New storm drain pipes, if required, shall be designed for gravity flow during the design storm having a recurrence interval of no less than 10 years unless otherwise approved by the Government. The hydraulic grade line shall be calculated for the storm drain system and all energy losses accounted for. Design computations shall adhere to procedures contained in UFC 3-230-17A. Storm drain systems shall be designed to provide a minimum flow velocity of .75 meters per second when the drains are one-third or more full.

2.1.7.10.2 CONCRETE PIPE

Reinforced concrete pipe shall be a minimum Class III. Type I cement may be used only when sulfates in the soil are 0.1 percent or less and dissolved sulfates in the surface water are 150 ppm or less. Type II cement may be used only when sulfates in the soil are 0.2 percent or less and dissolved sulfates in the surface water are 1,500 ppm or less. Only Type V cement may be used if sulfates in the soil exceed 0.2 percent or dissolved sulfates in the effluent exceed 1,500 ppm. Concrete pipe shall be assumed to have a minimum design service life of 50 years unless the Contractor determines that conditions at the site will reduce the service life. Concrete culverts and storm drains shall be protected by a minimum of 1 meter of cover during construction to prevent damage by heavy construction equipment.

2.2 GEOTECHNICAL

2.2.1 SOIL AND ROCK INVESTIGATION

Existing geotechnical information is not available at the project site. Any site-specific geotechnical data required to develop pavement structure, slope stability, 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). For standard penetration test (SPT), the Contractor shall use ASTM D1586. All geotechnical laboratory and field work shall be based on standards set forth in the ASTM. Contractor shall not use any DIN standards for penetration tests in lieu of ASTM D 1586. Soil investigations shall conform with AED Design Requirements: Geotechnical Investigations for USACE Projects, latest version.

California Bearing Ration (CBR) tests shall be conducted on the existing soils every 100 meters throughout the proposed road alignment. In areas where the road will require cuts into the subgrade, testing shall be conducted every 20 meters. In all cases, testing shall be a minimum of 2 meters below the finished grade. Results from the tests shall be used to calculate the pavement structure using the minimum pavement structure as dictated in Section 2.1.8.10 as a reference. In the event that the calculations based on the CBR tests reveal that the pavement structure dictated in Section 2.1.8.10 is insufficient to carry the design load, the Contractor shall remove the unsuitable material and replace it with suitable materials compacted to the minimum requirements as determined by the design.

For foundation design, allowable soil bearing pressures shall be determined by calculations made based on the physical and mechanical properties obtained from laboratory testing. The soil bearing pressures calculated shall be compared with the International Building Code (IBC) 2006 Table 1804.2. The lowest of the two bearing pressures, calculated or Table 1804.2, shall be chosen for the allowable soil bearing pressure.

The alignment of this roadway will traverse high mountains and steep valleys. The geotechnical report shall identify ALL lengths of the roadway, by stationing, where there may be slope stability issues and provide recommendations to prevent landslides and rockfalls. Where there are slope stability issues, test borings shall be taken in that area. Based on the test results and calculations, slope stability measures can be decided. Reference EM 1110-2-1902 for guidance.

The contractor shall submit a geotechnical investigation plan prior to commencing any field investigation to the USACE-AED Engineering Branch through the COR for review and approval. Once the plan is reviewed and approved, the Contractor can start the field investigation. The Geotechnical report shall be submitted with all the design review submittals as specified in the 01335. No design review submittal shall be considered complete without an approved geotechnical report. Geotechnical investigation plans and report of investigations shall be submitted promptly in accordance with Section 01335.

2.2.2 GEOTECHNICAL QUALIFICATIONS

A geotechnical engineer that is a member of a geotechnical firm responsible to the Contractor shall oversee all geotechnical engineering design parameters. The geotechnical engineer shall be qualified by: education in geotechnical engineering, AND professional registration; AND a minimum of ten (10) years of experience in geotechnical engineering design. The geotechnical firm conducting either the field investigation or laboratory work shall be certified by the Chief, Quality Assurance Branch USACE-AED. Certification document shall be submitted as part of the Geotechnical Report.

2.2.3 EARTHWORK AND FOUNDATION PREPARATION

2.2.3.1 SATISFACTORY MATERIALS

Any materials classified by ASTM D 2487 as GW, GW-GM, GW-GC, SW, SW-SM, or SW-SC and free of debris, roots, wood, scrap material, vegetation, refuse, soft unsound particles, or objectionable materials.

2.2.3.2 UNSATISFACTORY MATERIALS

Any materials which do not comply with the requirements set forth in the Satisfactory Materials paragraph. Unsatisfactory materials also include man-made fills, trash, refuse, or backfills from previous construction. Unsatisfactory material also includes material classified as satisfactory which contains root and other organic matter, frozen material, and stones larger than 75mm. The Contracting Officer shall be notified of any unsatisfactory materials.

2.2.3.3 CLEARING AND GRUBBING

If required the Contractor shall remove tress, stumps, logs, shrubs, brush and vegetation, and other items that would interfere with construction operations. Remove stumps entirely. Grub out matted roots and roots over 50mm in diameter to at least 500mm below existing surface.

2.2.3.4 EXCAVATION AND COMPACTION OF FILL

Excavate to contours, elevation, and dimensions indicated. Reuse excavated materials that meet the specified requirements for the material type required at the intended location. Keep excavations free from water. Excavate soil disturbed or weakened by Contractor's operations, soils softened or made unsuitable for subsequent construction due to exposure to weather. Excavations below indicated depths will not be permitted except to remove unsatisfactory material. Unsatisfactory material encountered below the grades shown shall be removed as directed. Refill with satisfactory material and compact to at least 95 percent of the maximum dry density, as determined by the Modified Proctor laboratory procedure. ASTM D 1557 shall be used for producing the Modified Proctor moisture-density curve, unless the soil to be compacted includes more than 30% retained on the 19 mm (3/4") sieve. In this case, the Contractor must replace the ASTM D 1557 laboratory compaction procedure with AASHTO T 180, Method D, corrected with AASHTO T 224.

During compaction, the moisture content of the soil shall be within 1.5 percent of the optimum moisture content, as determined by the Modified Proctor laboratory procedure. The thickness of compacted lifts shall not exceed 15 cm and the dry density of each compacted lift shall be tested by either sand cone (ASTM D 1556) or nuclear gage (ASTM D 2292). If the nuclear gage is used, it must first be compared to sand cone tests for each soil type to verify the accuracy of the nuclear gage measurements for moisture content, wet density, and dry density. Furthermore, every tenth nuclear gage test must be accompanied by a sand cone test and these verification data must be summarized and submitted to the Contracting Officer. Density tests shall be performed at a frequency of not less than one test for each 200 square meters and not less than two tests per compacted lift.

-END OF SECTION-

SECTION 01040

SECURITY

1.0 SPECIFIC CONTRACT SECURITY ASSESSMENT

The Contractor will construct the Project in an active war zone where International Security Assistance Forces (ISAF) may conduct offensive and defensive operations against a variety of hostile forces, to include members of the Taliban. The Contractor understands that it may not receive any support whatsoever in securing the Project site and in securing the transportation of materials to the Project site. Neither U.S. Government nor other ISAF forces are available to provide exclusive security for the Project. The Contractor is responsible for securing the Project site and in securing the transportation of materials to the Project site. The Contracting Officer possesses no ability to control the operations of either ISAF or hostile forces. The Government, acting in its sovereign capacity in its prosecution of its operations, may take actions which directly or indirectly affect the Contractor. These kinds of acts are general in application, not specifically directed at the Contractor. The Contractor recognizes that such actions may be taken, and that they will not entitle the Contractor to make claims for excusable or compensable delays. The Contractor possesses sufficient information about the specific security situation at the site to enable it to formulate an appropriate security plan. The Contractor understands that the security situation at the Project is subject to significant transformation in a short time span based on the changing operational picture in the region. The Contractor's security plan will take this factor into account.

2.0 GOVERNMENT PREREQUISITES TO CONTRACTOR DEPLOYMENT OF SITE SECURITY PERSONNEL

The following regulations, policies, and standard contract clauses apply to Contractor-Provided Site Security Personnel:

a. DODI 3020.41; **Contractor Personnel Authorized to Accompany the U.S. Armed Forces**; 3 OCT 2005 (available at www.dtic.mil/whs/directives/corres/pdf/302041p.pdf).

b. DODI 3020.50; **Private Security Contractors (PSCs) Operating in Contingency Operations**; 22 JUL 2009 (available at www.dtic.mil/whs/directives/corres/pdf/302050p.pdf).

c. USCENTCOM Contracting Command, **Acquisition Instruction**; 5 NOV 2010 (available at http://c3-training.net/policy.html).

d. DFARS 252.225-7040, **Contractor Personnel Authorized to Accompany U.S. Armed Forces Deployed Outside the United States** (JUL 2009).

e. CENTCOM Contracting Command Clause 952.223-0001**, Reporting Kidnappings, Serious Injuries and Deaths (JUL 2010).**

f. CENTCOM Contracting Command Clause 952.225-0001, **Arming Requirements and Procedures For Personal Security Services Contractors And For Requests For Personal Protection** (AUG 2010).

g. CENTCOM Contracting Command Clause 952.225-0002, **Armed Personnel Incident Reports** (SEP 2010).

h. CENTCOM Contracting Command Clause 952.225-0004**, Compliance with Laws and**

Regulations (JUL 2010).

i. CENTCOM Contracting Command Clause 952.225-0005, **Monthly Contractor Census Reporting** (JUL 2010).

j. CENTCOM Contracting Command Clause 952.225-0008**, Shipping Instructions for Weapons (JUL 2010).**

The Contractor understands its responsibilities under these regulations, policies, and standard contract clauses, as well as its responsibilities under Afghan law, with regard to its contracts for and employment of security personnel. The Contractor is not authorized to deploy any site security personnel until it complies with all prerequisites identified in these references. The Contractor acknowledges that its repeated failure to comply with these regulations, policies, and standard contract clauses constitute grounds for the Government to terminate the Contractor for default.

3.0 GOVERNMENT REPRESENTATIVES

During the Project, USACE may disseminate essential security information to the Contractor and will attempt to assist with any Contractor's questions and concerns. The USACE Area Office OIC/NCOIC will serve as the Area Office Security Officer and the Resident Office OIC/NCOIC will serve as the Resident Office Security Officer (collectively "the Security Officers").

4.0 SECURITY COORDINATION

Contractor will be required to coordinate construction site security with any Afghan or Coalition Forces and Local Governments that are available, if any, to assist the Contractor on a case-by-case basis. Coordination does **not** include nor imply making any unauthorized or illegal payments to the local ANA/ANP or Local/Provincial Government Officials for permission or protection to construct the project. The Contractor will immediately inform the Government if asked to make any such payments, and the Government will provide further direction to the Contractor. Corruption will not be tolerated at any level, under any circumstances. Conducting business in this manner will be grounds for termination of the contract.

5.0 SECURITY PLAN

The Security Officers will review and approve all current and future Contractor security plans prior to submittal approval by the authorized representative of the Contracting Officer. The Security Officers shall ensure that all Contractor security plans are in accordance with the Contract requirements. The security plans shall address movement of Contractor labor, material, and equipment. The Security Officers will lead the quality assurance program to ensure Contractors are executing their approved security plans. The Government will not allow the Contractor to start work on the Project site without an approved security plan.

5.1 SECURITY RATING

Each contract or task order will be assigned a rating by the Area Office Security Officer. This rating will determine the level of approval for the security plan. Assistance from the District's J2/J3 may be required to assess the rating. Ratings and approval levels are below:

a. Extremely High Risk: District Commander
b. High Risk: Deputy CDR, Chief of E&C, Area OIC, J2 OIC, or J3 OIC
c. Moderate Risk: Chief of Construction, Area OIC/NCOIC, or Area Engineer
d. Low Risk: Resident OIC/NCIOC, Resident Engineer

The rating assigned is in no way an indication that the security situation at the site will remain at a constant level throughout the Project.

5.2 SITE SECURITY FOR PROJECTS OUTSIDE OF ACTIVE COALITION FORCE BASES

The Contractor shall develop a site security plan and program to provide 24 hr/7 days a week security for the Project throughout its performance. The security plan must consider all construction-related sites; batch plants, material sources, stockpiles, worker camps and any other location where there is a major construction effort. The plan must also address security as it relates to the transportation of materials, equipment, personnel, and other items and individuals to the site. The Contractor is expected to perform all required actions to protect the construction site compound from theft and vandalism and personnel from physical harm. These measures are strictly for the protection and defense of the on-site people and property; Contractors are not authorized to conduct any type of offensive operations. For security of road construction, transportation of supplies, and equipment convoys, see the appropriate section below.

5.3 ESTIMATED THREAT ASSESSMENT

The Contractor is expected to develop a site security plan to cover a range of security operations from low to high threat. Included in this security plan will be the capability for a surge of manpower and equipment required during high threat conditions. The Contractor is expected to notify all on-site personnel of increased threats and protective action to take.

5.4 ADDITIONAL CIVILIAN ARMING REQUIREMENTS

The Contractor must include in its security plan, and must continue to maintain throughout the Project, current information on the following items for all its armed civilian personnel: MOI license number, AISA license, armed Contractor & subcontractor company names, contract number/title, contracting agency (USACE-AES), type of work, number/type of weapons authorized, POC for company with contact details, Government Contracting Officer and COR with contact details, number of security personnel by type (U.S., Afghan, Other), company's country of registration/origin, names, photos, and tazkira numbers of security personnel as well as those personnel with access to weapons/ammo and those persons who will be handling or transporting explosives. In addition the Contractor will immediately update any change to the coordinates of the Contractor's base camps, quarries, and current work locations. The Contractor shall submit, prior to the commencement of construction, a plan for security protection, with a list of the chain of command. Perimeter security shall prevent unauthorized site access and provide safety protection to the Contractor work force and government personnel for the duration of the project.

6.0 SECURITY PLAN SUBMITTAL REQUIREMENTS

Contractors will submit all security plans in accordance with contract Section 01335 – Submittal Procedures for Projects.

7.0 COMMUNICATION

The Contractor will operate a 24/7 security operations center with communication capability to each guard on duty and the ability to notify all on-site personnel of increased threats and protective actions to take. The operations center will also have 24/7 communication with the local Coalition, ANA, or ANP security forces. The Contractor shall have communication with the Resident Office Security Officer at all times for rapid emergency response; the Resident Office Security Officer will give the Contractor the District J2/J3 contact information. Communication can be via cell phone, email, satellite phones, VHF, HF, CODAN, text, or other communication technologies compatible with the Government's capabilities. The Contractor will provide the Government with their contact information (names, numbers, frequencies, email addresses, transponder IDs, etc.) for the site encompassing all available communication means.

8.0 CONTRACTOR PROVIDED EQUIPMENT

The Contractor will provide the operational security equipment including but not limited to weapons, radios, uniforms, vehicles, vehicle fuel, phones, and other equipment as proposed by the Contractor to provide complete site security.

9.0 KEY CONTROL

The Contractor shall establish and implement methods in writing to ensure that all keys issued by the Contractor are not lost or misplaced and are not used by unauthorized persons. The Contractor shall develop procedures covering key control that will be included in their quality control system (See Section 01451). The project managers will keep a master log of all keys and provide a copy to the contracting officer's representative (COR) for verification. If a key is lost or stolen, the Contractor shall pay to have all impacted locks changed/rekeyed immediately.

10.0 CRITICAL INFORMATION TO REPORT

The Government is responsible for the management and oversight of DOD Contracted AC/PSCs delivering services throughout the CJOA-A. Given the impact of either Contractor misbehavior or catastrophic attacks against Contractors, it is critical that information regarding AC/PSC incidents is communicated quickly and accurately to the Government for purposes of management, fact-finding, and mitigation where necessary. The Government must receive the information addressed below. The Contractor will report any of these information requirements immediately to the Resident Office Security Officer:

a. AC/PSC Escalation of Force to include the use of weapons resulting in the death or injury of an Afghan citizen, coalition, or U.S. service member, other government official, or Contractor
b. AC/PSC accidents, traffic, or otherwise, resulting in the death or injury of an Afghan citizen, coalition, or U.S. service member, governmental official, or Contractor.
c. Attacks against AC/PSC activities by Anti-Afghan Forces resulting in the death or injury of an Afghan citizen, coalition or US service member, governmental official, or Contractor.
d. Reports of "lost convoys." These are AC/PSC escort or independent activities which have lost contact with their companies.
e. AC/PSC Escalation of Force, accidents, or other activities that result in significant damage to Afghan or USG vehicles, materials or facilities.
f. Anti-Afghan Force actions including small arms fires (SAF), RPG fire, indirect fire (IDF), improvised explosive devices (IEDs), and/or complex attacks against AC/PSC activities.
g. Contractor accidental or negligent discharge of a weapon.

STANDARD CONTRACT CLAUSES:

DFARS Clause 252.225-7040 :

CONTRACTOR PERSONNEL AUTHORIZED TO ACCOMPANY U.S. ARMED FORCES DEPLOYED OUTSIDE THE UNITED STATES (JUL 2009)

(a) *Definitions*. As used in this clause—

"Combatant Commander" means the commander of a unified or specified combatant command established in accordance with 10 U.S.C. 161.

"Designated operational area" means a geographic area designated by the combatant commander or subordinate joint force commander for the conduct or support of specified military operations.

"Law of war" means that part of international law that regulates the conduct of armed hostilities. The law of

war encompasses all international law for the conduct of hostilities binding on the United States or its individual citizens, including treaties and international agreements to which the United States is a party, and applicable customary international law.

"Subordinate joint force commander" means a sub-unified commander or joint task force commander.

(b) *General*.

(1) This clause applies when Contractor personnel are authorized to accompany U.S. Armed Forces deployed outside the United States in—

(i) Contingency operations;

(ii) Humanitarian or peacekeeping operations; or

(iii) Other military operations or military exercises, when designated by the Combatant Commander.

(2) Contract performance in support of U.S. Armed Forces deployed outside the United States may require work in dangerous or austere conditions. Except as otherwise provided in the contract, the Contractor accepts the risks associated with required contract performance in such operations.

(3) Contractor personnel are civilians accompanying the U.S. Armed Forces.

(i) Except as provided in paragraph (b)(3)(ii) of this clause, Contractor personnel are only authorized to use deadly force in self-defense.

(ii) Contractor personnel performing security functions are also authorized to use deadly force when such force reasonably appears necessary to execute their security mission to protect assets/persons, consistent with the terms and conditions contained in their contract or with their job description and terms of employment.

(iii) Unless immune from host nation jurisdiction by virtue of an international agreement or international law, inappropriate use of force by contractor personnel authorized to accompany the U.S. Armed Forces can subject such personnel to United States or host nation prosecution and civil liability (see paragraphs (d) and (j)(3) of this clause).

(4) Service performed by Contractor personnel subject to this clause is not active duty or service under 38 U.S.C. 106 note.

(c) *Support*.

(1)(i) The Combatant Commander will develop a security plan for protection of Contractor personnel in locations where there is not sufficient or legitimate civil authority, when the Combatant Commander decides it is in the interests of the Government to provide security because—

(A) The Contractor cannot obtain effective security services;

(B) Effective security services are unavailable at a reasonable cost; or

(C) Threat conditions necessitate security through military means.

(ii) The Contracting Officer shall include in the contract the level of protection to be provided to Contractor personnel.

(iii) In appropriate cases, the Combatant Commander may provide security through military means, commensurate with the level of security provided DoD civilians.

(2)(i) Generally, all Contractor personnel authorized to accompany the U.S. Armed Forces in the designated operational area are authorized to receive resuscitative care, stabilization, hospitalization at level III military treatment facilities, and assistance with patient movement in emergencies where loss of life, limb, or eyesight could occur. Hospitalization will be limited to stabilization and short-term medical treatment with an emphasis on return to duty or placement in the patient movement system.

(ii) When the Government provides medical treatment or transportation of Contractor personnel to a selected civilian facility, the Contractor shall ensure that the Government is reimbursed for any costs associated with such treatment or transportation.

(iii) Medical or dental care beyond this standard is not authorized unless specified elsewhere in this contract.

(3) Unless specified elsewhere in this contract, the Contractor is responsible for all other support required for its personnel engaged in the designated operational area under this contract.

(4) Contractor personnel must have a letter of authorization issued by the Contracting Officer in order to process through a deployment center or to travel to, from, or within the designated operational area. The letter of authorization also will identify any additional authorizations, privileges, or Government support that Contractor personnel are entitled to under this contract.

(d) *Compliance with laws and regulations*.

(1) The Contractor shall comply with, and shall ensure that its personnel authorized to accompany U.S. Armed Forces deployed outside the United States as specified in paragraph (b)(1) of this clause are familiar with and comply with, all applicable—

(i) United States, host country, and third country national laws;

(ii) Provisions of the law of war, as well as any other applicable treaties and international agreements;

(iii) United States regulations, directives, instructions, policies, and procedures; and

(iv) Orders, directives, and instructions issued by the Combatant Commander, including those relating to force protection, security, health, safety, or relations and interaction with local nationals.

(2) The Contractor shall institute and implement an effective program to prevent violations of the law of war by its employees and subcontractors, including law of war training in accordance with paragraph (e)(1)(vii) of this clause.

(e) *Pre-deployment requirements*.

(1) The Contractor shall ensure that the following requirements are met prior to deploying personnel authorized to accompany U.S. Armed Forces. Specific requirements for each category may be specified in the statement of work or elsewhere in the contract.

(i) All required security and background checks are complete and acceptable.

(ii) All deploying personnel meet the minimum medical screening requirements and have received all required immunizations as specified in the contract. The Government will provide, at no cost to the Contractor, any theater-specific immunizations and/or medications not available to the general public.

(iii) Deploying personnel have all necessary passports, visas, and other documents required to enter and exit a designated operational area and have a Geneva Conventions identification card, or other appropriate DoD identity credential, from the deployment center. Any Common Access Card issued to deploying personnel shall contain the access permissions allowed by the letter of authorization issued in accordance with paragraph (c)(4) of this clause.

(iv) Special area, country, and theater clearance is obtained for personnel. Clearance requirements are in DoD Directive 4500.54, Official Temporary Duty Abroad, and DoD 4500.54-G, DoD Foreign Clearance Guide. Contractor personnel are considered non-DoD personnel traveling under DoD sponsorship.

(v) All personnel have received personal security training. At a minimum, the training shall—

(A) Cover safety and security issues facing employees overseas;

(B) Identify safety and security contingency planning activities; and

(C) Identify ways to utilize safety and security personnel and other resources appropriately.

(vi) All personnel have received isolated personnel training, if specified in the contract, in accordance with DoD Instruction 1300.23, Isolated Personnel Training for DoD Civilian and Contractors.

(vii) Personnel have received law of war training as follows:

(A) Basic training is required for all Contractor personnel authorized to accompany U.S. Armed Forces deployed outside the United States. The basic training will be provided through—

(1) A military-run training center; or

(2) A web-based source, if specified in the contract or approved by the Contracting Officer.

(B) Advanced training, commensurate with their duties and responsibilities, may be required for some Contractor personnel as specified in the contract.

(2) The Contractor shall notify all personnel who are not a host country national, or who are not ordinarily resident in the host country, that—

(i) Such employees, and dependents residing with such employees, who engage in conduct outside the United States that would constitute an offense punishable by imprisonment for more than one year if the conduct had been engaged in within the special maritime and territorial jurisdiction of the United States, may potentially be subject to the criminal jurisdiction of the United States in accordance with the Military Extraterritorial Jurisdiction Act of 2000 (18 U.S.C. 3621, *et seq*.);

(ii) Pursuant to the War Crimes Act (18 U.S.C. 2441), Federal criminal jurisdiction also extends to conduct that is determined to constitute a war crime when committed by a civilian national of the United States;

(iii) Other laws may provide for prosecution of U.S. nationals who commit offenses on the premises of U.S. diplomatic, consular, military or other U.S. Government missions outside the United States (18 U.S.C. 7(9)); and

(iv) In time of declared war or a contingency operation, Contractor personnel authorized to accompany U.S. Armed Forces in the field are subject to the jurisdiction of the Uniform Code of Military Justice under 10 U.S.C. 802(a)(10).

(f) *Processing and departure points*. Deployed Contractor personnel shall—

(1) Process through the deployment center designated in the contract, or as otherwise directed by the Contracting Officer, prior to deploying. The deployment center will conduct deployment processing to ensure visibility and accountability of Contractor personnel and to ensure that all deployment requirements are met, including the requirements specified in paragraph (e)(1) of this clause;

(2) Use the point of departure and transportation mode directed by the Contracting Officer; and

(3) Process through a Joint Reception Center (JRC) upon arrival at the deployed location. The JRC will validate personnel accountability, ensure that specific designated operational area entrance requirements are met, and brief Contractor personnel on theater-specific policies and procedures.

(g) *Personnel data*.

(1) The Contractor shall enter before deployment and maintain data for all Contractor personnel that are authorized to accompany U.S. Armed Forces deployed outside the United States as specified in paragraph (b)(1) of this clause. The Contractor shall use the Synchronized Predeployment and Operational Tracker (SPOT) web-based system, at http://www.dod.mil/bta/products/spot.html, to enter and maintain the data.

(2) The Contractor shall ensure that all employees in the database have a current DD Form 93, Record of Emergency Data Card, on file with both the Contractor and the designated Government official. The Contracting Officer will inform the Contractor of the Government official designated to receive this data card.

(h) *Contractor personnel*.

(1) The Contracting Officer may direct the Contractor, at its own expense, to remove and replace any Contractor personnel who jeopardize or interfere with mission accomplishment or who fail to comply with or violate applicable requirements of this contract. Such action may be taken at the Government's discretion without prejudice to its rights under any other provision of this contract, including the Termination for Default clause.

(2) The Contractor shall have a plan on file showing how the Contractor would replace employees who are unavailable for deployment or who need to be replaced during deployment. The Contractor shall keep this plan current and shall provide a copy to the Contracting Officer upon request. The plan shall—

(i) Identify all personnel who are subject to military mobilization;

(ii) Detail how the position would be filled if the individual were mobilized; and

(iii) Identify all personnel who occupy a position that the Contracting Officer has designated as mission essential.

(3) Contractor personnel shall report to the Combatant Commander or a designee, or through other channels such as the military police, a judge advocate, or an inspector general, any suspected or alleged conduct for which there is credible information that such conduct—

(i) Constitutes violation of the law of war; or

(ii) Occurred during any other military operations and would constitute a violation of the law of war if it occurred during an armed conflict.

(i) *Military clothing and protective equipment*.

(1) Contractor personnel are prohibited from wearing military clothing unless specifically authorized in

writing by the Combatant Commander. If authorized to wear military clothing, Contractor personnel must—

(i) Wear distinctive patches, arm bands, nametags, or headgear, in order to be distinguishable from military personnel, consistent with force protection measures; and

(ii) Carry the written authorization with them at all times.

(2) Contractor personnel may wear military-unique organizational clothing and individual equipment (OCIE) required for safety and security, such as ballistic, nuclear, biological, or chemical protective equipment.

(3) The deployment center, or the Combatant Commander, shall issue OCIE and shall provide training, if necessary, to ensure the safety and security of Contractor personnel.

(4) The Contractor shall ensure that all issued OCIE is returned to the point of issue, unless otherwise directed by the Contracting Officer.

(j) *Weapons*.

(1) If the Contractor requests that its personnel performing in the designated operational area be authorized to carry weapons, the request shall be made through the Contracting Officer to the Combatant Commander, in accordance with DoD Instruction 3020.41, paragraph 6.3.4.1 or, if the contract is for security services, paragraph 6.3.5.3. The Combatant Commander will determine whether to authorize in-theater Contractor personnel to carry weapons and what weapons and ammunition will be allowed.

(2) If the Contracting Officer, subject to the approval of the Combatant Commander, authorizes the carrying of weapons—

(i) The Contracting Officer may authorize the Contractor to issue Contractor-owned weapons and ammunition to specified employees; or

(ii) The *[Contracting Officer to specify the appropriate individual, e.g., Contracting Officer's Representative, Regional Security Officer]* may issue Government-furnished weapons and ammunition to the Contractor for issuance to specified Contractor employees.

(3) The Contractor shall ensure that its personnel who are authorized to carry weapons—

(i) Are adequately trained to carry and use them—

(A) Safely;

(B) With full understanding of, and adherence to, the rules of the use of force issued by the Combatant Commander; and

(C) In compliance with applicable agency policies, agreements, rules, regulations, and other applicable law;

(ii) Are not barred from possession of a firearm by 18 U.S.C. 922; and

(iii) Adhere to all guidance and orders issued by the Combatant Commander regarding possession, use, safety, and accountability of weapons and ammunition.

(4) Whether or not weapons are Government-furnished, all liability for the use of any weapon by Contractor personnel rests solely with the Contractor and the Contractor employee using such weapon.

(5) Upon redeployment or revocation by the Combatant Commander of the Contractor's authorization to issue firearms, the Contractor shall ensure that all Government-issued weapons and unexpended

ammunition are returned as directed by the Contracting Officer.

(k) *Vehicle or equipment licenses*. Contractor personnel shall possess the required licenses to operate all vehicles or equipment necessary to perform the contract in the designated operational area.

(l) *Purchase of scarce goods and services*. If the Combatant Commander has established an organization for the designated operational area whose function is to determine that certain items are scarce goods or services, the Contractor shall coordinate with that organization local purchases of goods and services designated as scarce, in accordance with instructions provided by the Contracting Officer.

(m) *Evacuation*.

(1) If the Combatant Commander orders a mandatory evacuation of some or all personnel, the Government will provide assistance, to the extent available, to United States and third country national Contractor personnel.

(2) In the event of a non-mandatory evacuation order, unless authorized in writing by the Contracting Officer, the Contractor shall maintain personnel on location sufficient to meet obligations under this contract.

(n) *Next of kin notification and personnel recovery*.

(1) The Contractor shall be responsible for notification of the employee-designated next of kin in the event an employee dies, requires evacuation due to an injury, or is isolated, missing, detained, captured, or abducted.

(2) In the case of isolated, missing, detained, captured, or abducted Contractor personnel, the Government will assist in personnel recovery actions in accordance with DoD Directive 3002.01E, Personnel Recovery in the Department of Defense.

(o) *Mortuary affairs*. Mortuary affairs for Contractor personnel who die while accompanying the U.S. Armed Forces will be handled in accordance with DoD Directive 1300.22, Mortuary Affairs Policy.

(p) *Changes*. In addition to the changes otherwise authorized by the Changes clause of this contract, the Contracting Officer may, at any time, by written order identified as a change order, make changes in the place of performance or Government-furnished facilities, equipment, material, services, or site. Any change order issued in accordance with this paragraph (p) shall be subject to the provisions of the Changes clause of this contract.

(q) *Subcontracts*. The Contractor shall incorporate the substance of this clause, including this paragraph (q), in all subcontracts when subcontractor personnel are authorized to accompany U.S. Armed Forces deployed outside the United States in—

(1) Contingency operations;

(2) Humanitarian or peacekeeping operations; or

(3) Other military operations or military exercises, when designated by the Combatant Commander.

(End of clause)

CENTCOM Contracting Command Clause 952.223-0001:

REPORTING KIDNAPPINGS, SERIOUS INJURIES AND DEATHS
(JUL 2010)

Contractors shall notify the Contracting Officer, as soon as practicable, whenever employee kidnappings, serious injuries or deaths occur. Report the following information:

Contract Number:

Contract Description & Location:

Company Name:

Reporting party:
Name:
Phone number:
e-mail address:

Victim:
Name:
Gender (Male/Female):
Age:
Nationality:
Country of permanent residence:

Incident:

Description:

Location:

Date and time:

Other Pertinent Information:

(End of clause)

CENTCOM Contracting Command Clause 952.225-0001:

ARMING REQUIREMENTS AND PROCEDURES FOR PERSONAL SECURITY SERVICES CONTRACTORS AND FOR REQUESTS FOR PERSONAL PROTECTION (AUG 2010)

(a) ***General*.** Contractor and its subcontractors at all tiers that require arming under this contract agree to obey all laws, regulations, orders, and directives applicable to the use of private security personnel in Iraq and Afghanistan, including U.S. CENTCOM, United States Forces – Iraq (USF-I) and United States Forces – Afghanistan (USFOR-A) Commander orders, instructions and directives. Contractors will ensure that all employees, including employees at any tier of subcontracting relationships, armed under the provisions of this contract, comply with the contents of this clause and with the requirements set forth in the following:

(1) DODI 3020.50, *Private Security Contractors (PSCs) Operating in Contingency Operations;*

(2) DODI 3020.41, *Program Management for Acquisition and Operational Contract Support in Contingency Operations*;

(3) DFARS 252.225-7040, *Contractor Personnel Supporting a Force Deployed Outside the United States*;

(4) Class Deviation 2007-O0010, Contractor Personnel in the United States Central Command Area of Responsibility;

(5) USFOR-A, FRAGO 09-206, Outlines Management of Armed Contractors and Private Security Companies Operating in the Combined Joint Operating Area - Afghanistan (CJOA-A);

(6) USF-I OPORD 10-01, Annex C, Appendix 13;

(7) U.S. CENTCOM Policy Letter, Mod 1, *Personal Protection and Contract Security Service Arming*, dated Dec 2005;

(8) U.S. CENTCOM Policy Letter, Mod 3, *Civilian and Contractor Arming Policy and Delegation of Authority for Iraq and Afghanistan*, dated Nov 2006; and

(9) U.S. CENTCOM Policy Letter, Mod 3, *Civilian and Contractor Arming Policy and Delegation of Authority for Iraq and Afghanistan*, dated Jun 2009;

(b) ***Required Government Documentation*.** An O-6 or GS-15 (or above) from the unit requesting the contractor security shall provide a description of the following to the arming approval authority via the contracting officer representative (COR) in sponsoring each individual request for arming (under paragraph (c) below:

(1) The specific location where the PSC will operate;

(2) The persons and/or property that require protection;

(3) The anticipated threat;

(4) The required weapon types;

(5) The reason current security/police forces are inadequate; and

(6) Verification, under paragraph (e) below, that background checks have been conducted and that no records were found of convictions or other acts that should be known to the arming authority.

(c) ***Required Contractor Documentation***. Contractors and their subcontractors at all tiers that require arming approval shall provide to the arming approval authority via the COR consistent documentation (signed and dated by the employee and employer as applicable) for each of their employees who will seek authorization to be armed under the contract as follows:

(1) Weapons Qualification/Familiarization. All employees must meet the weapons qualification requirements on the requested weapon(s) established by any DoD or other U.S. government agency, Law of Armed Conflict (LOAC); Rules for the Use of Force (RUF), as defined in the U.S. CENTCOM Policy, dated 23 December 2005; and distinction between the above-prescribed RUF and the Rules of Engagement (ROE), which are applicable only to military forces.

(2) Completed DD Form 2760 (or equivalent documentation) for each armed employee, indicating that the employee is not otherwise prohibited under U.S. law from possessing the required weapon or ammunition.

(3) Written acknowledgement by the individual of the fulfillment of training responsibilities and the conditions for the authorization to carry firearms. This document includes the acknowledgement of the

distinctions between the ROE applicable to military forces and RUF that control the use of weapons by DoD civilians, DoD contractors and PSCs.

(4) Written acknowledgement signed by both the armed employee and by a representative of the employing company that use of weapons could subject both the individual and company to U.S. and host nation prosecution and civil liability.

(5) A copy of the contract between the contractor's company and the U.S. Government that verifies the individual's employment and addresses the need to be armed.

(6) One (1) copy of a business license from the Iraqi or Afghani Ministry of Trade or Interior.
(7) One (1) copy of a license to operate as a PSC (or a temporary operating license) from the Ministry of Interior.

(d) **Communication Plan**. The contractor will submit to the COR a communications plan that, at a minimum, sets forth the following:

(1) The contractor's method of notifying military forces and requesting assistance where hostilities arise, combat action is needed or serious incidents have been observed.

(2) How relevant threat information will be shared between contractor security personnel and U.S. military forces.

(3) How the contractor will coordinate transportation with appropriate military authorities.

(e) **Plan for Accomplishing Background Checks**. Prior to requesting arming approval, the contractor will submit to the COR an acceptable plan for accomplishing background checks on all contractor and subcontractor employees who will be armed under the contract. The contractor shall, at a minimum, perform the following (which will be specifically addressed in its plan and which will be documented and furnished to the COR upon completion):

(1) Use one or more of the following sources when conducting the background checks: Interpol, FBI, Country of Origin Criminal Records, Country of Origin U.S. Embassy Information Request, CIA records, and/or any other records available.

(2) Verify with USF-I or USFOR-A, as applicable, that no employee has been barred by any commander within Iraq or Afghanistan.

(3) All local nationals and third country nationals will voluntarily submit to full biometric enrollment in accordance with theater biometric policies within 60 days of their arming request. While biometric collection and screening is voluntary, CORs will immediately notify the arming approval authority of any individuals who do not meet this requirement and any arming authorization will be revoked until all requirements are met.

(f) **Penalties for Non-Compliance**. Failure of contractor or subcontractor employee(s) to comply with the laws, regulations, orders, and rules (including those specified herein) governing the use of force, training, arming authorization, and incident reporting requirements may result in the revocation of weapons authorization for such employee(s). Where appropriate, such failure may also result in the total revocation of weapons authorization for the contractor (or subcontractor) and sanctions under the contract, including termination.

(g) **Criminal and Civil Liability**. Arming of contractor or subcontractor employees under this contract may subject the contractor, its subcontractors, and persons employed by the same, to the civil and criminal jurisdiction of the U.S. and Host Nation. "Host Nation" refers to the nation or nations where services under this contract are performed.

(h) **Lapses in Training or Authorization**. Failure to successfully retrain an employee who has been properly authorized to be armed under this contract within twelve (12) months of the last training date will constitute a lapse in the employee's authorization to possess and carry the weapon. All unauthorized

employees will immediately surrender their weapon and authorization letter to the contractor and will remain unarmed until such time as they are retrained and newly approved by the arming authority. Additionally, the arming authority's authorization letter is valid for a maximum of twelve (12) months from the date of the prior letter (unless authorization is earlier invalidated by a lapse in training).

(i) **Authorized Weapon & Ammunition Types**. Unless DCDRUSCENTCOM (or a designee) expressly provides otherwise, all arming requests and authorizations for contractor or subcontractor employees under this contract shall be limited to U.S. Government-approved weapons and ammunition. Notwithstanding Host Nation laws or regulations that would allow use of heavier weapons by contract security/PSC, all DoD security service / PSC contractors must have weapons approved by DCDRUSCENTCOM (or a designee) before use. This restriction applies to all weapons in the possession of contractor employees, even if such weapons are required for personal protection. The following weapons and ammunition are currently authorized by the U.S. Government for use in Iraq and Afghanistan:

(1) The M9, M4, M16, or equivalent (e.g. .45 CAL, AK-47).

(2) The M9 or equivalent sidearm will be the standard personal protection weapon unless other weapons are specifically requested and approved.

(3) U.S. government Ball ammunition is the standard approved ammunition.

(j) **Requirements for Individual Weapons Possession**. All employees of the contractor and its subcontractors at all tiers who are authorized to be armed under this contract must:

(1) Possess only those U.S. Government-approved weapons and ammunition for which they are qualified under the training requirements of section (c) and subsequently authorized to carry.

(2) Carry weapons only when on duty or at a specific post (according to their authorization).

(3) Not conceal any weapons, unless specifically authorized.

(4) Carry proof of authorization to be armed. Employees not possessing such proof will be deemed unauthorized and must surrender their weapon to their employer.

(5) IAW USCENTCOM G.O. #1, consumption of alcohol in Iraq or Afghanistan is prohibited. In the event of a suspension or an exception to G.O. #1, employees shall not consume any alcoholic beverage while armed or within eight (8) hours of the next work period when they will be armed. There are no circumstances under which a person will be authorized to consume any alcoholic beverage when armed for personal protection.

(k) **Weapons/Equipment Restrictions and Responsibilities**. Unless otherwise provided, the U.S. Government will not provide any weapons or ammunition to contractors, their subcontractors, or any employees of the same. The Contractor will provide all weapons and ammunition to those employees that will be armed under the contract. The contractor and its subcontractors at all tiers will also provide interceptor body armor, ballistic helmets, and the Nuclear, Biological, and Chemical (NBC) protective masks to those employees that require such equipment in the performance of their duties.

(l) **Rules for the Use of Force (RUF)**. In addition to the RUF and ROE training referenced in paragraph (c), the contractor and its subcontractors at all tiers will monitor and report all activities of its armed employees that may violate the RUF and/or otherwise trigger reporting requirements as serious incidents. Prompt reporting demonstrates a desire by the contractor and its subcontractors to minimize the impact of

any violations and, therefore, will be given favorable consideration. Violations of the RUF include, though are not limited to:

(1) Taking a direct part in hostilities or combat actions, other than to exercise self-defense.

(2) Failing to cooperate with Coalition and Host Nation forces.

(3) Using deadly force, other than in self-defense where there is a reasonable belief of imminent risk of death or serious bodily harm.

(4) Failing to use a graduated force approach.

(5) Failing to treat the local civilians with humanity or respect.

(6) Detaining local civilians, other than in self-defense or as reflected in the contract terms.

(m) **Retention and Review of Records**. The Contractor and all subcontractors at all tiers shall maintain records on weapons training, LOAC, RUF and the screening of employees for at least six (6) months following the expiration (or termination) of the contract. The Contractor and its subcontractors at all tiers shall make these records available to the Contracting Officer or designated representative, at no additional cost to the government, within 72 hours of a request.

(n) **Contractor Vehicles**. Vehicles used by contractor and subcontractor personnel in the course of their security duties shall not be painted or marked to resemble U.S./Coalition or host nation military and police force vehicles.

(o) **Quarterly Reporting**. The prime contractor will report quarterly (i.e. NLT 1 January, 1 April, 1 July and 1 October for each quarter of the calendar year) to the Contracting Officer responsible for this contract, and any other organization designated by the Contracting Officer, the following information under this contract:

(1) The total number of armed civilians and contractors.

(2) The names and contact information of its subcontractors at all tiers.

(3) A general assessment of the threat conditions, adequacy of force numbers, and any problems that might require a change to force levels. Note: This information is in addition to the information the contractor promises to immediately provide under the communications plan referenced at paragraph (d).

(End of clause)

CENTCOM Contracting Command Clause 952.225-0002:

ARMED PERSONNEL INCIDENT REPORTS
(SEP 2010)

(a) All contractors and subcontractors in the United States Forces-Iraq (USF-I) or United States Forces-Afghanistan (USFOR-A) theater of operations shall comply with and shall ensure that their personnel supporting USF-I or USFOR-A forces are familiar with and comply with all applicable orders, directives,

and instructions issued by the respective USF-I or USFOR-A Commanders relating to force protection and safety.

(b) **IRAQ**: Contractors shall provide an initial report of all weapons firing incidents or any other serious incidents they or their contractors are involved in to USF-I Contractor Operations Cell (CONOC) as soon as practical, but not later than 4 hours after the incident. The contractor and its subcontractors at all tiers shall submit a written report to CONOC, the Contracting Officer (KO) within 96 hours of the incident. Interim reports shall be submitted between the initial and final report, when necessary to the CONOC at usfic3conoc@iraq.centcom.mil DSN 318-435-2369, UK# 0044 203 286 9851 or 0044 203 239 5894 or Skype: USFICONOC.

(c) **AFGHANISTAN**: Contractors shall immediately report all incidents and use of weapons through their Contracting Officers Representative (CORs) who will notify the Contracting Officer. Contracting Officers are responsible to notify the SCO-A Chief of Operations and the SAR @ USFOR-A (SAR SHIFT DIRECTOR, DSN: 318-237-1761) Information should include: the name of the company, where the incident occurred, time when the incident occurred, a brief description of the events leading up to the incident, and a point of contact for the company. The SCO-A Chief of Operations in coordination with the SAR will issue guidance for further reporting requirements.

(d) Contractors shall provide first aid and request MEDEVAC of injured persons, and remain available for U.S. or Coalition response forces, based upon the situation. In the event contractor personnel are detained by U.S. or Coalition Forces, prolonged detention due to lack of proper identification can be alleviated by contractor personnel possessing on their person information that includes the contractor's name, the contract number, a contractor management POC, and the phone number of the CONOC/SAR Watch.

(End of clause)

CENTCOM Contracting Command Clause 952.225-0004:

COMPLIANCE WITH LAWS AND REGULATIONS
(JUL 2010)

(a) The Contractor shall comply with, and shall ensure that its employees and its subcontractors and their employees, at all tiers, are aware of and obey all U.S. and Host Nation laws, Federal or DoD regulations, and Central Command orders and directives applicable to personnel in Iraq and Afghanistan, including but not limited to USCENTCOM, Multi-National Force and Multi-National Corps operations and fragmentary orders, instructions, policies and directives.

(b) Contractor employees shall particularly note all laws, regulations, policies, and orders restricting authority to carry firearms, rules for the use of force, and prohibiting sexual or aggravated assault. Contractor employees are subject to General Orders Number 1, as modified from time to time, including without limitation, their prohibition on privately owned firearms, alcohol, drugs, war souvenirs, pornography and photographing detainees, human casualties or military security measures.

(c) Contractor employees may be ordered removed from secure military installations or the theater of operations by order of the senior military commander of the battle space for acts that disrupt good order and discipline or violate applicable laws, regulations, orders, instructions, policies, or directives. Contractors shall immediately comply with any such order to remove its contractor employee.

(d) Contractor employees performing in the USCENTCOM Area of Responsibility (AOR) may be subject to the jurisdiction of overlapping criminal codes, including, but not limited to, the Military Extraterritorial Jurisdiction Act (18 U.S.C. Sec. 3261, et al) (MEJA), the Uniform Code of Military Justice (10 U.S.C. Sec.

801, et al)(UCMJ), and the laws of the Host Nation. Non-US citizens may also be subject to the laws of their home country while performing in the USCENTCOM AOR. Contractor employee status in these overlapping criminal jurisdictions may be modified from time to time by the United States, the Host Nation, or by applicable status of forces agreements.

(e) Under MEJA, a person who engages in felony misconduct outside the United States while employed by or accompanying the Armed Forces is subject to arrest, removal and prosecution in United States federal courts. Under the UCMJ, a person serving with or accompanying the Armed Forces in the field during a declared war or contingency operation may be disciplined for a criminal offense, including by referral of charges to a General Court Martial. Contractor employees may be ordered into confinement or placed under conditions that restrict movement within the AOR or administratively attached to a military command pending resolution of a criminal investigation.

(f) Contractors shall immediately notify military law enforcement and the Contracting Officer if they suspect an employee has committed an offense. Contractors shall take any and all reasonable and necessary measures to secure the presence of an employee suspected of a serious felony offense. Contractors shall not knowingly facilitate the departure of an employee suspected of a serious felony offense or violating the Rules for the Use of Force to depart Iraq or Afghanistan without approval from the senior U.S. commander in the country.

(End of clause)

CENTCOM Contracting Command Clause 952.225-0005:

MONTHLY CONTRACTOR CENSUS REPORTING
(JUL 2010)

Contractor shall provide monthly employee census information to the Contracting Officer, by province, for this contract. Information shall be submitted either electronically or by hard-copy. Information shall be current as of the 25th day of each month and received by the Contracting Officer no later than the first day of the following month. The following information shall be provided for each province in which work was performed:

(1) The total number (prime and subcontractors at all tiers) employees.

(2) The total number (prime and subcontractors at all tiers) of U.S. citizens.

(3) The total number (prime and subcontractors at all tiers) of local nationals (LN).

(4) The total number (prime and subcontractors at all tiers) of third-country nationals (TCN).

(5) Name of province in which the work was performed.

(6) The names of all company employees who enter and update employee data in the Synchronized Pre-deployment & Operational Tracker (SPOT) IAW DFARS 252.225-7040 or DFARS DOD class deviation 2007-O0010.

(End of clause)

CENTCOM Contracting Command Clause 952.225-0008:

SHIPPING INSTRUCTION FOR WEAPONS
(JUL 2010)

(a) All weapons shall be shipped with a complete serial number manifest that is included with the shipping documents (inventory, bill of lading, etc.).

(b) All individual boxes or crates shall be numbered and correspond to a list annotated on the serial number manifest.

(c) Each individual box or crate shall have a packing list both inside and outside the box. That packing list shall contain a list of the contents and the serial numbers for the weapons in that box or crate.

(d) The contract number shall be listed on all serial number manifests and packing lists. All serial numbers shall be unique and non-recurring in any previous or future shipments. Shipments received with recurring serial numbers will not be accepted by the U.S. Government, and the contractor will be required to return the shipment at his own expense and replace with new weapons having non-recurring serial numbers.

(End of clause)

FAR 52.225-4001:

SECURITY CONTRACTOR REQUIREMENTS (OCT 2009)

The Contractor shall submit the names of all employees who will be working in security positions prior to their performance of any such work on this contract. All security personnel will be subject to Biometrics (retinal scan) testing by representatives of the Contracting Officer, at any time during performance of work on the contract. The names of security personnel and the Biometrics testing results will be vetted with the Afghanistan government, International Security Assistance Forces (ISAF), or U.S. Forces-Afghanistan to determine if any of the proposed security personnel are on the list of enemy combatants compiled by these sources. If the Contractor is notified by the Contracting Officer that such security personnel are on any of these lists of enemy combatants, such employees must be immediately removed from work on this contract. Repeated incidents of hiring security personnel on any of the lists of enemy combatants will be grounds for terminating the contract for default.

(End of clause)

-- END OF SECTION --

SECTION 01060

SPECIAL CLAUSES

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 approved by the Contracting Officer within the contract limits for operation of his construction equipment and plants, shops, warehouses, and offices. Utilities will be provided for the Contractor as described below. 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. Government provided services are for American and Foreign national contractors only.

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 provided by the Contractor and made available for use by Government personnel as requested.

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 in accordance with Contract Section 01040.

1.3.1.8 SANITATION

a. Sanitary Facilities: 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.

1.3.3 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 meet the requirements of Contract Section 01040 and 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

Prior to the start of any work activity that requires excavation within the current base, the Contractor shall obtain a digging permit.

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 (water, sewer, electrical, steam, 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 Contractors 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.

1.7.2 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.

1.7.3 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.

1.7.4 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.

1.7.5 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 TEMPORARY OUTAGES OF EXISTING SERVICES

To minimize outage impact to the mission of the installation, all outages shall be scheduled on weekends or from 2100 – 0530 hours on duty days and/or as directed by Contracting Officer Representative (COR). The period proposed for performance of the outage shall include sufficient contingencies to preclude impact to the peak working hours 0530 – 1800 hours during the workweek.

1.9 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. Water required for final testing, adjusting and balancing of HVAC systems will be furnished by the Government. 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.

1.10 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.

1.11 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".

1.11.1 EXTERIOR NIGHT LIGHTING

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

1.12 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.

1.13 SPECIAL FACILITIES AND SERVICES TO BE FURNISHED BY THE CONTRACTOR

The Contractor shall furnish the facilities and services listed in this clause for Corps of Engineers personnel and other persons as designated by the Contracting Officer. All facilities, furnishings, materials,

and equipment shall be new when furnished at the site. The Contractor shall fully maintain and repair all facilities, furnishings and equipment listed below. All facilities, furnishings, materials, and equipment furnished and/or installed by the Contractor under this clause shall remain the property of the Contractor at the completion of the contract. Facility structures shall be modular or containerized, suitable for easy movement at a later date.

1.14 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.

1.15 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.

1.15.1 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.

1.15.2 GROUND FAULT CIRCUIT INTERRUPTER (GFCI) REQUIREMENT – OVERSEAS CONSTRUCTION

The Corps of Engineers Health and Safety Manual, EM 385-1-1, section 11.D.05.b. 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.

1.15.3 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.

1.16 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.

1.17 TIME EXTENSIONS

1.17.1 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.

Helmand Province

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
14	7	4	6	1	0	1	1	0	1	6	12	53

1.17.2 WEATHER DELAYS

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.

1.17.3 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.

1.18 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.

1.19 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.

1.19.1 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.

1.20 EMPLOYEE ACCESS TO PROJECT SITE

1.20.1 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.

1.20.1.1 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.

1.20.1.2 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.
m. Registration, insurance company, policy number and expiration date for each vehicle.

1.20.2 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 Afghan Law.

1.20.3 SECURITY PLAN

The Contractor shall submit to the Contracting Officer a security plan as required in Contract Section 01040.

1.21 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

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.

-- END OF SECTION --

SECTION 01312

QUALITY CONTROL SYSTEM (QCS)

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	Submittal Monitoring
Finances	Scheduling
Quality Control	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 CD-ROM for data transfer. Data on the 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

PROJECT SCHEDULE

1. GENERAL

1.1 REFERENCES

The publications listed below form a part of the specification to the extent referenced. The publications are referenced in the text by basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE) ER 1-1-11 (1995) Progress, Schedules, and Network Analysis Systems

1.2 QUALIFICATIONS

The Contractor shall designate an authorized representative who shall be responsible for the preparation of all required project schedule reports.

2. PRODUCTS (NOT APPLICABLE)

3. EXECUTION

3.1 GENERAL REQUIREMENTS

Pursuant to the Contract Clause, SCHEDULE FOR CONSTRUCTION CONTRACTS, a Project Schedule as described below shall be prepared. The scheduling of Construction design and construction shall be the responsibility of the Contractor. Contractor management personnel shall actively participate in its development. Designers, Subcontractors and suppliers working on the project shall 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 will result in an inability of the Contracting Officer to evaluate Contractor's 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, the Contracting Officer may hold, retain up to the maximum allowed by contract, each payment period, until revisions to the Project Schedule have been made.

3.3 PROJECT SCHEDULE

The computer software system utilized by the Contractor to produce the Project Schedule shall be capable of providing all requirements of this specification. Failure of the Contractor to meet the requirements of this specification shall result in the disapproval of the schedule. Manual methods used to produce any required information shall require approval by the Contracting Officer.

3.3.1 USE OF THE CRITICAL PATH METHOD

The Critical Path Method (CPM) of network calculation shall be used to generate the Project Schedule. The Contractor shall provide the Project Schedule in the Precedence Diagram Method (PDM).

3.3.2 LEVEL OF DETAIL REQUIRED

The Project Schedule shall include an appropriate level of detail. Failure to develop or update the Project Schedule or provide data to the Contracting Officer at the appropriate level of detail, as specified by the Contracting Officer, shall result in the disapproval of the schedule. The Contracting Officer will use, but is not limited to, the following conditions to determine the appropriate level of detail to be used in the Project Schedule:

3.3.2.1 ACTIVITY DURATIONS

Contractor submissions shall follow the direction of the Contracting Officer regarding reasonable activity durations. Reasonable durations are those that allow the progress of activities to be accurately determined between payment periods (usually less than 2 percent of all non-procurement activities' Original Durations are greater than 20 days).

3.3.2.2 DESIGN AND PERMIT ACTIVITIES

Design and permitting activities, including necessary conferences and follow up actions and design package submission dates, shall be integrated into the schedule.

3.3.2.3 PROCUREMENT ACTIVITIES

Tasks related to the procurement of long lead materials or equipment shall be included as separate activities in the project schedule. Long lead materials and equipment are those materials that have a procurement cycle of over 90 days. Examples of procurement process activities include, but are not limited to: submittals, approvals, procurement, fabrication, and delivery.

3.3.2.4 CRITICAL ACTIVITIES

The following activities, as applicable, shall be listed as separate line activities on the Contractor's project schedule:

a. Submission and approval of survey.
b. Submission and approval of geotechnical report.
c. Earthwork.
d. Low Water Crossing Construction.
e. Base Course Placement.
f. HMA Paving.

g. Road Markings.
h. Submission and approval of as-built drawings.
i. Pre-final inspection.
j. Correction of punch list from pre-final inspection.
k. Final inspection.

3.3.2.5 GOVERNMENT ACTIVITIES

Government and other agency activities that could impact progress shall be shown. These activities include, but are not limited to: design reviews, environmental permit approvals by State regulators, inspections, utility tie in, and Government Furnished Equipment (GFE).

3.3.2.6 RESPONSIBILITY

All activities shall be identified in the project schedule by the party responsible to perform the work. Responsibility includes, but is not limited to, the subcontracting firm, contractor work force, or government agency performing a given task. Activities shall not belong to more than one responsible party. The responsible party for each activity shall be identified by the Responsibility Code.

3.3.2.7 WORK AREAS

All activities shall be identified in the project schedule by the work area in which the activity occurs. Activities shall not be allowed to cover more than one work area. The work area of each activity shall be identified by the Work Area Code.

3.3.2.8 MODIFICATION OR CLAIM NUMBER

Any activity that is added or changed by contract modification or used to justify claimed time shall be identified by a mod or claim code that changed the activity. Activities shall not belong to more than one modification or claim item. The modification or claim number of each activity shall be identified by the Mod or Claim Number. Whenever possible, changes shall be added to the schedule by adding new activities. Existing activities shall not normally be changed to reflect modifications.

3.3.2.9 WORK ITEM

All activities shall be identified in the project schedule by the Work Item to which the activity belongs. An activity shall not contain work in more than one work item. The work item for each appropriate activity shall be identified by the Work Item Code.

3.3.2.10 PHASE OF WORK

All activities shall be identified in the project schedule by the phases of work in which the activity occurs. Activities shall not contain work in more than one phase of work. The project phase of each activity shall be by the unique Phase of Work Code.

3.3.2.11 CATEGORY OF WORK

All Activities shall be identified in the project schedule according to the category of work which best describes the activity. Category of work refers, but is not limited, to the procurement chain of activities including such items as designs, design package submissions design reviews, review conferences, permits, submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing. The category of work for each activity shall be identified by the Category of Work Code.

3.3.2.12 FEATURE OF WORK

All activities shall be identified in the project schedule according to the feature of work to which the activity belongs. Feature of work refers, but is not limited to, a work breakdown structure for the project. The feature of work for each activity shall be identified by the Feature of Work Code.

3.3.3 SCHEDULED PROJECT COMPLETION

The schedule interval shall extend from award of contract to the contract completion date.

3.3.3.1 PROJECT START DATE

The schedule shall start no earlier than the date on which award of contract was acknowledged. The Contractor shall include as the first activity in the project schedule an activity called "Start Project". The "Start Project" activity shall have an "ES" constraint date equal to the date that the award of task order was acknowledged, and a zero day duration.

3.3.3.2 CONSTRAINT OF LAST ACTIVITY

Completion of the last activity in the schedule shall be constrained by the contract completion date. Calculation on project updates shall be such that if the early finish of the last activity falls after the contract completion date, then the float calculation shall reflect a negative float on the critical path. The Contractor shall include as the last activity in the project schedule an activity called "End Project". The "End Project" activity shall have an "LF" constraint date equal to the completion date for the project, and a zero day duration.

3.3.3.3 EARLY PROJECT COMPLETION

In the event the project schedule shows completion of the project prior to the contract completion date, the Contractor shall identify those activities that have been accelerated and/or those activities that are scheduled in parallel to support the Contractor's "early" completion. Contractor shall specifically address each of the activities noted in the narrative report at every project schedule update period to assist the Contracting Officer in evaluating the Contractor's ability to actually complete prior to the contract period.

3.3.4 INTERIM COMPLETION DATES

Contractually specified interim completion dates shall also be constrained to show negative float if the early finish date of the last activity in that phase falls after the interim completion date.

3.3.4.1 START PHASE

The Contractor shall include as the first activity for a project phase an activity called "Start Phase X" where "X" refers to the phase of work. The "Start Phase X" activity shall have an "ES" constraint date equal to the date on which the award of task order was acknowledged, and a zero day duration.

3.3.4.2 END PHASE

The Contractor shall include as the last activity in a project phase an activity called "End Phase X" where "X" refers to the phase of work. The "End Phase X" activity shall have an "LF" constraint date equal to the completion date for the project, and a zero day duration.

3.3.4.3 PHASE X

The Contractor shall include a hammock type activity for each project phase called "Phase X" where "X" refers to the phase of work. The "Phase X" activity shall be logically tied to the earliest and latest activities in the phase.

3.3.5 DEFAULT PROGRESS DATA DISALLOWED

Actual Start and Finish dates shall not be automatically updated by default mechanisms that may be included in CPM scheduling software systems. Actual Start and Finish dates on the CPM schedule shall match those dates provided from Contractor Quality Control Reports. Failure of the Contractor to document the Actual Start and Finish dates on the Daily Quality Control report for every in-progress or completed activity, and failure to ensure that the data contained on the Daily Quality Control reports is the sole basis for schedule updating shall result in the disapproval of the Contractor's schedule and the inability of the Contracting Officer to evaluate Contractor progress for payment purposes. Updating of the percent complete and the remaining duration of any activity shall be independent functions. Program features which calculate one of these parameters from the other shall be disabled.

3.3.6 OUT-OF-SEQUENCE PROGRESS

Activities that have posted progress without all preceding logic being satisfied (Out-of-Sequence Progress) will be allowed only on a case-by-case approval of the Contracting Officer. The Contractor shall propose logic corrections to eliminate all out of sequence progress or justify not changing the sequencing for approval prior to submitting an updated project schedule.

3.3.7 NEGATIVE LAGS

Lag durations contained in the project schedule shall not have a negative value.

3.4 PROJECT SCHEDULE SUBMISSIONS

The Contractor shall provide the submissions as described below. The data disk, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS.

3.4.1 INITIAL PROJECT SCHEDULE SUBMISSION

The Initial Project Schedule shall be submitted for approval within 30 calendar days after award of contract. The schedule shall provide a reasonable sequence of activities which represent work through the entire project and shall be at a reasonable level of detail. The baseline schedule shall be reviewed and deemed acceptable prior to the contractor entering (manually or electronically via SDEF file) in QCS.

3.4.2 PERIODIC SCHEDULE UPDATES

Based on the result of progress meetings, specified in "Periodic Progress Meetings," the Contractor shall submit periodic schedule updates. These submissions shall enable the Contracting Officer to assess Contractor's progress. If the Contractor fails or refuses to furnish the information and project schedule data, which in the judgment of the Contracting Officer or authorized representative is necessary for verifying the Contractor's progress, the Contractor shall be deemed not to have provided an estimate upon which progress payment may be made.

3.4.3 STANDARD ACTIVITY CODING DICTIONARY

The Contractor shall use the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER 1-1-11, Appendix A. This exact structure is mandatory, even if some fields are not used.

3.5 SUBMISSION REQUIREMENTS

The following items shall be submitted by the Contractor for the preliminary submission, initial submission, and every periodic project schedule update throughout the life of the project:

3.5.1 DATA DISKS

Two (2) Data Disks containing the project schedule shall be provided. Data on the disks shall adhere to the SDEF format specified in ER 1-1-11, Appendix A.

3.5.1.1 FILE MEDIUM

Required data shall be submitted on Compact Disk, formatted to hold 700 MB of data, under the latest Microsoft© operating system format, unless otherwise approved by the Contracting Officer.

3.5.1.2 DISK LABEL

A permanent exterior label shall be affixed to each disk submitted. The label shall indicate the type of schedule (Preliminary, Initial, Update, or Change), full contract number, project name, project location, data date, name and telephone number of person responsible for the schedule, and the operating system version used to format the disk.

3.5.1.3 FILE NAME

Each file submitted shall have a name related to either the schedule data date, project name, or contract number. The Contractor shall develop a naming convention that will ensure that the names of the files submitted are unique. The Contractor shall submit the file naming convention to the Contracting Officer for approval.

3.5.2 NARRATIVE REPORT

A Narrative Report shall be provided with the preliminary, initial, and each update of the project schedule. This report shall be provided as the basis of the Contractor's progress payment request. The Narrative Report shall include: a description of activities along the 2 most critical paths, a description of current and anticipated problem areas or delaying factors and their impact, and an explanation of corrective actions taken or required to be taken. The narrative report is expected to relay to the Government, the Contractor's thorough analysis of the schedule output and its plans to compensate for any problems, either current or potential, which are revealed through that analysis.

3.5.3 APPROVED CHANGES VERIFICATION

Only project schedule changes that have been previously approved by the Contracting Officer shall be included in the schedule submission. The Narrative Report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes.

3.5.4 SCHEDULE REPORTS

The format for each activity for the schedule reports listed below shall contain: Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float. Actual Start and Actual Finish Dates shall be printed for those activities in progress or completed.

3.5.4.1 ACTIVITY REPORT

A list of all activities sorted according to activity number.

3.5.4.2 LOGIC REPORT

A list of Preceding and Succeeding activities for every activity in ascending order by activity number. Preceding and succeeding activities shall include all information listed above in paragraph Schedule Reports. A blank line shall be left between each activity grouping.

3.5.4.3 TOTAL FLOAT REPORT

A list of all incomplete activities sorted in ascending order of total float. Activities which have the same amount of total float shall be listed in ascending order of Early Start Dates. Completed activities shall not be shown on this report.

3.5.4.4 EARNINGS REPORT

A compilation of the Contractor's Total Earnings on the project from award of contract until the most recent Monthly Progress Meeting. This report shall reflect the Earnings of specific activities based on the agreements made in the field and approved between the Contractor and 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. Activities shall be grouped by work item and sorted by activity numbers. This report shall: sum all activities in a work item and provide a work item percent; and complete and sum all work items to

provide a total project percent complete. The printed report shall contain, for each activity: the Activity Number, Activity Description, Original Budgeted Amount, Total Quantity, Quantity to Date, Percent Complete (based on cost), and Earnings to Date.

3.5.5 NETWORK DIAGRAM

The network diagram shall be required on the initial schedule submission and on monthly schedule update submissions. The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:

3.5.5.1 CONTINUOUS FLOW

Diagrams shall show a continuous flow from left to right with no arrows from right to left. The activity number, description, duration, and estimated earned value shall be shown on the diagram.

3.5.5.2 PROJECT MILESTONE DATES

Dates shall be shown on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

3.5.5.3 CRITICAL PATH

The critical path shall be clearly shown.

3.5.5.4 BANDING

Activities shall be grouped to assist in the understanding of the activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

3.5.5.5 S-CURVES

Earnings curves showing projected early and late earnings and earnings to date.

3.6 PERIODIC PROGRESS MEETINGS

Progress meetings to discuss payment shall include a monthly onsite meeting or 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.

3.6.1 MEETING ATTENDANCE

The Contractor's Project Manager and Scheduler shall attend the regular progress meeting.

3.6.2 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 4 working days after the monthly progress meeting.

3.6.3 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. As a minimum, the Contractor shall address the following items on an activity by activity basis during each progress meeting.

3.6.3.1 START AND FINISH DATES

The Actual Start and Actual Finish dates for each activity currently in progress or completed.

3.6.3.2 TIME COMPLETION

The estimated Remaining Duration for each activity in-progress. Time-based progress calculations shall be based on Remaining Duration for each activity.

3.6.3.3 COST COMPLETION

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

3.6.3.4 LOGIC CHANGES

All logic changes pertaining to change orders, change orders to be incorporated into the schedule, contractor proposed changes in work sequence, corrections to schedule logic for out-of-sequence progress, lag durations, and other changes that have been made pursuant to contract provisions shall be specifically identified and discussed.

3.6.3.5 OTHER CHANGES

Other changes required due to delays in completion of any activity or group of activities include: 1) delays beyond the Contractor's control, such as strikes and unusual weather. 2) delays encountered due to submittals, Government Activities, deliveries or work stoppages which make re-planning the work necessary. 3) Changes required to correct a schedule which does not represent the actual or planned prosecution and progress of the work.

3.7 REQUESTS FOR TIME EXTENSIONS

In the event the Contractor requests an extension of the contract completion date, or any interim milestone date, the Contractor shall furnish the following for a determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract: justification, project schedule data, and supporting evidence as the Contracting Officer may deem necessary. Submission of proof of delay, based on revised activity logic, duration, and costs (updated to the specific date that the delay occurred) is obligatory to any approvals.

3.7.1 JUSTIFICATION OF DELAY

The project schedule shall clearly display that the Contractor has used, in full, all the float time available for the work involved with this request. The Contracting Officer's determination as to the number of allowable days of contract extension shall be based upon the project schedule updates in effect for the time period in question, and other factual information. Actual delays that are found to be caused by the Contractor's own actions, which result in the extension of the schedule, will not be a cause for a time extension to the contract completion date.

3.7.2 SUBMISSION REQUIREMENTS

The Contractor shall submit a justification for each request for a change in the contract completion date of under 2 weeks based upon the most recent schedule update at the time of the constructive direction issued for the change. Such a request shall be in accordance with the requirements of other appropriate Contract Clauses and shall include, as a minimum:

a. A list of affected activities, with their associated project schedule activity number.

b. A brief explanation of the causes of the change.

c. An analysis of the overall impact of the changes proposed.

d. A sub-network of the affected area.

Activities impacted in each justification for change shall be identified by a unique activity code contained in the required data file.

3.7.3 ADDITIONAL SUBMISSION REQUIREMENTS

For any requested time extension of over 2 weeks, the Contracting Officer may request an interim update with revised activities for a specific change request. The Contractor shall provide this disk within 4 days of the Contracting Officer's request.

3.8 DIRECTED CHANGES

If changes are issued prior to settlement of price and/or time, the Contractor shall submit proposed schedule revisions to the Contracting Officer within 2 weeks of this task order being issued. The proposed revisions to the schedule will be approved by the Contracting Officer prior to inclusion of those changes within the project schedule. If the Contractor fails to submit the proposed revisions, the Contracting Officer may furnish the Contractor with suggested revisions to the project schedule. The Contractor shall include these revisions in the project schedule until revisions are submitted, and final changes and impacts have been negotiated. If the Contractor has any objections to the revisions furnished by the Contracting Officer, the Contractor shall advise the Contracting Officer within 2 weeks of receipt of the revisions. Regardless of the objections, the Contractor shall continue to update the schedule with the Contracting Officer's revisions until a mutual agreement in the revisions is reached. If the Contractor fails to submit alternative revisions within 2 weeks of receipt of the Contracting Officer's proposed revisions, the Contractor will be deemed to have concurred with the Contracting Officer's proposed revisions. The proposed revisions will then be the basis for an equitable adjustment for performance of the work.

3.9 OWNERSHIP OF FLOAT

Float available in the schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor.

-- END OF SECTION --

SECTION 01335

SUBMITTAL PROCEDURES FOR DESIGN-BUILD PROJECTS

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.

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
FAX: (202) 289-1092
Tele: (202) 289-7800

1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows.

1.2.1 SURVEY AND DESIGN SUBMITTALS

Contractor furnished survey and design submittals are the various survey and design documents which primarily consist of field investigations, calculations, design analysis, drawings and specifications.

In addition, for every Survey and Design Submittal, the Contractor shall submit all non-administrative modifications issued for the Contract as part of the Survey and Design Submittal package to enable AES to validate that these modifications have been incorporated into this design submittal.

The Contractor shall clearly label and date all Survey and Design Submittals to reflect the current design stage and date of submission to the Government to avoid confusion between current and previous submittals. The Design-Build Contractor shall not begin construction work until the Government has reviewed the Design-Build Contractor's designs and has cleared them 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, survey and design submittals shall be submitted at the following intervals:

15% Design Submittal

65% Design Submittal

95% Design Submittal

100% Design Submittal

1.2.1.1 SURVEY SUBMITTAL:

As a minimum the following shall be submitted:

a. Full topographical and boundary survey and Existing Conditions Map as dictated in Section 01015.

1.2.1.2 15% DESIGN SUBMITTAL:

As a minimum the following shall be submitted:

a. Full topographical and boundary survey and Existing Conditions Map with revisions/additions incorporated from comments from the survey.

b. Geotechnical Report in accordance with Section 01015.

c. Structure Evaluation Report in accordance with Section 01015.

d. Design Drawings showing the proposed roadway plan and profile with proposed contour lines and profiles with existing and proposed grades. Location of proposed bridges, culverts, causeways, gabion crossings, etc. Identify locations of structures to be salvaged as dictated in the Structure Evaluation Report.

e. Preliminary design analysis showing development of geometric parameters for horizontal and vertical curves, superelevation, sight distances, sight triangles and stopping distances.

f. Key Map in accordance with Section 01015.

g. Applicable unedited Construction Specifications.

1.2.1.3 65% DESIGN SUBMITTAL:

As a minimum, the following documents shall be submitted:

a. Geotechnical Report incorporating revisions/additions from comments from the 15% Design Submittal.

b. Structure Evaluation Report incorporating revisions/additions from comments from the 15% Design Submittal.

c. Complete design analysis showing calculations for cut/embankment, hydrologic calculations for all watersheds including watershed maps based upon United States Geologic Survey topographic maps and hydrologic and hydraulic calculations for all drainage structures, all roadway plan and profile calculations, superelevation, pavement structure, and bridge structural calculations.

d. Design Drawings of the Roadway Plan and Profile showing revisions from comments from the 15% Design Submittal. All roadway plan and profile geometry. Curves shall be numbered and curve information shall be displayed on the drawings. Slope stability measures shall be shown on the drawings. Road signage shall be shown.

e. Construction Specifications with all anticipated sections, marked up and edited to include only applicable requirements.

f. Cross Sections in accordance with Section 01015.

g. All detail drawings (including but not limited to bridge designs and slope stability measures), in accordance with Section 01015

1.2.1.4 95% DESIGN SUBMITTAL

The submittal shall consist of the following:

a. Geotechnical Report incorporating revisions/additions from comments from the 65% Design Submittal.

b. Complete design analysis, plans and specifications for any contract feature(s) that the Contractor would like Partial Clearance for Construction on once the 95% Design Submittal has been approved, including list of those Construction Submittal items requiring Government Approval (GA).

c. Construction Drawings, specifications, and design analysis complete including cross sections with all past Design Review comments incorporated. The Contractor is expected to have completed all of his coordination checks and have the drawings in a design complete condition. The drawings shall contain all the details necessary to assure a clear understanding of the work throughout construction.

For work shown but incomplete and still under design, the Contractor should clearly indicate on the ENG Form 4025 what is being submitted for review and approval.

1.2.1.5 100% DESIGN SUBMITTAL:

The review of this submittal is primarily to insure that the contract documents and design analysis are nearing completion and that the Contract requirements and design criteria are being correctly understood and adhered to. The submittal shall consist of the following:

a. Design Analysis complete with all prior comments incorporated.

b. Construction Specifications complete

c. Construction Drawings complete with all prior comments incorporated. 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 all past design reviews. The drawings shall contain all the details necessary to assure a clear understanding of the work throughout construction.

Once the design documents have been "Cleared for Construction" by the Contracting Officer, the Contractor shall clearly identify each document by annotating it as "Cleared for Construction."

1.2.2 USE OF DRCHECKS$_{SM}$ FOR DESIGN SUBMITTAL COMMENT AND RESPONSE

1.2.2.1 DRCHECKS$_{SM}$ WEB LINK

All AES Design Submittal review comments will be documented using the standard design review tool for the U.S. Army Corps of Engineers, a web-based application called “DrChecks$_{SM}$”. The web link to DrChecks$_{SM}$ is:

https://www.projnet.org/projnet/binKornHome/index.cfm

1.2.2.2 DRCHECKS$_{SM}$ VENDOR IDENTIFICATION AND TUTORIAL

Upon notification of award, the contractor shall immediately coordinate with the Chief, Engineering Branch, AES to acquire a vendor identification and a brief tutorial on the use of DrChecks$_{SM}$. The contractor is responsible for providing their own DrChecks$_{SM}$ Administrator within their own design staff personnel to access and accomplish actions within DrChecks$_{SM}$.

1.2.2.3 NOTIFICATION OF DRCHECKS$_{SM}$ FILE ACCESS

The Afghanistan Engineer District will complete a review at every Design Submittal stage for conformance with the technical requirements of the Contract and document all comments in DrChecks$_{SM}$. At completion of the review, a notification will be issued to the Contractor by the Contracting Officer's representative that the particular DrChecks$_{SM}$ file will be opened to the Contractor. Until this time, the Contractor is not able to view any AED comments for that particular Design Submittal.

1.2.2.4 FURTHER CONTRACTOR INFORMATION AFTER DRCHECKS$_{SM}$ REVIEWS

See Paragraph 3.7.4, Government Review, for further procedures and requirements associated with Design Submittal reviews.

1.2.3 CONSTRUCTION SUBMITTALS

1.2.3.1 CONTRACTOR FURNISHED GOVERNMENT APPROVED CONSTRUCTION SUBMITTALS (GA)

Government approved construction submittals are primarily related to plans (Security, Contractor Quality Control, Accident Prevention, Resident Management System, Area Use, etc.), schedules (Project Schedule/Network Analysis), and certificates of compliance, reports and records/statements. They may also include proposed variations to approved design documents in accordance with the paragraph entitled "VARIATIONS".

1.2.3.2 FOR INFORMATION ONLY CONSTRUCTION SUBMITTALS (FIO)

All submittals not requiring Designer of Record or Government approval will be for information only. These construction submittals shall be checked, stamped, signed and dated by the 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 FIO submittals. These submittals will be used for information purposes. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the 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.

1.2.3.3 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 Paragraph 3.6.4.

1.2.3.4 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.

1.2.3.5 INCOMPLETE DESIGN

The Design-Build Contractor shall not use construction submittals as a means to supplant and/or supplement an incomplete design effort.

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 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 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 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 Contractor to ensure that submittals comply with the contract documents. Government review, clearance for construction, or approval by the Contracting Officer shall not relieve the 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 Design and 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. Approval will not relieve the Contractor of the

responsibility for any error which may exist, as it is the sole responsibility of the 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.

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 Paragraph 3.6.4.

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 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 Contractor.

1.3.6 STAMPS

Stamps shall be used by the Contractor on all design and post design construction submittals to certify that the submittal meets contract requirements and shall be similar to the following:

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.

1.6 DRAWINGS

1.6.1 SITE LAYOUT

All survey, existing and proposed layout data shall be dimensioned in meters or coordinates, as appropriate. All details and pipe sizes shall be dimensioned in millimeters.

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.

1.6.2 SCALE

Every drawing submitted shall have a properly graphic and numeric scale that is properly dimensioned.

1.6.3 GEO-REFERENCE

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 AES to incorporate the plans into GIS for storage, map production, and possible geospatial analysis of the different work sites.

1.7 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.

1.8 SPECIFICATIONS

All equipment and products shall be specified according to U.S. standards and described by appropriate units as required herein.

1.9 WITHHOLDING OF PAYMENT FOR SUBMITTALS

1.9.1 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.

1.9.2 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 Contractor is allowed partial or total invoice payment for materials shipped from the Continental United States (CONUS), and/or stored at the site, the 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.

2. 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.

2.1 PROJECT NARRATIVE

The Project Narrative shall be a bound set and shall contain the contract Request For Proposal (RFP) Sections 01010 and 01015 (and any additional RFP sections that are appropriate). The RFP Section 01010 and 01015 shall be the latest version. Any subsequent changes to the RFP shall be clearly marked and highlighted with explanation for the changes. The Project Narrative shall also contain the general description of the project and a discussion of the design approach and design features for the project.

2.2 DESIGN ANALYSIS

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. **Complete calculations with proper units in an understandable format to follow is required.** 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. Specific requirements for the design analysis, listed by submittal phase, are noted in Paragraph 1.2.

2.3 DESIGN CALCULATIONS

All design calculations shall be presented such that they are easily understood, correlated with RFP requirements (Section 01010 and 01015 criteria; codes; all other applicable or pertinent criteria) and all final conclusions clearly documented and summarized. The Design Submittal must include complete information (Soil Report, slope stability, pavement structure, concrete design strengths, steel material properties, hydrologic, grading quantities, etc.) necessary to support all design calculations in order to easily and efficiently verify the accuracy of this information and the resulting project components shown in plans and specifications.

2.3.1 SUBMITTAL

When design calculations are voluminous, they shall be bound separately from the narrative part of the design analysis. Design calculations will include a title page, table of contents, and be indexed (tabbed) to separate distinct parts of the various analysis and design actions being accomplished to support plan drawings submitted. They shall be presented in a clear, consistent and legible format in order to quickly understand the analysis and design accomplished. Presentation shall be such that a person unfamiliar with the project features and associated analysis and design can quickly understand the overall design process and procedures, review the information in conjunction with the given set of plans and specifications, and verify the suitability of all information submitted.

All design calculations shall explain the source of loading conditions with assumptions and conclusions explained. The analysis and design methods shall also be explained, including assumptions, theories and formulae. Include applicable diagrams that are clearly explained and correlated with related

computations, whether computer or hand generated. The design calculations shall include a complete and comprehensive list of the criteria (and date or version of the criteria) that the design/analysis will be compared to (codes, Corps of Engineers Engineering Regulations, Engineering Manuals, AED Design Requirements Documents, etc.). Within the separable elements of design calculations, the engineer shall cite the specific code or reference paragraph or section as appropriate to indicate conformance to requirements.

At the beginning of each project component design section, present a summary of all load conditions and combinations required per applicable code or Corps of Engineers manual or regulation. Then clearly identify the particular load case governing the design and clearly show how the particular analysis, construction materials to be used, and the specific design meet the governing load combination.

Calculation sheets shall carry the names or initials of the engineer and the checker and the dates of calculations and checking. No portion of the calculations shall be computed and checked by the same person.

2.3.2 COMPUTER ANALYSIS

Provide a clear summary of all computer outputs and highlight in the outputs information used in the analysis and design accomplished elsewhere in the calculations.

If a computerized analysis or design program is used (either commercial software packages or unique, designer-written computer analysis/design tools), the computations shall provide clear reference to the software program and version being used and an explanation of the validity of the particular program to the given application (where has the program been used before, what input and output does the program provide, is the program a recognized Corps of Engineers or industry standard). If the program is proprietary to the Contractor (not recognized by the Corps of Engineers or industry), the Contractor shall provide a sample hand calculation to verify the results of one set of data generated by the computer program.

State exactly the computation performed by the computer. Include applicable diagrams, adequately identified. Provide all necessary explanations of the computer printout format, symbols, and abbreviations. Use adequate and consistent notation. Provide sufficient information to permit manual checks of the results.

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.

When the computer output is large, it shall be divided into volumes at logical division points. All final computer results used in design shall be separated from the total pages of computer output that might be included in the design calculations for ease of review.

2.4 SPECIFICATIONS

Specifications shall be prepared in accordance with the UFGS (Uniform Facilities Guide Specifications, 2004) format. The Contractor-prepared specifications shall include as a minimum, all applicable specification sections referenced by the UFGS. Where the UFGS 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 in the UFGS format.

2.4.1 USE OF UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS)

UFGS (Unified Facilities Guide Specifications) are required for this project. Current UFGS information may be obtained at the following location: 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.

2.4.2 QUALITY CONTROL AND TESTING

Specifications shall include required quality control and further indicate all testing to be conducted by the Contractor, its subcontractors, vendors and/or suppliers.

2.4.3 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.

2.4.4 INDUSTRY STANDARDS

2.4.4.1 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 Contractor shall be by specific issue; the revision letter, date or other specific identification shall be included.

2.5 AED DESIGN REQUIREMENTS DOCUMENTS

AED Design Requirements (latest version) documents listed in section 01015, shall be adhered to in this contract. These documents are available from the COR. These documents shall be used as the basis for design and construction, and for selecting options within the United Facilities Guide Specifications (UFGS). It is the contractor’s option to use specifications contained in the AED Design Requirements Documents, when provided, or to adapt the UFGS specifications to match the requirements provided in the AED Design Documents and specifications. Site or project specific data and requirements in the AED Design Requirements documents shall supersede UFGS language where there are perceived conflicts.

2.6 DRAWINGS

2.6.1 COMPUTER ASSISTED DESIGN AND DRAFTING (CADD)

Computer Assisted Design and Drafting (CADD) is required for all work related to this contract. Only personnel proficient in the preparation of CADD drawings shall be employed to modify the contract

drawings or prepare new drawings. The CADD deliverables shall meet the requirements of the A/E/C CADD Standard (Release 3.0). Emphasis is on drawings meeting sheet layout standards, level/layer naming standards and sheet naming conventions. The CADD standards may be downloaded at the CAD/BIM Technology Center at the following link: https://cadbim.usace.army.mil/default.aspx?p=s&t=13&i=4.

The Contractor shall furnish all softcopy design submittals (and As-Builts) using software applications in either .dwg (AutoCAD, AutoDesk release 2005 or later) or in .dgn (MicroStation, Bentley Systems version 8.0 or later) format. In addition, the Contractor is required to submit the softcopy design submittals in .pdf (Adobe Acrobat) format. Drawings prepared in any convention other than CADD, must have the written approval of the Contracting Officer.

2.6.2 DRAWINGS

Drawings shall be prepared in the English language with metric (SI) units of measure. All the drawings and details of the working drawings shall be adequately labeled and cross-referenced. Complete, thoroughly checked, and coordination with other engineering disciplines design drawings shall be submitted. At the final design submittal (100%) the Contractor shall have incorporated all design review comments generated by previous design review(s), have completed all of the constructability and coordination comments, 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.

2.6.3 DRAWING SIZE BORDER SHEETS

All drawings shall be prepared in size "A1" border sheets (594mm by 841mm). Hardcopy design submissions may be printed on half size drawing sheets (“A3”, 279 mm by 420 mm) for purposes of saving paper and for ease of review. If drawings are not readable in the half size reduction, the Contractor shall submit all drawings in A1 border sheets. All final contract drawing sets (As-Builts) shall be submitted on A1 border sheets. Drawing sheets shall be trimmed to specified size if necessary.

2.6.4 SEQUENCE OF DESIGN DRAWINGS

Referencing the A/E/C CADD Standard (pg. 13, Table 2-1 of the A/E/C CADD standards) the sequence of drawings shall follow the sequence as shown below:

Discipline

1. General
2. Hazardous Materials
3. Survey/Mapping
4. Geotechnical
5. Civil
6. Landscape
7. Structural
8. Architectural
9. Interiors
10. Equipment
11. Fire Protection
12. Plumbing

13. Process
14. Mechanical
15. Electrical
16. Telecommunications
17. Resource
18. Other Disciplines
19. Sub-Contractor/Shop Drawings
20. Operations

2.6.5 DRAWING FOLDER STRUCTURE

CADD files shall be organized in a folder structure in accordance with Section 01335 Attachment B.

2.6.6 DRAWING SHEET ASSEMBLY

CADD files shall be organized to what is described in “Option 2 – Use of Design Model Only” (page 10, Figure 2-3 of the A/E/C CADD Standard). This method will utilize one view and the use of “paper space” is not used. The border sheet shall be X-REF into each model file and scaled up to the applicable scale.

2.6.7 MODEL FILES

Model files represent the building’s physical layout and components such as floor plans and elevations. Model files shall be drawn to full size (1:1) in the default view. Floor Plan Model files represent one floor. Model files shall have coordinates (x,y,z) of 0,0,0 in paper space on layout. The exception for model files with coordinates 0,0,0 shall be the civil site plan (see section 1.5.1.2 Georeferencing).

2.6.8 BORDER SHEET FILES

Border sheet files are used to assemble model files for plotting and viewing purposes. Every border sheet file has a drawing area, title block, border and represents one plotted drawing.

2.6.9 LAYER/LEVEL NAMES

Layer or level files names shall follow the guidelines of appendix A and B of the A/E/C CADD standards. For AutoCAD, .dwt (drawing template files) shall be used to import the proper layers that will be inclusive of the correct line type, color, and line thickness of the respective layer.

2.6.10 DRAWING FILE NAMING CONVENTION

CADD files shall follow the naming convention as described in the A/E/C CADD Standards. For model files reference pg 12 - 16, figure 2-4, tables 2-1 and 2-2. for sheet files reference pg 18 – 22, figure 2-5, table 2-3.

2.6.11 SHEET IDENTIFICATION BLOCK

The sheet identifier will follow the name of the border sheet file. This will consist of the discipline designator, the sheet type designator and the sheet sequence number as referenced in pg 23, figure 2-6 of the A/E/C CADD Standards.

2.6.12 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.

TYPICAL DRAWING SCALES	
DRAWING TYPE	**METRIC**
SITE PLAN / INDEX SHEET	1:200
	1:400
	1:500
	1:600
	1:700
	1:1000
	1:2000
	1:5000
	1:6000
	1:10000
	1:20000
PLAN & PROFILE	1:30
	1:40
	1:50
ELEVATIONS	1:100
	1:200
DETAILS	1:20
	1:10
	1:5

2.6.13 SYMBOLS, LINE STYLES, & PATTERNS

Approved symbols, line styles, and patterns shall be in accordance with AEC CAD Standard Release 3.0 or current version (see Appendix D of the A/E/C CADD Standards). The approved symbols, line styles, and patterns associated with AutoCAD software maybe downloaded in the following link:

https://tsc.wes.army.mil/products/standards/aec/aecstdsym.asp

2.6.14 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 tone plots are only acceptable where the half-tone color setting of RGB (red, green blue) settings equal a value

of 153 (see pg. 27, Table 3-4 of the A/E/C CADD Standards). Drawings plotted in color are not acceptable. Manual changes to plotted originals are not acceptable.

2.6.15 TITLE AND REVISION BLOCK

Title and revision block shall match examples shown in 1335a-Attachments-AED.pdf, Figures 1 through 4, furnished as an attachment to this RFP.

2.6.16 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.

2.6.17 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.

2.6.18 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.

2.6.19 SPECIFICATIONS PLACED ON THE DRAWINGS

Details of standard products or items which are adequately covered by specifications shall not be included on the drawings.

2.6.20 REVISIONS

Drawing revisions shall be prepared only on the original CADD files. A revision area is required on all sheets.

2.6.21 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.

2.6.22 GOVERNMENT PROVIDED FILES

At the Preconstruction meeting, the Contractor shall be provided a CD that shall contain the AED border sheet, the latest version of the AED Design Requirements documents, the A/E/C CADD standards, and various other files related to the compliancy of CADD files to the A/E/C CADD standards.

3. GENERAL

3.1 MEETINGS

Shortly after Notice To Proceed (NTP) the Government or contractor may suggest meeting(s) to review the Design Submittal process or discuss various aspects of the contract to enable prompt and efficient initiation of contract actions. Meeting(s) will be held to assure attention is focused on key project requirements (necessary contractor design and Government review that is required to provide Construction Clearance), to discuss features and items of work that need to be submitted early due to long lead time items, or discuss other concepts/ideas that will help accelerate the contract work. Other Design Coordination meetings may be requested throughout the contract period if Government review of various contractor Design Submittals indicate poor design and plan or specification quality in order to clearly explain the changes and improvements required of the contractor, assure understanding of Government comments, code references and required investigations and calculations, to move forward with acceptable design and satisfactory plans and specifications.

3.1.1 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 REGISTER

3.2.1 DESIGN SUBMITTALS

The Contractor shall submit as part of his Project Schedule Design Submittal milestone dates. The Contractor shall post all actual dates of submittal actions (including clearance for construction) as they occur.

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 Design and construction submittals shall be shown on this register. The submittal register shall be the controlling document and will be used to control all 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 submit as required 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) full calendar days exclusive of mailing time) shall be allowed for Government review and comment in DrChecks$_{SM}$. 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 CONSTRUCTION SUBMITTALS

Contractor furnished Government Approved Construction Submittals (GA) for items noted in Paragraph 1.2.4 of this Section, or others as required by the COR, shall be submitted to the Area or Resident Office, per directions given at the Pre-Construction meeting. Adequate time (a minimum of fourteen (14) full calendar days exclusive of mailing time) shall be allowed for AES review and comment.

3.5.3 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) full 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 – SOUTH (AES)

DESIGN SUBMITTAL PROCEDURE

For all submittals the following must be included in the submittal package to be considered acceptable. Submittal package will include one (1) half-size hard copy and two (2) soft copies on CD-ROM (electronic version), ENG Form 4025, submittal cover sheet, ALL design drawings, ALL specifications, design analysis, site analysis, geotechnical report, and all other documentation required in the contract. All hard copies and soft copies should be arranged in identical format (See Section 1335 of contract and attachments). If Submittal is deemed unacceptable at pick up, submittal will be pushed back and a new arrangement for drop off will be coordinated at a future time and date.

POINT OF CONTACT

Arrangement for meeting and drop off must be coordinated 24hrs prior to drop off. The preferred meeting time is during off peak hours between 11:00 am and 2:00 pm. Individual participating in submittal drop off must speak English or a translator must be present during transaction.

Office of Engineering Contacts

Warren Colburn –	cell 079-747-4993, office 540-667-6255
Tamara Arnold –	cell 079-948-6817,
Richard Weisenburger –	cell 079-904-5659,

Note: Please state your name, company, and contract that shall be discussed and received by USACE-AES personnel.

CHECK POINT PROCEDURE

The meeting point is Entry Control Point #3 security gate for Kandahar Air Base. Due to heightened security conditions, access to the buildings is controlled by security forces. Anticipate that your packages will be opened and checked at the gate by the security guards. Cell phones must be turned off prior to entering Entrance Control Point (ECP). Any cell phone activity while at the (ECP) will not be tolerated. Cell phones will be confiscated and Force Protection procedures will be implemented. If entering Kandahar Air Field, all electronic devises will be held by authorities at the ECP until departure.

Personal identification Badge with individual's picture and company name must be present for positive identification. If positive identification cannot be made personnel will be asked to leave.

The Contractor shall scan the soft copy (electronic version) of each Design Submittal using most up-to-date version of recognized Industry-standard anti-virus software (Symantec, Norton, etc.) to insure that no viruses are contained in it prior to acceptance by AES. The label shall indicate it has been scanned for viruses and the anti-virus software and version clearly indicated.

3.6.1.2 RESIDENT/AREA ENGINEER OFFICE

Complete design submittals shall be provided to the Area and/or Resident Engineer Office such that these are received **at the same time** as the Contractor provides them to the address noted in Paragraph 3.6.1.1. At the Pre-Construction meeting, the Contractor will be furnished the Area and/or Resident Office addresses to which these submittals shall be provided and the specific number of hard copies (full and half sizes) and soft copies (CD-ROM) required by the Area and/or Resident Office as per Paragraph 3.6.1.1, soft copies are to be properly labeled and checked for viruses by the Contractor prior to delivery.

3.6.1.3 EDITABLE CADD FORMAT AS-BUILTS

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. See Section 01780A CLOSEOUT SUBMITTALS for all requirements associated with submission of editable CADD format As-Builts required as part of this contract.

3.6.2 POST DESIGN CONSTRUCTION SUBMITTALS

One (1) copy of all post design construction submittals shall be transmitted to:

AFGHANISTAN ENGINEER DISTRICT - SOUTH (AES)

http://www.aed.usace.army.mil
U.S. Army Corps of Engineers
Engineering Branch
Kandahar Air Field, Afghanistan

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:

Section 01015 "Technical Requirements"

Section 01335 “Design Submittals”

Section 02831 "Chain-Link Fence"

Section 02710 "Subdrainage System"

Section 03300 "Concrete For Building Construction"

Section 04200 "Masonry"

3.6.3.2 NUMBERING PROCEDURES FOR TRANSMITTAL ON ENG FORM 4025

Each Specification Section will have various requirements for submittals (design information, product data, test reports, procedures, etc.) to the Government for Approval (GA) or For Information Only (FIO). Items from different Sections cannot be submitted on the same ENG Form 4025. When furnishing one or more items from the same Section at a given time, a single ENG Form 4025 can be used to identify and submit these items. Block ‘b” of the 4025 entitled “DESCRIPTION OF ITEM SUBMITTED” should provide an accurate and unique description of each item being proposed by the Contractor. Item numbers (block “a” of the 4025 entitled “ITEM NO.”) will be automatically generated in QCS for each ENG Form 4025. QCS will track and automatically generate the “ITEM NO.” for all following ENG Form 4025s for the same Section number. To illustrate, a transmittal for the 35% Design Submittal required by Section 01335 might have the following Items:

ITEM NO. 1 Topographic Information

ITEM NO. 2 Geotechnical Report

ITEM NO. 3 Foundation Design

ITEM NO. 4 35% Plans

ITEM NO. 5 Outline of Construction Specifications to be used

If this was the first submittal furnished by the Contractor for Section 01335, then a Transmittal Number of 01335-1 would be generated using QCS. As new transmittals are generated in QCS, the last digit of the transmittal is increased incrementally, as follows:

Transmittal No. 01335-2

Transmittal No. 01335-3

Transmittal No. 01335-4

and so forth. The first transmittal submitted from each Specification Section will be “-1”, in other words, there will never be a “Transmittal No. 01335-0”.

The above illustration is true for all other Specification Sections included in the Request for Proposal or in the Construction Specifications compiled by the Contractor in the prosecution of work under the RFP.

3.6.3.3 RESUBMITTALS

Should the Contractor be required to resubmit any transmittal due to one or more items on that transmittal being Coded “C” (Cleared for Construction, except as noted in attached comments, Resubmission Required) or “E” (NOT Cleared for Construction, see attached comments, Resubmission Required) by the Government, QCS will be used to generate the same transmittal number followed by the number "-1" for the first resubmittal, "-2" for the second resubmittal, "-3" for the third resubmittal, etc.

As an example, assume the 65% Design Submittal is provided to the Government as Transmittal 01335-9. Due to omissions or errors in that Submittal which result in a Code “E” being given, then the subsequent 65% Design Resubmittal #1 would be “Transmittal 01335-9.1”. Should a resubmittal again be necessary, it would be Design Resubmittal #2 and would be submitted as “Transmittal 01335-9.2”.

The purpose of this system is to avoid deviations from the Submittal Register and to track submittals in both RMS and DrChecks$_{SM}$. <u>It should be noted that a new transmittal number following the above system CANNOT be generated in QCS unless the prior transmittal has been given a Code</u> If the Contractor is having difficulty generating the correct transmittal number, contact the COR to resolve the matter.

The Contractor use the above nomenclature and date of submission to the Government for Plan Cover Sheets; title blocks for all drawings; all Specification Cover Sheets; all specification pages; all Design Analysis Cover Sheets and associated pages; and similar labeling for all other documents included in the submittal.

See the attachment titled “1335a-Attachments-AED.pdf” (Figures 1-4) for required Title Block Required Annotations drawing guidance.

3.6.4 VARIATIONS

If design 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 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 Contractor or may be directed by the Contracting Officer as necessary to progress the work. The 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 Contractor shall have someone other than the Designer or Design Team perform an Independent Technical Review of all specifications, drawings, design analysis, calculations, and other required data prior to submission to the Government. This review shall insure the professional quality, technical accuracy, and the coordination of all design analysis, drawings and specifications, and other services furnished under this contract have been accomplished. 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 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. Upon completion of this review, the 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

The Contractor shall thoroughly review each submittal prior to submission to the Contracting Officer to assure it is complete, correct and unified. 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. The Contractor will give evidence of such review of all items in

each submittal ENG Form 4025, by annotating Column “g” (titled “For Contractor Use Code”) of this Form with the letter “A,” meaning the Contractor has reviewed it and is indicating it is “Approved as Submitted”. Design submittals submitted to the Contracting Officer without evidence of the above requirements or 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.

3.7.4 GOVERNMENT REVIEW

a. 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) full days to review and comment on all Design Submittals, except as noted below. This time period starts on the next full day after delivery of the Design Submittal to the Government.

b. If a design submittal is deficient (errors on ENG Form 4025, incorrect drawing title block information, missing or incomplete features required in the Submittal, etc.), it will be returned immediately without further review for correction and resubmission. The review time will begin when the corrected submittal is received. The Contractor may be liable for liquidated damages owed to the Government for returned design submittals due to deficiencies.

c. The contractor shall not begin construction work until the Government has reviewed the Contractor's Design Submittal and 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.

d. Upon completion of the review the Contractor will be notified by the Contracting Officer Representative that the DrChecks$_{SM}$ file is open for viewing and response to AED comments. The Contracting Officer will indicate whether the Design Submittal, or portions thereof, 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,
Re-submission required

E - NOT Cleared for Construction, see attached comments,
Re-submission required

FX – Receipt acknowledged, does not comply as noted with contract
requirements.

These codes shall NOT be used by the Contractor.

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.

3.7.4.1.1 INCORPORATION OF GOVERNMENT REVIEW COMMENTS

a. The Contractor shall review each comment, furnish a complete response in DrChecks$_{SM}$ as to how the comment will be addressed in the Design Analysis, Plans and Specifications, or other Design Submittal stipulations required in this Contract. The Contractor will then incorporate each comment into the design submittal along with other work required at the next Design Submittal stage. The Contractor shall furnish disposition of all comments in DrChecks$_{SM}$, 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. 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 contract administration process.

b. 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.

c. The Contractor is cautioned that if he believes the action required by any comment exceeds the requirements of this contract, he should flag the comment in DrChecks$_{SM}$ as a scope change, and notify the COR in writing immediately.

d. 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. Submittal date revisions must be made in writing at least five (5) days prior to the submittal.

3.7.4.2 CONFERENCES

As necessary, conferences will be conducted between the Contractor and the Government to resolve review comments.

A review conference may be held at the completion of AED review and subsequent Contractor response 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 Contractor shall be responsible for the correction of incomplete design data, omissions, and design discrepancies which become apparent during construction. The 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 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 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. 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.

3.8.2 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.

3.8.3 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.

3.8.4 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.

3.8.5 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.

3.8.6 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 CONDUCT OF WORK

3.9.1 PERFORMANCE

Perform the work diligently and aggressively, and promptly advise the Contracting Officer of all significant developments.

3.9.2 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.

3.9.3 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.

3.9.4 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 Contractor shall obtain copies of all publications applicable to this contract. 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 Contractor will be required to conform his design to the same at his own time and expense.

3.9.5 CONFLICTS

Any conflicts, ambiguities, questions or problems encountered by the Contractor in following the criteria shall be immediately submitted in writing to the Contracting Officer with the Contractor's recommendations. Prior to submission to the Government the 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.

3.9.6 DESIGN PRINCIPLES

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 principles shall be followed.

3.9.6.1 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.

3.9.6.2 OPERABILITY

Systems including but not necessarily limited to mechanical, electrical, communications, etc., must be simple to operate and easy to maintain.

3.9.6.3 STANDARDIZATION

Use of standardized materials, products, equipment, and systems is necessary to minimize the requirements for replacement parts, storage facilities, and service requirements.

3.9.6.4 CATHODIC PROTECTION AND EARTH RESISTANCE

Unless otherwise stated in the contract, the 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.

3.9.6.5 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.

3.9.6.6 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 AED.

3.9.6.7 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.

3.9.6.8 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.

3.10 VALUE METHODOLOGY/VALUE ENGINEERING

The 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.

3.10.1 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 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 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.

3.10.2 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 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.

3.11 ATTACHMENTS

The following attachments form an integral part of this specification:

ENG FORM 4025R, Mar 95 - Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificate of Compliance (2 pages)

ENG FORM 4288-R. Mar 95 - Submittal Register

Figure 1 – AED Title Block

Figure 2 - AED Management Block

Figure 3 - AED Issue Block & Required Notations

Figure 4 - Border Sheet Size

Electronic Submittal Document Format.

-- END OF SECTION --

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE *(Read instructions on the reverse side prior to initiating this form)*	DATE	TRANSMITTAL NO.

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO:	FROM:	CONTRACT NO.	CHECK ONE: ☐ THIS IS A NEW TRANSMITTAL ☐ THIS IS A RESUBMITTAL OF TRANSMITTAL _____
SPECIFICATION SEC. NO. *(Cover only one section with each transmittal)*	PROJECT TITLE AND LOCATION		CHECK ONE: THIS TRANSMITTAL IS FOR ☐ FIO ☐ GOV'T. APPROVAL

ITEM NO. *a.*	DESCRIPTION OF ITEM SUBMITTED *(Type size, model number/etc.)* *b.*	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. *(See instruction no. 8)* *c.*	NO. OF COPIES *d.*	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE *g.*	VARIATION *(See instruction No. 6)* *h.*	FOR CE USE CODE *i.*
				SPEC. PARA. NO. *e.*	DRAWING SHEET NO. *f.*			

REMARKS	I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as other wise stated. _____ NAME AND SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED *(List by Item No.)*	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.

2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.

3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.

4. Submittals requiring expeditious handling will be submitted on a separate form.

5. Separate transmittal form will be used for submittals under separate sections of the specifications.

6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".

7. Form is self-transmittal, letter of transmittal is not required.

8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.

9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A	--	Approved as submitted.	E	--	Disapproved (See attached).
B	--	Approved, except as noted on drawings.	F	--	Receipt acknowledged.
C	--	Approved, except as noted on drawings. Refer to attached sheet resubmission required.	FX	--	Receipt acknowledged, does not comply as noted with contract requirements.
D	--	Will be returned by separate correspondence.	G	--	Other *(Specify)*

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

SUBMITTAL REGISTER

(ER 415 1-10)

CONTRACT NO.

TITLE AND LOCATION

CONTRACTOR

SPECIFICATION SECTION

ACTIVITY NO a.	TRANS-MITTAL NO. b.	ITEM NO c.	SPECIFICATION PARAGRAPH NUMBER d.	DESCRIPTION OF ITEM SUBMITTED e.	TYPE OF SUBMITTAL: DATA f.	DRAWINGS g.	INSTRUCTIONS h.	SCHEDULES i.	STATEMENTS j.	REPORTS k.	CERTIFICATES l.	SAMPLES m.	RECORDS n.	O&M MANUALS o.	CLASSIFICATION: INFORMATION ONLY p.	GOVERNMENT APPROVED q.	REVIEWER r.	CONTRACTOR SCHEDULE DATES: SUBMIT s.	APPROVAL NEEDED BY t.	MATERIAL NEEDED BY u.	CONTRACTOR ACTION: CODE v.	DATE w.	SUBMIT TO GOVERN-MENT x.	GOVERNMENT ACTION: CODE y.	DATE z.	REMARKS aa.

ENG FORM 4288-R, JAN 97 EDITION OF MAR 95 IS OBSOLETE. PAGE _____ O _____ PAGES (Proponent:

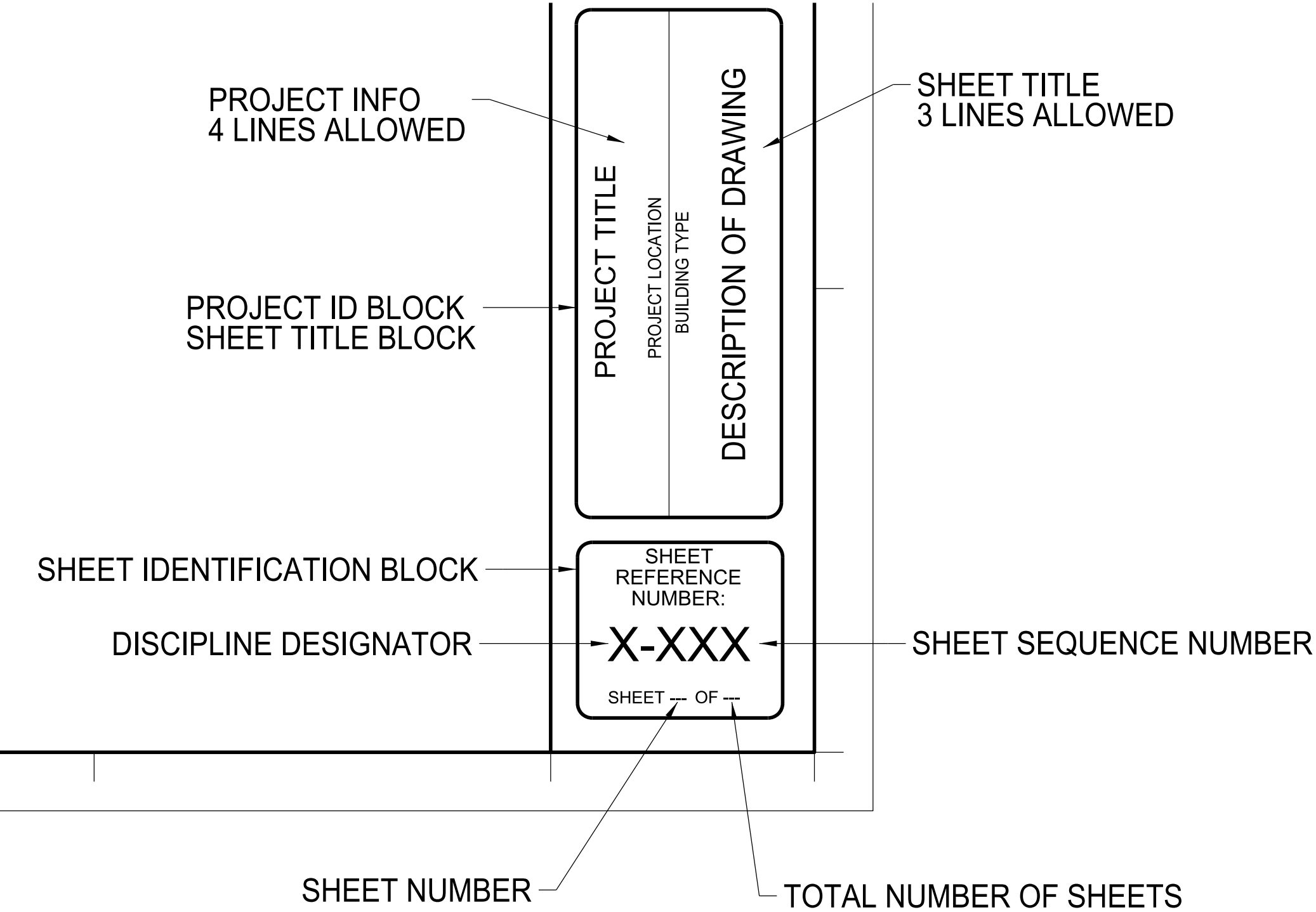


Figure 1: AED-S Title Block

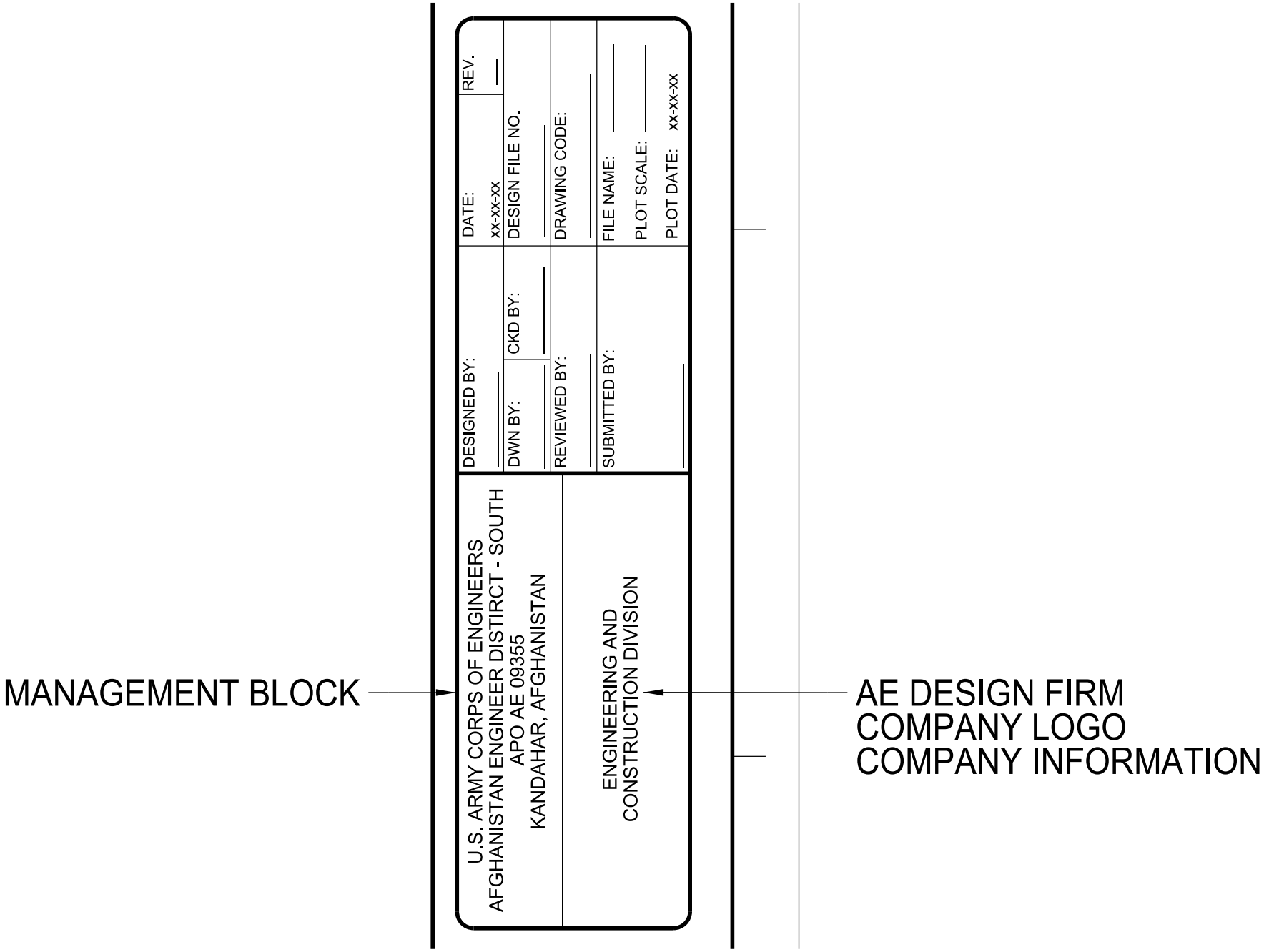


Figure 2: AED-S Management Block

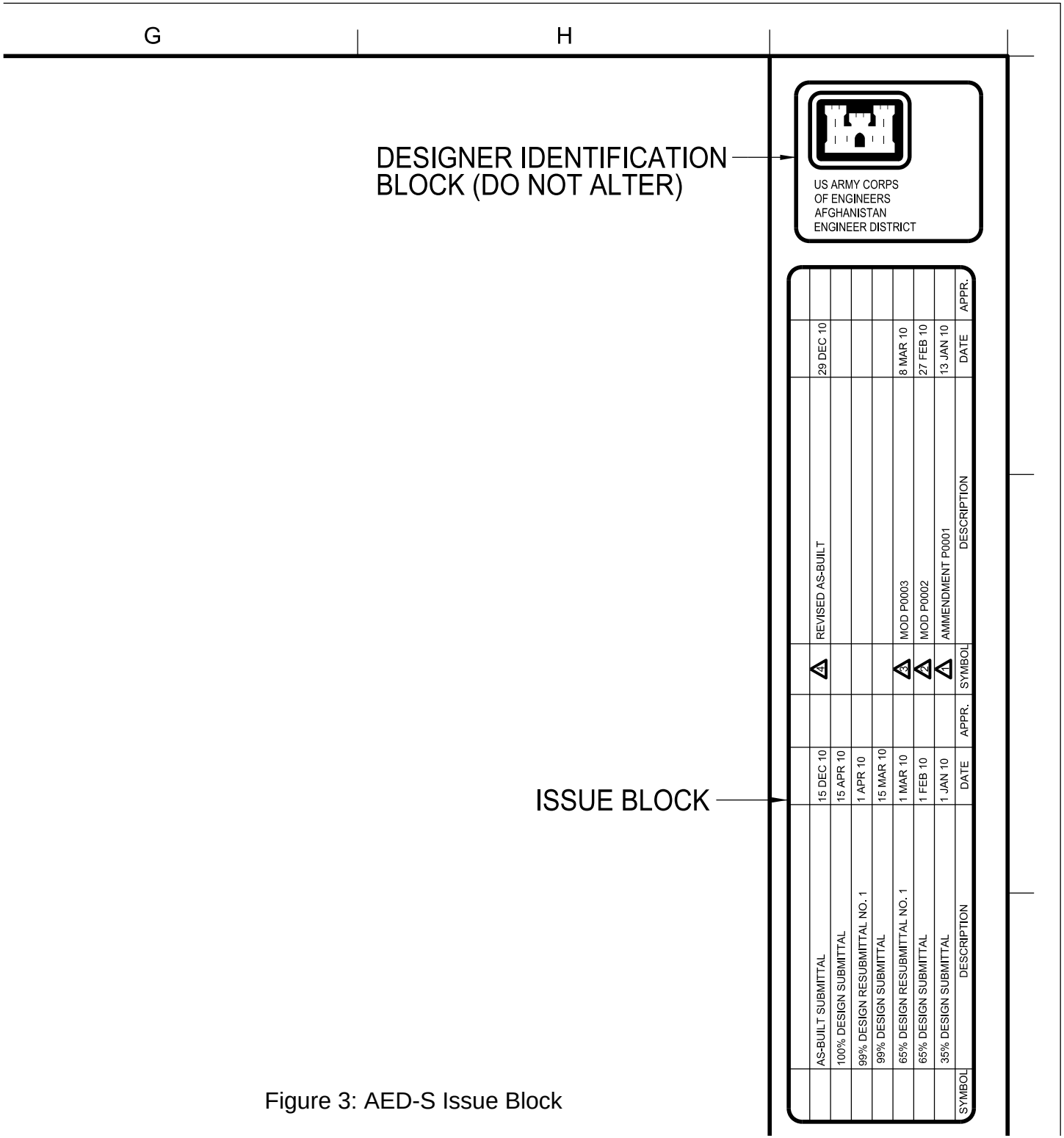


Figure 3: AED-S Issue Block

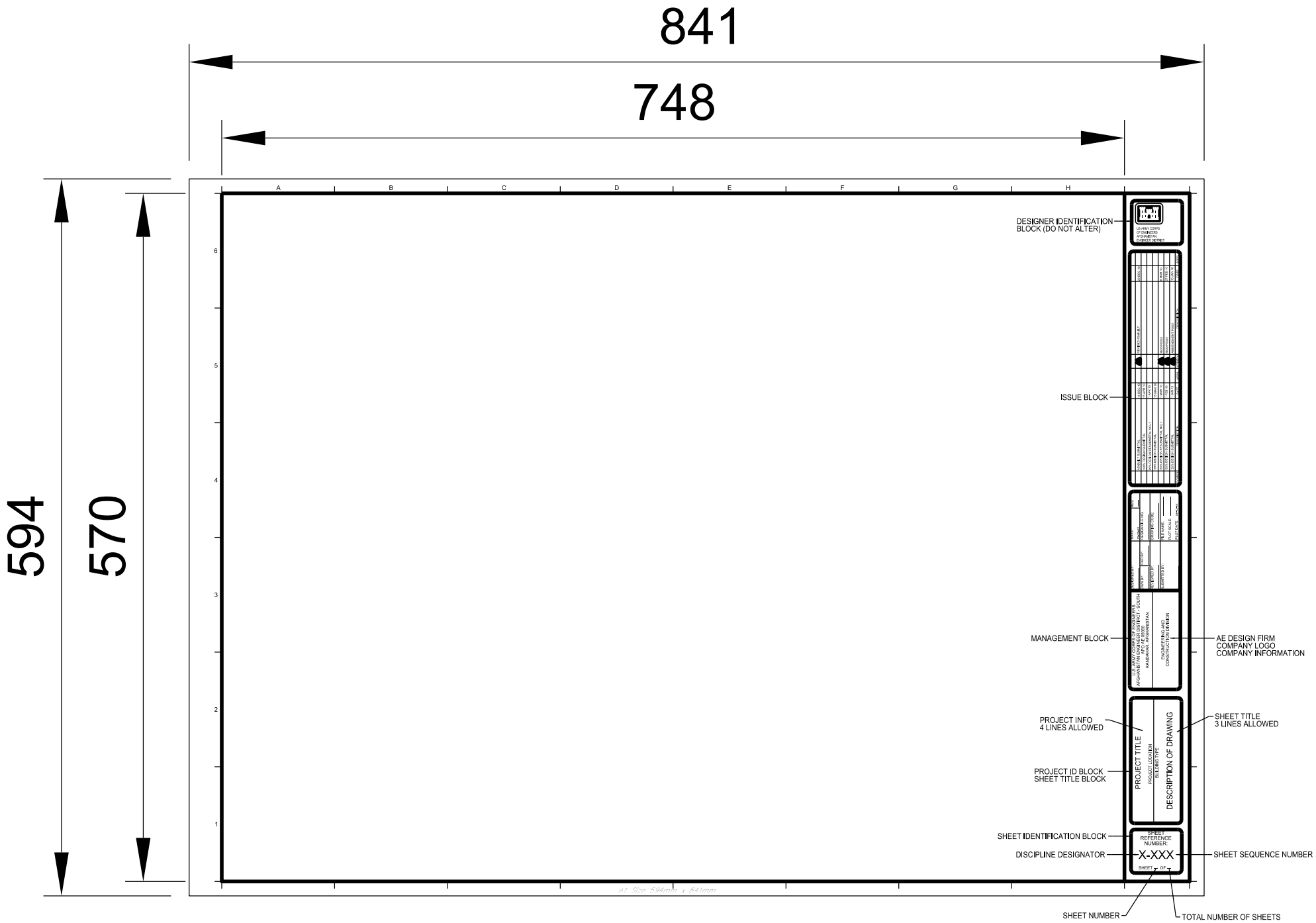


Figure 4: AED-S Sheet Dimensions

ELECTRONIC SUBMITTAL DOCUMENT FORMAT

PART 1 - GENERAL: Throughout the design process, the DB Contractor shall submit electronic packages for review at each Design Phase identified in the Request for Proposals. To facilitate reviews, submittal packages shall conform to the following file structure and format.

1.1. File Structure: Submittal packages that can be contained on a single disc shall use the file structure shown in Figure 1.

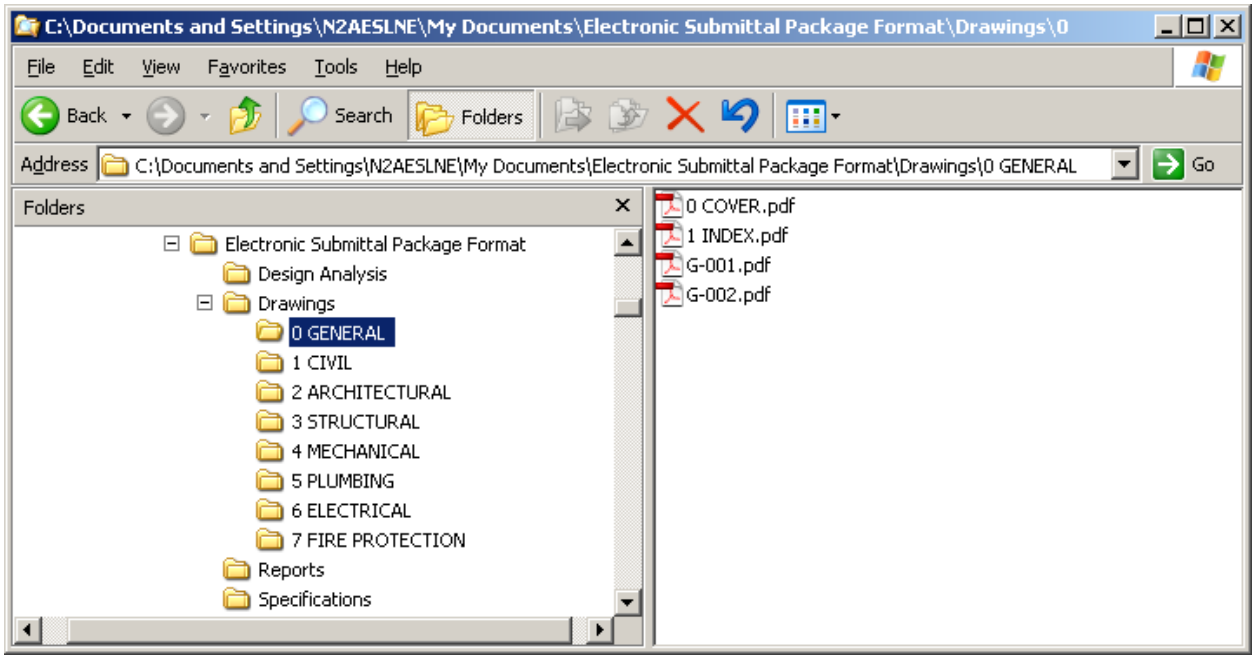


Figure 1: Submittal package file structure

1.2. Design Analysis: The design analysis directory shall contain all design analysis and calculation documents necessary for the current design stage. All design analysis and calculations shall be compiled into a single document containing a table of contents and page numbers. As additional analysis and calculation documents are created in progressive design phases, insert these documents into their appropriate section of the Design Analysis. Avoid lengthy appendices except in the case where numerical output sheets from analysis software are included. All documentation shall be organized by discipline: Civil, Architectural, Structural, Mechanical and Electrical.

1.2.A. Some projects requiring complex plumbing, communications and fire protection systems may require additional sections covering these specific systems. Note that water supply and sanitary sewer systems beyond 1.5 meters of the building envelope are Civil systems, not Plumbing systems.

1.2.B. If the project involves a compound comprised of several structures, clearly identify which building is being analyzed. In these cases, the major divisions of the Design Analysis shall be by discipline with subdivisions by building such that all calculations for a particular discipline will be found in one section of the document. For example, a compound containing three separate buildings would have three separate seismic loading analysis calculations in the structural section.

1.3. Drawings: Drawings shall be arranged by discipline. Subdirectories shall be made corresponding to discipline only. Folders labeled for specific disciplines as shown in Figure 1 shall contain all drawings in the project applicable to that discipline. Note that these discipline specific

folders are to contain only drawings and no other type of document. Drawings must be submitted in pdf form at a minimum. Files shall be named by reference number (i.e. C-101). If multiple file types for submittal drawings are provided, place all file types for each discipline in the same folder; do not subdivide the discipline specific folders for separate file types. Also, include a single pdf file containing all drawings in the project in this folder. The sheets in this file should follow the order indicated in the index sheet. This file should be named to indicate the contract number and submittal stage.

1.3.A. GENERAL: A folder labeled “0 GENERAL” shall contain the cover sheet, index sheet, list of legends and abbreviations sheet, project location and vicinity sheet, and site survey sheets.

1.3.B. CIVIL: A folder labeled “1 CIVIL” shall contain all site survey drawings and all civil drawings for the project. Note that the pipe networks for water supply systems, sanitary sewer systems and storm drainage systems are civil drawings, not plumbing drawings. Also note that gates, fences and small site structures are typically part of the civil discipline.

1.3.C. ARCHITECTURAL: A folder labeled “2 ARCHITECTURAL” shall contain all architectural drawings for the project. Note that life safety drawings denote architectural features and belong in this folder.

1.3.D. STRUCTURAL: A folder labeled “3 STRUCTURAL” shall contain all structural drawings for the project.

1.3.E. MECHANICAL: A folder labeled “4 MECHANICAL” shall contain all HVAC drawings for the project.

1.3.F. PLUMBING: A folder labeled “5 PLUMBING” shall contain all indoor plumbing systems (i.e. domestic water, waste & vent, LPG or propane, compressed air, diesel or fuel oil, etc.) for the project. Note that water supply and sanitary sewer systems beyond 1.5 meters of the building envelope are Civil systems, not Plumbing systems.

1.3.G. ELECTRICAL: A folder labeled “6 ELECTRICAL” shall contain all electrical drawings for the project. Note that communication and fire alarm systems are electrical systems and belong in this folder for most projects.

1.3.H. FIRE PROTECTION: A folder labeled “7 FIRE PROTECTION” shall contain all indoor fire protection systems (i.e. sprinklers, fire pumps, etc.) for the project.

1.4. Reports: The reports folder shall contain all certified reports required in the contract, including the Geotechnical Report, Water Quality Report and any other reports specifically called for in the contract. No subdirectories shall be created in this folder.

1.5. Specifications: All project specifications shall be contained in this folder. Include the project table of contents and name it so that it is easily identifiable (naming it “00000 Project Table of Contents” should ensure that it is at the top of the list). Specification sections should be named by number only so that they sort in ascending order as indicated on the project table of contents, or all project specifications shall be collated into a single file indexed at each section. No subdirectories shall be created in this folder.

PART 2 - PRODUCTS: (NOT APPLICABLE)

PART 3 - EXECUTION: (NOT APPLICABLE)

- - END SECTION - -

SECTION 01355
ENVIRONMENTAL PROTECTION (MILCON VERSION)

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ISLAMIC REPUBLIC OF AFGHANISTAN

Official Gazette No. 912 Environmental Law (2007)

U.S. DEPARTMENT OF DEFENSE (DoD)

DoD 4715.05-G	Overseas Environmental Baseline Guidance Document (OEBGD) (2007)

U.S. ARMY (DA)

AR 200-1	Environmental Protection and Enhancement (2007)

U.S. CENTRAL COMMAND (CENTCOM)

R 200-2	Environmental Quality CENTCOM Contingency Environmental Guidance (2009)

U.S. FORCES – AFGHANISTAN (USFOR-A)

USFOR-A EGD	Environmental Guidance Document (2009)

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	Safety and Health Requirements Manual (2009)

1.2 DEFINITIONS

1.2.1 ENVIRONMENTAL POLLUTION AND DAMAGE

Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally and/or historically.

1.2.2 ENVIRONMENTAL PROTECTION

Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2.3 CONTRACTOR GENERATED HAZARDOUS WASTE

Contractor generated hazardous waste means materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the Contractor to execute work, but are not fully consumed during the course of construction. Examples include, but are not limited to, excess paint thinners (i.e. methyl ethyl ketone, toluene etc.), waste thinners, excess paints, excess solvents, waste solvents, and fuel/oils/lubricants.

1.2.4 LAND APPLICATION FOR DISCHARGE WATER

The term "Land Application" for discharge water implies that the Contractor shall discharge water at a rate which allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, discharge into defined drainage areas, or discharge into the waters of Afghanistan shall occur.

1.2.5 SURFACE DISCHARGE

The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers, creeks, and/or waters of Afghanistan would require a permit to discharge water from the project.

1.2.6 HAZARDOUS MATERIAL (HM)

A useful product that requires special management because it has hazardous characteristics (ignitability, corrosivity, reactivity, or toxicity) that could pose dangers to human health or the environment. A HM becomes a Hazardous Waste when it can no longer be used for its intended purpose.

1.2.7 HAZARDOUS WASTE (HW)

A discarded material with properties that could pose dangers to human health or the environment. A HW either exhibits a hazardous characteristic or is specifically listed as a HW by the EPA or by the State.

1.3 GENERAL REQUIREMENTS

The Contractor shall minimize environmental pollution and damage that may occur as the result of construction operations. Environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of this contract. The Contractor shall comply with all applicable Afghanistan environmental laws and regulations. The Contractor shall be responsible for delays resulting from failure to comply with environmental laws and regulations.

For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the utility of the environment for aesthetic, cultural, and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, land, and includes management of visual esthetics, noise, solid waste, and erosion from stormwater, as well as pollutants.

1.4 SUBCONTRACTORS

The Contractor shall ensure compliance with this section by all subcontractors, suppliers, and vendors.

1.5 ABBREVIATIONS AND ACRONYMS

BACT	Best Available Control Technology
BMP	Best Management Practice
COR	Contracting Officer's Representative
ECO	Environmental Compliance Officer
HM	Hazardous Material HW Hazardous Waste
HW	Hazardous Waste
HWT	Hazardous Waste Technician
KO	Contracting Officer
PPE	Personal Protective Equipment
USACE	US Army Corps of Engineers

1.6 LAWS AND REGULATIONS

The Contractor shall comply with all applicable Afghanistan environmental, natural and cultural resources, and historic preservation laws and regulations.

1.7 SUBMITTALS

1.7.1 ENVIRONMENTAL PROTECTION PLAN

Prior to commencing construction activities or delivery of materials to the site, the Contractor shall submit an Environmental Protection Plan for review and approval by the Contracting Officer. The purpose of the Environmental Protection Plan is to present a comprehensive overview of known or potential

environmental, natural and cultural resources, and historic preservation issues which the Contractor must address during construction. Issues of concern shall be defined within the Environmental Protection Plan as outlined in this section. The Contractor shall address each topic at a level of detail commensurate with the environmental issue and required construction task(s). Topics or issues which are not identified in this section, but which the Contractor considers necessary, shall be identified and discussed after those items formally identified in this section. The Environmental Protection Plan shall be current and maintained onsite by the Contractor.

1.7.1.1 COMPLIANCE

No requirement in this Section shall be construed as relieving the Contractor of any applicable Afghanistan environmental, natural and cultural resources, and historic preservation protection laws and regulations. During Construction, the Contractor shall be responsible for identifying, implementing, and submitting, for approval, any additional requirements to be included in the Environmental Protection Plan.

1.7.1.2 CONTENTS

The environmental protection plan shall include, but shall not be limited to, the following:

1. Name(s) of the on-site Environmental Manager who is responsible for ensuring adherence to the Environmental Protection Plan and monitoring and documenting environmental procedures.
2. An erosion and sediment control plan which identifies the type and location of the erosion and sediment controls to be provided. The plan shall include monitoring and reporting requirements to assure that the control measures are effective.
3. Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on the site.
4. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas including methods for protection of features to be preserved within authorized work areas.
5. Spill Control plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a hazardous material. The Spill Control Plan supplements the requirements of EM 385-1-1. This plan shall include as a minimum:
    a. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Contracting Officer if a reportable quantity is released to the environment. The plan shall contain a list of the required reporting channels and telephone numbers.
    b. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.
    c. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.
    d. The methods and procedures to be used for expeditious contaminant cleanup.
6. An air pollution control plan detailing provisions to assure that dust, debris, materials, trash, etc., do not become air borne and travel off the project site.
7. A non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
8. A contaminant prevention plan that: identifies potentially hazardous substances to be used on the job site and identifies the intended actions to prevent introduction of such materials into the air, water, or ground. As new hazardous materials are brought on site or removed from the site, the plan shall be updated.
9. A hazardous waste plan that: identifies potentially hazardous waste that may be generated by the project.
10. A waste water management plan that identifies the methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as

concrete curing water, clean-up water, dewatering of ground water, decontamination water, hydrostatic test water, and water used in flushing of lines.

11. A historical, archaeological, cultural resources, and biological resources plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, and biological resources known to be on the project site: and/or identifies procedures to be followed if historical archaeological, cultural resources, and biological resources not previously known to be onsite or in the area are discovered during construction. The plan shall include methods to assure the protection of known or discovered resources and shall identify lines of communication between Contractor personnel and the Contracting Officer.

1.8 PROTECTION FEATURES

Prior to start of any onsite construction activities, the Contractor and the Contracting Officer shall make a joint condition survey. Immediately following the survey, the Contractor shall prepare a brief report including a plan describing the features requiring protection under the provisions of the Contract Clauses along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the Contractor's assigned storage area and access route(s), as applicable. This survey report shall be signed by both the Contractor and the Contracting Officer upon mutual agreement as to its accuracy and completeness. The Contractor shall protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference which their preservation may cause to the Contractor's work under the contract.

1.9 ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

Any deviations, requested by the Contractor, from the drawings, plans and specifications which may have an environmental impact will be subject to approval by the Contracting Officer and may require an extended review, processing, and approval time. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

1.10 NOTIFICATION

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with environmental, natural and cultural resources, and historic preservation laws or regulations, permits, and other elements of the Contractor's Environmental Protection plan. The Contractor shall, after receipt of such notice, inform the Contracting Officer of the proposed corrective action and take such action when approved by the Contracting Officer. The Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or equitable adjustments allowed to the Contractor for any such suspensions.

2 PRODUCTS (NOT USED)

3 EXECUTION

3.1 ENVIRONMENTAL PERMITS AND COMMITMENTS

The Contractor shall be responsible for obtaining and complying with all environmental, natural and cultural resources, and historic preservation permits and commitments required by Afghanistan environmental, natural and cultural resources, and historic preservation laws and regulations.

3.2 LAND RESOURCES

The Contractor shall confine all activities to areas defined by the drawings and specifications. Prior to the beginning of any construction, the Contractor shall identify any land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without approval. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. The Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Stone, soil, or other materials displaced into uncleared areas shall be removed by the Contractor.

3.2.1 WORK AREA LIMITS

Prior to commencing construction activities, the Contractor shall mark the areas that need not be disturbed under this contract. Isolated areas within the general work area which are not to be disturbed shall be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, any markers shall be visible in the dark. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

3.2.2 LANDSCAPE

Trees, shrubs, vines, grasses, land forms and other landscape features indicated to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques. The Contractor shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area.

3.2.3 EROSION AND SEDIMENT CONTROLS

The Contractor shall be responsible for providing erosion and sediment control measures. The erosion and sediment controls selected and maintained by the Contractor shall be such that water quality is not degraded as a result of the Contractor's construction activities. The Contractor shall construct or install temporary and permanent erosion and sediment control best management practices (BMPs) as indicated on the drawings. BMPs may include, but not be limited to, vegetation cover, stream bank stabilization, slope stabilization, silt fences, construction of terraces, interceptor channels, sediment traps, inlet and outfall protection, diversion channels, and sedimentation basins. Any temporary measures shall be removed after the area has been stabilized.

3.2.4 CONTRACTOR FACILITIES AND WORK AREAS

The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas designated on the drawings or as directed by the Contracting Officer. Temporary movement or relocation of Contractor facilities shall be made only when approved. Erosion and sediment controls shall be provided for on-site borrow and spoil areas to prevent sediment from entering nearby waters. Temporary excavation and embankments for plant and/or work areas shall be controlled to protect adjacent areas.

3.2.5 TREE PROTECTION

All costs associated with tree protection requirements required by specifications and drawings are the full responsibility of the Contractor. The Contractor shall exercise care when excavating trenches in the vicinity of trees.

3.3 WATER RESOURCES

The Contractor shall monitor construction activities to prevent pollution of surface and ground waters. Toxic or hazardous chemicals shall not be applied to soil or vegetation unless otherwise indicated. All water areas affected by construction activities shall be monitored by the Contractor.

3.3.1 COFFERDAMS, DIVERSIONS, AND DEWATERING OPERATIONS

Construction operations for dewatering, removal of cofferdams, and tailrace excavation shall be controlled at all times to maintain compliance designated uses of the surface water body.

3.3.2 STREAM CROSSINGS

Stream crossings (wet or dry) shall allow movement of materials or equipment without blocking the natural flow of water, if water became present.

3.4 AIR RESOURCES

3.4.1 PARTICULATES

Dust particles; aerosols and gaseous by-products from construction activities; and processing and preparation of materials shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause a hazard or a nuisance. Sprinkling, chemical

treatment of an approved type, baghouse, scrubbers, electrostatic precipitators or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp at all times. The Contractor must have sufficient, competent equipment available to accomplish these tasks. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs.

3.4.2 ODORS

Odors from construction activities shall be controlled at all times. The odors shall not cause a health hazard.

3.4.3 SOUND INTRUSIONS

The Contractor shall keep construction activities under surveillance and control to minimize environment damage by noise.

3.4.4 BURNING

All areas within facility perimeter fence line are designated as no burn areas.

3.5 CHEMICAL MATERIALS MANAGEMENT AND WASTE DISPOSAL

3.5.1 CHEMICALS AND CHEMICAL WASTES

Chemicals shall be dispensed ensuring no spillage to the ground or water. Periodic inspections of dispensing areas to identify leakage and initiate corrective action shall be performed and documented. This documentation will be periodically reviewed by the Government. Chemical waste shall be collected in corrosion resistant, compatible containers. Collection drums shall be monitored and removed to a staging or storage area when contents are within 6 inches of the top. Wastes shall be classified, managed, stored, and disposed at an appropriate disposal site.

3.5.2 CONTRACTOR HAZARDOUS MATERIAL / GENERATED HAZARDOUS WASTES / EXCESS HAZARDOUS MATERIALS

The Contractor shall, at a minimum, manage and store hazardous material and waste in an area designed and operated to provide appropriate segregation for different waste streams, including those that are chemically incompatible. Each area will have warning signs appropriate for the waste being accumulated at that site. Facilities or areas shall provide adequate ventilation, containment, and protection from the elements. Provide warning signs, limit access to the facility, and lock it when it is unattended. Contractor vehicles are not considered a proper storage facility. No HM or HW shall be stored in vehicles overnight or for any length of time. The Contractor shall take sufficient measures to prevent spillage or leakage of hazardous and toxic materials during dispensing or storage. The Contractor shall protect HM and HW from the weather by placing it in a safe covered location. The Contractor shall be responsible for storage, describing, packaging, labeling, and marking hazardous waste and hazardous material. Spills of hazardous or toxic materials shall be immediately reported to the Contracting Officer. Cleanup and cleanup costs due to spills shall be the Contractor's responsibility.

3.5.3 FUEL AND LUBRICANTS

Storage, fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spill and evaporation.

3.5.4 WASTE WATER

Disposal of waste water shall be as specified below.

a. Waste water from construction activities shall not be allowed to enter water ways or to be discharged prior to being treated to remove pollutants. The Contractor shall dispose of the construction related waste water off site, unless on-site disposal is approved by the Contracting Officers Representative.
b. Water generated from the flushing of lines after decontamination or decontamination in conjunction with hydrostatic testing or only hydrostatic testing shall be discharged into the sanitary sewer with prior approval and/or notification to the Waste Water Treatment Plant's Operator.

3.6 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

If during excavation or other construction activities any previously unidentified or unanticipated historical, archaeological, and cultural resources are discovered or found, all activities that may damage or alter such resources shall be temporarily suspended. Resources include but are not limited to: any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rock or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other human activities. Upon such discovery or find, the Contractor shall immediately notify the Contracting Officer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in impact to or the destruction of these resources. The Contractor shall secure the area and prevent employees or other persons from trespassing on, removing, or otherwise disturbing such resources.

3.7 BIOLOGICAL RESOURCES

The Contractor shall minimize interference with, disturbance to, and damage to fish, wildlife, and plants including their habitat. The Contractor shall be responsible for the protection of threatened and endangered animal and plant species including their habitat in accordance with Afghanistan regulations.

3.8 MAINTENANCE OF POLLUTION CONTROL

The Contractor shall maintain permanent and temporary pollution control facilities and devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

3.9 POST CONSTRUCTION CLEANUP

The Contractor shall clean up all areas used for construction in accordance with Contract Clause: "Cleaning Up". The Contractor shall, unless otherwise instructed in writing by the Contracting Officer, obliterate all signs of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed area shall be graded, filled and the entire area restored to its original condition.

-- END OF SECTION --

SECTION 01415

METRIC MEASUREMENTS

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

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 the11th 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.

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.

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.

3.2 SOFT METRIC

a. 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.

b. 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)).

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).

3.4 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.

3.5 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 --

SPECIFICATION SECTION 01451

CONTRACTOR QUALITY CONTROL

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.

2. EXECUTION

2.1 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.

2.2 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 (USACE) Construction Quality Management (CQM) course, or equivalent. The CQM course will be offered periodically by the Afghanistan Engineer District

(AED), USACE. Additional approved CQM courses include those offered by the Commercial Technical Training Center (in Jalalabad) and the Champion Technical Training Center (in Kabul). The Quality Assurance Branch of the AED can provide information related to AED offerings of the CQM course, as well as contact information for training centers. Alternative CQM courses, other than those mentioned above, must be approved by the Quality Assurance Branch.

The contractor's quality control plan, as defined in USACE Guide Specification 01451 (or 01 45 04.00 10), entitled "Contractor Quality Control", must include "The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function." For the QC Manager, qualifications must include a certificate demonstrating completion of an approved CQM course.

2.3 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.

2.3.1 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.

2.3.2 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.

2.3.3 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.

2.3.4 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.

2.4 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.

2.5 QUALITY CONTROL ORGANIZATION

2.5.1 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.

2.5.2 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.

2.5.3 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.

2.5.4 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.

2.6 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.

2.7 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:

2.7.1 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.

2.7.2 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.

2.7.3 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.

2.7.4 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.

2.8 TESTS

2.8.1 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.

2.9 COMPLETION INSPECTION

2.9.1 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.

3.9.2 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.

2.9.2 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. 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.

3.1 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.

3.2 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
SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

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 Afghanistan District and;

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 (2010)	Safety Requirements for Personal Fall Arrest Systems
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(2011)	National Electrical Code
NFPA 70E(2010)	Electrical Safety in the Workplace

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1(2008)	Safety and Health Requirements

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910	Occupational Safety and Health Standards (OSHA)
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 SECTION SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Accident Prevention Plan (APP); G, District Safety Office

Activity Hazard Analysis (AHA); G, District Safety Office

Crane Critical Lift Plan; G, District Safety Office

Proof of qualification for Crane Operators; G, District Safety Office

UXO/Demining Safety Work Plan; G, District Safety Office

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, District Safety Office

UXO/Demining Clearance Certificate; G, District Safety Office

Submit one copy of each permit/certificate attached to each Daily Quality Control Report.

Certification of UXO clearance. Where excavations are to be performed in areas known or suspected to contain explosives, unexploded munitions, or military ordnance, surface and subsurface clearance by qualified explosive ordnance disposal (EOD) personnel shall be accomplished prior to excavation work. Clearance certificates must be forwarded to the AED-N UXO QA Safety specialist, prior to the start of construction. If the site does not have an associated clearance certificate, the site will require an UXO/mine clearance conducted to meet the certification of UXO clearance requirements EM 385-1-1 section 25.A.01.m.

Before initiation of work at the job site, all Accident Prevention Plans, Demining plans, and any other safety related plans shall be reviewed by the AED-N Safety Office.

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.

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 cannot be the SSHO on this project.

The SSHO shall meet the following requirements: Certification card for 30-hour OSHA construction safety class or equivalent within the last 3 years. SSHO must be fluent in English and the local language for communication with the GDA. Competent person training as needed.

Site Safety and Health Officer(SSHO)shall meet the requirements of EM 385-1-1

1. The SSHO is also required to have five (5) years of construction industry safety experience or three (3) years if he/she possesses a Certified Safety Professional (CSP) or safety and health degree. (For complex or high hazard projects, the SSHO shall have a minimum of ten (10) years of safety-related work with at least five (5) years experience on similar type projects.

2. The SSHO(s), as a minimum, must have completed the 30-hour OSHA Construction safety class or as an equivalent, 30 hours of formal construction safety and health training covering the subjects of the OSHA 30-hour course (see Appendix A, paragraph 4.b. in EM385-1-1 applicable to the work to be performed and given by qualified instructors.

3. SSHOs shall maintain this competency through 24 hours of formal safety and health related coursework every four (4) years.

The SSHO shall have the following level of experience:

1. A minimum of 5 years safety work on similar projects.
2. 30-hour OSHA construction safety class or equivalent within the last 5 years.
3. An average of at least 24 hours of formal safety training each year for the past 5 years.
4. 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. Assess hazardous conditions including atmospheric hazards in confined space and adjacent spaces and specify the necessary protection and precautions to be taken;

d. Determine ventilation requirements for confined space entries and operations;

e. Assess hazards associated with hot work in confined and adjacent space and determine fire watch requirements; and,

f. Maintain records required.

1.6.1.3 CRANE OPERATORS

Crane operators shall meet the requirements in USACE EM 385-1-1, Section 16.B.

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. Be on site at all times while work is being performed.

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. An AED Minimum Basic Outline for Contractor APP Template is provided at the end of this section. 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.

In addition to following the requirements defined by EM 385-1-1, the Contractor shall submit for approval as part of the APP a DBA Insurance Plan describing how the requirements in Section 00 80 00 Special Clauses paragraph 2.11 will be met including: (1) properly and promptly submit an injury claim within seven days of the incident, (2) provide Resident/Area Engineer with copies of submitted claim(3) gathering contact information of workers and their family, (4) follow-up on claim's status, (5) provided weekly claims report status to the Resident/Area Engineer,(6) providing prompt payment to an injured worker, or the family of a deceased worker, and (7) provide Resident/Area Engineer confirmation that payment has been provided from DBA insurance provider.

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 34, 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.H. and the following:

   (1) For lifts of personnel, the plan shall demonstrate compliance with the requirements of EM 385-1-1, Section 16.T.

   (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 eight 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.). For all accidents involving a fatality, permanent total disability, hospitalization of three or more persons, or property damage of $200,000 or more, the Contractor shall promptly suspend all operations at the scene of the accident and notify the Resident Engineer of the occurrence.

The Contractor shall immediately provide for the rescue and/or care of the injured. Except in situations where safety may be compromised, access to the area shall be restricted and the scene left undisturbed until investigated by a Government appointed board of investigation and until the Contractor is authorized to resume operations.

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.

1.13.3 CRANE REPORTS

Submit crane inspection reports required in accordance with USACE EM 385-1-1, Appendix I 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.

2. EXECUTION

2.1 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.13 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.
5. Eye protection

Eye and face protection equipment shall meet the requirements of ANSI/ American Society of Safety Engineers (ASSE) Z87.1, and bear a legible and permanent "Z87" logo to indicate compliance with the standard. Eye and face protection equipment shall be distinctly marked to facilitate identification of the manufacturer and provides side protection.

Persons involved in activities that subject the hands to injury (for example, cuts, abrasions, punctures, burns, chemical irritants, toxins, vibration, and forces that can restrict blood flow) shall select and use hand protection appropriate for the hazard in accordance with ANSI/International Safety Equipment Association (ISEA) 105.

Protective equipment shall be of heat, fire, chemical, and/or electrical-resistive material when conditions require protection against such hazards.

2.1.1 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.

2.1.2 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.

2.1.3 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-isocynates, 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.

2.1.4 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."

2.2 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.

2.2.1 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.B.

2.2.2 FALL PROTECTION EQUIPMENT

The Contractor shall enforce use of the fall protection equipment designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is on a surface1.8 m(6 feet) or more above lower levels. Fall protection systems such as guardrails, personnel fall arrest system, safety nets, etc., are required when working within 1.8m (6 feet) of any leading edge. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, Elevating Work Platforms/Scissors Lifts: Scissors lifts shall be equipped with standard guardrails. In addition to the guardrail provided, if the scissor lift is equipped with a manufactured anchorage, a restraint system shall be used in addition to guardrails. Lanyards used with the restraint system shall be sufficiently short to prohibit workers from climbing out of, or being ejected from, the platform.

2.2.2.1 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.

2.2.3 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.

2.2.4 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. Exiting horizontal lifeline anchorages shall be certified (or re-certified) by a registered professional engineer with experience in designing horizontal lifeline systems.

2.2.5 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.

2.2.6 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.

2.2.7 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).

2.3 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.

2.4 EQUIPMENT

2.4.1 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.

2.4.2 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.

2.5 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. All excavations shall conform with the requirements of Section 25 of EM 385-1-1.

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 the excavation, the adjacent areas, and protective systems daily; before each work shift; throughout the work shifts as dictated by the work being done; after every rainstorm; after other events that could increase hazards, e.g., snowstorm, windstorm, thaw, earthquake, etc.; when fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom or other similar conditions occur; when there is a change in size, location or placement of the spoil pile; and where there is any indication or change in adjacent structures. The competent person shall be able to demonstrate the following: training, experience, and knowledge of, soil analysis, use of protective systems; and requirements of EM 385-1-1 and 29 CFR 1926 Subpart P. They also need the ability to detect conditions that could result in cave-ins, failures in protective systems, hazardous atmospheres, and other hazards including those associated with confined spaces. They shall have the authority to take prompt corrective measures to eliminate existing and predictable hazards and stop work when required.

2.5.1 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.

2.5.2 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.

2.5.3 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.

2.5.4 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.

2.6 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.

2.7 ELECTRICAL

2.7.1 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. Energized work may never be performed without prior authorization. An energized work permit shall be submitted to GDA for acceptance in acceptance in accordance with 385-1-1, Section 11.A02.c. 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.

2.7.2 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.

2.8 WORK IN CONFINED SPACES

The Contractor shall comply with the requirements in Section 34 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. 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. Ventilation shall conform with the requirements of Section 06.G of 385-1-1.

c. Ensure the use of rescue and retrieval devices in confined spaces greater than 1.5 m (5 feet) in depth. Conform to Section 34 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 34 of USACE EM 385-1-1.

f. Daily Entry Permit. Post the permit in a conspicuous place close to the confined space entrance.

2.9 CRYSTALLINE SILICA

Grinding, abrasive blasting, and foundry operations of construction materials containing crystalline silica, shall comply with USACE EM 385-1-1, Appendix 06.H. 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.

2.10 DEMOLITION

2.10.1 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.

2.10.2 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.

2.10.3 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

2.11 HOUSEKEEPING

2.11.1 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.

-- END OF SECTION --

SECTION 01770

CLOSEOUT PROCEDURES

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-11 Closeout Submittals

As-Built Drawings; G

Record Of Materials; 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 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.

-- END OF SECTION --

SECTION 01780A

CLOSEOUT SUBMITTALS

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 local language of Afghanistan shall be added to project As-Built drawings. The final CADD as-built drawings shall consist of **2 sets** of electronic CADD drawing files in the specified format, and **2 half-size and 1 full-size paper copy** of the approved 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.

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

a. 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:

b. 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.

c. The location and dimensions of any changes within the building structure.

d. Correct grade, elevations, cross section, and alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

e. 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.

f. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

g. Changes or modifications which result from the final inspection.

h. Where contract drawings or specifications present options, only the option selected for construction shall be shown on the final as-built prints.

i. 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.

j. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.

k. 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 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

a. 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 will be furnished "as-designed" drawings in AutoCAD Release 2007 or Microstation VM format compatible with a Windows XP operating system. The electronic files will be supplied on compact disc, read-only memory (CD-ROM). The Contractor shall be responsible for providing all program files and hardware necessary to prepare final as-built drawings.

b. Prior to submittal of the first design submittal involving CADD drawings, the Contractor shall prepare one typical CADD drawing for the project and furnish, via ENG Form 4025, the electronic CADD drawing file for review and approval by the Contracting Officer. All Government comments involving changes to this single drawing shall be accomplished and resubmittal(s)

made until the Government is satisfied that all CADD Standards are being followed and all subsequent drawings will also be in compliance with these Standards.

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 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. 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 full size paper copy prints of these drawings for Government review, comparison with approved red-line marked up drawings, and approval. The Government will promptly return one set of prints annotated with any necessary corrections to the CADD file(s) if corrections are required prior to approval. Within 20 days 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), one set of full size paper 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 CADD system. Upon approval by the Government of the final as-built drawing package for the entire project, the Contractor shall provide the number of as-built copies noted in Paragraph 1.1 of this Section.

e. 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	Where Used

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.

1.3 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. A list for each warranted feature of construction indicating:

    1. Name of item.
    2. Location where installed.
    3. Name and phone numbers of manufacturers or suppliers.
    4. Warranties and terms of warranty. This shall include one-year overall warranty of construction.
    5. Cross-reference to warranty certificates as applicable.
    6. Starting point and duration of warranty period.
    7. Summary of maintenance procedures required to continue the warranty in force.
    8. Organization, names and phone numbers of persons to call for warranty service.
    9. Typical response time and repair time expected for various warranted features.

c. The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.

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 backcharge 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.

-- END OF SECTION -

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

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.

ACI INTERNATIONAL (ACI)

ACI/MCP-1	(2010) Manual of Concrete Practice Part 1
ACI/MCP-2	(2010) Manual of Concrete Practice Part 2
ACI/MCP-3	(2010) Manual of Concrete Practice Part 3
ACI/MCP-4	(2010) Manual of Concrete Practice Part 4

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 182	(2005) Standard Specification for Burlap Cloth Made from Jute or Kenaf and Cotton Mats
AASHTO M 322M/M 322	(2007) Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement

AMERICAN HARDBOARD ASSOCIATION (AHA)

AHA A135.4	(2004) Basic Hardboard

AMERICAN WELDING SOCIETY (AWS)

AWS D1.4/D1.4M	(2005; Errata 2005) Structural Welding Code - Reinforcing Steel

ASTM INTERNATIONAL (ASTM)

ASTM A 615/A 615M	(2009b) Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A 706/A 706M	(2009b) Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A 934/A 934M	(2007) Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM C 1017/C 1017M	(2007) Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C 1240	(2005) Standard Specification for Silica Fume Used in Cementitious Mixtures
ASTM C 1260	(2007) Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C 143/C 143M	(2009) Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C 150/C 150M	(2009) Standard Specification for Portland Cement

ASTM C 156	(2009) Standard Test Method for Water Retention by Concrete Curing Materials
ASTM C 1567	(2008) Standard Test Method for Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)
ASTM C 171	(2007) Standard Specification for Sheet Materials for Curing Concrete
ASTM C 172	(2008) Standard Practice for Sampling Freshly Mixed Concrete
ASTM C 173/C 173M	(2009) Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C 192/C 192M	(2007) Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
ASTM C 231	(2009a) Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 233	(2007) Standard Test Method for Air-Entraining Admixtures for Concrete
ASTM C 260	(2006) Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C 295	(2008) Petrographic Examination of Aggregates for Concrete
ASTM C 309	(2007) Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 31/C 31M	(2009) Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C 311	(2007) Sampling and Testing Fly Ash or Natural Pozzolans for Use as a Mineral Admixture in Portland-Cement Concrete
ASTM C 33/C 33M	(2008) Standard Specification for Concrete Aggregates
ASTM C 39/C 39M	(2009) Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C 42/C 42M	(2004) Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
ASTM C 494/C 494M	(2008a) Standard Specification for Chemical Admixtures for Concrete
ASTM C 595/C 595M	(2009) Standard Specification for Blended Hydraulic Cements
ASTM C 618	(2008a) Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C 881/C 881M	(2002) Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
ASTM C 920	(2008) Standard Specification for Elastomeric Joint Sealants
ASTM C 932	(2006) Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering
ASTM C 94/C 94M	(2009a) Standard Specification for Ready-Mixed Concrete
ASTM C 989	(2009a) Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars

ASTM C 990M	(2009) Standard Specification for Joints for Concrete Pipe, Manholes and Precast Box Sections Using Preformed Flexible Joint Sealants (Metric)
ASTM D 1557	(2009) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2700 kN-m/m3)
ASTM D 1751	(2004; R 2008) Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D 1752	(2004a; R 2008) Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion
ASTM D 2103	(2008) Standard Specification for Polyethylene Film and Sheeting
ASTM D 2628	(1991; R 2005) Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements
ASTM D 4397	(2009) Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
ASTM D 5759	(1995; R 2005) Characterization of Coal Fly Ash and Clean Coal Combustion Fly Ash for Potential Uses
ASTM D 6690	(2007) Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements
ASTM E 329	(2009) Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
CONCRETE REINFORCING STEEL INSTITUTE (CRSI)	
CRSI 10MSP	(2001; 27Ed) Manual of Standard Practice
FOREST STEWARDSHIP COUNCIL (FSC)	
FSC STD 01 001	(2000) Principles and Criteria for Forest Stewardship
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)	
NIST PS 1	(2007) Construction and Industrial Plywood

1.2 DEFINITIONS

a. "Cementitious material" as used herein must include all portland cement, pozzolan, fly ash, ground granulated blast-furnace slag, and silica fume.

b. "Exposed to public view" means situated so that it can be seen from eye level from a public location after completion of the building. A public location is accessible to persons not responsible for operation or maintenance of the building.

c. "Chemical admixtures" are materials in the form of powder or fluids that are added to the concrete to give it certain characteristics not obtainable with plain concrete mixes.

d. "Workability (or consistence)" is the ability of a fresh (plastic) concrete mix to fill the form/mould properly with the desired work (vibration) and without reducing the concrete's quality. Workability depends on water content, chemical admixtures, aggregate (shape and size distribution), cementitious content and age (level of hydration).

1.3 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. Submit the following in accordance with Section 01335 SUBMITTAL PROCEDURES:

SD-03 Product Data

Materials for curing concrete

Joint sealants;

Submit manufacturer's product data, indicating VOC content. Manufacturer's catalog data for the following items must include printed instructions for admixtures, bonding agents, epoxy-resin adhesive binders, waterstops, and liquid chemical floor hardeners.

Joint filler;

Recycled Aggregate Materials

Portland Cement

Bonding Materials

Concrete Curing Materials

Reinforcement Materials

SD-05 Design Data

Concrete mix design; G

Thirty days minimum prior to concrete placement, submit a mix design for each strength and type of concrete. Submit a complete list of materials including type; brand; source and amount of cement, fly ash, pozzolans, silica fume, ground slag, and admixtures; and applicable reference specifications. Provide mix proportion data using at least three different water-cement ratios for each type of mixture, which produce a range of strength encompassing those required for each class and type of concrete required. If source material changes, resubmit mix proportion data using revised source material. Provide only materials that have been proven by trial mix studies to meet the requirements of this specification, unless otherwise approved in writing by the Contracting Officer. Indicate clearly in the submittal where each mix design is used when more than one mix design is submitted. Submit additional data regarding concrete aggregates if the source of aggregate changes. Submit copies of the fly ash, silica fume and pozzolan test results, in addition. The approval of fly ash, silica fume, and pozzolan test results must be within 6 months of submittal date. Obtain acknowledgement of receipt prior to concrete placement.

SD-06 Test Reports

Slump

Air Entrainment

SD-08 Manufacturer's Instructions

Fly ash

Ground granulated blast-furnace slag

Welding Procedures must be in accordance with AWS D1.4/D1.4M.

Submit mill certificates for Steel Bar according to the paragraph entitled, "Fabrication," of this section.

Provide certificates for concrete that are in accordance with the paragraph entitled, "Classification and Quality of Concrete," of this section. Provide certificates that contain project name and number, date, name of Contractor, name of concrete testing service, source of concrete aggregates, material manufacturer, brand name of manufactured materials, material name, values as specified for each material, and test results. Provide certificates for Welder Qualifications that are in accordance with the paragraph entitled, "Qualifications for Welding Work," of this section.

SD-11 Closeout Submittals

1.4 MODIFICATION OF REFERENCES

Accomplish work in accordance with ACI publications except as modified herein. Consider the advisory or recommended provisions to be mandatory. Interpret reference to the "Building Official," the "Structural Engineer," and the "Architect/Engineer" to mean the Contracting Officer.

1.5 DELIVERY, STORAGE, AND HANDLING

Do not deliver concrete until forms, reinforcement, embedded items, and chamfer strips are in place and ready for concrete placement. ACI/MCP-2 for job site storage of materials. Protect materials from contaminants such as grease, oil, and dirt. Ensure materials can be accurately identified after bundles are broken and tags removed. Do not store concrete curing compounds or sealers with materials that have a high capacity to adsorb volatile organic compound (VOC) emissions. Do not store concrete curing compounds or sealers in occupied spaces.

1.5.1 REINFORCEMENT

Store reinforcement of different sizes and shapes in separate piles or racks raised above the ground. Protect from contaminants such as grease, oil, and dirt. Ensure bar sizes can be accurately identified after bundles are broken and tags removed.

1.6 QUALITY ASSURANCE

1.6.1 DRAWINGS

1.6.1.1 SHOP DRAWINGS

Fabrication Drawings for concrete formwork for Reinforcement Materials, Column Forms, Wall Forms, Floor Forms, Ceiling Forms and for Special Construction must indicate concrete pressure calculations with both live and dead loads, along with material types. Provide all design calculations in accordance with ACI/MCP-2 and ACI/MCP-3.

1.6.1.2 REINFORCING STEEL

ACI/MCP-4. Indicate bending diagrams, assembly diagrams, splicing and laps of bars, shapes, dimensions, and details of bar reinforcing, accessories, and concrete cover. Do not scale dimensions from structural drawings to determine lengths of reinforcing bars.

1.6.1.3 CURING CONCRETE ELEMENTS

Submit proposed materials and methods for curing concrete elements.

1.6.1.4 PUMPING CONCRETE

Submit proposed materials and methods for pumping concrete. Submittal must include mix designs, pumping equipment including type of pump and size and material for pipe, and maximum length and height concrete is to be pumped.

1.6.1.5 MATERIAL SAFETY DATA SHEETS

Submit Material Safety Data Sheets (MSDS) for all materials that are regulated for hazardous health effects. Prominently post the MSDS at the construction site.

1.6.2 TEST REPORTS

1.6.2.1 CONCRETE MIX DESIGN

Submit copies of laboratory test reports showing that the mix has been successfully tested to produce concrete with the properties specified and that mix must be suitable for the job conditions. Include mill test and all other test for cement, [silica fume,] aggregates, and admixtures in the laboratory test reports. Provide maximum nominal aggregate size, gradation analysis, percentage retained and passing sieve, and a graph of percentage retained verses sieve size. Submit test reports along with the concrete mix design. Obtain approval before concrete placement.

1.6.2.2 FLY ASH AND POZZOLAN

Submit test results in accordance with ASTM C 618 for fly ash and pozzolan. Submit test results performed within 6 months of submittal date. Submit manufacturer's policy statement on fly ash use in concrete.

1.6.2.3 GROUND GRANULATED BLAST-FURNACE SLAG

Submit test results in accordance with ASTM C 989 for ground granulated blast-furnace slag. Submit test results performed within 6 months of submittal date. Submit manufacturer's policy statement on slag use in concrete.

1.6.2.4 AGGREGATES

ASTM C 1260 for potential alkali-silica reactions, ASTM C 295 for petrographic analysis.

1.6.3 FIELD SAMPLES

1.6.3.1 SLAB FINISH SAMPLE

Install minimum of 20 m of roadway slab. Finish as required by specification.

1.7 QUALIFICATIONS FOR CONCRETE TESTING SERVICE

Perform concrete testing by an approved laboratory and inspection service experienced in sampling and testing concrete. Testing agency must meet the requirements of ASTM E 329.

1.8 CONCRETE SAMPLING AND TESTING

Testing by the Contractor must include sampling and testing concrete materials proposed for use in the work and testing the design mix for each class of concrete. Perform quality control testing during construction.

Sample and test concrete aggregate materials proposed for use in the work in accordance with ASTM C 33/C 33M.

Sample and test portland cement in accordance with ASTM C 150/C 150M.

Sample and test air-entraining admixtures in accordance with ASTM C 233.

Testing must be performed by a Grade I Testing Technician.

2. PRODUCTS

2.1 MATERIALS FOR FORMS

Provide plywood, or steel.

2.1.1.1 CONCRETE FORM PLYWOOD (STANDARD ROUGH)
Provide plywood that conforms to NIST PS 1, B-B, concrete form, not less than 16 mm thick.

2.1.1.2 OVERLAID CONCRETE FORM PLYWOOD (STANDARD SMOOTH)
Provide plywood that conforms to NIST PS 1, B-B, high density form overlay, not less than 16 mm thick.

2.1.2 STEEL FORMS
Provide steel form surfaces that do not contain irregularities, dents, or sags.

2.2 CONCRETE

2.2.1 CONTRACTOR-FURNISHED MIX DESIGN
ACI/MCP-1, ACI/MCP-2, and ACI/MCP-3 except as otherwise specified. Indicate the compressive strength (f'c) of the concrete.

Location	f'c (Min. 28-Day Comp. Strength) (MPa)	ASTM C 33/C 33M Maximum Nominal Aggregate (Size No.)	Range of Slump (mm)	Maximum Water-Cement Ratio (by weight)	Air Entr. (percent)
Concrete exposed to weather	30	57	25 – 75	0.50	6

Maximum slump shown above may be increased 25 mm for methods of consolidation other than vibration. Slump may be increased to 200 mm when superplasticizers are used. Provide air entrainment using air-entraining admixture. Provide air entrainment within plus or minus 1.5 percent of the value specified.

2.2.1.1 MIX PROPORTIONS FOR NORMAL WEIGHT CONCRETE
Trial design batches, mixture proportioning studies, and testing requirements for various classes and types of concrete specified are the responsibility of the Contractor. Base mixture proportions on compressive strength as determined by test specimens fabricated in accordance with ASTM C 192/C 192M and tested in accordance with ASTM C 39/C 39M. Samples of all materials used in mixture proportioning studies must be representative of those proposed for use in the project and must be accompanied by the manufacturer's or producer's test report indicating compliance with these specifications. Base trial mixtures having proportions, consistencies, and air content suitable for the work on methodology described in ACI/MCP-1. In the trial mixture, use at least three different water-cement ratios for each type of mixture, which must produce a range of strength encompassing those required for each class and type of concrete required on the project. The maximum water-cement ratio required must be based on equivalent water-cement ratio calculations as determined by the conversion from the weight ratio of water to cement plus pozzolan, and ground granulated blast-furnace slag by weight equivalency method. Design laboratory trial mixture for maximum permitted slump and air content. Each combination of material proposed for use must have separate trial mixture, except for accelerator or retarder use can be provided without separate trial mixture. Report the temperature of concrete in each trial batch. For each water-cement ratio, at least three test cylinders for each test age must be made and cured in accordance with ASTM C 192/C 192M and tested in accordance with ASTM C 39/C 39M for 7 and 28 days. From these results, plot a curve showing the relationship between water-cement ratio and strength for each set of trial mix studies. In addition, plot a curve showing the relationship between 7 and 28 day strengths.

2.2.1.2 REQUIRED AVERAGE STRENGTH OF MIX DESIGN

The selected mixture must produce an average compressive strength exceeding the specified strength by the amount indicated in ACI/MCP-2. When a concrete production facility has a record of at least 15 consecutive tests, the standard deviation must be calculated and the required average compressive strength must be determined in accordance with ACI/MCP-2. When a concrete production facility does not have a suitable record of tests to establish a standard deviation, the required average strength must follow ACI/MCP-2 requirements.

2.2.2 CONCRETE CURING MATERIALS

2.2.2.1 ABSORPTIVE COVER

Provide burlap cloth cover for curing concrete made from jute or kenaf, weighing 300 gram plus or minus 3 percent per square meter when clean and dry, conforming to ASTM C 171, Class 3; or cover may be cotton mats as approved.

2.2.2.2 MOISTURE-RETAINING COVER

Provide waterproof paper cover for curing concrete conforming to ASTM C 171, regular or white, or polyethylene sheeting conforming to ASTM C 171, or polyethylene-coated burlap consisting of a laminate of burlap and a white opaque polyethylene film permanently bonded to the burlap; burlap must conform to ASTM C 171, Class 3, and polyethylene film must conform to ASTM C 171. When tested for water retention in accordance with ASTM C 156, weight of water lost 72 hours after application of moisture retaining covering material must not exceed 0.039 gram per square centimeter of the mortar specimen surface.

2.2.2.3 MEMBRANE-FORMING CURING COMPOUND

Provide liquid type compound conforming to ASTM C 309, Type 1, clear, Type 1D with fugitive dye for interior work and Type 2, white, pigmented for exterior work.

2.3 MATERIALS

2.3.1 CEMENT

ASTM C 150/C 150M, Type I or II. For Portland cement manufactured in a kiln fueled by hazardous waste, maintain a record of source for each batchSupplier must certify that the hazardous waste is neutralized by the manufacturing process and that no additional pollutants are discharged. For exposed concrete, use one manufacturer for each type of cement, ground slag, fly ash, and pozzolan.

2.3.1.1 FLY ASH AND POZZOLAN

ASTM C 618, Type N, F, or C, except that the maximum allowable loss on ignition must be 6 percent for Types N and F. Add with cement. Fly ash content must be a minimum of 15 percent by weight of cementitious material, provided the fly ash does not reduce the amount of cement in the concrete mix below the minimum requirements of local building codes. Where the use of fly ash cannot meet the minimum level, provide the maximum amount of fly ash permittable that meets the code requirements for cement content. Report the chemical analysis of the fly ash in accordance with ASTM C 311. Evaluate and classify fly ash in accordance with ASTM D 5759.

High contents of supplementary cementitious materials can have some detrimental effects on the concrete properties, such as slowing excessively the strength gain rate, and delaying and increasing the difficulty of finishing. The recommended maximum content (by weight of the total cementitious material) for these materials are:

1. For GGBF slag: 50 percent
2. For fly ash or natural pozzolan: 40 percent (25 percent in cold climates)

2.3.1.2 GROUND GRANULATED BLAST-FURNACE SLAG
ASTM C 989, Grade 80. Slag content must be a minimum of 25 percent by weight of cementitious material.

2.3.1.2.1 PORTLAND CEMENT
Provide cement that conforms to ASTM C 150/C 150M, Type I, IA, II, or IIA. Use one brand and type of cement for formed concrete having exposed-to-view finished surfaces.

2.3.2 WATER
Minimize the amount of water in the mix. The amount of water must not exceed 45 percent by weight of cementitious materials (cement plus pozzolans), and in general, improve workability by adjusting the grading rather than by adding water. Water must be fresh, clean, and potable; free from injurious amounts of oils, acids, alkalis, salts, organic materials, or other substances deleterious to concrete.

2.3.3 AGGREGATES
ASTM C 33/C 33M, except as modified herein. Furnish aggregates for exposed concrete surfaces from one source. Provide aggregates that do not contain any substance which may be deleteriously reactive with the alkalies in the cement.

Fine and coarse aggregates must show expansions less than 0.08 percent at 16 days after casting when testing in accordance with ASTM C 1260. Should the test data indicate an expansion of 0.08 percent or greater, reject the aggregate(s) or perform additional testing using ASTM C 1567 using the Contractor's proposed mix design. In this case, include the mix design low alkali portland cement and one of the following supplementary cementitious materials:

1. GGBF slag at a minimum of 40 percent of total cementitious

2. Fly ash or natural pozzolan at a minimum of total cementitious of

    30 percent if ($SiO_2+Al_2O_3+Fe_2O_3$) is 65 percent or more,

    25 percent if ($SiO_2+Al_2O_3+Fe_2O_3$) is 70 percent or more,

    20 percent if ($SiO_2+Al_2O_3+Fe_2O_3$) is 80 percent or more,

    15 percent if ($SiO_2+Al_2O_3+Fe_2O_3$) is 90 percent or more.

If a combination of these materials is chosen, the minimum amount must be a linear combination of the minimum amounts above. Include these materials in sufficient proportion to show less than 0.08 percent expansion at 16 days after casting when tested in accordance with ASTM C 1567.

Aggregates must not possess properties or constituents that are known to have specific unfavorable effects in concrete when tested in accordance with ASTM C 295.

2.3.4 ADMIXTURES
ASTM C 494/C 494M: Type A, water reducing; Type B, retarding; Type C, accelerating; Type D, water-reducing and retarding; and Type E, water-reducing and accelerating admixture. Do not use calcium chloride admixtures.

2.3.4.1 AIR-ENTRAINING
ASTM C 260.

2.3.4.2 HIGH RANGE WATER REDUCER (HRWR) (SUPERPLASTICIZERS)
ASTM C 494/C 494M, Type F and ASTM C 1017/C 1017M

2.3.4.3 POZZOLAN
Provide fly ash or other pozzolans used as admixtures that conform to ASTM C 618.

2.3.5 MATERIALS FOR CURING CONCRETE

Consider the use of water based or vegetable or soy based curing agents in lieu of petroleum based products. Consider agents that are not toxic and emit low or no Volatile Organic Compounds (VOC). Consider the use of admixtures that offer high performance to increase durability of the finish product but also have low toxicity and are made from bio-based materials such as soy, and emit low levels of Volatile Organic Compounds (VOC).

2.3.6 EXPANSION/CONTRACTION JOINT FILLER

ASTM D 1751, ASTM D 1752, cork or 100 percent post-consumer paper meeting ASTM D 1752 (subparagraphs 5.1 to 5.4). Material must be 13 mm thick, unless otherwise indicated.

2.3.6.1 PREFORMED JOINT FILLER STRIPS

Provide nonextruding and resilient nonbituminous type filler strips conforming to ASTM D 1752, Type I or II.

2.3.7 JOINT SEALANTS

Use concrete penetrating sealers with a low (maximum 100 grams/liter, less water and less exempt compounds) VOC content.

2.3.7.1 HORIZONTAL SURFACES, 3 PERCENT SLOPE, MAXIMUM

ASTM D 6690 or ASTM C 920, Type M, Class 25, Use T.

2.3.7.2 JOINT SEALANT COMPOUND

Provide cold-applied, two-component, elastomeric polymer type compound conforming to FS SS-S-200.

2.4 REINFORCEMENT

2.4.1 DOWELS FOR LOAD TRANSFER IN FLOORS

Provide dowels for load transfer in floors of the type, design, weight, and dimensions indicated. Provide dowel bars that are plain-billet steel conforming to ASTM A 615/A 615M, Grade 40. Provide dowel pipe that is steel conforming to ASTM A 53/A 53M.

2.4.2 SUPPORTS FOR REINFORCEMENT

Supports include bolsters, chairs, spacers, and other devices necessary for proper spacing, supporting, and fastening reinforcing bars and wire fabric in place.

Provide wire bar type supports conforming to ACI/MCP-3, ACI/MCP-4, and CRSI 10MSP.

Legs of supports in contact with formwork must be hot-dip galvanized, or plastic coated after fabrication, or stainless-steel bar supports.

2.5 CLASSIFICATION AND QUALITY OF CONCRETE

2.5.1 CONCRETE CLASSES AND USAGE

Provide air enterianed concrete with a minimum 28 day compressive strength of 27.5 MPa for all exterior work.

2.5.2 LIMITS FOR CONCRETE PROPORTIONS

Provide concrete with a maximum water/cement ratio (by weight) of 0.5. The minimum cement content for 75 mm to 100 mm of slump shall be 5.25 43 kilogram sacks of Portland cement per 0.75 cubic meter of concrete.

2.5.3 MAXIMUM SIZE OF AGGREGATE

The maximum size of aggregate for concrete shall be 50.8 mm, or size 357 as defined by ASTM C 33M. Size of aggregate is defined as the sieve size on which maximum amount of retained coarse aggregate is 5 to 10 percent by weight.

2.5.4 SLUMP

Provide slump not less than 25 mm nor more than 75 mm for all concrete.

3. EXECUTION

3.1 EXAMINATION

Do not begin installation until substrates have been properly constructed; verify that substrates meet required grade

If substrate preparation is the responsibility of another installer, notify Architect/Engineer of unsatisfactory preparation before processing.

Check field dimensions before beginning installation. If dimensions vary too much from design dimensions for proper installation, notify Architect/Engineer and wait for instructions before beginning installation.

3.2 PREPARATION

Determine quantity of concrete needed and minimize the production of excess concrete. Designate locations or uses for potential excess concrete before the concrete is poured.

3.2.1 GENERAL

Surfaces against which concrete is to be placed must be free of debris, loose material, standing water, snow, ice, and other deleterious substances before start of concrete placing.

Remove standing water without washing over freshly deposited concrete.

Divert flow of water through side drains provided for such purpose.

3.2.2 SUBGRADE UNDER SLABS ON GROUND

Previously constructed subgrade or fill must be cleaned of foreign

materials and inspected by the Contractor for adequate compaction and surface tolerances as specified.

Actual density of top 300 mm 12 inches of subgrade soil material-in-place must not be less than the following percentages of maximum density of same soil material compacted at optimum moisture content in accordance with ASTM D 1557.

SOIL MATERIAL PERCENT	MAXIMUM DENSITY
Drainage fill	100
Cohesionless soil material	100
Cohesive soil material	95

Finished surface of subgrade or fill under exterior slabs on ground must not be more than 6.10 mm above or 30.50 mm below elevation indicated.

3.2.3 FORMWORK

Complete and approve formwork. Remove debris and foreign material from interior of forms before start of concrete placing.

3.2.4 EDGE FORMS AND SCREED STRIPS FOR SLABS

Set edge forms or bulkheads and intermediate screed strips for slabs to obtain indicated elevations and contours in finished slab surface and must be strong enough to support vibrating bridge screeds or roller pipe screeds if nature of specified slab finish requires use of such equipment. Align concrete surface to elevation of screed strips by use of strike-off templates or approved compacting-type screeds.

3.2.5 REINFORCEMENT AND OTHER EMBEDDED ITEMS

Secure reinforcement, joint materials, and other embedded materials in position, inspected, and approved before start of concrete placing.

3.3 FORMS

ACI/MCP-2. Provide forms, shoring, and scaffolding for concrete placement. Set forms mortar-tight and true to line and grade. Chamfer above grade exposed joints, edges, and external corners of concrete 19 mm unless otherwise indicated. Provide formwork with clean-out openings to permit inspection and removal of debris. Forms submerged in water must be watertight.

3.3.1 GENERAL

Construct forms to conform, within the tolerances specified, to shapes dimensions, lines, elevations, and positions of cast-in-place concrete members as indicated. Forms must be supported, braced, and maintained sufficiently rigid to prevent deformation under load.

3.3.2 DESIGN AND CONSTRUCTION OF FORMWORK

Provide formwork design and construction that conforms to ACI/MCP-2, Chapter 4.

Provide forms that are tight to prevent leakage of cement paste during concrete placing.

Support form facing materials by structural members spaced close to prevent deflection of form facing material. Fit forms placed in successive units for continuous surfaces to accurate alignment to ensure a smooth completed surface within the tolerances specified. Where necessary to maintain the tolerances specified, such as long spans where immediate supports are not possible, camber formwork for anticipated deflections in formwork due to weight and pressure of fresh concrete and to construction loads.

Chamfer exposed joints, edges, and external corners a minimum of 19 mm by moldings placed in corners of column, beam, and wall forms.

Provide shores and struts with a positive means of adjustment capable of taking up formwork settlement during concrete placing operations. Obtain adjustment with wedges or jacks or a combination thereof. When adequate foundations for shores and struts cannot be secured, provide trussed supports.

Provide temporary openings in wall forms, column forms, and at other points where necessary to permit inspection and to facilitate cleaning.

Provide forms that are readily removable without impact, shock, or damage to concrete.

3.3.3 COATING

Before concrete placement, coat the contact surfaces of forms with a nonstaining mineral oil, nonstaining form coating compound, or two coats of nitrocellulose lacquer. Do not use mineral oil on forms for surfaces to which adhesive, paint, or other finish material is to be applied.

3.3.4 REUSE

Reuse forms providing the structural integrity of concrete and the aesthetics of exposed concrete are not compromised.

3.3.5 FORMS FOR STANDARD ROUGH FORM FINISH

Give rough form finish concrete formed surfaces that are to be concealed by other construction, unless otherwise specified.

Form facing material for standard rough form finish must be the specified concrete form plywood or other approved form facing material that produces concrete surfaces equivalent in smoothness and appearance to that produced by new concrete form plywood panels.

For concrete surfaces exposed only to the ground, undressed, square-edge, 25 mm nominal thickness lumber may be used. Provide horizontal joints that are level and vertical joints that are plumb.

3.3.6 FORM TIES

Provide ties that are factory fabricated metal, adjustable in length, removable or snap-off type that do allow form deflection or do not spall concrete upon removal. Portion of form ties remaining within concrete after removal of exterior parts must be at least 38 mm back from concrete surface. Provide form ties that are free of devices that leave a hole larger than 22 mm or less than 13 mm in diameter in concrete surface. Form ties fabricated at the project site or wire ties of any type are not acceptable.

3.3.7 TOLERANCES FOR FORM CONSTRUCTION

Construct formwork to ensure that after removal of forms and prior to patching and finishing of formed surfaces, provide concrete surfaces in accordance with tolerances specified in ACI/MCP-1 and ACI/MCP-2.

3.3.8 REMOVAL OF FORMS AND SUPPORTS

After placing concrete, forms must remain in place for the time periods specified in ACI/MCP-4. Do not remove forms and shores (except those used for slabs on grade and slip forms) until the client determines that the concrete has gained sufficient strength to support its weight and superimposed loads. Base such determination on compliance with one of the following:

a. The plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed, or

b. The concrete has been properly tested with an appropriate ASTM standard test method designed to indicate the concrete compressive strength, and the test results indicate that the concrete has gained sufficient strength to support its weight and superimposed loads.

Prevent concrete damage during form removal. Clean all forms immediately after removal.

3.3.8.1 SPECIAL REQUIREMENTS FOR REDUCED TIME PERIOD

Forms may be removed earlier than specified if ASTM C 39/C 39M test results of field-cured samples from a representative portion of the structure indicate that the concrete has reached a minimum of 85 percent of the design strength.

3.4 FORMED SURFACES

3.4.1 PREPARATION OF FORM SURFACES

Coat contact surfaces of forms with form-coating compound before reinforcement is placed. Provide a commercial formulation form-coating compound that does not bond with, stain, nor adversely affect concrete surfaces and impair subsequent treatment of concrete surfaces that entails bonding or adhesion nor impede wetting of surfaces to be cured with water or curing compounds. Do not allow excess form-coating compound to stand in puddles in the forms nor to come in contact with concrete against which fresh concrete is placed. Make thinning of form-coating compound with thinning agent of the type, in the amount, and under the conditions recommended by form-coating compound manufacturer's printed or written directions.

3.4.2 TOLERANCES
ACI/MCP-4 and as indicated.

3.4.3 AS-CAST FORM
Provide form facing material producing a smooth, hard, uniform texture on the concrete. Arrange facing material in an orderly and symmetrical manner and keep seams to a practical minimum. Support forms as necessary to meet required tolerances. Do not use material with raised grain, torn surfaces, worn edges, patches, dents, or other defects which can impair the texture of the concrete surface.

3.5 PLACING DOWELS AND MISCELLANEOUS MATERIALS

ACI/MCP-2. Provide dowels, wire ties, supports, and other devices necessary to install and secure dowels. Dowels must not have rust, scale, oil, grease, clay, or foreign substances that would reduce the bond. Rusting of reinforcement is a basis of rejection if the effective cross-sectional area or the nominal weight per unit length has been reduced. Remove loose rust prior to placing steel. Tack welding is prohibited.

3.5.1 GENERAL
Provide details of reinforcement that are in accordance with ACI/MCP-3 and ACI/MCP-4 and as specified.

3.5.2 REINFORCEMENT SUPPORTS
Place reinforcement and secure with galvanized or non corrodible chairs, spacers, or metal hangers. For supporting reinforcement on the ground, use concrete or other non corrodible material, having a compressive strength equal to or greater than the concrete being placed.

3.5.3 CONSTRUCTION JOINTS
Locate joints as notes on the plans. Install 16 mm diameter dowels across all roadway construction joints at a maximum spacing of 300 mm.

3.5.4 EXPANSION JOINTS AND CONTRACTION JOINTS
Provide expansion joint at edges of interior floor slabs on grade abutting vertical surfaces, and as indicated. Make expansion joints 13 mm wide unless indicated otherwise. Fill expansion joints not exposed to weather with preformed joint filler material. Completely fill joints exposed to weather with joint filler material and joint sealant. Do not extend reinforcement or other embedded metal items bonded to the concrete through any expansion joint unless an expansion sleeve is used. Provide contraction joints, either formed or saw cut or cut with a jointing tool, to the indicated depth after the surface has been finished. Complete saw joints within 4 to 12 hours after concrete placement. Protect joints from intrusion of foreign matter.

3.5.5 PLACING REINFORCEMENT
Place reinforcement in accordance with ACI/MCP-3 and ACI/MCP-4.

For slabs on grade (over earth or over capillary water barrier) and for footing reinforcement, support bars or welded wire fabric on precast concrete blocks, spaced at intervals required by size of reinforcement, to keep reinforcement the minimum height specified above the underside of slab or footing.

Provide reinforcement that is supported and secured together to prevent displacement by construction loads or by placing of wet concrete, and as follows:

Provide supports for reinforcing bars that are sufficient in number and sufficiently heavy to carry the reinforcement they support, and in accordance with ACI/MCP-3, ACI/MCP-4, and CRSI 10MSP. Do

not use supports to support runways for concrete conveying equipment and similar construction loads.

Equip supports on ground and similar surfaces with sand-plates.

Support welded wire fabric as required for reinforcing bars.

Secure reinforcements to supports by means of tie wire. Wire must be

black, soft iron wire, not less than 1.6 mm.

With the exception of temperature reinforcement, tied to main steel approximately 600 mm on center, reinforcement must be accurately placed, securely tied at intersections with 1.3 mm annealed wire, and held in position during placing of concrete by spacers, chairs, or other approved supports. Point wire-tie ends away from the form. Unless otherwise indicated, numbers, type, and spacing of supports must conform to ACI/MCP-3.

Bending of reinforcing bars partially embedded in concrete is permitted only as specified in ACI/MCP-3 and ACI/MCP-4.

3.5.6 SPACING OF REINFORCING BARS

Spacing must be as indicated.

Reinforcing bars may be relocated to avoid interference with other reinforcement, or with conduit, pipe, or other embedded items. If any reinforcing bar is moved a distance exceeding one bar diameter or specified placing tolerance, resulting rearrangement of reinforcement is subject to approval.

3.6 BATCHING, MEASURING, MIXING, AND TRANSPORTING CONCRETE

ASTM C 94/C 94M, and ACI/MCP-2, except as modified herein. Batching equipment must be such that the concrete ingredients are consistently measured within the following tolerances: 1 percent for cement and water, 2 percent for aggregate, and 3 percent for admixtures. Furnish mandatory batch ticket information for each load of ready mix concrete.

3.6.1 MEASURING

Make measurements at intervals as specified in paragraphs entitled "Sampling" and "Testing."

3.6.2 MIXING

ASTM C 94/C 94M and ACI/MCP-2. Machine mix concrete. Begin mixing within 30 minutes after the cement has been added to the aggregates. Place concrete within 90 minutes of either addition of mixing water to cement and aggregates or addition of cement to aggregates if the air temperature is less than 29 degrees C. Reduce mixing time and place concrete within 60 minutes if the air temperature is greater than 29 degrees except as follows: if set retarding admixture is used and slump requirements can be met, limit for placing concrete may remain at 90 minutes. Additional water may be added, provided that both the specified maximum slump and water-cement ratio are not exceeded. When additional water is added, an additional 30 revolutions of the mixer at mixing speed is required. If the entrained air content falls below the specified limit, add a sufficient quantity of admixture to bring the entrained air content within the specified limits. Dissolve admixtures in the mixing water and mix in the drum to uniformly distribute the admixture throughout the batch.

3.6.3 TRANSPORTING

Transport concrete from the mixer to the forms as rapidly as practicable. Prevent segregation or loss of ingredients. Clean transporting equipment thoroughly before each batch. Do not use aluminum pipe or chutes. Remove concrete which has segregated in transporting and dispose of as directed.

3.7 PLACING CONCRETE

Place concrete as soon as practicable after the forms and the reinforcement have been inspected and approved. Do not place concrete when weather conditions prevent proper placement and consolidation; in uncovered areas during periods of precipitation; or in standing water. Prior to placing concrete, remove dirt, construction debris, water, snow, and ice from within the forms. Deposit concrete as close as practicable to the final position in the forms. Do not exceed a free vertical drop of 1 m from the point of discharge. Place concrete in one continuous operation from one end of the structure towards the other. Position grade stakes on 6 m centers maximum.

3.7.1 GENERAL PLACING REQUIREMENTS

Deposit concrete continuously or in layers of such thickness that no concrete is placed on concrete which has hardened sufficiently to cause formation of seams or planes of weakness within the section. If a section cannot be placed continuously, provide construction joints as specified. Perform concrete placing at such a rate that concrete which is being integrated with fresh concrete is still plastic. Deposit concrete as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation.

Concrete to receive other construction must be screeded to proper level to avoid excessive skimming or grouting.

Do not use concrete which becomes nonplastic and unworkable or does not meet quality control limits as specified or has been contaminated by foreign materials. Use of retempered concrete is permitted. Remove rejected concrete from the site.

3.7.2 VIBRATION

ACI/MCP-2. Furnish a spare, working, vibrator on the job site whenever concrete is placed. Consolidate concrete slabs greater than 100 mm in depth with high frequency mechanical vibrating equipment supplemented by hand spading and tamping. Consolidate concrete slabs 100 mm or less in depth by wood tampers, spading, and settling with a heavy leveling straightedge. Operate internal vibrators with vibratory element submerged in the concrete, with a minimum frequency of not less than 6000 impulses per minute when submerged. Do not use vibrators to transport the concrete in the forms. Insert and withdraw vibrators approximately 500 mm apart. Penetrate the previously placed lift with the vibrator when more than one lift is required. Place concrete in 500 mm maximum vertical lifts. Use external vibrators on the exterior surface of the forms when internal vibrators do not provide adequate consolidation of the concrete.

3.7.3 COLD WEATHER

ACI/MCP-2. Do not allow concrete temperature to decrease below 10 degrees C. Obtain approval prior to placing concrete when the ambient temperature is below 4 degrees C or when concrete is likely to be subjected to freezing temperatures within 24 hours. Cover concrete and provide sufficient heat to maintain 10 degrees C minimum adjacent to both the formwork and the structure while curing. Limit the rate of cooling to 3 degrees C in any 1 hour and 10 degrees C per 24 hours after heat application.

3.7.4 HOT WEATHER

Maintain required concrete temperature using Figure 2.1.5 in ACI/MCP-2 to prevent the evaporation rate from exceeding 1 kg per square meter of exposed concrete per hour. Cool ingredients before mixing or use other suitable means to control concrete temperature and prevent rapid drying of newly placed concrete. Shade the fresh concrete as soon as possible after placing. Start curing when the surface of the fresh concrete is sufficiently hard to permit curing without damage. Provide water hoses, pipes, spraying equipment, and water hauling equipment, where job site is remote to water source, to maintain a moist concrete surface throughout the curing period. Provide burlap cover or other suitable, permeable material with fog spray or continuous wetting of the concrete when weather conditions prevent the use of either liquid membrane curing compound or impervious sheets. For

vertical surfaces, protect forms from direct sunlight and add water to top of structure once concrete is set.

3.7.5 FOLLOW-UP

Check concrete within 24 hours of placement for flatness, levelness, and other specified tolerances. Adjust formwork and placement techniques on subsequent pours to achieve specified tolerances.

3.7.6 PLACING CONCRETE IN FORMS

Deposit concrete placed in forms in horizontal layers not exceeding 600 mm.

Remove temporary spreaders in forms when concrete placing has reached elevation of spreaders.

Consolidate concrete placed in forms by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping. Design vibrators to operate with vibratory element submerged in concrete and maintain a speed of not less than 9,000 impulses per minute when submerged in concrete. Provide vibrating equipment adequate in number of units and power of each unit to properly consolidate concrete. Vibration of forms and reinforcement is not be permitted. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced points not farther apart than visible effectiveness of machine. Do not insert vibrator into lower courses of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of concrete mix.

Do not start placing of concrete in supporting elements until concrete previously placed in columns and walls is no longer plastic and has been in place a minimum of 2 hours.

3.7.7 PLACING CONCRETE SLABS

Place and consolidate concrete for slabs in a continuous operation, within the limits of approved construction joints until placing of panel or section is completed.

During concrete placing operations, consolidate concrete by mechanical vibrating equipment so that concrete is worked around reinforcement and other embedded items and into corners. Consolidate concrete placed in beams and girders of supported slabs and against bulkheads of slabs on ground by mechanical vibrators as specified. Consolidate concrete in remainder of slabs by vibrating bridge screeds, roller pipe screeds, or other approved method. Limit consolidation operations to time necessary to obtain consolidation of concrete without bringing an excess of fine aggregate to the surface. Concrete to be consolidated must be as dry as practical and surfaces thereof must not be manipulated prior to finishing operations. Bring concrete correct level with a straightedge and struck-off. Use bull floats or darbies to smooth surface, leaving it free of humps or hollows. Sprinkling of water on plastic surface is not permitted.

Provide finish of slabs as specified.

3.7.8 BONDING

Surfaces of set concrete at joints, except where bonding is obtained by use of concrete bonding agent, must be roughened and cleaned of laitance, coatings, loose particles, and foreign matter. Roughen surfaces in a manner that exposes the aggregate uniformly and does not leave laitance, loosened particles of aggregate, nor damaged concrete at the surface.

Obtain bonding of fresh concrete that has set as follows:

Roughened and cleaned surface of set concrete must be dampened, but not saturated, immediately prior to placing of fresh concrete.

Provide cement grout that consists of equal parts of portland cement and fine aggregate by weight with not more than 22.5 liters of water per sack of cement. Apply cement grout with a stiff broom or brush to a minimum thickness of 1.6 mm. Deposit fresh concrete before cement grout has attained its initial set.

Bonding of fresh concrete to concrete that has set may be obtained by use of a concrete bonding agent. Apply such bonding material to cleaned concrete surface in accordance with approved printed instructions of bonding material manufacturer.

3.8 PAVEMENT FINISHES AND MISCELLANEOUS CONSTRUCTION

ACI/MCP-2, unless otherwise specified. Slope pavement as indicated. Where straightedge measurements are specified, Contractor must provide straightedge.

3.8.1 FINISH

Place, consolidate, and immediately strike off concrete to obtain proper contour, grade, and elevation before bleedwater appears. Permit concrete to attain a set sufficient for floating and supporting the weight of the finisher and equipment. If bleedwater is present prior to floating the surface, drag the excess water off or remove by absorption with porous materials. Do not use dry cement to absorb bleedwater.

3.8.1.1 PAVEMENT

Screed the concrete with a template advanced with a combined longitudinal and crosswise motion. Maintain a slight surplus of concrete ahead of the template. After screeding, float the concrete longitudinally. Use a straightedge to check slope and flatness; correct and refloat as necessary. Obtain final finish by a burlap drag. Drag a strip of clean, wet burlap from 900 to 3000 mm wide and 600 mm longer than the pavement width across the slab. Produce a fine, granular, sandy textured surface without disfiguring marks. Round edges and joints with an edger having a radius of 3 mm.

3.9 CURING AND PROTECTION

ACI/MCP-2 unless otherwise specified. Begin curing immediately following form removal. Avoid damage to concrete from vibration created by blasting, pile driving, movement of equipment in the vicinity, disturbance of formwork or protruding reinforcement, and any other activity resulting in ground vibrations. Protect concrete from injurious action by sun, rain, flowing water, frost, mechanical injury, tire marks, and oil stains. Do not allow concrete to dry out from time of placement until the expiration of the specified curing period. Do not use membrane-forming compound on surfaces where appearance would be objectionable, on any surface to be painted, where coverings are to be bonded to the concrete, or on concrete to which other concrete is to be bonded. If forms are removed prior to the expiration of the curing period, provide another curing procedure specified herein for the remaining portion of the curing period. Provide moist curing for those areas receiving liquid chemical sealer-hardener or epoxy coating. Allow curing compound/sealer installations to cure prior to the installation of materials that adsorb VOCs.

3.9.1 GENERAL

Protect freshly placed concrete from premature drying and cold or hot temperature and maintain without drying at a relatively constant temperature for the period of time necessary for hydration of cement and proper hardening of concrete.

Start initial curing as soon as free water has disappeared from surface of concrete after placing and finishing. Keep concrete moist for minimum 72 hours.

Final curing must immediately follow initial curing and before concrete has dried. Continue final curing until cumulative number of hours or fraction thereof (not necessarily consecutive) during which temperature of air in contact with the concrete is above 10 degrees C has totaled 168 hours. Alternatively, if tests are made of cylinders kept adjacent to the structure and cured by the same methods, final curing may be terminated when the average compressive strength has reached 70 percent of the 28-day design compressive strength. Prevent rapid drying at end of final curing period.

3.9.2 MOIST CURING

Remove water without erosion or damage to the structure. Prevent water run-off.

3.9.2.1 PERVIOUS SHEETING

Completely cover surface and edges of the concrete with two thicknesses of wet sheeting. Overlap sheeting 150 mm over adjacent sheeting. Provide sheeting that is at least as long as the width of the surface to be cured. During application, do not drag the sheeting over the finished concrete nor over sheeting already placed. Wet sheeting thoroughly and keep continuously wet throughout the curing period.

3.9.3 CURING PERIODS

ACI/MCP-2 except 10 days for retaining walls and pavement. Begin curing immediately after placement. Protect concrete from premature drying, excessively hot temperatures, and mechanical injury; and maintain minimal moisture loss at a relatively constant temperature for the period necessary for hydration of the cement and hardening of the concrete. The materials and methods of curing are subject to approval by the Contracting Officer.

3.9.4 CURING METHODS

Accomplish curing by moist curing, by moisture-retaining cover curing, by

membrane curing, and by combinations thereof, as specified.

Moist curing:

Accomplish moisture curing by any of the following methods:

Keeping surface of concrete wet by covering with water

Continuous water spraying

Covering concrete surface with specified absorptive cover for curing concrete saturated with water and keeping absorptive cover wet by water spraying or intermittent hosing. Place absorptive cover to provide coverage of concrete surfaces and edges with a slight overlap over adjacent absorptive covers.

Moisture-cover curing:

Accomplish moisture-retaining cover curing by covering concrete surfaces with specified moisture-retaining cover for curing concrete. Place cover directly on concrete in widest practical width, with sides and ends lapped at least 75 mm. Weight cover to prevent displacement; immediately repair tears or holes appearing during curing period by patching with pressure-sensitive, waterproof tape or other approved method.

Membrane curing:

Accomplish membrane curing by applying specified membrane-forming curing compound to damp concrete surfaces as soon as moisture film has disappeared. Apply curing compound uniformly in a two-coat operation by power-spraying equipment using a spray nozzle equipped with a wind guard. Apply second coat in a direction at right angles to direction of first coat. Total coverage for two coats must be not more than 5 square meter per liter of curing compound. Respray concrete surfaces which are subjected to heavy rainfall within 3 hours after curing compound has been applied by method and at rate specified. Maintain continuity of coating for entire curing period and immediately repair damage to coating during this period.

Membrane-curing compounds must not be used on surfaces that are to be covered with coating material applied directly to concrete or with a covering material bonded to concrete, such as other concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, painting, and other coatings and finish materials.

3.9.5 CURING FORMED SURFACES

Accomplish curing of formed surfaces, including undersurfaces of girders, beams, supported slabs, and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed before end of curing period, accomplish final curing of formed surfaces by any of the curing methods specified above, as applicable.

3.9.6 CURING UNFORMED SURFACES

Accomplish initial curing of unformed surfaces, such as monolithic slabs, floor topping, and other flat surfaces, by membrane curing.

Unless otherwise specified, accomplish final curing of unformed surfaces by any of curing methods specified above, as applicable.

Accomplish final curing of concrete surfaces to receive liquid floor hardener of finish flooring by moisture-retaining cover curing.

3.9.7 TEMPERATURE OF CONCRETE DURING CURING

When temperature of atmosphere is 5 degrees C and below, maintain temperature of concrete at not less than 13 degrees C throughout concrete curing period or 7 degrees C when the curing period is measured by maturity. When necessary, make arrangements before start of concrete placing for heating, covering, insulation, or housing as required to maintain specified temperature and moisture conditions for concrete during curing period.

When the temperature of atmosphere is 27 degrees C and above or during other climatic conditions which cause too rapid drying of concrete, make arrangements before start of concrete placing for installation of wind breaks, of shading, and for fog spraying, wet sprinkling, or moisture-retaining covering of light color as required to protect concrete during curing period.

Changes in temperature of concrete must be uniform and not exceed 3 degrees C in any 1 hour nor 27 degrees C in any 24-hour period.

3.9.8 PROTECTION FROM MECHANICAL INJURY

During curing period, protect concrete from damaging mechanical disturbances, particularly load stresses, heavy shock, and excessive vibration and from damage caused by rain or running water.

3.9.9 PROTECTION AFTER CURING

Protect finished concrete surfaces from damage by construction operations.

3.10 FIELD QUALITY CONTROL

3.10.1 SAMPLING

ASTM C 172. Collect samples of fresh concrete to perform tests specified. ASTM C 31/C 31M for making test specimens.

3.10.2 TESTING

3.10.2.1 SLUMP TESTS

ASTM C 143/C 143M. Take concrete samples during concrete placement. The maximum slump may be increased as specified with the addition of an approved admixture provided that the water-cement ratio is not exceeded. Perform tests at commencement of concrete placement, when test cylinders are made, and for each batch (minimum) or every 16 cubic meters (maximum) of concrete.

3.10.2.2 TEMPERATURE TESTS

Test the concrete delivered and the concrete in the forms. Perform tests in hot or cold weather conditions (below 10 degrees C and above 27 degrees C) for each batch (minimum) or every 16

cubic meters (maximum) of concrete, until the specified temperature is obtained, and whenever test cylinders and slump tests are made.

3.10.2.3 COMPRESSIVE STRENGTH TESTS

ASTM C 39/C 39M. Make five test cylinders for each set of tests in accordance with ASTM C 31/C 31M. Take precautions to prevent evaporation and loss of water from the specimen. Test two cylinders at 7 days, two cylinders at 28 days, and hold one cylinder in reserve. Take samples for strength tests of each mix design of concrete placed each day not less than once a day, nor less than once for each 120 cubic meters of concrete, nor less than once for each 500 square meters of surface area for slabs or walls. For the entire project, take no less than five sets of samples and perform strength tests for each mix design of concrete placed. Each strength test result must be the average of two cylinders from the same concrete sample tested at 28 days. If the average of any three consecutive strength test results is less than f'c or if any strength test result falls below f'c by more than 3 MPa, take a minimum of three ASTM C 42/C 42M core samples from the in-place work represented by the low test cylinder results and test. Concrete represented by core test is considered structurally adequate if the average of three cores is equal to at least 85 percent of f'c and if no single core is less than 75 percent of f'c. Retest locations represented by erratic core strengths. Remove concrete not meeting strength criteria and provide new acceptable concrete. Repair core holes with nonshrink grout. Match color and finish of adjacent concrete.

3.10.2.4 AIR CONTENT

ASTM C 173/C 173M or ASTM C 231 for normal weight concrete. Test air-entrained concrete for air content at the same frequency as specified for slump tests.

3.10.2.5 STRENGTH OF CONCRETE STRUCTURE

Compliance with the following is considered deficient if it fails to meet the requirements which control strength of structure in place, including following conditions:

Failure to meet compressive strength tests as evaluated

Reinforcement not conforming to requirements specified

Concrete which differs from required dimensions or location in such a manner as to reduce strength

Concrete curing and protection of concrete against extremes of temperature during curing, not conforming to requirements specified

Concrete subjected to damaging mechanical disturbances, particularly load stresses, heavy shock, and excessive vibration

Poor workmanship likely to result in deficient strength

3.10.2.6 TESTING CONCRETE STRUCTURE FOR STRENGTH

When there is evidence that strength of concrete structure in place does not meet specification requirements, make cores drilled from hardened concrete for compressive strength determination in accordance with ASTM C 42/C 42M, and as follows:

Take at least three representative cores from each member or area of concrete-in-place that is considered potentially deficient. Location of cores will be determined by the Contracting Officer.

Test cores after moisture conditioning in accordance with ASTM C 42/C 42M if concrete they represent is more than superficially wet under service.

Air dry cores, (16 to 27 degrees C with relative humidity less than 60 percent) for 7 days before test and test dry if concrete they represent is dry under service conditions.

Strength of cores from each member or area are considered satisfactory if their average is equal to or greater than 85 percent of the 28-day design compressive strength of the class of concrete.

Core specimens will be taken and tested by the Government. If the results of core-boring tests indicate that the concrete as placed does not conform to the drawings and specification, the cost of such tests and restoration required must be borne by the Contractor.

Fill core holes solid with patching mortar and finished to match adjacent concrete surfaces.

Correct concrete work that is found inadequate by core tests in a manner approved by the Contracting Officer.

3.11 WASTE MANAGEMENT

As specified in the Waste Management Plan and as follows.

3.11.1 MIXING EQUIPMENT

Before concrete pours, designate Company-owned site meeting environmental standards or on-site area to be paved later in project for cleaning out concrete mixing trucks. Minimize water used to wash equipment.

3.11.2 HARDENED, CURED WASTE CONCRETE

Hardened, cured waste concrete shall not be used as a material for aggregate or riprap. Hardened, cured waste concrete may be crushed and used as fill material below the pavement structure under flexible pavements only.

3.11.3 REINFORCING STEEL

Collect reinforcing steel and place in designated area for recycling.

3.11.4 OTHER WASTE

Identify concrete manufacturer's or supplier's policy for collection or return of construction waste, unused material, deconstruction waste, and/or packaging material. Return excess cement to supplier.

3.12 JOINTS

3.12.1 CONSTRUCTION JOINTS

Make and locate joints not indicated so as not to impair strength and appearance of the structure, as approved. Locate construction joints in slabs on ground, so as to divide slab into areas not in excess of 111.5 square meters. Joints must be perpendicular to load transfer dowels.

3.12.2 ISOLATION JOINTS IN SLABS ON GROUND

Provide joints at points of contact between slabs on ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, and elsewhere as indicated.

Fill joints with premolded joint filler strips 13 mm thick, extending full slab depth. Install filler strips at proper level below finish floor elevation with a slightly tapered, dress-and-oiled wood strip temporarily secured to top of filler strip to form a groove not less than 19 mm in depth where joint is sealed with sealing compound and not less than 6 mm in depth where joint sealing is not required. Remove wood strip after concrete has set. Contractor must clean groove of foreign matter and loose particles after surface has dried.

3.12.3 CONTROL JOINTS IN SLABS ON GROUND

Provide joints to form panels as indicated.

Joints must be 4 mm wide by 1/5 to 1/4 of slab depth and formed by inserting hand-pressed fiberboard strip into fresh concrete until top surface of strip is flush with slab surface or by cutting the concrete with a saw after the concrete has set. After concrete has cured for at least 7 days, the Contractor must remove inserts and clean groove of foreign matter and loose particles.

3.12.4 SEALING JOINTS IN SLABS ON GROUND

Isolation and control joints must be sealed with joint sealing compound after concrete curing period. Slightly underfill groove with joint sealing compound to prevent extrusion of compound. Remove excess material as soon after sealing as possible.

3.13 CONCRETE CONVEYING

3.13.1 TRANSFER OF CONCRETE AT PROJECT SITE

Handle concrete from point of delivery and transfer to concrete conveying equipment and to locations of final deposit as rapidly as practical by methods which prevent segregation and loss of concrete mix materials.

3.13.2 MECHANICAL EQUIPMENT FOR CONVEYING CONCRETE

Equipment must ensure a continuous flow of concrete at delivery end, as approved. Provide runways for wheeled concrete-conveying equipment from concrete delivery point to locations of final deposit. Interior surfaces of concrete conveying equipment must be free of hardened concrete, debris, water, snow, ice, and other deleterious substances.

-- END OF SECTION --

SECTION 04 20 00.10

STONE MASONRY

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.

ACI INTERNATIONAL (ACI)

ACI 318M	(2008; Errata 2008; Errata 2009; Errata 2010) Building Code Requirements for Structural Concrete and Commentary
ACI 530/530.1	(2008; Errata 2008; Errata 2009) Building Code Requirements and Specification for Masonry Structures and Related Commentaries
ACI SP-66	(2004) ACI Detailing Manual

ASTM INTERNATIONAL (ASTM)

ASTM C 1019	(2009) Standard Test Method for Sampling and Testing Grout
ASTM C 1072	(2006) Standard Test Method for Measurement of Masonry Flexural Bond Strength
ASTM C 1142	(1995; R 2007) Standard Specification for Extended Life Mortar for Unit Masonry
ASTM C 144	(2004) Standard Specification for Aggregate for Masonry Mortar
ASTM C 150/C 150M	(2009) Standard Specification for Portland Cement
ASTM C 207	(2006) Standard Specification for Hydrated Lime for Masonry Purposes
ASTM C 270	(2008a) Standard Specification for Mortar for Unit Masonry
ASTM C 315	(2007) Clay Flue Linings
ASTM C 476	(2009) Standard Specification for Grout for Masonry
ASTM C 494/C 494M	(2008a) Standard Specification for Chemical Admixtures for Concrete
ASTM C 593	(2006) Fly Ash and Other Pozzolans for Use with Lime for Soil
ASTM C 780	(2009) Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry
ASTM C 91	(2005) Masonry Cement
ASTM C 94/C 94M	(2009a) Standard Specification for Ready-Mixed Concrete
ASTM C 989	(2009a) Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars
ASTM E 514/E 514M	(2009) Water Penetration and Leakage Through Masonry

1.2 MASONRY STRENGTH

Determine masonry strength in accordance with ACI 530/530.1; submit test reports on three prisms as specified in ACI 530/530.1. The cost of testing shall be paid by the Contractor.

1.3 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. Submit the following in accordance with Section 01335 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Detail Drawings; G

SD-04 Samples

Expansion-Joint Materials; G

SD-05 Design Data

Pre-mixed Mortar; G

SD-06 Test Reports

Field Testing of Mortar; G

Prism tests; G

Masonry Inspector Qualifications; G

SD-08 Manufacturer's Instructions

Masonry Cement

1.4 QUALITY ASSURANCE

1.4.1 MASONRY INSPECTOR QUALIFICATIONS

A qualified masonry inspector approved by the Contracting Officer shall perform inspection of the masonry work. Minimum qualifications for the masonry inspector shall be 5 years of reinforced masonry inspection experience or acceptance by a State, municipality, or other governmental body having a program of examining and certifying inspectors for reinforced masonry construction. The masonry inspector shall be present during preparation of masonry prisms, sampling and placing of masonry units, placement of reinforcement (including placement of dowels in footings and foundation walls), inspection of grout space, immediately prior to closing of cleanouts, and during grouting operations. The masonry inspector shall assure compliance with the drawings and specifications. The masonry inspector shall keep a complete record of all inspections and shall submit daily written reports to the Quality Control Supervisory Representative reporting the quality of masonry construction. Submit copies of masonry inspector reports.

1.4.2 DETAIL DRAWINGS

Submit drawings including plans, elevations, and details of control and expansion joints.

1.5 DELIVERY, STORAGE, AND HANDLING

Materials shall be delivered, stored, handled, and protected to avoid chipping, breakage, and contact with soil or contaminating material. Store and prepare materials in already disturbed areas to minimize project site disturbance and size of project site.

1.5.1 CEMENTITIOUS MATERIALS, SAND AND AGGREGATES

Cementitious and other packaged materials shall be delivered in unopened containers, plainly marked and labeled with manufacturers' names and brands. Cementitious material shall be stored in dry, weathertight enclosures or be completely covered. Cement shall be handled in a manner that will

prevent the inclusion of foreign materials and damage by water or dampness. Store sand and aggregates in a manner to prevent contamination or segregation.

1.6 PROJECT/SITE CONDITIONS

Conform to ACI 530/530.1 for hot and cold weather masonry erection.

1.6.1 HOT WEATHER INSTALLATION

Take the following precautions if masonry is erected when the ambient air temperature is more than 37 degrees C in the shade and the relative humidity is less than 50 percent or the ambient air temperature exceeds 32 degrees C and the wind velocity is more than 13 km/h. All masonry materials shall be shaded from direct sunlight; mortar beds shall be spread no more than 1.2 m ahead of masonry; masonry units shall be set within one minute of spreading mortar; and after erection, masonry shall be protected from direct exposure to wind and sun for 48 hours.

1.6.2 COLD WEATHER INSTALLATION

Before erecting masonry when ambient temperature or mean daily air temperature falls below 4 degrees C or temperature of masonry stones is below 4 degrees C, submit a written statement of proposed cold weather construction procedures for approval.

2. PRODUCTS

2.1 GENERAL REQUIREMENTS

The source of materials which will affect the appearance of the finished work shall not be changed after the work has started except with Contracting Officer's approval. Submit sample of colored mortar with applicable masonry unit and color samples of three stretcher units and one unit for each type of special shape. Units shall show the full range of color and texture. Submit test reports from an approved independent laboratory. Test reports on a previously tested material shall be certified as the same as that proposed for use in this project. Submit certificates of compliance stating that the materials meet the specified requirements.

2.2 STONE

All stone used on stone masonry shall conform to the material requirements of riprap in accordance with Section 31 00 00 Earthwork. Stone sizes to be used shall be indicated on the plans.

2.3 MASONRY MORTAR

Type M mortar shall conform to ASTM C 270 and shall be used for all stone masonry. Verification of masonry cement performance shall be based on ASTM C 780 and ASTM C 1072. Cement shall have a low alkali content and be of one brand. Aggregates shall be from one source.

2.3.1 ADMIXTURES FOR MASONRY MORTAR

In cold weather, a non-chloride based accelerating admixture may be used subject to approval. Accelerating admixture shall be non-corrosive, shall contain less than 0.2 percent chlorides, and shall conform to ASTM C 494/C 494M, Type C.

2.3.2 HYDRATED LIME AND ALTERNATES

Hydrated lime shall conform to ASTM C 207, Type S.

2.3.3 CEMENT

Portland cement shall conform to ASTM C 150/C 150M, Type I, II, or III. Masonry cement shall conform to ASTM C 91, Type M. Containers shall bear complete instructions for proportioning and

mixing to obtain the required types of mortar. Incorporate to the maximum extent, without conflicting with other requirements of this section, up to 40 percent fly ash, up to 70 percent slag, up to 10 percent cenospheres, and up to 10 percent silica fume. When masonry cement is used, submit the manufacturer's printed instructions on proportions of water and aggregates and on mixing to obtain the type of mortar required. Additives shall conform to requirements in Section 03 30 00 CAST-IN-PLACE CONCRETE.

2.3.4 PRE-MIXED MORTAR

Pre-mixed mortar shall conform to ASTM C 1142, Type RM. Submit pre-mixed mortar composition.

2.3.5 SAND AND WATER

Sand shall conform to ASTM C 144. Water shall be clean, potable, and free from substances which could adversely affect the mortar.

3. EXECUTION

3.1 PREPARATION

Prior to start of work, masonry inspector shall verify the applicable conditions as set forth in ACI 530/530.1, inspection. The Contracting Officer will serve as inspector or will select a masonry inspector.

3.1.1 PROTECTION

Ice or snow formed on the masonry bed shall be thawed by the application of heat. Heat shall be applied carefully until the top surface of the masonry is dry to the touch. Sections of masonry deemed frozen and damaged shall be removed before continuing construction of those sections.

a. Air Temperature 4 to 0 degrees C. Sand or mixing water shall be heated to produce mortar temperatures between 4 and 49 degrees C.
b. Air Temperature 0 to minus 4 degrees. Sand and mixing water shall be heated to produce mortar temperatures between 4 and 49 degrees C. Temperature of mortar on boards shall be maintained above freezing.
c. Air Temperature minus 4 to minus 7 degrees C. Sand and mixing water shall be heated to provide mortar temperatures between 4 and 49 degrees C. Temperature of mortar on boards shall be maintained above freezing. Sources of heat shall be used on both sides of walls under construction. Windbreaks shall be employed when wind is in excess of 24 km/hour.
d. Air Temperature minus 7 degrees C and below. Sand and mixing water shall be heated to provide mortar temperatures between 4 and 49 degrees C. Enclosure and auxiliary heat shall be provided to maintain air temperature above 0 degrees C. Temperature of units when laid shall not be less than minus 7 degrees C.

3.1.2 COMPLETED MASONRY AND MASONRY NOT BEING WORKED ON

a. Mean daily air temperature 4 to 0 degrees C. Masonry shall be protected from rain or snow for 24 hours by covering with weather-resistive membrane.
b. Mean daily air temperature 0 to minus 4 degrees C. Masonry shall be completely covered with weather-resistant membrane for 24 hours.
c. Mean Daily Air Temperature minus 4 to minus 7 degrees C. Masonry shall be completely covered with insulating blankets or equally protected for 24 hours.
d. Mean Daily Temperature minus 7 degrees C and Below. Masonry temperature shall be maintained above 0 degrees C for 24 hours by enclosure and supplementary heat, by electric heating blankets, infrared heat lamps, or other approved methods.

3.1.3 LOADS

Do not apply uniform loads for at least 12 hours or concentrated loads for at least 72 hours after masonry is constructed. Provide temporary bracing as required.

3.1.4 SURFACES

Surfaces on which masonry is to be placed shall be cleaned of laitance, dust, dirt, oil, organic matter, or other foreign materials and shall be slightly roughened to provide a surface texture with a depth of at least 3 mm. Sandblasting shall be used, if necessary, to remove laitance from pores and to expose the aggregate.

3.2 PLACING STONE MASONRY

Stones shall be placed individually. All stone masonry shall be placed on prepared surfaces, in no circumstances will stone masonry be placed directly against the ground. All contact surfaces shall be mortared prior to stone placement. A sufficient quantity of mortar shall be placed to completely fill the voids between stones. Dry stacking of stones is prohibited. The minimum thickness of mortar between stones shall be 6 mm prior to stone placement. Excess mortar shall be removed from the exposed faces of all stone masonry work.

3.3 MORTAR MIX

Mortar shall be mixed in a mechanically operated mortar mixer for at least 3 minutes, but not more than 5 minutes. Measurement of ingredients for mortar shall be by volume. Ingredients not in containers, such as sand, shall be accurately measured by the use of measuring boxes. Water shall be mixed with the dry ingredients in sufficient amount to provide a workable mixture which will adhere to the vertical surfaces of masonry units. Mortar that has stiffened because of loss of water through evaporation shall be retempered by adding water to restore the proper consistency and workability. Mortar that has reached its initial set or that has not been used within 2.5 hours after mixing shall be discarded.

3.4 TEST REPORTS

3.4.1 FIELD TESTING OF MORTAR

At least three specimens of mortar shall be taken each day. A layer of mortar 13 to 16 mm thick shall be spread on the masonry units and allowed to stand for one minute. The specimens shall then be prepared and tested for compressive strength in accordance with ASTM C 780.

3.4.2 PRISM TESTS

Perform at least one prism test sample for each 465 square meters of wall but not less than three such samples shall be made for any building. Three prisms will be used in each sample. Prisms shall be tested in accordance with ACI 530/530.1. Seven-day tests may be used provided the relationship between the 7- and 28-day strengths of the masonry is established by the tests of the materials used. Compressive strength shall not be less than 17 MPa at 28 days. If the compressive strength of any

prism falls below the specified value by more than 3.5 MPa, steps shall be taken to assure that the load-carrying capacity of the structure is not jeopardized. If the likelihood of low-strength masonry is confirmed and computations indicate that the load-carrying capacity may have been significantly reduced, tests of cores drilled, or prisms sawed, from the area in question may be required. In such case, three specimens shall be taken for each prism test more than 3.5 MPa below the specified value. Masonry in the area in question shall be considered structurally adequate if the average compressive strength of three specimens is equal to at least 85 percent of the specified value, and if the compressive strength of no single specimen is less than 75 percent of the specified value. Additional testing of specimens extracted from locations represented by erratic core or prism strength test results will be permitted.

-- END OF SECTION --

SECTION 31 00 00

EARTHWORK

08/08

1. GENERAL

1.1 CRITERIA FOR BIDDING

Base bids on the following criteria:

a. Surface elevations are as indicated.
b. Pipes or other artificial obstructions, except those indicated, will not be encountered.
c. Hard materials and rock will not be encountered.

1.2 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 ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO T 180	(2009) Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and an 457-mm (18-in) Drop
AASHTO T 224	(2001; R 2004) Correction for Coarse Particles in the Soil Compaction Test

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C600	(2005) Installation of Ductile-Iron Water Mains and Their Appurtenances

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M	(2008; Errata 2008) Structural Welding Code - Steel

AMERICAN WOOD PROTECTION ASSOCIATION (AWPA)

AWPA C2	(2003) Lumber, Timber, Bridge Ties and Mine Ties - Preservative Treatment by Pressure Processes
AWPA P5	(2009) Standard for Waterborne Preservatives

ASTM INTERNATIONAL (ASTM)

ASTM A 139/A 139M	(2004) Standard Specification for Electric-Fusion (ARC)-Welded Steel Pipe (NPS 4 and over)
ASTM A 252	(1998; R 2007) Standard Specification forWelded and Seamless Steel Pipe Piles
ASTM C 136	(2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 33/C 33M	(2008) Standard Specification for Concrete Aggregates
ASTM D 1140	(2000; R 2006) Amount of Material in Soils Finer than the No. 200 (75-micrometer) Sieve

ASTM D 1556	(2007) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(2009) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2700 kN-m/m3)
ASTM D 1883	(2007e2) CBR (California Bearing Ratio) of Laboratory-Compacted Soils
ASTM D 2167	(2008) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 2434	(1968; R 2006) Permeability of Granular Soils (Constant Head)
ASTM D 2487	(2006e1) Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2937	(2004) Density of Soil in Place by the Drive-Cylinder Method
ASTM D 422	(1963; R 2007) Particle-Size Analysis of Soils
ASTM D 4318	(2005) Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 6938	(2008a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D 698	(2007e1) Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/cu. m.)
U.S. ARMY CORPS OF ENGINEERS (USACE)	
EM 385-1-1	(2008) Safety and Health Requirements Manual
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)	
EPA 600/4-79/020	(1983) Methods for Chemical Analysis ofWater and Wastes
EPA SW-846.3-3	(1999, Third Edition, Update III-A) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods
U.S. GENERAL SERVICES ADMINISTRATION (GSA)	
FS A-A-203	(Rev C; Notice 2) Paper, Kraft, Untreated

1.3 DEFINITIONS

1.3.1 SATISFACTORY MATERIALS

Satisfactory materials comprise any materials classified by ASTM D 2487 as GW, GP, GM, GP-GM, GW-GM, GC, GP-GC, GM-GC, SW, and SP. Satisfactory materials for grading comprise stones less than 200 mm.

1.3.2 UNSATISFACTORY MATERIALS

Materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Unsatisfactory materials also include man-made fills; trash; refuse; backfills from previous construction; and material classified as satisfactory which contains root and other organic matter or frozen material. Notify the Contracting Officer when encountering any contaminated materials.

1.3.3 COHESIONLESS AND COHESIVE MATERIALS

Cohesionless materials include materials classified in ASTM D 2487 as GW, GP, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic. Perform testing, required for classifying materials, in accordance with ASTM D 4318, ASTM C 136, ASTM D 422, and ASTM D 1140.

1.3.4 DEGREE OF COMPACTION

Degree of compaction required, except as noted in the second sentence, is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557 abbreviated as a percent of laboratory maximum density. Since ASTM D 1557 applies only to soils that have 30 percent or less by weight of their particles retained on the 19.0 mm sieve, express the degree of compaction for material having more than 30 percent by weight of their particles retained on the 19.0 mm sieve as a percentage of the maximum density in accordance with AASHTO T 180

and corrected with AASHTO T 224. To maintain the same percentage of coarse material, use the "remove and replace" procedure as described in NOTE 8 of Paragraph 7.2 in AASHTO T 180.

1.3.5 HARD/UNYIELDING MATERIALS

Hard/Unyielding materials comprise weathered rock, dense consolidated deposits, or conglomerate materials which are not included in the definition of "rock" with stones greater than 75 mm in any dimension or as defined by the pipe manufacturer, whichever is smaller. These materials usually require the use of heavy excavation equipment, ripper teeth, or jack hammers for removal.

1.3.6 ROCK

Solid homogeneous interlocking crystalline material with firmly cemented, laminated, or foliated masses or conglomerate deposits, neither of which can be removed without systematic drilling and blasting, drilling and the use of expansion jacks or feather wedges, or the use of backhoe-mounted pneumatic hole punchers or rock breakers; also large boulders, buried masonry, or concrete other than pavement exceeding 0.375 cubic meters in volume. Removal of hard material will not be considered rock excavation because of intermittent drilling and blasting that is performed merely to increase production.

1.3.7 UNSTABLE MATERIAL

Unstable materials are too wet to properly support the utility pipe, conduit, or appurtenant structure.

1.3.8 SELECT GRANULAR MATERIAL

1.3.8.1 GENERAL REQUIREMENTS

Select granular material consist of materials classified as GW, GP, SW or SP by ASTM D 2487 where indicated. Provide a minimum coefficient of permeability of 0.01 mm per second when tested in accordance with ASTM D 2434.

1.3.8.2 CALIFORNIA BEARING RATIO VALUES

Bearing Ratio: At 2.5 mm penetration, provide a bearing ratio of 30 percent at 95 percent ASTM D 1557 maximum density as determined in accordance with ASTM D 1883 for a laboratory soaking period of not less

than 4 days. Conform the combined material to the following sieve analysis:

Sieve Size	Percent Passing by Weight
63 mm	100
4.75 mm	40 - 85
2.00 mm	20 - 80
425 micrometers	10 – 60
75 micrometers	5 - 25

1.3.9 INITIAL BACKFILL MATERIAL

Initial backfill consists of select granular material or satisfactory materials free from rocks 75 mm or larger in any dimension or free from rocks of such size as recommended by the pipe manufacturer, whichever is smaller. When the pipe is coated or wrapped for corrosion protection, free the initial backfill material of stones larger than 50 mm in any dimension or as recommended by the pipe manufacturer, whichever is smaller.

1.3.10 EXPANSIVE SOILS
Expansive soils are defined as soils that have a plasticity index equal to or greater than 25 when tested in accordance with ASTM D 4318.

1.3.11 NONFROST SUSCEPTIBLE (NFS) MATERIAL
Nonfrost susceptible material are a uniformly graded washed sand with a maximum particle size of 4.75 mm and less than 5 percent passing the 0.075 mm size sieve, and with not more than 3 percent by weight finer than 0.02 mm grain size.

1.4 SYSTEM DESCRIPTION

Subsurface soil boring logs are requires as a part of this contract. Current knowledge of the site is based on surface observations only.

1.4.1 CLASSIFICATION OF EXCAVATION
No consideration will be given to the nature of the materials, and all excavation will be designated as unclassified excavation.

1.4.2 BLASTING
Blasting will not be permitted.

1.5 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. Submit the following in accordance with Section 01335 SUBMITTAL PROCEDURES:

SD-03 Product Data

Utilization of Excavated Materials; G

Opening of any Excavation or Borrow Pit

Procedure and location for disposal of unused satisfactory material. Proposed source of borrow material. Notification of encountering rock in the project. Advance notice on the opening of excavation or borrow areas.

SD-06 Test Reports

Testing

Borrow Site Testing

Within 24 hours of conclusion of physical tests, 2 copies of test results, including calibration curves and results of calibration tests. Results of testing at the borrow site.

SD-07 Certificates

Testing

Qualifications of the Corps validated commercial testing laboratory or the Contractor's validated testing facilities.

2. PRODUCTS

2.1 REQUIREMENTS FOR OFFSITE SOILS

Test offsite soils brought in for use as backfill for Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethyl Benzene, and Xylene (BTEX) and full Toxicity Characteristic Leaching Procedure (TCLP) including ignitability, corrosivity and reactivity. Backfill shall contain a maximum of 100 parts per million (ppm) of total petroleum hydrocarbons (TPH) and a maximum of 10 ppm of the sum of

Benzene, Toluene, Ethyl Benzene, and Xylene (BTEX) and shall pass the TCPL test. Determine TPH concentrations by using EPA 600/4-79/020 Method 418.1. Determine BTEX concentrations by using EPA SW-846.3-3 Method 5030/8020. Perform TCLP in accordance with EPA SW-846.3-3 Method 1311. Provide Borrow Site Testing for TPH, BTEX and TCLP from a composite sample of material from the borrow site, with at least one test from each borrow site. Do not bring material onsite until tests have been approved by the Contracting Officer.

2.2 MATERIAL FOR RIP-RAP

Provide Bedding material and rock conforming to these requirements for construction indicated.

2.2.1 BEDDING MATERIAL

Bedding material for riprap shall conform to Aggregate Base Course Material as defined in Section 32 11 23.

2.2.2 ROCK

Provide rock fragments sufficiently durable to ensure permanence in the structure and the environment in which it is to be used. Use rock fragments free from cracks, seams, and other defects that would increase the risk of deterioration from natural causes. Provide rock with a minimum specific gravity of 2.50. Do not permit the inclusion of more than trace (1 percent) quantities of dirt, sand, clay, and rock fines. Riprap gradations shall be designed at each location riprap is to be used in accordance with EM-1110-2-1601.

3. EXECUTION

3.1 GENERAL EXCAVATION

Perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified. Perform the grading in accordance with the typical sections shown and the tolerances specified in paragraph FINISHING. Transport satisfactory excavated materials and place in fill or embankment within the limits of the work. Excavate unsatisfactory materials encountered within the limits of the work below grade and replace with satisfactory materials as directed. Include such excavated material and the satisfactory material ordered as replacement in excavation. Dispose surplus satisfactory excavated material not required for fill or embankment in areas approved for surplus material storage or designated waste areas. Dispose unsatisfactory excavated material in designated waste or spoil areas. During construction, perform excavation and fill in a manner and sequence that will provide proper drainage at all times. Excavate material required for fill or embankment in excess of that produced by excavation within the grading limits from the borrow areas indicated or from other approved areas selected by the Contractor as specified.

3.1.1 DITCHES, GUTTERS, AND CHANNEL CHANGES

Finish excavation of ditches, gutters, and channel changes by cutting accurately to the cross sections, grades, and elevations shown on the drawings. Backfill the excessive open ditch or gutter excavation with satisfactory, thoroughly compacted, material or with suitable stone or cobble to grades shown. Dispose excavated material as shown or as directed, except in no case allow material be deposited closer than 1 meter from edge of a ditch. Maintain excavations free from detrimental quantities of leaves, brush, sticks, trash, and other debris until final acceptance of the work.

3.1.2 DRAINAGE STRUCTURES

Make excavations to the lines, grades, and elevations shown, or as directed. Provide trenches and foundation pits of sufficient size to permit the placement and removal of forms for the full length and width of structure footings and foundations as shown. Clean rock or other hard foundation material of loose debris and cut to a firm, level, stepped, or serrated surface. Remove loose disintegrated rock and thin strata. Do not disturb the bottom of the excavation when concrete or masonry is to be placed

in an excavated area. Do not excavate to the final grade level until just before the concrete or masonry is to be placed.

3.1.3 DRAINAGE

Provide for the collection and disposal of surface and subsurface water encountered during construction. Completely drain construction site during periods of construction to keep soil materials sufficiently dry. Construct storm drainage features (ponds/basins) at the earliest stages of site development, and throughout construction grade the construction area to provide positive surface water runoff away from the construction activity and provide temporary ditches, swales, and other drainage features and equipment as required to maintain dry soils. When unsuitable working platforms for equipment operation and unsuitable soil support for subsequent construction features develop, remove unsuitable material and provide new soil material as specified herein. It is the responsibility of the Contractor to assess the soil and ground water conditions presented by the plans and specifications and to employ necessary measures to permit construction to proceed.

3.1.4 DEWATERING

Control groundwater flowing toward or into excavations to prevent sloughing of excavation slopes and walls, boils, uplift and heave in the excavation and to eliminate interference with orderly progress of construction. Do not permit French drains, sumps, ditches or trenches within 0.9 m of the foundation of any structure, except with specific written approval, and after specific contractual provisions for restoration of the foundation area have been made. Take control measures by the time the excavation reaches the water level in order to maintain the integrity of the in situ material. While the excavation is open, maintain the water level continuously, at least 0.5 m below the working level. Operate dewatering system continuously until construction work below existing water levels is complete. Submit performance records weekly.

3.1.5 TRENCH EXCAVATION REQUIREMENTS

Excavate the trench as recommended by the manufacturer of the pipe to be installed. Slope trench walls below the top of the pipe, or make vertical, and of such width as recommended in the manufacturer's printed installation manual. Provide vertical trench walls where no manufacturer's printed installation manual is available. Shore trench walls more than 1.5 meters high, cut back to a stable slope, or provide with equivalent means of protection for employees who may be exposed to moving ground or cave in. Shore vertical trench walls more than 2 meters high. Excavate trench walls which are cut back to at least the angle of repose of the soil. Give special attention to slopes which may be adversely affected by weather or moisture content. Do not exceed the trench width below the pipe top of 600 mm plus pipe outside diameter (O.D.) for pipes of less than 600 mm inside diameter, and do not exceed 900 mm plus pipe outside diameter for sizes larger than 600 mm inside diameter. Where recommended trench widths are exceeded, provide redesign, stronger pipe, or special installation procedures by the Contractor. The Contractor is responsible for the cost of redesign, stronger pipe, or special installation procedures without any additional cost to the Government.

3.1.5.1.1 BOTTOM PREPARATION

Grade the bottoms of trenches accurately to provide uniform bearing and support for the bottom quadrant of each section of the pipe. Excavate bell holes to the necessary size at each joint or coupling to eliminate point bearing. Remove stones of 75 mm or greater in any dimension, or as recommended by the pipe manufacturer, whichever is smaller, to avoid point bearing.

3.1.5.2 REMOVAL OF UNYIELDING MATERIAL

Where unyielding material is encountered in the bottom of the trench, remove such material 100 mm below the required grade and replaced with suitable materials as provided in paragraph BACKFILLING AND COMPACTION.

3.1.5.3 REMOVAL OF UNSTABLE MATERIAL

Where unstable material is encountered in the bottom of the trench, remove such material to the depth directed and replace it to the proper grade with select granular material as provided in paragraph BACKFILLING AND COMPACTION. When removal of unstable material is required due to

the Contractor's fault or neglect in performing the work, the Contractor is responsible for excavating the resulting material and replacing it without additional cost to the Government.

3.1.6 STRUCTURAL EXCAVATION

Ensure that footing subgrades have been inspected and approved by the Contracting Officer prior to concrete placement.

3.2 SELECTION OF BORROW MATERIAL

Select borrow material to meet the requirements and conditions of the particular fill or embankment for which it is to be used. Obtain borrow material from the borrow areas within the limits of the project site, selected by the Contractor or from approved private sources. Unless otherwise provided in the contract, the Contractor is responsible for obtaining the right to procure material, pay royalties and other charges involved, and bear the expense of developing the sources, including rights-of-way for hauling from the owners. Borrow material from approved sources on Government-controlled land may be obtained without payment of royalties. Unless specifically provided, do not obtain borrow within the limits of the project site without prior written approval. Consider necessary clearing, grubbing, and satisfactory drainage of borrow pits and the disposal of debris thereon related operations to the borrow excavation.

3.3 OPENING AND DRAINAGE OF EXCAVATION AND BORROW PITS

Except as otherwise permitted, excavate borrow pits and other excavation areas providing adequate drainage. Transport overburden and other spoil material to designated spoil areas or otherwise dispose of as directed. Provide neatly trimmed and drained borrow pits after the excavation is completed. Ensure that excavation of any area, operation of borrow pits, or dumping of spoil material results in minimum detrimental effects on natural environmental conditions.

3.4 SHORING

3.4.1 GENERAL REQUIREMENTS

Submit a Shoring and Sheeting plan for approval 15 days prior to starting work. Submit drawings and calculations, certified by a registered professional engineer, describing the methods for shoring and sheeting of excavations. Finish shoring, including sheet piling, and install as necessary to protect workmen, banks, adjacent paving, structures, and utilities. Remove shoring, bracing, and sheeting as excavations are backfilled, in a manner to prevent caving.

3.4.2 GEOTECHNICAL ENGINEER

Hire a Professional Geotechnical Engineer to provide inspection of excavations and soil/groundwater conditions throughout construction. The Geotechnical Engineer is responsible for performing pre-construction and periodic site visits throughout construction to assess site conditions. The Geotechnical Engineer is responsible for updating the excavation, sheeting and dewatering plans as construction progresses to reflect changing conditions and submit an updated plan if necessary. Submit a monthly written report, informing the Contractor and Contracting Officer of the status of the plan and an accounting of the Contractor's adherence to the plan addressing any present or potential problems. The Contracting Officer is responsible for arranging meetings with the Geotechnical Engineer at any time throughout the contract duration.

3.5 GRADING AREAS

Where indicated, divide work into grading areas within which satisfactory excavated material will be placed in embankments, fills, and required backfills. Do not haul satisfactory material excavated in one grading area to another grading area except when so directed in writing. Place and grade stockpiles of satisfactory materials as specified. Keep stockpiles in a neat and well drained condition, giving due consideration to drainage at all times. Clear, grub, and seal by rubber-tired equipment, the ground surface at stockpile locations; separately stockpile excavated satisfactory and unsatisfactory

materials. Protect stockpiles of satisfactory materials from contamination which may destroy the quality and fitness of the stockpiled material. If the Contractor fails to protect the stockpiles, and any material becomes unsatisfactory, remove and replace such material with satisfactory material from approved sources.

3.6 FINAL GRADE OF SURFACES TO SUPPORT CONCRETE

Do not excavate to final grade until just before concrete is to be placed. Only use excavation methods that will leave the foundation rock in a solid and unshattered condition. Roughen the level surfaces, and cut the sloped surfaces, as indicated, into rough steps or benches to provide a satisfactory bond. Protect shales from slaking and all surfaces from erosion resulting from ponding or water flow.

3.7 GROUND SURFACE PREPARATION

3.7.1 GENERAL REQUIREMENTS

Remove and replace unsatisfactory material with satisfactory materials, as directed by the Contracting Officer, in surfaces to receive fill or in excavated areas. Scarify the surface to a depth of 150 mm before the fill is started. Plow, step, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so that the fill material will bond with the existing material. When subgrades are less than the specified density, break up the ground surface to a minimum depth of 150 mm, pulverizing, and compacting to the specified density. When the subgrade is part fill and part excavation or natural ground, scarify the excavated or natural ground portion to a depth of 300 mm and compact it as specified for the adjacent fill.

3.7.2 FROZEN MATERIAL

Do not place material on surfaces that are muddy, frozen, or contain frost. Finish compaction by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, or other approved equipment well suited to the soil being compacted. Moisten material as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used.

3.8 UTILIZATION OF EXCAVATED MATERIALS

Dispose unsatisfactory materials removing from excavations into designated waste disposal or spoil areas. Use satisfactory material removed from excavations, insofar as practicable, in the construction of fills, embankments, subgrades, shoulders, bedding (as backfill), and for similar purposes. Do not waste any satisfactory excavated material without specific written authorization. Dispose of satisfactory material, authorized to be wasted, in designated areas approved for surplus material storage or designated waste areas as directed. Clear and grub newly designated waste areas on Government-controlled land before disposal of waste material thereon. Stockpile and use coarse rock from excavations for constructing slopes or embankments adjacent to streams, or sides and bottoms of channels and for protecting against erosion. Do not dispose excavated material to obstruct the flow of any stream, endanger a partly finished structure, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way.

3.9 BACKFILLING AND COMPACTION

Place backfill adjacent to any and all types of structures, and compact to at least 90 percent laboratory maximum density for cohesive materials or 95 percent laboratory maximum density for cohesionless materials, to prevent wedging action or eccentric loading upon or against the structure. Prepare ground surface on which backfill is to be placed as specified in paragraph GROUND SURFACE PREPARATION. Provide compaction requirements for backfill materials in conformance with the applicable portions of paragraphs GROUND SURFACE PREPARATION. Finish compaction by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment.

3.10 RIP-RAP CONSTRUCTION

Construct rip-rap on bedding material in the areas indicated. Trim and dress indicated areas to conform to cross sections, lines and grades shown within a tolerance of 30 mm.

3.10.1 BEDDING PLACEMENT

Spread bedding material uniformly to a thickness of at least 75 mm on prepared subgrade as indicated. Compaction of bedding is not required. Finish bedding to present even surface free from mounds and windrows.

3.10.2 STONE PLACEMENT

Place rock for rip-rap on prepared bedding material to produce a well graded mass with the minimum practicable percentage of voids in conformance with lines and grades indicated. Distribute larger rock fragments, with dimensions extending the full depth of the rip-rap throughout the entire mass and eliminate "pockets" of small rock fragments. Rearrange individual pieces by mechanical equipment or by hand as necessary to obtain the distribution of fragment sizes specified above.

3.11 SUBGRADE PREPARATION

3.11.1 CONSTRUCTION

Shape subgrade to line, grade, and cross section, and compact as specified. Include plowing, disking, and any moistening or aerating required to obtain specified compaction for this operation. Remove soft or otherwise unsatisfactory material and replace with satisfactory excavated material or other approved material as directed. Excavate rock encountered in the cut section to a depth of 150 mm below finished grade for the subgrade. Bring up low areas resulting from removal of unsatisfactory material or excavation of rock to required grade with satisfactory materials, and shape the entire subgrade to line, grade, and cross section and compact as specified. After rolling, do not show deviations for the surface of the subgrade for roadways greater than 13 mm when tested with a 4 m straightedge applied both parallel and at right angles to the centerline of the area. Do not vary the elevation of the finish subgrade more than 15 mm from the established grade and cross section.

3.11.2 COMPACTION

Finish compaction by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment. Except for paved areas and railroads, compact each layer of the embankment to at least 90 percent of laboratory maximum density.

3.11.2.1 SUBGRADE FOR PAVEMENTS

Compact subgrade for pavements to at least 95 percentage laboratory maximum density for the depth below the surface of the pavement shown. When more than one soil classification is present in the subgrade, thoroughly blend, reshape, and compact the top 150 mm of subgrade.

3.11.2.2 SUBGRADE FOR SHOULDERS

Compact subgrade for shoulders to at least 95 percentage laboratory maximum density for the full depth of the shoulder.

3.12 SHOULDER CONSTRUCTION

Construct shoulders of satisfactory excavated or borrow material or as otherwise shown or specified. Construct shoulders immediately after adjacent paving is complete. In the case of rigid pavements, do not construct shoulders until permission of the Contracting Officer has been obtained. Compact the entire shoulder area to at least the percentage of maximum density as specified in paragraph SUBGRADE PREPARATION above, for specific ranges of depth below the surface of the shoulder. Finish compaction by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment. Finish shoulder construction in proper sequence in such a manner that adjacent ditches will be drained effectively and that no damage of any kind is done to the

adjacent completed pavement. Align the completed shoulders true to grade and shaped to drain in conformity with the cross section shown.

3.13 FINISHING

Finish the surface of excavations, embankments, and subgrades to a smooth and compact surface in accordance with the lines, grades, and cross sections or elevations shown. Provide the degree of finish for graded areas within 30 mm of the grades and elevations indicated except that the degree of finish for subgrades specified in paragraph SUBGRADE PREPARATION. Finish gutters and ditches in a manner that will result in effective drainage. Finish the surface of areas to be turfed from settlement or washing to a smoothness suitable for the application of turfing materials. Repair graded, topsoiled, or backfilled areas prior to acceptance of the work, and re-established grades to the required elevations and slopes.

3.13.1 SUBGRADE AND EMBANKMENTS

During construction, keep embankments and excavations shaped and drained. Maintain ditches and drains along subgrade to drain effectively at all times. Do not disturb the finished subgrade by traffic or other operation. Protect and maintain the finished subgrade in a satisfactory condition until ballast, subbase, base, or pavement is placed. Do not permit the storage or stockpiling of materials on the finished subgrade. Do not lay subbase, base course, ballast, or pavement until the subgrade has been checked and approved, and in no case place subbase, base, surfacing, pavement, or ballast on a muddy, spongy, or frozen subgrade.

3.14 TESTING

Perform testing by a Corps validated commercial testing laboratory or the Contractor's validated testing facility. If the Contractor elects to establish testing facilities, do not permit work requiring testing until the Contractor's facilities have been inspected, Corps validated and approved by the Contracting Officer. Determine field in-place density in accordance with ASTM D 6938. When ASTM D 6938 is used, check the calibration curves and adjust using only the sand cone method as described in ASTM D 1556. ASTM D 6938 results in a wet unit weight of soil in determining the moisture content of the soil when using this method. Check the calibration curves furnished with the moisture gauges along with density calibration checks as described in ASTM D 6938; check the calibration of both the density and moisture gauges at the beginning of a job on each different type of material encountered and at intervals as directed by the Contracting Officer. When test results indicate, as determined by the Contracting Officer, that compaction is not as specified, remove the material, replace and recompact to meet specification requirements. Perform tests on recompacted areas to determine conformance with specification requirements. Appoint a registered professional civil engineer to certify inspections and test results. These certifications shall state that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the tests. The following number of tests, if performed at the appropriate time, will be the minimum acceptable for each type operation.

3.14.1 FILL AND BACKFILL MATERIAL GRADATION

One test per 500 cubic meters stockpiled or in-place source material. Determine gradation of fill and backfill material in accordance with ASTM C 136.

3.14.2 IN-PLACE DENSITIES

a. One test per 1000 square meters, or fraction thereof, of each lift of fill or backfill areas compacted by other than hand-operated machines.
b. One test per 200 square meters , or fraction thereof, of each lift of fill or backfill areas compacted by hand-operated machines.

c. One test per 100 linear meters, or fraction thereof, of each lift of embankment or backfill for roads.

3.14.3 CHECK TESTS ON IN-PLACE DENSITIES

If ASTM D 6938 is used, check in-place densities by ASTM D 1556 as follows:

a. One check test per lift for each 10000 square meters, or fraction thereof, of each lift of fill or backfill compacted by other than hand-operated machines.
b. One check test per lift for each 2000 square meters, of fill or backfill areas compacted by hand-operated machines.
c. One check test per lift for each 1000 linear meters, or fraction thereof, of embankment or backfill for roads.

3.14.4 MOISTURE CONTENTS

In the stockpile, excavation, or borrow areas, perform a minimum of two tests per day per type of material or source of material being placed during stable weather conditions. During unstable weather, perform tests as dictated by local conditions and approved by the Contracting Officer.

3.14.5 OPTIMUM MOISTURE AND LABORATORY MAXIMUM DENSITY

Perform tests for each type material or source of material including borrow material to determine the optimum moisture and laboratory maximum density values. One representative test per 500 cubic meters of fill and backfill, or when any change in material occurs which may affect the optimum moisture content or laboratory maximum density.

3.14.6 TOLERANCE TESTS FOR SUBGRADES

Perform continuous checks on the degree of finish specified in paragraph SUBGRADE PREPARATION during construction of the subgrades.

3.15 DISPOSITION OF SURPLUS MATERIAL

Provide surplus material or other soil material not required or suitable for filling or backfilling, and brush, refuse, stumps, roots, and timber as wasted in a disposal area which is located within a haul distance of 10 km.

-- END OF SECTION --

SECTION 32 11 16

AGGREGATE SUB BASE AND SELECT-MATERIAL FOR EMBANKMENTS

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.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

AASHTO T 180	(2009) Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and an 457-mm (18-in) Drop
AASHTO T 224	(2001; R 2004) Correction for Coarse Particles in the Soil Compaction Test

ASTM INTERNATIONAL (ASTM)

ASTM C 117	(2004) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 131	(2006)Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	(2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 29/C 29M	(2007) Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM D 1556	(2007) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(2009) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2700 kN-m/m3)
ASTM D 2167	(2008) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 2487	(2006e1) Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 422	(1963; R 2007) Particle-Size Analysis of Soils
ASTM D 4318	(2005) Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 6938	(2008a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D 75/D 75M	(2009) Standard Practice for Sampling Aggregates
ASTM E 11	(2009) Wire Cloth and Sieves for Testing Purposes

1.2 DEFINITION

Degree of compaction required is expressed as a percentage of the maximum laboratory dry density obtained by the test procedure presented in ASTM D 1557 abbreviated as a percent of laboratory maximum dry density. One exception is as follows: Since ASTM D 1557 applies only to soils that have 30 percent or less by weight of their particles retained on the 9.0 mm sieve, the degree of compaction for material having more than 30 percent by weight of their particles retained on the 9.0 mm sieve will be expressed as a percentage of the laboratory maximum dry density in accordance with AASHTO T 180 Method D and corrected with AASHTO T 224.

1.3 SYSTEM DESCRIPTION

All plant, equipment, and tools used in the performance of the work will be subject to approval before the work is started and shall be maintained in satisfactory working condition at all times. Submit a list of proposed equipment, including descriptive data. Provide equipment which is adequate and has the capability of producing the required compaction, meeting grade controls, thickness control, and smoothness requirements as set forth herein.

1.4 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. Submit the following in accordance with Section 01335 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Sampling and Testing Field Density Tests

1.5 QUALITY ASSURANCE

Sampling and testing are the responsibility of the Contractor. Perform tests at the specified frequency. No work requiring testing will be permitted until the testing laboratory has been inspected and approved. Test the materials to establish compliance with the specified requirements.

1.5.1 SAMPLING

Take samples for laboratory testing in conformance with ASTM D 75/D 75M. When deemed necessary, the sampling will be observed by the Contracting Officer.

1.5.2 TESTS

1.5.2.1 SIEVE ANALYSIS

Make sieve analysis in conformance with ASTM C 117 and ASTM C 136. Complete particle-size analysis of the soils in conformance with ASTM D 422. Sieves shall conform to ASTM E 11.

1.5.2.2 LIQUID LIMIT AND PLASTICITY INDEX

Determine liquid limit and plasticity index in accordance with ASTM D 4318.

1.5.2.3 MOISTURE-DENSITY DETERMINATIONS

Determine the laboratory maximum dry density and optimum moisture in accordance with ASTM D 1557.

1.5.2.4 FIELD DENSITY TESTS

Measure field density in accordance with ASTM D 1556, ASTM D 2167, or ASTM D 6938. For the method presented in ASTM D 1556, use the base plate, as shown in the drawing. For the method presented in ASTM D 6938, check and adjust the calibration curves, if necessary, using only the sand cone method as described in paragraph Calibration, of the ASTM publication. Tests performed in accordance with ASTM D 6938 result in a wet unit weight of soil and ASTM D 6938 will be used to determine the moisture

content of the soil. The calibration curves furnished with the moisture gauges shall also be checked along with density calibration checks as described in ASTM D 6938. The calibration checks of both the density and moisture gauges shall be made by the prepared containers of material method, as described in paragraph Calibration, in ASTM D 6938, on each different type of material to be tested at the beginning of a job and at intervals as directed.

a. Submit certified copies of test results for approval not less than 30 days before material is required for the work.

b. Submit calibration curves and related test results prior to using the device or equipment being calibrated.

c. Submit copies of field test results within 24 hours after the tests are performed.

1.5.2.5 WEAR TEST

Perform wear tests in conformance with ASTM C 131.

1.5.3 TESTING FREQUENCY

1.5.3.1 INITIAL TESTS

Perform one of each of the following tests on the proposed material prior to commencing construction to demonstrate that the proposed material meets all specified requirements prior to installation.

a. Sieve Analysis
b. Liquid limit and plastic index
c. Moisture-density relationship
d. Wear

1.5.3.2 PROOF ROLL TEST

Proof roll a representative sample of all compacted embankment surfaces. The testing area shall constitute a minimum of one pass of the test vehicle over each lane of the road within project limits. Proof rolling shall be performed with a fully loaded water truck or fully loaded dump truck as a test vehicle travelling at a slow walking speed. As the test vehicle performs the proof roll, the ground shall be observed by the Contractor's QC staff and a Government representative. Pumping of any sort, wheel deformations and residual indentations greater than 5mm, wheel surface cracking greater than 1.5 mm and residual surface cracks greater than 1.0 mm shall indicate unacceptable conditions.

1.5.3.3 IN-PLACE TESTS

Perform one of each of the following tests on samples taken from the placed and compacted sub base course. Samples shall be taken and tested at the rates indicated.

a. Perform density tests on every lift of material placed and at a frequency of one set of tests for every 500 square meters, or portion thereof, of completed area.
b. Perform sieve analysis on every lift of material placed and at a frequency of one sieve analysis for every 1000 square meters, or portion thereof, of material placed.
c. Perform liquid limit and plasticity index tests at the same frequency as the sieve analysis.
d. Measure the thickness of each course at intervals providing at least one measurement for each 500 square meters or part thereof. The thickness measurement shall be made by test holes, at least 75 mm in diameter through the course.

1.5.4 APPROVAL OF MATERIAL

Select the source of materials 30 days prior to the time the material will be required in the work. Tentative approval will be based on initial test results. Final approval of the materials will be based on tests for gradation, liquid limit, and plasticity index performed on samples taken from the completed and compacted course.

1.6 ENVIRONMENTAL REQUIREMENTS

Perform construction when the atmospheric temperature is above 2 degrees C. When the temperature falls below 2 degrees C, protect all completed areas by approved methods against detrimental effects of freezing. Correct completed areas damaged by freezing, rainfall, or other weather conditions to meet specified requirements.

2. PRODUCTS

2.1 MATERIALS

2.1.1 SUBBASE COURSE

Provide aggregates consisting of crushed stone or slag, gravel, shell, sand, or other sound, durable, approved materials processed and blended or naturally combined. Provide aggregates which are durable and sound, free from lumps and balls of clay, organic matter, objectionable coatings, and other foreign material. Material retained on the 4.75 mm sieve shall have a percentage of wear not to exceed 50 percent after 500 revolutions when tested as specified in ASTM C 131. Aggregate shall be reasonably uniform in density and quality. Slag shall be an air-cooled, blast-furnace product having a dry weight of not less than 1050 kg/cubic meter. Aggregates shall have a maximum size of 75 mm and shall be within the limits specified as follows:

Maximum Allowable Percentage by Weight Passing Square-Mesh Sieve

Sieve Designation	Max % Passing
2 mm	80
0.075 mm	8

The portion of any blended component and of the completed course passing the 0.425 mm shall be either nonplastic or shall have a liquid limit not greater than 25 and a plasticity index not greater than 5.

2.1.2 SELECT-MATERIALS FOR EMBANKMENTS

Provide materials consisting of selected soil or other materials from field excavation, stockpiles, or other sources and free from lumps and balls of clay and from organic and other objectionable matter. Not more than 25 percent by weight shall pass the 0.075 mm sieve. The portion of material passing the 0.425 mm sieve shall have a liquid limit less than 35 and a plasticity index less than 12. The maximum particle size shall not exceed 2/3 the thickness of the lift in which the material is placed.

3. EXECUTION

3.1 OPERATION OF AGGREGATE SOURCES

Clearing, stripping and excavating are the responsibility of the Contractor. Operate the aggregate sources to produce the quantity and quality of materials meeting the specified requirements in the specified time limit. Aggregate sources on private lands shall be conditioned in agreement with local laws and authorities.

3.2 STOCKPILING MATERIAL

Prior to stockpiling of material, clear and level storage sites. Stockpile all materials, including approved material available from excavation and grading, in the manner and at the locations designated. Aggregates shall be stockpiled on the cleared and leveled areas designated by the Contracting Officer to prevent segregation. Materials obtained from different sources shall be stockpiled separately.

3.3 PREPARATION OF UNDERLYING MATERIAL

Prior to constructing the subbase course, clean the underlying course or subgrade of all foreign substances. The surface of the underlying course or subgrade shall meet specified compaction and surface tolerances. Correct ruts, or soft yielding spots, in the underlying courses, subgrade areas having

inadequate compaction, and deviations of the surface from the specified requirements, by loosening and removing soft or unsatisfactory material and by adding approved material, reshaping to line and grade, and recompacting to specified density requirements. For cohesionless underlying courses or subgrades containing sands or gravels, as defined in ASTM D 2487, the surface shall be stabilized prior to placement of the overlying course. Accomplish stabilization by mixing the overlying course material into the underlying course, and compacting by approved methods. [The stabilized material shall be considered as part of the underlying course and shall meet all requirements for the underlying course.] The finished underlying course shall not be disturbed by traffic or other operations and shall be maintained in a satisfactory condition until the overlying course is placed.

3.4 GRADE CONTROL

The finished and completed course shall conform to the lines, grades, and cross sections shown. The lines, grades, and cross sections shown shall be maintained by means of line and grade stakes placed by the Contractor at the work site.

3.5 MIXING AND PLACING MATERIALS

Mix and place the materials to obtain uniformity of the material at the water content specified. Make such adjustments in mixing or placing procedures or in equipment as may be directed to obtain the true grades, to minimize segregation and degradation, to reduce or accelerate loss or increase of water, and to insure a satisfactory subbase course.

3.6 LAYER THICKNESS

The compacted thickness of the completed course shall be as indicated. When a compacted layer of 150 mm is specified, the material may be placed in a single layer; when a compacted thickness of more than 150 mm is required, no layer shall be thicker than 150 mm nor be thinner than 75 mm 3 inches when compacted.

3.7 COMPACTION

Compact each layer of the material, as specified, with approved compaction equipment. Maintain water content during the compaction procedure to within plus or minus 2 percent of optimum water content, as determined from laboratory tests, as specified in paragraph SAMPLING AND TESTING. In all places not accessible to the rollers, compact the mixture with hand-operated power tampers. Compaction of the subbase or embankment material shall continue until each layer is compacted through the full depth to at least 100 percent of laboratory maximum density for subbase or as indicated for embankment material. Make such adjustments in compacting or finishing procedures as may be directed to obtain true grades, to minimize segregation and degradation, to reduce or increase water content, and to ensure a satisfactory subbase course. Any materials that are found to be unsatisfactory shall be removed and replaced with satisfactory material or reworked, as directed, to meet the requirements of this specification.

3.8 SMOOTHNESS TEST

The surface of the top layer shall show no deviations in excess of 10 mm when tested with a 3.66 m straightedge. Take measurements in successive positions parallel to the centerline of the area to be paved. Measurements shall also be taken perpendicular to the centerline at

15 meter intervals. Correct deviations exceeding this amount by removing material and replacing with new material, or by reworking existing material and compacting it to meet these specifications.

3.9 THICKNESS CONTROL

The completed thickness of the course(s) shall be in accordance with the thickness and grade indicated on the drawings. The completed course shall not be more than 13 mm deficient in thickness nor more than 13 mm above or below the established grade. Where any of these tolerances are exceeded, correct

such areas by scarifying, adding new material of proper gradation or removing material, and compacting, as directed. Where the measured thickness is 13 mm or more thicker than shown, the course will be considered as conforming with the specified thickness requirements plus 13 mm. The average job thickness shall be the average of the job measurements as specified above but within 6 mm of the thickness shown.

-- END OF SECTION --

SECTION 32 11 23

AGGREGATE BASE COURSE FOR RIGID PAVEMENT

1. GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

AASHTO T 224	(2001; R 2004) Correction for Coarse Particles in the Soil Compaction Test

ASTM INTERNATIONAL (ASTM)

ASTM C 117	(2004) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 127	(2007) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C 128	(2007a) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate
ASTM C 131	(2006) Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	(2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 29/C 29M	(2007) Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C 88	(2005) Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM D 1556	(2007) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(2009) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2700 kN-m/m3)
ASTM D 2167	(2008) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 2487	(2006e1) Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 422	(1963; R 2007) Particle-Size Analysis of Soils
ASTM D 4318	(2005) Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 5821	(2001: R 2006) Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D 6938	(2008a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D 75/D 75M	(2009) Standard Practice for Sampling Aggregates
ASTM E 11	(2009) Wire Cloth and Sieves for Testing Purposes

1.2 DEFINITIONS

For the purposes of this specification, the following definitions apply.

1.2.1 AGGREGATE BASE COURSE

Aggregate base course (ABC) is well graded, durable aggregate uniformly moistened and mechanically stabilized by compaction.

1.2.2 GRADED-CRUSHED AGGREGATE BASE COURSE

Graded-crushed aggregate (GCA) base course is well graded, crushed, durable aggregate uniformly moistened and mechanically stabilized by compaction. GCA is similar to ABC, but it has more stringent requirements and it produces a base course with higher strength and stability.

1.2.3 DEGREE OF COMPACTION

Degree of compaction required, except as noted in the second sentence, is expressed as a percentage of the maximum laboratory dry density obtained by the test procedure presented in ASTM D 1557 abbreviated as a percent of laboratory maximum dry density. Since ASTM D 1557 applies only to soils that have 30 percent or less by weight of their particles retained on the 19.0 mm sieve, the degree of compaction for material having more than 30 percent by weight of their particles retained on the 19.0 mm sieve are expressed as a percentage of the laboratory maximum dry density in accordance with AASHTO T 180 Method D and corrected with AASHTO T 224.

1.3 SYSTEM DESCRIPTION

All plant, equipment, and tools used in the performance of the work will be subject to approval before the work is started and shall be maintained in satisfactory working condition at all times. Submit a ist of proposed equipment, including descriptive data. Provide adequate equipment having the capability of producing the required compaction, meeting grade controls, thickness control, and smoothness requirements as set forth herein.

1.4 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. Submit the following in accordance with Section 01335 SUBMITTAL PROCEDURES:

SD-03 Product Data

Plant, Equipment, and Tools

SD-06 Test Reports

Sampling and Testing; G

Field Density Tests; G

1.5 QUALITY ASSURANCE

Sampling and testing are the responsibility of the Contractor and performed by a testing laboratory approved in accordance with Section 01 45 00.00 10 01 45 00.00 2001 45 00.00 40 QUALITY CONTROL. Work requiring testing will not be permitted until the testing laboratory has been inspected and approved. Test the materials to establish compliance with the specified requirements; perform testing at the specified frequency. The Contracting Officer may specify the time and location of the tests. Furnish copies of test results to the Contracting Officer within 24 hours of completion of the tests.

1.5.1 SAMPLING
Take samples for laboratory testing in conformance with ASTM D 75/D 75M. When deemed necessary, the sampling will be observed by the Contracting Officer.

1.5.2 TESTS
Perform the following tests in conformance with the applicable standards

listed.

1.5.2.1 SIEVE ANALYSIS
Make sieve analysis in conformance with ASTM C 117 and ASTM C 136. Sieves shall conform to ASTM E 11. Particle-size analysis of the soils shall also be completed in conformance with ASTM D 422.

1.5.2.2 LIQUID LIMIT AND PLASTICITY INDEX
Determine liquid limit and plasticity index in accordance with ASTM D 4318.

1.5.2.3 MOISTURE-DENSITY DETERMINATIONS
Determine the laboratory maximum dry density and optimum moisture content in accordance with ASTM D 1557.

1.5.2.4 FIELD DENSITY TESTS
Measure field density in accordance with ASTM D 1556, ASTM D 2167 or ASTM D 6938. For the method presented in ASTM D 6938 check the calibration curves and adjust them, if necessary, using only the sand cone method as described in paragraph Calibration, of the ASTM publication. Tests performed in accordance with ASTM D 6938 result in a wet unit weight of soil, and ASTM D 6938 shall be used to determine the moisture content of the soil. The calibration curves furnished with the moisture gauges shall also be checked along with density calibration checks as described in ASTM D 6938. The calibration checks of both the density and moisture gauges shall be made by the prepared containers of material method, as described in paragraph Calibration of ASTM D 6938, on each different type of material being tested at the beginning of a job and at intervals as directed.

a. Submit certified copies of test results for approval not less than 30days before material is required for the work.
b. Submit calibration curves and related test results prior to using the device or equipment being calibrated.
c. Submit copies of field test results within 24 hours after the tests are performed.

1.5.2.5 WEAR TEST
Perform wear tests on ABC course material in conformance with ASTM C 131.

1.5.2.6 SOUNDNESS
Perform soundness tests on GCA in accordance with ASTM C 88.

1.5.3 TESTING FREQUENCY
1.5.3.1 INITIAL TESTS
Perform one of each of the following tests, on the proposed material prior to commencing construction, to demonstrate that the proposed material meets all specified requirements when furnished. If materials from more than one source are going to be utilized, this testing shall be completed for each source.

a. Sieve Analysis.
b. Liquid limit and plasticity index.
c. Moisture-density relationship.
d. Wear.

1.5.3.2 IN PLACE TESTS

Perform each of the following tests on samples taken from the placed and compacted ABC. Samples shall be taken and tested at the rates indicated.

a. Perform density tests on every lift of material placed and at a frequency of one set of tests for every 250 square meters, or portion thereof, of completed area.
b. Perform sieve analysis on every lift of material placed and at a frequency of one sieve analysis for every 500 square meters, or portion thereof, of material placed.
c. Perform liquid limit and plasticity index tests at the same frequency as the sieve analysis.
d. Measure the total thickness of the base course at intervals, in such a manner as to ensure one measurement for each 500 square meters of base course. Measurements shall be made in 75 mm diameter test holes penetrating the base course.

1.5.4 APPROVAL OF MATERIAL

Select the source of the material 30 days prior to the time the material will be required in the work. Tentative approval of material will be based on initial test results. Final approval of the materials will be based on sieve analysis, liquid limit, and plasticity index tests performed on samples taken from the completed and fully compacted course(s).

1.6 ENVIRONMENTAL REQUIREMENTS

Perform construction when the atmospheric temperature is above 2 degrees C. When the temperature falls below 2 degrees C, protect all completed areas by approved methods against detrimental effects of freezing. Correct completed areas damaged by freezing, rainfall, or other weather conditions to meet specified requirements.

2. PRODUCTS

2.1 AGGREGATES

Provide ABC consisting of clean, sound, durable particles of crushed stone, crushed slag, crushed gravel, angular sand, or other approved material. ABC shall be free of lumps of clay, organic matter, and other objectionable materials or coatings The portion retained on the 4.75 mm sieve is known as coarse aggregate; that portion passing the 4.75 mm sieve is known as fine aggregate.

2.1.1 COARSE AGGREGATE

Provide coarse aggregates with angular particles of uniform density. When the coarse aggregate is supplied from more than one source, aggregate from each source shall meet the specified requirements and shall be stockpiled separately.

a. Crushed Gravel: Crushed gravel shall be manufactured by crushing gravels, and shall meet all the requirements specified below.
b. Crushed Stone: Provide crushed stone consisting of freshly mined quarry rock, meeting all the requirements specified below.
c. Crushed Slag: Crushed slag shall be an air-cooled blast-furnace product having an air dry unit weight of not less than 1120 kg/cubic meter 70 pcf as determined by ASTM C 29/C 29M, and shall meet all the requirements specified below.

2.1.1.1 AGGREGATE BASE COURSE

ABC coarse aggregate shall not show more than 50 percent loss when subjected to the Los Angeles abrasion test in accordance with ASTM C 131. The amount of flat and elongated particles shall not exceed 30 percent. A flat particle is one having a ratio of width to thickness greater than 3; an elongated particle is one having a ratio of length to width greater than 3. In the portion retained on each sieve specified, the crushed aggregates shall contain at least 50 percent by weight of crushed pieces having two or more freshly fractured faces determined in accordance with ASTM D 5821.

When two fractures are contiguous, the angle between planes of the fractures must be at least 30 degrees in order to count as two fractured faces. Crushed gravel shall be manufactured from gravel particles 50 percent of which, by weight, are retained on the maximum size sieve listed in TABLE 1.

2.1.2 FINE AGGREGATE

Fine aggregates shall be angular particles of uniform density. When the fine aggregate is supplied from more than one source, aggregate from each source shall meet the specified requirements.

2.1.2.1 AGGREGATE BASE COURSE

ABC fine aggregate shall consist of screenings, angular sand, crushed recycled concrete fines, or other finely divided mineral matter processed or naturally combined with the coarse aggregate.

2.1.3 GRADATION REQUIREMENTS

Apply the specified gradation requirements to the completed base course. The aggregates shall be continuously well graded within the limits specified in TABLE 1. Sieves shall conform to ASTM E 11.

TABLE 1. GRADATION OF AGGREGATES

Percentage by Weight Passing Square-Mesh Sieve

Sieve Designation	No. 1
50.0 mm	100
37.5 mm	70 – 100
25.0 mm	45 – 80
12.5 mm	30 – 60
4.75 mm	20 – 50
2.00 mm	15 – 40
0.425 mm	5 – 25
0.075 mm	0 – 8

NOTE 1: Particles having diameters less than 0.02 mm shall not be in excess of 3 percent by weight of the total sample tested.

NOTE 2: The values are based on aggregates of uniform specific gravity. If materials from different sources are used for the coarse and fine aggregates, they shall be tested in accordance with ASTM C 127 and ASTM C 128 to determine their specific gravities. If the specific gravities vary by more than 10 percent, the percentages passing the various sieves shall be corrected as directed by the Contracting Officer.

2.2 LIQUID LIMIT AND PLASTICITY INDEX

Apply liquid limit and plasticity index requirements to the completed course and to any component that is blended to meet the required gradation. The portion of any component or of the completed course passing the 0.425 mm sieve shall be either nonplastic or have a liquid limit not greater than 25 and a plasticity index not greater than 5.

3. EXECUTION

3.1 GENERAL REQUIREMENTS

When the ABC is constructed in more than one layer, clean the previously constructed layer of loose and foreign matter by sweeping with power sweepers or power brooms, except that hand brooms may be used in areas where power cleaning is not practicable. Provide adequate drainage during the entire period of construction to prevent water from collecting or standing on the working area. Provide line and

grade stakes as necessary for control. Grade stakes shall be in lines parallel to the centerline of the area under construction and suitably spaced for string lining.

3.2 OPERATION OF AGGREGATE SOURCES

Clearing, stripping, and excavating are the responsibility of the Contractor. Operate the aggregate sources to produce the quantity and quality of materials meeting the specified requirements in the specified time limit. Aggregate sources on private lands shall be conditioned in agreement with local laws or authorities.

3.3 STOCKPILING MATERIAL

Clear and level storage sites prior to stockpiling of material. Stockpile all materials, including approved material available from excavation and grading, in the manner and at the locations designated. Aggregates shall be stockpiled on the cleared and leveled areas designated by the Contracting Officer to prevent segregation. Materials obtained from different sources shall be stockpiled separately.

3.4 PREPARATION OF UNDERLYING COURSE

Prior to constructing the base course(s), the underlying course or subgrade shall be cleaned of all foreign substances. At the time of construction of the base course(s), the underlying course shall contain no frozen material. The surface of the underlying course or subgrade shall meet specified compaction and surface tolerances. The underlying course shall conform to Section 31 00 00 EARTHWORK or Section 32 11 16 SUBBASE COURSES is indicated. Ruts or soft yielding spots in the underlying courses, areas having inadequate compaction, and deviations of the surface from the requirements set forth herein shall be corrected by loosening and removing soft or unsatisfactory material and by adding approved material, reshaping to line and grade, and recompacting to specified density requirements. For cohesionless underlying courses containing sands or gravels, as defined in ASTM D 2487, the surface shall be stabilized prior to placement of the base course(s). Stabilization shall be accomplished by mixing ABC into the underlying course and compacting by approved methods. The stabilized material shall be considered as part of the underlying course and shall meet all requirements of the underlying course. The finished underlying course shall not be disturbed by traffic or other operations and shall be maintained in a satisfactory condition until the base course is placed.

3.5 INSTALLATION

3.5.1 MIXING THE MATERIALS

Mix the coarse and fine aggregates in a stationary plant, or in a traveling plant or bucket loader on an approved paved working area. Make adjustments in mixing procedures or in equipment, as directed, to obtain true grades, to minimize segregation or degradation, to obtain the required water content, and to insure a satisfactory base course meeting all requirements of this specification.

3.5.2 PLACING

Place the mixed material on the prepared subgrade or subbase in layers of uniform thickness with an approved spreader. When a compacted layer 150 mm or less in thickness is required, place the material in a single layer. When a compacted layer in excess of 150 mm is required, place the material in layers of equal thickness. No layer shall be thicker than 150 mm or thinner than 75 mm when compacted. The layers shall be so placed that when compacted they will be true to the grades or levels required with the least possible surface disturbance. Where the base course is placed in more than one layer, the previously constructed layers shall be cleaned of loose and foreign matter by sweeping with power sweepers, power brooms, or hand brooms, as directed. Such adjustments in placing procedures or equipment shall be made as may be directed to obtain true grades, to minimize segregation and degradation, to adjust the water content, and to insure an acceptable base course.

3.5.3 GRADE CONTROL

The finished and completed base course shall conform to the lines, grades, and cross sections shown. Underlying material(s) shall be excavated and prepared at sufficient depth for the required base course thickness so that the finished base course and the subsequent surface course will meet the designated grades.

3.5.4 EDGES OF BASE COURSE

The base course(s) shall be placed as indicated. Additionally, place approved fill material along the outer edges of the base course in sufficient quantities to compact to the thickness of the course being constructed, or to the thickness of each layer in a multiple layer course, allowing in each operation at least a 600 mm width of this material to be rolled and compacted simultaneously with rolling and compacting of each layer of base course. If this base course material is to be placed adjacent to another pavement section, then the layers for both of these sections shall be placed and compacted along this edge at the same time.

3.5.5 COMPACTION

Compact each layer of the base course, as specified, with approved compaction equipment. Maintain water content during the compaction procedure to within plus or minus 2 percent of the optimum water content determined from laboratory tests as specified in this Section. Begin rolling at the outside edge of the surface and proceed to the center, overlapping on successive trips at least one-half the width of the roller. Alternate trips of the roller shall be slightly different lengths. Speed of the roller shall be such that displacement of the aggregate does not occur. In all places not accessible to the rollers, the mixture shall be compacted with hand-operated power tampers. Continue compaction until each layer has a degree of compaction that is at least 100 percent of laboratory maximum density through the full depth of the layer. Make such adjustments in compacting or finishing procedures as may be directed to obtain true grades, to minimize segregation and degradation, to reduce or increase water content, and to ensure a satisfactory base course. Any materials that are found to be unsatisfactory shall be removed and replaced with satisfactory material or reworked, as directed, to meet the requirements of this specification.

3.5.6 THICKNESS

Construct the compacted thickness of the base course as indicated. No individual layer shall be thicker than 150 mm nor be thinner than 75 mm in compacted thickness. The total compacted thickness of the base course(s) shall be within 13 mm of the thickness indicated. Where the measured thickness is more than 13 mm deficient, correct such areas by scarifying, adding new material of proper gradation, reblading, and recompacting as directed. Where the measured thickness is more than 13 mm 1 thicker than indicated, the course shall be considered as conforming to the specified thickness requirements. Average job thickness shall be the average of all thickness measurements taken for the job, but shall be within 6 mm of the thickness indicated. The total thickness of the base course shall be measured at intervals in such a manner as to ensure one measurement for each 500 square meters of base course. Measurements shall be made in 75 mm diameter test holes penetrating the base course.

3.5.7 FINISHING

The surface of the top layer of base course shall be finished after final compaction by cutting any overbuild to grade and rolling with a steel-wheeled roller. Thin layers of material shall not be added to the top layer of base course to meet grade. If the elevation of the top layer of base course is 13 mm or more below grade, then the top layer should be scarified to a depth of at least 75 mm and new material shall be blended in and compacted to bring to grade. Adjustments to rolling and finishing procedures shall be made as directed to minimize segregation and degradation, obtain grades, maintain moisture content, and insure an acceptable base course. Should the surface become rough, corrugated, uneven in texture, or traffic marked prior to completion, the unsatisfactory portion shall be scarified, reworked and recompacted or it shall be replaced as directed.

3.5.8 SMOOTHNESS

The surface of the top layer shall show no deviations in excess of 10 mm when tested with a 3.66 meter straightedge. Take measurements in successive positions parallel to the centerline of the area to be paved. Measurements shall also be taken perpendicular to the centerline at 15 meter intervals. Deviations

exceeding this amount shall be corrected by removing material and replacing with new material, or by reworking existing material and compacting it to meet these specifications.

3.6 TRAFFIC

Do not allow traffic on the completed base course.

3.7 MAINTENANCE

Maintain the base course in a satisfactory condition until the full pavement section is completed and accepted. Maintenance shall include immediate repairs to any defects and shall be repeated as often as necessary to keep the area intact. Any base course that is not paved over prior to the onset of winter, shall be retested to verify that it still complies with the requirements of this specification. Any area of base course that is damaged shall be reworked or replaced as necessary to comply with this specification.

3.8 DISPOSAL OF UNSATISFACTORY MATERIALS

Any unsuitable materials that must be removed shall be disposed of as directed. No additional payments will be made for materials that must be replaced.

-- END OF SECTION --

SECTION 32 11 24

GRADED CRUSHED AGGREGATE BASE COURSE FOR FLEXIBLE PAVEMENT

08/08

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.

ASTM INTERNATIONAL (ASTM)

ASTM C 117	(2004) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 131	(2006) Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	(2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 29/C 29M	(2007) Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM D 1556	(2007) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(2009) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2700 kN-m/m3)
ASTM D 1883	(2007e2) CBR (California Bearing Ratio) of Laboratory-Compacted Soils
ASTM D 2217	(1985; R 1998) Wet Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants
ASTM D 4318	(2005) Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 5821	(2006) Standard Test Method for Determining the percentage of Fractured Particles in Coarse Aggregates
ASTM D 6938	(2008a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D 75/D 75M	(2009) Standard Practice for Sampling Aggregates

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 Section 01335 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Gradation; G

Bearing ratio

Liquid limit

Plasticity index

Percentage of wear

Density

Smoothness

Thickness

1.3 DELIVERY AND STORAGE

Inspect materials delivered to site for damage and store as to prevent segregation and contamination.

1.4 WEATHER LIMITATIONS

Do not construct base course when atmospheric temperature is below 2 degrees C or when rainfall or other weather conditions detrimentally affect the quality of the finished course.

1.5 CONSTRUCTION EQUIPMENT

Equipment shall be dependable and adequate for the purpose intended. Maintain equipment in satisfactory and safe operating condition. Subject to approval, special equipment dictated by local conditions may be used. Calibrated equipment, such as scales, batching equipment, spreaders, and similar items, shall have been recalibrated by an approved calibration laboratory within 12 months of commencing work.

2. PRODUCTS

2.1 MATERIALS

2.1.1 AGGREGATES

Consist of durable and sound crushed concrete, crushed masonry, crushed tile, crushed gravel, crushed stone, or crushed slag, free of lumps or balls of clay or other objectionable matter. Crushed stone and gravel shall be free from flat, elongated, soft, or disintegrated pieces. Crushed gravel retained on a 4.75 mm sieve shall have at least 90 percent by weight with at least two fractured faces and 100 percent by weight with at least one fractured face in accordance with ASTM D 5821. Base course materials samples shall have a bearing ratio of at least 100 as determined by laboratory tests on a 4-day soaked specimen in accordance with ASTM D 1883; compact specimen in accordance with ASTM D 1557, Method D. Determine grain size in accordance with ASTM C 136 and amount of material finer than 75 micrometers sieve in accordance with ASTM C 117. Aggregate, other than slag, shall have a percentage of wear not exceeding 45 when tested in accordance with ASTM C 131, Grading A. Slag shall be an air-cooled, blast furnace product having a dry weight of not less than 1120 kilograms per cubic meters when tested in accordance with ASTM C 29/C 29M and shall consist of angular fragments uniform in density and quality, reasonably free from thin, elongated pieces, dirt, or other objectionable material. Soil binder material, that portion of material passing the 425 micrometers sieve, shall be of such composition that the composite material conforms to the requirements specified herein. The base course shall be of such nature that it can be compacted readily with watering and rolling to a firm, stable base and shall conform to one of the following sizes:

Percentage by Weight Passing Square Mesh Laboratory Sieves

Sieves	
37.5 mm	100
25.0 mm	60-100
12.5 mm	30-65
4.75 mm	20-50
2.0 mm	15-40
425 micrometers	5-25
75 micrometers	0-10

That portion of the material passing the 425 micrometers sieve shall have a liquid limit of not more than 25 and a plasticity index of not more than 5 as determined by ASTM D 4318. Prepare samples in accordance with ASTM D 2217, Procedure A.

3. EXECUTION

3.1 BASE COURSE

Construct the graded aggregate base course on a prepared subgrade, as indicated. Verify compacted subgrade, granular base, or stabilized soil is acceptable and ready to support paving and imposed loads. Provide line and grade stakes for control. Place grade stakes in lanes parallel to the centerline of areas to be paved and space for string lining or other control methods. The base course shall consist of aggregate processed, deposited, spread, and compacted on a prepared surface. The Contractor shall be responsible for protection of completed areas against detrimental effects. Recondition, reshape, and recompact areas damaged by freezing, rainfall, or other weather conditions.

3.2 MIXING OF MATERIALS

Mix aggregates in a stationary or traveling plant. Proportion aggregates by weight or volume in such quantities that specified gradation, liquid limit, and plasticity index requirements are met after the base course has been placed and compacted. Incorporate, during the mixing operation, water in quantities sufficient to provide the necessary moisture content for the specified compaction. Mixing operations shall produce satisfactory uniform blending and the method of discharging into trucks shall not produce segregation.

3.3 PLACING

Do not dump mixed materials in piles, but place on prepared subgrade or subbase in layers of uniform thickness with a spreader. When a compacted course 150 mm in thickness is required, place material in a single layer. When a compacted course in excess of 150 mm is required, place material in layers of equal thickness. Do not exceed 150 mm or have less than 75 mm in thickness for any compacted layer. Place layers so that when compacted, they will be true to grades or levels required with the least possible surface disturbance. Where the base course is constructed in more than one layer, clean previously constructed layers of loose and foreign matter. Maintain material water content during the placing period to obtain the compaction specified. Make adjustments in placing procedures or equipment to obtain true grades, to minimize segregation and degradation, to reduce or increase water content, and to insure a satisfactory base course.

3.3.1 STATIONARY-PLANT METHOD

Mix aggregates, binder material and water until a uniform homogeneous mixture is obtained. Do not dump materials in piles; place in layers of essentially uniform thickness, not to exceed 150 mm 6 inches after compaction, by an approved spreader. Tail gate spreading will be acceptable only with permission, under conditions such as where space limitations prohibit use of the spreader.

3.3.2 WINDROW TRAVELING-PLANT METHOD

Place aggregates and binder materials in windrows of such cross section and proportions that, when picked up, mixed, and redeposited in windrows, the finished mixture shall conform to the specified requirements. Do not exceed the rated capacity of the traveling plant with the size of the windrow of the combined materials. Add water, in quantity sufficient to provide the necessary moisture content for compacting, to the aggregates at the time of mixing. Mix materials uniformly by the traveling plant, deposit in windrows of uniform cross section, and spread in a layer of uniform thickness to the required contour and grades.

3.4 COMPACTING AND FINISHING

Immediately following the placing, spread the finished mixture uniformly in a layer and bring to optimum moisture content. The loose thickness and the surface of the layer shall be such that the specified density and the required thickness shall be obtained after compaction. Compact the layer with steel-faced, vibrating or pneumatic-tired rollers, or other suitable compacting equipment or combinations thereof. Continue compacting until the layer is compacted through the full depth to a field density of at least 100 percent of the maximum density at optimum moisture content tested in accordance with ASTM D 6938. In areas not accessible to rollers or compactors, compact the mixture with mechanical hand tampers. If the mixture is excessively moistened by rain, aerate by blade graders, or other suitable equipment. Aerate until the moisture content of the material is that needed to obtain the required density. Finish the surface of the layer by a combination of rolling and blading. Final surface shall be smooth and free from waves, irregularities, and ruts or soft yielding spots.

3.5 FINISHING AT EDGES OF BASE COURSE

Place earth or other approved materials along the edges of the base course in such quantity that it will compact to the thickness of the course being constructed. When the course is being constructed in two or more layers, place material to the thickness of each layer. In each operation, allow at least a 300 mm one foot width of the shoulder to be rolled and compacted simultaneously with the rolling and compacting of each layer.

3.6 FIELD QUALITY CONTROL

Approve materials and material sources in advance of the use of such materials in the work. Replace base where samples are removed.

3.6.1 SAMPLING

3.6.1.1 AGGREGATES AT THE SOURCE

Prior to production and delivery of aggregates, take at least one initial sample in accordance with ASTM D 75/D 75M. Collect each sample by taking three incremental samples at random from the source material to make a composite sample of not less than 23 kg. Repeat above sampling when source of material is changed or when unacceptable deficiencies or variations from specified grading of materials are found in testing.

3.6.1.2 DURING CONSTRUCTION

Take one random sample from each 1000 metric tons of completed course material, but not less than one random sample per day's run. Take samples in accordance with ASTM D 75/D 75M.

3.6.1.3 SAMPLE IDENTIFICATION

Place each sample in a clean container, securely fastened to prevent loss of material. Tag each sample for identification and with the following information:

Contract No._____ Sample No._____
Quality _____ Date of Sample_____

Sampler_____
Source_____

Intended Use_____

For Testing_____

3.6.2 TESTING

3.6.2.1 AGGREGATES

Test each sample of base course material without delay. Make gradation tests from each sample in accordance with ASTM C 136. Make sieve analysis on material passing the 75 micrometers sieve in accordance with ASTM C 117.

3.6.2.2 SMOOTHNESS TESTS

Test with a 3 m straightedge, applied parallel with and at right angles to the center line of the paved area. Correct deviations in the surface in excess of 13 mm by loosening, adding or removing material, reshaping, watering, and compacting. The smoothness requirements specified herein apply only to the top layer when base course is constructed in more than one layer.

3.6.2.3 FIELD DENSITY TESTS

ASTM D 1556 or ASTM D 6938. Take one test for each 420 square meters of each layer of base course.

3.6.2.4 LABORATORY DENSITY TESTS

In accordance with ASTM D 1557, Method D.

3.6.2.5 THICKNESS TESTS

Measure thickness of base course at intervals such that there will be a depth measurement for at least each 420 square meters of complete base course. Make depth measurements by test holes, at least 75 mm in diameter, through the base course. Where base course deficiency is more than 13 mm, correct by scarifying, adding mixture of proper gradation, reblading, and recompacting. Where the measured thickness is more than 13 mm thicker than indicated, consider it as the indicated thickness plus 13 mm for determining the average. The average thickness is the average of the depth measurements and shall not underrun the thickness indicated.

3.7 MAINTENANCE

After construction is completed, maintain the base course throughout, except where portion of the succeeding course is under construction thereon. Maintenance includes drainage, rolling, shaping, and watering, as necessary, to maintain the course in proper condition. Correct deficiencies in thickness, composition, construction, smoothness, and density, which develop during the maintenance, to conform to the requirements specified herein. Maintain sufficient moisture by light sprinkling with water at the surface to prevent a dusty condition.

-- END OF SECTION --

SECTION 32 12 10

BITUMINOUS TACK AND PRIME COATS

08/08

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.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 20	(1970; R 2004) Penetration-Graded Asphalt Cement
AASHTO M 226	(1980; R 2008) Standard Specification for Viscosity Graded Asphalt Cement for Use in Pavement Construction
AASHTO M 81	(1992; R 2004) Standard Specification for Cutback Asphalt (Rapid-Curing Type)
AASHTO M 82	(1975; R 2004) Standard Specification for Cutback Asphalt (Medium-Curing Type)
AASHTO T 102	(2009) Standard Method of Test for Spot Test of Asphaltic Materials
AASHTO T 40	(2002; R 2006) Sampling Bituminous Materials

ASTM INTERNATIONAL (ASTM)

ASTM D 1250	(2008) Standard Guide for Use of the Petroleum Measurement Tables
ASTM D 140/D 140M	(2009) Sampling Bituminous Materials
ASTM D 2026	(1997; R 2004) Cutback Asphalt (Slow-Curing Type)
ASTM D 2027	(1997; R 2004) Cutback Asphalt (Medium-Curing Type)
ASTM D 2028	(1997; R 2004) Cutback Asphalt (Rapid-Curing Type)
ASTM D 2397	(2005) Standard Specification for Cationic Emulsified Asphalt
ASTM D 2995	(1999; R 2009) Determining Application Rate of Bituminous Distributors
ASTM D 3381	(2009) Viscosity-Graded Asphalt Cement for Use in Pavement Construction
ASTM D 946	(2009) Penetration-Graded Asphalt Cement for Use in Pavement Construction
ASTM D 977	(2005) Emulsified Asphalt

1.2 SYSTEM DESCRIPTION

1.2.1 GENERAL REQUIREMENTS

Plant, equipment, machines and tools used in the work are subject to approval and shall be maintained in a satisfactory working condition at all times. Calibrated equipment such as asphalt distributors, scales, batching equipment, spreaders and similar equipment, should have been recalibrated by a calibration laboratory within 12 months prior to commencing work.

1.2.2 BITUMINOUS DISTRIBUTOR

Provide a distributor with pneumatic tires of such size and number that the load produced on the base surface does not exceed 295 kg/25 mm of tire width to prevent rutting, shoving or otherwise damaging the base surface or other layers in the pavement structure. Design and equip the distributor to spray the bituminous material in a uniform coverage at the specified temperature, at readily determined and controlled rates from 0.23 to 9.05 L/square meter, with a pressure range of 172.4 to 517.1 kPa and with an allowable variation from the specified rate of not more than plus or minus 5 percent, and at variable widths. Include with the distributor equipment a separate power unit for the bitumen pump, full-circulation spray bars, tachometer, pressure gauges, volume-measuring devices, adequate heaters for heating of materials to the proper application temperature, a thermometer for reading the temperature of tank contents, and a hand hose attachment suitable for applying bituminous material manually to areas inaccessible to the distributor. Equip the distributor to circulate and agitate the bituminous material during the heating process.

1.2.3 HEATING EQUIPMENT FOR STORAGE TANKS

The equipment for heating the bituminous material shall be steam, electric, or hot oil heaters. Provide steam heaters consisting of steam coils and equipment for producing steam, so designed that the steam cannot get into the material. Fix an armored thermometer to the tank with a temperature range from 4.4 to 204.4 degrees C so that the temperature of the bituminous material may be determined at all times.

1.2.4 POWER BROOMS AND POWER BLOWERS

Use power brooms and power blowers suitable for cleaning the surfaces to which the bituminous coat is to be applied.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01335 SUBMITTAL PROCEDURES:

SD-03 Product Data

Waybills and Delivery Tickets

Waybills and delivery tickets, during progress of the work.

SD-06 Test Reports

Sampling and Testing

Copies of all test results for emulsified asphalt, and bituminous materials, within 24 hours of completion of tests. Certified copies of the manufacturer's test reports indicating temperature viscosity relationship for cutback asphalt, compliance with applicable specified requirements, not less than 30 days before the material is required in the work.

1.4 DELIVERY, STORAGE, AND HANDLING

Inspect the materials delivered to the site for contamination and damage. Unload and store the materials with a minimum of handling.

1.5 ENVIRONMENTAL REQUIREMENTS

Apply bituminous coat only when the surface to receive the bituminous coat is dry. Apply bituminous coat only when the atmospheric temperature in the shade is 10 degrees C or above and when the temperature has not been below 2 degrees C for the 12 hours prior to application, unless otherwise directed.

2. PRODUCTS

2.1 PRIME COAT

Provide asphalt conforming to AASHTO M 82, Grade MC-70 and specified in the following two subparagraphs.

2.1.1 CUTBACK ASPHALT

Provide cutback asphalt conforming to ASTM D 2027, Grade MC-70.

2.1.2 EMULSIFIED ASPHALT

Provide emulsified asphalt conforming to ASTM D 2397, Type CSS-1h.

2.2 TACK COAT

Provide asphalt conforming to ASTM D 2397 or AASHTO M 81 Grade MC-70.

2.2.1 CUTBACK ASPHALT

Provide cutback asphalt conforming to ASTM D 2027, MC-70.

2.2.2 EMULSIFIED ASPHALT

Provide emulsified asphalt conforming to ASTM D 2397, Type CSS-1h. Dilute the emulsified asphalt with equal parts of water. The base asphalt used to manufacture the emulsion shall show a negative spot when tested in accordance with AASHTO T 102 using standard naphtha.

3. EXECUTION

3.1 PREPARATION OF SURFACE

Immediately before applying the bituminous coat, remove all loose material, dirt, clay, or other objectionable material from the surface to be treated by means of a power broom or blower supplemented with hand brooms. The surface shall be dry and clean at the time of treatment.

3.2 APPLICATION RATE

The exact quantities within the range specified, which may be varied to suit field conditions, will be determined by the Contracting Officer.

3.2.1 TACK COAT

Apply bituminous material for the tack coat in quantities of not less than 0.20 L/square meter nor more than 0.70 L/square meter of pavement surface.

3.2.2 PRIME COAT

Apply bituminous material for the prime coat in quantities of not less than 0.70 L/square meter nor more than 1.80 L/square meter of pavement surface.

3.3 APPLICATION TEMPERATURE

3.3.1 VISCOSITY RELATIONSHIP

Asphalt application temperature shall provide an application viscosity between 10 and 60 seconds, Saybolt Furol, or between 20 and 120 square mm/sec, kinematic. Furnish the temperature viscosity relation to the Contracting Officer.

3.3.2 TEMPERATURE RANGES

The viscosity requirements determine the application temperature to be used. The following is a normal range of application temperatures:

Liquid Asphalts	
MC-70	50-107 degrees C
Emulsions	
CSS-1h	20-70 degrees C

These temperature ranges exceed the flash point of the material and care should be taken in their heating.

3.4 APPLICATION

3.4.1 GENERAL

Following preparation and subsequent inspection of the surface, apply the bituminous prime or tack coat with the Bituminous Distributor at the specified rate with uniform distribution over the surface to be treated. Properly treat all areas and spots missed by the distributor with the hand spray. Until the succeeding layer of pavement is placed, maintain the surface by protecting the surface against damage and by repairing deficient areas at no additional cost to the Government. If required, spread clean dry sand to effectively blot up any excess bituminous material. No smoking, fires, or flames other than those from the heaters that are a part of the equipment are permitted within 8 meters of heating, distributing, and transferring operations of bituminous material other than bituminous emulsions. Prevent all traffic, except for paving equipment used in constructing the surfacing, from using the underlying material, whether primed or not, until the surfacing is completed. The bituminous coat shall conform to all requirements as described herein.

3.4.2 PRIME COAT

Apply a prime coat at locations shown on the Drawings. Apply the bituminous material uniformly over the surface to be treated at a pressure range of 172.4 to 517.1 kPa and at the rate of not less than 0.7 L/square meter not more than 1.80 L/square meter. To obtain uniform application of the prime coat on the surface treated at the junction of previous and subsequent applications, spread building paper on the surface for a sufficient distance back from the ends of each application to start and stop the prime coat on the paper and to ensure that all sprayers will operate at full force on the surface to be treated. Immediately after application remove and destroy the building paper.

3.4.3 TACK COAT

Apply tack coat at the locations shown on the drawings. Apply the tack coat when the surface to be treated is dry. Immediately following the preparation of the surface for treatment, apply the bituminous material by means of the bituminous distributor, within the limits of temperature specified herein and at a rate of not less than 0.2 L of diluted emulsion per square meter nor more than 0.7 L of diluted emulsion per square meter. Apply the bituminous material so that uniform distribution is obtained over the entire surface to be treated. Treat lightly coated areas and spots missed by the distributor with the bituminous material. Following the application of bituminous material, allow the surface to cure without being disturbed for period of time necessary to permit setting of the tack coat. Apply the bituminous tack coat only as far in advance of the placing of the overlying layer as required for that day's operation. Maintain and protect the treated surface from damage until the succeeding course of pavement is placed.

3.5 CURING PERIOD

Following application of the bituminous material and prior to application of the succeeding layer of pavement, allow the bituminous coat to cure and to obtain evaporation of any volatiles or moisture. Maintain the coated surface until the succeeding layer of pavement is placed, by protecting the surface against damage and by repairing and recoating deficient areas. Allow the prime coat to cure without being disturbed for a period of at least 48 hours or longer, as may be necessary to attain penetration into the

treated course. Furnish and spread enough sand to effectively blot up and cure excess bituminous material.

3.6 FIELD QUALITY CONTROL

Samples of the bituminous material shall be tested for compliance with the applicable specified requirements. A sample shall be obtained and tested by the Contractor for every 10000 liters of bituminous material used

3.7 SAMPLING AND TESTING

Perform sampling and testing by an approved commercial testing laboratory or by facilities furnished by the Contractor. No work requiring testing will be permitted until the facilities have been inspected and approved.

3.7.1 SAMPLING

The samples of bituminous material, unless otherwise specified, shall be in accordance with ASTM D 140/D 140M or AASHTO T 40. Sources from which bituminous materials are to be obtained shall be selected and notification furnished the Contracting Officer within 15 days after the award of the contract.

3.7.2 CALIBRATION TEST

Furnish all equipment, materials, and labor necessary to calibrate the bituminous distributor. Calibration shall be made with the approved job material and prior to applying the bituminous coat material to the prepared surface. Calibrate the bituminous distributor in accordance with ASTM D 2995.

3.7.3 TRIAL APPLICATIONS

Before providing the complete bituminous coat, apply three lengths of at least 30 meters for the full width of the distributor bar to evaluate the amount of bituminous material that can be satisfactorily applied.

3.7.3.1 TACK COAT TRIAL APPLICATION RATE

Unless otherwise authorized, apply the trial application rate of bituminous tack coat materials in the amount of 0.20 L/square meter. Other trial applications shall be made using various amounts of material as may be deemed necessary.

3.7.3.2 PRIME COAT TRIAL APPLICATION RATE

Unless otherwise authorized, apply the trial application rate of bituminous materials in the amount of 1.10 L/square meter. Other trial applications shall be made using various amounts of material as may be deemed necessary.

3.7.4 SAMPLING AND TESTING DURING CONSTRUCTION

Perform quality control sampling and testing as required in paragraph FIELD QUALITY CONTROL.

3.8 TRAFFIC CONTROLS

Keep traffic off surfaces freshly treated with bituminous material. Provide sufficient warning signs and barricades so that traffic will not travel over freshly treated surfaces.

-- END OF SECTION --

SECTION 32 12 16

HOT-MIX ASPHALT (HMA) FOR ROADS

08/09

1. GENERAL

1.1 UNIT PRICES

1.1.1 METHOD OF MEASUREMENT

The amount paid for will be the number of metric tons of hot-mix asphalt mixture used in the accepted work. Weigh hot-mix asphalt mixture after mixing, and no separate payment will be made for weight of asphalt cement material incorporated herein.

1.1.2 BASIS OF PAYMENT

The measured quantity of hot-mix asphalt will be paid for and included in the lump-sum contract price. Payment will constitute full compensation for furnishing all materials, equipment, plant, and tools; and for all labor and other incidentals necessary to complete work required by this section of the specification. If less than 100 percent payment is due based on the pay factors stipulated in paragraphs MATERIAL ACCEPTANCE and PERCENT PAYMENT, use a unit price of $57.00 USD per metric ton for purposes of calculating the payment reduction.

1.1.3 PERCENT PAYMENT

When a lot of material fails to meet the specification requirements for 100 percent pay as outlined in the following paragraphs, that lot shall be removed and replaced, or accepted at a reduced price which will be computed by multiplying the unit price by the lot's pay factor. The lot pay factor is determined by taking the lowest computed pay factor based on either laboratory air voids, in-place density, grade or smoothness (each discussed below). At the end of the project, an average of all lot pay factors will be calculated. If this average lot pay factor equals or exceeds 95.0 percent, and no individual lot has a pay factor less than 75.1 percent, then the percent payment for the entire project will be 100 percent of the unit bid price. If the average lot pay factor is less than 95.0 percent, then each lot will be paid for at the unit price multiplied by the lot's pay factor. For any lots which are less than 2000 metric tons, a weighted lot pay factor will be used to calculate the average lot pay factor.

1.1.4 LABORATORY AIR VOIDS AND THEORETICAL MAXIMUM DENSITY

Laboratory air voids will be calculated by determining the Marshall or Superpave density of each lab compacted specimen using the laboratory-prepared, thoroughly dry method of ASTM D 2726 and determining the theoretical maximum density of every other sublot sample using ASTM D 2041. Laboratory air void calculations for each sublot will use the latest theoretical maximum density values obtained, either for that sublot or the previous sublot. The mean absolute deviation of the four laboratory air void contents (one from each sublot) from the JMF air void content will be evaluated and a pay factor determined from Table 1. All laboratory air void tests will be completed and reported within 24 hours after completion of construction of each lot.

1.1.5 MEAN ABSOLUTE DEVIATION

An example of the computation of mean absolute deviation for laboratory air voids is as follows: Assume that the laboratory air voids are determined from 4 random samples of a lot (where 3 specimens were compacted from each sample). The average laboratory air voids for each sublot sample are determined to

be 3.5, 3.0, 4.0, and 3.7. Assume that the target air voids from the JMF is 4.0. The mean absolute deviation is then:

Mean Absolute Deviation = (|3.5 - 4.0| + |3.0 - 4.0| + |4.0 - 4.0| + |3.7 -4.0|/4

= (0.5 + 1.0 + 0.0 + 0.3)/4 = (1.8)/4 = 0.45

The mean absolute deviation for laboratory air voids is determined to be

0.45. It can be seen from Table 1 that the lot's pay factor based on laboratory air voids, is 100 percent.

Table 1. Pay Factor Based on Laboratory Air Voids

Mean Absolute Deviation of Lab Air Voids from JMF	Pay Factor, %
0.60 or less	100
0.61 - 0.80	98
0.81 - 1.00	95
1.01 - 1.20	90
Above 1.20	reject (0)

1.1.6 IN-PLACE DENSITY

For determining in-place density, one random core (100 mm or 150 mm in diameter) will be taken by the Government from the mat (interior of the lane) of each sublot, and one random core will be taken from the joint (immediately over joint) of each sublot. Each random core will be full thickness of the layer being placed. When the random core is less than 25 mm thick, it will not be included in the analysis. In this case, another random core will be taken. After air drying to a constant weight, cores obtained from the mat and from the joints will be used for in-place density determination.

1.1.7 MAT AND JOINT DENSITIES

The average in-place mat and joint densities are expressed as a percentage of the average TMD for the lot. The TMD for each lot will be determined as the average TMD of the two random samples per lot. The average in-place mat density and joint density for a lot are determined and compared with Table 2 to calculate a single pay factor per lot based on in-place density, as described below. First, a pay factor for both mat density and joint density are determined from Table 2. The area associated with the joint is then determined and will be considered to be 1.5 m wide times the length of completed longitudinal construction joint in the lot. This area will not exceed the total lot size. The length of joint to be considered will be that length where a new lane has been placed against an adjacent lane of hot-mix asphalt pavement, either an adjacent freshly paved lane or one paved at any time previously. The area associated with the joint is expressed as a percentage of the total lot area. A weighted pay factor for the joint is determined based on this percentage (see example below). The pay factor for mat density and the weighted pay factor for joint density is compared and the lowest selected. This selected pay factor is the pay factor based on density for the lot. When the TMD on both sides of a longitudinal joint is different, the average of these two TMD will be used as the TMD needed to calculate the percent joint density. All density results for a lot will be completed and reported within 24 hours after the construction of that lot.

Table 2. Pay Factor Based on In-place Density

Average Mat Density (4 Cores) (% of TMD)	Pay Factor, %	Average Joint Density (4 Cores) (% of TMD)
94.0 - 96.0	100.0	92.5 or above
93.9	100.0	92.4
93.8 or 96.1	99.9	92.3
93.7	99.8	92.2
93.6 or 96.2	99.6	92.1
93.5	99.4	92.0
93.4 or 96.3	99.1	91.9
93.3	98.7	91.8
93.2 or 96.4	98.3	91.7
93.1	97.8	91.6
93.0 or 96.5	97.3	91.5
92.9	96.3	91.4
92.8 or 96.6	94.1	91.3
92.7	92.2	91.2
92.6 or 96.7	90.3	91.1
92.5	87.9	91.0
92.4 or 96.8	85.7	90.9
92.3	83.3	90.8
92.2 or 96.9	80.6	90.7
92.1	78.0	90.6
92.0 or 97.0	75.0	90.5
below 92.0 or above 97.0	0.0 (reject)	below 90.5

1.1.8 PAY FACTOR BASED ON IN-PLACE DENSITY

An example of the computation of a pay factor (in I-P units only) based on in-place density, is as follows: Assume the following test results for field density made on the lot: (1) Average mat density = 93.2 percent of TMD. (2) Average joint density = 91.5 percent of TMD. (3) Total area of lot = 30,000 square feet. (4) Length of completed longitudinal construction joint = 2000 feet.

a. Step 1: Determine pay factor based on mat density and on joint density, using Table 2:

   (1) Mat density of 93.2 percent = 98.3 pay factor.

   (2) Joint density of 91.5 percent = 97.3 pay factor.

b. Step 2: Determine ratio of joint area (length of longitudinal joint x 5 ft) to mat area (total paved area in the lot): Multiply the length of completed longitudinal construction joint by the specified 5 ft. width and divide by the mat area (total paved area in the lot).

   (1) (2000 ft. x 5 ft.)/30000 sq.ft. = 0.3333 ratio of joint area to mat area (ratio).

c. Step 3: Weighted pay factor (wpf) for joint is determined as indicated below:

   wpf = joint pay factor + (100 - joint pay factor) (1 - ratio)

   wpf = 97.3 + (100-97.3) (1-.3333) = 99.1%

d. Step 4: Compare weighted pay factor for joint density to pay factor for mat density and select the smaller:

   (1) Pay factor for mat density: 98.3%. Weighted pay factor for joint density: 99.1%

   (2) Select the smaller of the two values as pay factor based on density: 98.3%

1.1.9 PAY FACTOR FOR GRADE

When more than 5 percent of all measurements made within a lot are outside the 15 mm tolerance, the pay factor based on grade for that lot will be 95 percent. In areas where the grade exceeds the tolerance by more than 50 percent, remove the surface lift full depth and replace the lift with hot-mix asphalt to meet specification requirements, at no additional cost to the Government.

1.1.10 PAYMENT ADJUSTMENT FOR SMOOTHNESS

a. Straightedge Testing. Record location and deviation from straightedge for all measurements. When between 5.0 and 10.0 percent of all measurements made within a lot exceed the tolerance specified in paragraph Smoothness Requirements above, after any reduction of high spots or removal and replacement, the computed pay factor for that lot based on surface smoothness, will be 95 percent. When more than 10.0 percent of all measurements exceed the tolerance, the computed pay factor will be 90 percent. When between 15.0 and 20.0 percent of all measurements exceed the tolerance, the computed pay factor will be 75 percent. When 20.0 percent or more of the measurements exceed the tolerance, the lot shall be removed and replaced at no additional cost to the Government. Regardless of the above, any small individual area with surface deviation which exceeds the tolerance given above by more than 50 percent, shall be corrected by diamond grinding to meet the specification requirements above or shall be removed and replaced at no additional cost to the Government.

b. Profilograph Testing. Record location and data from all profilograph measurements. When the Profile Index of a 0.1 km segment of a lot exceeds the tolerance specified in paragraph Smoothness Requirements above by 16 mm/km, but less than 32 mm/km, after any reduction of high spots or removal and replacement, the computed pay factor for that lot based on surface smoothness will be 95 percent. When the Profile Index exceeds the tolerance by 32 mm/km, but less than 47 mm/km, the computed pay factor will be 90 percent. When the Profile Index exceeds the tolerance by 47 mm/km, but less than 63 mm/km, the computed pay factor will be 75 percent. When the Profile Index exceeds the tolerance by 63 mm/km or more, the lot shall be removed and replaced at no additional cost to the Government. Regardless of the above, any small individual area with surface deviation which exceeds the tolerance given above by more than 79 mm/km or more, shall be corrected by grinding to meet the specification requirements above or shall be removed and replaced at no additional cost to the Government.

c. Bumps ("Must Grind" Areas). Any bumps ("must grind" areas) shown on the profilograph trace which exceed 7.5 mm in height shall be reduced by diamond grinding until they do not exceed 7.5 mm when retested. Such grinding shall be tapered in all directions to provide smooth transitions to areas not requiring grinding. The following will not be permitted: (1) skin patching for correcting low areas, (2) planing or milling for correcting high areas. At the Contractor's option, pavement areas, including ground areas, may be rechecked with the profilograph in order to record a lower Profile Index.

1.2 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 ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 320	(2009) Standard Specification for Performance-Graded Asphalt Binder

ASPHALT INSTITUTE (AI)

AI MS-02	(2010) Mix Design Methods
AI MS-22	(2001) Construction of Hot-Mix Asphalt Pavements
AI SP-2	(2001e3) Superpave Mix Design

ASTM INTERNATIONAL (ASTM)

ASTM C 117	(2004) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 1252	(2006) Standard Test Methods for Uncompacted Void Content of Fine Aggregate (as Influenced by Particle Shape, Surface Texture, and Grading)
ASTM C 127	(2007) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C 128	(2007a) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate
ASTM C 131	(2006)Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	(2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 142	(1997; R 2004) Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM C 29/C 29M	(2007) Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C 566	(1997; R 2004) Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
ASTM C 88	(2005) Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM D 140/D 140M	(2009) Sampling Bituminous Materials
ASTM D 1461	(1985; R 2006) Moisture or Volatile Distillates in Bituminous Paving Mixtures
ASTM D 2041	(2003a) Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
ASTM D 2172	(2005) Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
ASTM D 2419	(2009) Sand Equivalent Value of Soils and Fine Aggregate
ASTM D 242/D 242M	(2009) Mineral Filler for Bituminous Paving Mixtures
ASTM D 2489/D 2489M	(2008) Estimating Degree of Particle Coating of Bituminous-Aggregate Mixtures

ASTM D 2726	(2009) Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
ASTM D 2950	(2009) Density of Bituminous Concrete in Place by Nuclear Methods
ASTM D 3381	(2009) Viscosity-Graded Asphalt Cement for Use in Pavement Construction
ASTM D 3665	(2007) Random Sampling of Construction Materials
ASTM D 3666	(2009a) Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM D 4125	(2005) Asphalt Content of Bituminous Mixtures by the Nuclear Method
ASTM D 4791	(2005e1) Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D 4867/D 4867M	(2009) Effect of Moisture on Asphalt Concrete Paving Mixtures
ASTM D 5444	(2008) Mechanical Size Analysis of Extracted Aggregate
ASTM D 6307	(2005) Asphalt Content of Hot Mix Asphalt by Ignition Method
ASTM D 6925	(2009) Standard Test Method for Preparation and Determination of the Relative Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor
ASTM D 6926	(2004) Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus
ASTM D 6927	(2006) Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
ASTM D 946	(2009) Penetration-Graded Asphalt Cement for Use in Pavement Construction
ASTM D 995	(1995b; R 2002) Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures
STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION (CDT)	
CDT Test 526	(2002) Operation of California Profilograph and Evaluation of Profiles
U.S. ARMY CORPS OF ENGINEERS (USACE)	
COE CRD-C 171	(1994) Standard Test Method for Determining Percentage of Crushed Particles in Aggregate

1.3 SYSTEM DESCRIPTION

Perform the work consisting of pavement courses composed of mineral aggregate and asphalt material heated and mixed in a central mixing plant and placed on a prepared course. HMA designed and constructed in accordance with this section shall conform to the lines, grades, thicknesses, and typical cross sections shown on the drawings. Construct each course to the depth, section, or elevation required by the drawings and roll, finish, and approve it before the placement of the next course.

1.3.1 ASPHALT MIXING PLANT

Plants used for the preparation of hot-mix asphalt shall conform to the requirements of ASTM D 995 with the following changes:

a. Truck Scales. Weigh the asphalt mixture on approved, certified scales at the Contractor's expense. Inspect and seal scales at least annually by an approved calibration laboratory.

b. Testing Facilities. Provide laboratory facilities at the plant for the use of the Government's acceptance testing and the Contractor's quality control testing.

c. Inspection of Plant. Provide the Contracting Officer with access at all times, to all areas of the plant for checking adequacy of equipment; inspecting operation of the plant; verifying weights, proportions, and material properties; checking the temperatures maintained in the preparation of the mixtures and for taking samples. Provide assistance as requested, for the Government to procure any desired samples.

d. Storage Bins. Use of storage bins for temporary storage of hot-mix asphalt will be permitted as follows:

   (1) The asphalt mixture may be stored in non-insulated storage bins for a period of time not exceeding 3 hours.

   (2) The asphalt mixture may be stored in insulated storage bins for a period of time not exceeding 8 hours. The mix drawn from bins shall meet the same requirements as mix loaded directly into trucks.

1.3.2 HAULING EQUIPMENT

Provide trucks for hauling hot-mix asphalt having tight, clean, and smooth metal beds. To prevent the mixture from adhering to them, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other approved material. Petroleum based products shall not be used as a release agent. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers (tarps) shall be securely fastened.

1.3.3 ASPHALT PAVERS

Provide asphalt pavers which are self-propelled, with an activated screed, heated as necessary, and capable of spreading and finishing courses of hot-mix asphalt which will meet the specified thickness, smoothness, and grade. The paver shall have sufficient power to propel itself and the hauling equipment without adversely affecting the finished surface.

1.3.3.1 RECEIVING HOPPER

Provide paver with a receiving hopper of sufficient capacity to permit a uniform spreading operation and equipped with a distribution system to place the mixture uniformly in front of the screed without segregation. The screed shall effectively produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture.

1.3.3.2 AUTOMATIC GRADE CONTROLS

If an automatic grade control device is used, equip the paver with a control system capable of automatically maintaining the specified screed elevation. The control system shall be automatically actuated from either a reference line and/or through a system of mechanical sensors or sensor-directed mechanisms or devices which will maintain the paver screed at a predetermined transverse slope and at the proper elevation to obtain the required surface. The transverse slope controller shall be capable of maintaining the screed at the desired slope within plus or minus 0.1 percent. A transverse slope controller shall not be used to control grade. Provide controls capable of working in conjunction with any of the following attachments:

a. Ski-type device of not less than 9.14 m in length.
b. Taut stringline set to grade.
c. Short ski or shoe for joint matching.
d. Laser control.

1.3.4 ROLLERS

Rollers shall be in good condition and shall be operated at slow speeds to avoid displacement of the asphalt mixture. The number, type, and weight of rollers shall be sufficient to compact the mixture to the required density while it is still in a workable condition. Do not use equipment which causes excessive crushing of the aggregate.

1.4 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. Submit the following in accordance with Section 01335 SUBMITTAL PROCEDURES:

SD-03 Product Data

Mix Design; G

Proposed JMF.

Contractor Quality Control; G

Quality control plan.

Material Acceptance; G

Acceptance test results.

Percent Payment; G

Pay calculations.

SD-04 Samples

Asphalt Cement Binder

A 20 L sample for mix design verification.

Aggregates

Sufficient materials to produce 90 kg of blended mixture for mix design verification.

SD-06 Test Reports

Aggregates; G

QC Monitoring

Aggregate and QC test results.

SD-07 Certificates

Asphalt Cement Binder; G

Copies of certified test data.

Amount, type and description of any modifiers blended into the asphalt cement binder

Testing Laboratory

Certification of compliance.

Plant Scale Calibration Certification

1.5 ENVIRONMENTAL REQUIRENMENTS

Do not place the hot-mix asphalt upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 3. The temperature requirements may be waived by the Contracting Officer, if requested; however, all other requirements, including compaction, shall be met.

Table 3. Surface Temperature Limitations of Underlying Course

Mat Thickness, mm	Degrees C
75 or greater	4
Less than 75	7

2. PRODUCTS

2.1 AGGREGATES

Provide aggregates consisting of crushed stone, crushed gravel, crushed slag, screenings, natural sand and mineral filler, as required. The portion of material retained on the 4.75 mm sieve is coarse aggregate. The portion of material passing the 4.75 mm sieve and retained on the 0.075 mm sieve is fine aggregate. The portion passing the 0.075 mm sieve is defined as mineral filler. Submit all aggregate test results and samples to the Contracting Officer at least 14 days prior to start of construction.

2.1.1 COARSE AGGREGATE

Provide coarse aggregate consisting of sound, tough, durable particles, free from films of material that would prevent thorough coating and bonding with the asphalt material and free from organic matter and other deleterious substances. All individual coarse aggregate sources shall meet the following requirements:

a. The percentage of loss shall not be greater than 40 percent after 500 revolutions when tested in accordance with ASTM C 131.

b. The percentage of loss shall not be greater than 18 percent after five cycles when tested in accordance with ASTM C 88 using magnesium sulfate or 12 percent when using sodium sulfate.

c. At least 75 percent by weight of coarse aggregate shall have at least two or more fractured faces when tested in accordance with COE CRD-C 171.

   Fractured faces shall be produced by crushing.

d. The particle shape shall be essentially cubical and the aggregate shall not contain more than 20% percent, by weight, of flat and elongated particles (3:1 ratio of maximum to minimum) when tested in accordance with ASTM D 4791.

e. Slag shall be air-cooled, blast furnace slag, with a compacted weight of not less than 1200 kg/cubic meter when tested in accordance with ASTM C 29/C 29M.

f. Clay lumps and friable particles shall not exceed 0.3 percent, by weight, when tested in accordance with ASTM C 142.

2.1.2 FINE AGGREGATE

Fine aggregate shall consist of clean, sound, tough, durable particles free from coatings of clay, silt, or any objectionable material and containing no clay balls.

a. All individual fine aggregate sources shall have a sand equivalent value not less than 45 when tested in accordance with ASTM D 2419.

b. The fine aggregate portion of the blended aggregate shall have an uncompacted void content not less than 45.0 percent when tested in accordance with ASTM C 1252 Method A.

c. The quantity of natural sand (noncrushed material) added to the aggregate blend shall not exceed 25 percent by weight of total aggregate.

d. Clay lumps and friable particles shall not exceed 0.3 percent, by weight, when tested in accordance with ASTM C 142

2.1.3 MINERAL FILLER

Mineral filler shall be nonplastic material meeting the requirements of ASTM D 242/D 242M.

2.1.4 AGGREGATE GRADATION

The combined aggregate gradation shall conform to gradations specified in Table 4, when tested in accordance with ASTM C 136 and ASTM C 117, and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve or vice versa, but grade uniformly from coarse to fine.

Table 4. Aggregate Gradations

Sieve Size, mm	Gradation 2 Percent Passing by Mass
25.0	--
19.0	100
12.5	76-96
9.5	69-89
4.75	53-73
2.36	38-60
1.18	26-48
0.60	18-38
0.30	11-27
0.15	6-18
0.075	3-6

2.2 ASPHALT CEMENT BINDER

Asphalt cement binder shall conform to AASHTO M 320 Performance Grade PG 76-22 Table 1. Test data indicating grade certification shall be provided by the supplier at the time of delivery of each load to the mix plant. Submit copies of these certifications to the Contracting Officer. The supplier is defined as the last source of any modification to the binder. The Contracting Officer may sample and test the binder at the mix plant at any time before or during mix production. Obtain samples for this verification testing in accordance with ASTM D 140/D 140M and in the presence of the Contracting Officer. Furnish these samples to the Contracting Officer for the verification testing, which shall be at no cost to the Contractor. Submit samples of the asphalt cement specified for approval not less than 14 days before start of the test section.

2.3 MIX DESIGN

a. Develop the mix design. The asphalt mix shall be composed of a mixture of well-graded aggregate, mineral filler if required, and asphalt material. The aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula (JMF). Do not produce hot-mix asphalt for payment until a JMF has been approved. The hot-mix asphalt shall be designed in accordance with Marshall (MS-02), Superpave (SP-2), or Hveem (MS-02) procedures and the criteria shown in Table 5. Use the hand-held hammer to compact the specimens for Marshall mix design. If the Tensile Strength Ratio (TSR) of the composite mixture, as determined by ASTM D 4867/D 4867M is less than 75, the aggregates shall be rejected or the asphalt mixture treated with an approved anti-stripping agent. The amount of anti-stripping agent added shall be sufficient to produce a TSR of not less than 75. Provide an antistrip agent, if required, at no additional cost. Sufficient materials to produce 90 kg of blended mixture shall be provided to the Contracting Officer for verification of mix design at least 14 days prior to construction of test section.

b. At the option of the Contractor, a currently used DOT Superpave hot mix may be used in lieu of developing a Marshall hot mix design as described herein. Design the Superpave volumetric mix in accordance with AI SP-2 and ASTM D 6925. The nominal maximum aggregate size (NMAS) shall be 19.0 mm. Other DOT hot mix design methods (Hveem, etc.) may be suitable, as determined by the Contracting Officer. The number of compaction gyrations, Ndes, shall be based on design traffic of 1,500,000 equivalent single axle loads (EASLs).

c. Design Superpave mixes with the number of gyrations specified in Table 5.

2.3.1 JMF REQUIREMENTS

Submit in writing the job mix formula for approval at least 14 days prior to the start of the test section including as a minimum:

e. Percent passing each sieve size.
f. Percent of asphalt cement.
g. Percent of each aggregate and mineral filler to be used.
h. Asphalt viscosity grade, penetration grade, or performance grade.
i. Number of blows of hand-held hammer per side of molded specimen. (NA for Superpave)
j. Number of gyrations of Superpave gyratory compactor, (NA for Marshall mix design)
k. Laboratory mixing temperature.
l. Lab compaction temperature.
m. Temperature-viscosity relationship of the asphalt cement.
n. Plot of the combined gradation on the 0.45 power gradation chart, stating the nominal maximum size.
o. Graphical plots of stability (NA for Superpave), flow (NA for Superpave), air voids, voids in the mineral aggregate, and unit weight versus asphalt content as shown in AI MS-02.
p. Specific gravity and absorption of each aggregate.
q. Percent natural sand.
r. Percent particles with 2 or more fractured faces (in coarse aggregate).
s. Fine aggregate angularity.
t. Percent flat or elongated particles (in coarse aggregate).
u. Tensile Strength Ratio (TSR).
v. Antistrip agent (if required) and amount.
w. List of all modifiers and amount.
x. Correlation of hand-held hammer with mechanical hammer (NA for Superpave).

Table 5. Mix Design Criteria

Test Property	75 Blows Mix 75 Gyrations
Stability, newtons, minimum (NA for Superpave)	*8000
Flow, 0.25 mm (NA for Superpave)	8-16
Air voids, percent	3-5
Percent Voids in mineral aggregate (VMA), (minimum), Gradation 2	14.0
TSR, minimum percent	75

* This is a minimum requirement. The average during construction shall be significantly higher than this number to ensure compliance with the specifications.

** Calculate VMA in accordance with AI MS-02, based on ASTM C 127 and ASTM C 128 bulk specific gravity for the aggregate.

2.3.2 ADJUSTMENTS TO FIELD JMF

Keep the Laboratory JMF for each mixture in effect until a new formula is approved in writing by the Contracting Officer. Should a change in sources of any materials be made, perform a new laboratory jmf design and a new JMF approved before the new material is used. The Contractor will be allowed to adjust the Laboratory JMF within the limits specified below to optimize mix volumetric properties with the approval of the Contracting Officer. Adjustments to the Laboratory JMF shall be applied to the field (plant) established JMF and limited to those values as shown. Adjustments shall be targeted to produce or nearly produce 4 percent voids total mix (VTM).

Table 6. Field (Plant) Established JMF Tolerances

Sieves	Adjustments (plus or minus), percent
12.5 mm	3
4.75 mm	3
2.36 mm	3
0.075 mm	1
Binder Content	0.4

If adjustments are needed that exceed these limits, develop a new mix design. Tolerances given above may permit the aggregate grading to be outside the limits shown in Table 4; while not desirable, this is acceptable, except for the 0.075 mm sieve, which shall remain within the aggregate grading of Table 4.

3. EXECUTION

3.1 PREPARATION OF ASPHALT BINDER MATERIAL

Heat the asphalt cement material avoiding local overheating and providing a continuous supply of the asphalt material to the mixer at a uniform temperature. The temperature of unmodified asphalts shall be no more than 160 degrees C when added to the aggregates. Performance-Graded (PG) asphalts shall be within the temperature range of 141 - 168 degrees C when added to the aggregate.

3.2 PREPARATION OF MINERAL AGGREGATE

Heat and dry the aggregate for the mixture prior to mixing. No damage shall occur to the aggregates due to the maximum temperature and rate of heating used. The temperature of the aggregate and mineral filler shall not exceed 175 degrees C when the asphalt cement is added. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

3.3 PREPARATION OF HOT-MIX ASPHALT MIXTURE

The aggregates and the asphalt cement shall be weighed or metered and introduced into the mixer in the amount specified by the JMF. Mix the combined materials until the aggregate obtains a uniform coating of asphalt binder and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but no less than 25 seconds for batch plants. Establish the wet mixing time for all plants based on the procedure for determining the percentage of coated particles described in ASTM D 2489/D 2489M, for each individual plant and for each type of aggregate used. The wet mixing time will be set to at least achieve 95 percent of coated particles. The moisture content of all hot-mix asphalt upon discharge from the plant shall not exceed 0.5 percent by total weight of mixture as measured by ASTM D 1461.

3.4 PREPARATION OF THE UNDERLYING SURFACE

Immediately before placing the hot mix asphalt, clean the underlying course of dust and debris. Apply a prime coat in accordance with the contract specifications.

3.5 TEST SECTION

Prior to full production, place a test section for each JMF used. Construct a test section 75 - 150 m long and two paver passes wide placed for two lanes, with a longitudinal cold joint. The test section shall be of the same thickness as the course which it represents. The underlying grade or pavement structure upon which the test section is to be constructed shall be the same as the remainder of the course represented by the test section. The equipment and personnel used in construction of the test section shall be the same equipment to be used on the remainder of the course represented by the test section. Place the test section as part of the project pavement, as approved by the Contracting Officer.

3.5.1 SAMPLING AND TESTING FOR TEST SECTION

Take one random sample at the plant, triplicate specimens compacted, and tested for stability, flow, and laboratory air voids. Test a portion of the same sample for theoretical maximum density (TMD), aggregate gradation and asphalt content. Take four randomly selected cores from the finished pavement mat, and four from the longitudinal joint, and tested for density. Random sampling shall be in accordance with procedures contained in ASTM D 3665. The test results shall be within the tolerances shown in Table 7 for work to continue. If all test results meet the specified requirements, the test section shall remain as part of the project pavement. If test results exceed the tolerances shown, the test section shall be removed and replaced at no cost to the Government and another test section shall be constructed. The test section shall be paid for with the first lot of paving

Table 7. Test Section Requirements for Material and Mixture Properties

Property	Specification Limit
Aggregate Gradation-Percent Passing (Individual Test Result)	
4.75 mm and larger	JMF plus or minus 8
2.36, 1.18, 0.60, and 0.30 mm	JMF plus or minus 6
0.15 and 0.075 mm	JMF plus or minus 2.0
Asphalt Content, Percent (Individual Test Result)	JMF plus or minus 0.5
Laboratory Air Voids, Percent (Average of 3 specimens)	JMF plus or minus 1.0
VMA, Percent (Average of 3 specimens)	14 minimum
Stability, newtons (Average of 3 specimens) (NA for Superpave)	8000 minimum for 75 blows
Flow, 0.25 mm (Average of 3 specimens) (NA for Superpave)	8 - 16 for 75 blows
Mat Density, Percent of TMD (Average of 4 Random Cores)	92.0 - 96.0
Joint Density, Percent of TMD (Average of 4 Random Cores)	90.5 - 92.5

3.5.2 ADDITIONAL TEST SECTIONS

If the initial test section should prove to be unacceptable, make the necessary adjustments to the JMF, plant operation, placing procedures, and/or rolling procedures and place a second test section. Additional test sections, as required, shall be constructed and evaluated for conformance to the specifications. Full production shall not begin until an acceptable section has been constructed and accepted.

3.6 TESTING LABORATORY

Use a laboratory to develop the JMF that meets the requirements of ASTM D 3666. The Government will inspect the laboratory equipment and test procedures prior to the start of hot mix operations for conformance to ASTM D 3666. The laboratory shall maintain the Corps certification for the duration of the project. A statement signed by the manager of the laboratory stating that it meets these requirements or clearly listing all deficiencies shall be submitted to the Contracting Officer prior to the start of construction. The statement shall contain as a minimum:

a. Qualifications of personnel; laboratory manager, supervising technician, and testing technicians.
b. A listing of equipment to be used in developing the job mix.
c. A copy of the laboratory's quality control system.
d. Evidence of participation in the AASHTO Materials Reference Laboratory (AMRL) program.

3.7 TRANSPORTING AND PLACING

3.7.1 TRANSPORTING

Transport the hot-mix asphalt from the mixing plant to the site in clean, tight vehicles. Schedule deliveries so that placing and compacting of mixture is uniform with minimum stopping and starting of the paver. Provide adequate artificial lighting for night placements. Hauling over freshly placed material will not be permitted until the material has been compacted as specified, and allowed to cool to 60 degrees C. To deliver mix to the paver, use a material transfer vehicle operated to produce continuous forward motion of the paver.

3.7.2 PLACING

Place and compact the mix at a temperature suitable for obtaining density, surface smoothness, and other specified requirements. Upon arrival, place the mixture to the full width by an asphalt paver; it shall be struck off in a uniform layer of such depth that, when the work is completed, it will have the required thickness and conform to the grade and contour indicated. Regulate the speed of the paver to eliminate pulling and tearing of the asphalt mat. Unless otherwise permitted, placement of the mixture shall begin along the centerline of a crowned section or on the high side of areas with a one-way slope. Place the mixture in consecutive adjacent strips having a minimum width of 3 m. The longitudinal joint in one course shall offset the longitudinal joint in the course immediately below by at least 300 mm; however, the joint in the surface course shall be at the centerline of the pavement. Transverse joints in one course shall be offset by at least 3 m from transverse joints in the previous course. Transverse joints in adjacent lanes shall be offset a minimum of 3 m. On isolated areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the mixture may be spread and luted by hand tools.

3.8 COMPACTION OF MIXTURE

After placing, the mixture shall be thoroughly and uniformly compacted by rolling. Compact the surface as soon as possible without causing displacement, cracking or shoving. The sequence of rolling operations and the type of rollers used shall be at the discretion of the Contractor. The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture and be effective in compaction. Any displacement occurring as a result of reversing the direction of the roller, or from any other cause, shall be corrected at once. Furnish sufficient rollers to handle the output of the plant. Continue rolling until the surface is of uniform texture, true to grade and cross section, and the required field density is obtained. To prevent adhesion of the mixture to the roller, keep the wheels properly moistened but excessive water will

not be permitted. In areas not accessible to the roller, the mixture shall be thoroughly compacted with hand tampers. Any mixture that becomes loose and broken, mixed with dirt, contains check-cracking, or is in any way defective shall be removed full depth, replaced with fresh hot mixture and immediately compacted to conform to the surrounding area. This work shall be done at the Contractor's expense. Skin patching will not be allowed.

3.9 JOINTS

The formation of joints shall be performed ensuring a continuous bond between the courses and to obtain the required density. All joints shall have the same texture as other sections of the course and meet the requirements for smoothness and grade.

3.9.1 TRANSVERSE JOINTS

Do not pass the roller over the unprotected end of the freshly laid mixture, except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course. The tapered edge shall be cut back to its full depth and width on a straight line to expose a vertical face prior to placing material at the joint. Remove the cutback material from the project. In both methods, all contact surfaces shall be given a light tack coat of asphalt material before placing any fresh mixture against the joint.

3.9.2 LONGITUDINAL JOINTS

Longitudinal joints which are irregular, damaged, uncompacted, cold (less than 80 degrees C at the time of placing adjacent lanes), or otherwise defective, shall be cut back a maximum of 75 mm from the top of the course with a cutting wheel to expose a clean, sound vertical surface for the full depth of the course. All cutback material shall be removed from the project. All contact surfaces shall be given a light tack coat of asphalt material prior to placing any fresh mixture against the joint. The Contractor will be allowed to use an alternate method if it can be demonstrated that density, smoothness, and texture can be met.

3.10 CONTRACTOR QUALITY CONTROL

3.10.1 GENERAL QUALITY CONTROL REQUIREMENTS

Develop an approved Quality Control Plan. Do not produce hot-mix asphalt for payment until the quality control plan has been approved addressing all elements which affect the quality of the pavement including, but not limited to:

a. Mix Design
b. Aggregate Grading
c. Quality of Materials
d. Stockpile Management
e. Proportioning
f. Mixing and Transportation
g. Mixture Volumetrics
h. Moisture Content of Mixtures
i. Placing and Finishing
j. Joints
k. Compaction
l. Surface Smoothness

3.10.2 TESTING LABORATORY

Provide a fully equipped asphalt laboratory located at the plant or job site and meeting the pertinent requirements in ASTM D 3666. Laboratory facilities shall be kept clean and all equipment maintained in proper working condition. The Contracting Officer shall be permitted unrestricted access to inspect the Contractor's laboratory facility, to witness quality control activities, and to perform any check testing

desired. The Contracting Officer will advise the Contractor in writing of any noted deficiencies concerning the laboratory facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to adversely affect test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are corrected.

3.10.3 QUALITY CONTROL TESTING

Perform all quality control tests applicable to these specifications and as set forth in the Quality Control Program. The testing program shall include, but shall not be limited to, tests for the control of asphalt content, aggregate gradation, temperatures, aggregate moisture, moisture in the asphalt mixture, laboratory air voids, stability (NA for Superpave), flow (NA for Superpave), in-place density, grade and smoothness. Develop a Quality Control Testing Plan as part of the Quality Control Program.

3.10.3.1 ASPHALT CONTENT

A minimum of two tests to determine asphalt content will be performed per lot (a lot is defined in paragraph MATERIAL ACCEPTANCE and PERCENT PAYMENT) by one of the following methods: the extraction method in accordance with ASTM D 2172, Method A or B, the ignition method in accordance with ASTM D 6307, or the nuclear method in accordance with ASTM D 4125. Calibrate the ignition oven or the nuclear gauge for the specific mix being used. For the extraction method, determine the weight of ash, as described in ASTM D 2172, as part of the first extraction test performed at the beginning of plant production; and as part of every tenth extraction test performed thereafter, for the duration of plant production. The last weight of ash value obtained shall be used in the calculation of the asphalt content for the mixture.

3.10.3.2 GRADATION

Determine aggregate gradations a minimum of twice per lot from mechanical analysis of recovered aggregate in accordance with ASTM D 5444. When asphalt content is determined by the ignition oven or nuclear method, aggregate gradation shall be determined from hot bin samples on batch plants, or from the cold feed on drum mix plants. For batch plants, test aggregates in accordance with ASTM C 136 using actual batch weights to determine the combined aggregate gradation of the mixture.

3.10.3.3 TEMPERATURES

Check temperatures at least four times per lot, at necessary locations, to determine the temperature at the dryer, the asphalt cement in the storage tank, the asphalt mixture at the plant, and the asphalt mixture at the job site.

3.10.3.4 AGGREGATE MOISTURE

Determine the moisture content of aggregate used for production a minimum of once per lot in accordance with ASTM C 566.

3.10.3.5 MOISTURE CONTENT OF MIXTURE

Determine the moisture content of the mixture at least once per lot in accordance with ASTM D 1461 or an approved alternate procedure.

3.10.3.6 LABORATORY AIR VOIDS, MARSHALL STABILITY AND FLOW

Take mixture samples at least four times per lot compacted into specimens, using 75 blows per side with the hand-held Marshall hammer as described in ASTM D 6926. When the Superpave gyratory compactor is used, mixes will be compcted to 75 gyrations in accordance with ASTM D 6925. Hot-mix provided under the DOT Superpave option shall be compacted in accordance with the DOT requirements. After compaction, determine the laboratory air voids of each specimen. Stability and flow shall be determined for the Marshall-compacted specimens, in accordance with ASTM D 6927.

3.10.3.7 IN-PLACE DENSITY

Conduct any necessary testing to ensure the specified density is achieved. A nuclear gauge may be used to monitor pavement density in accordance with ASTM D 2950.

3.10.3.8 GRADE AND SMOOTHNESS

Conduct the necessary checks to ensure the grade and smoothness requirements are met in accordance with paragraphs MATERIAL ACCEPTANCE and PERCENT PAYMENT.

3.10.3.9 ADDITIONAL TESTING

Any additional testing, which the Contractor deems necessary to control the process, may be performed at the Contractor's option.

3.10.3.10 QC MONITORING

Submit all QC test results to the Contracting Officer on a daily basis as the tests are performed. The Contracting Officer reserves the right to monitor any of the Contractor's quality control testing and to perform duplicate testing as a check to the Contractor's quality control testing.

3.10.4 SAMPLING

When directed by the Contracting Officer, sample and test any material which appears inconsistent with similar material being produced, unless such material is voluntarily removed and replaced or deficiencies corrected by the Contractor. All sampling shall be in accordance with standard procedures specified.

3.10.5 CONTROL CHARTS

For process control, establish and maintain linear control charts on both individual samples and the running average of last four samples for the parameters listed in Table 8, as a minimum. These control charts shall be posted as directed by the Contracting Officer and kept current at all times. The control charts shall identify the project number, the test parameter being plotted, the individual sample numbers, the Action and Suspension Limits listed in Table 8 applicable to the test parameter being plotted, and the Contractor's test results. Target values from the JMF shall also be shown on the control charts as indicators of central tendency for the cumulative percent passing, asphalt content, and laboratory air voids parameters. When the test results exceed either applicable Action Limit, take immediate steps to bring the process back in control. When the test results exceed either applicable Suspension Limit, halt production until the problem is solved. Use the control charts as part of the process control system for identifying trends so that potential problems can be corrected before they occur. Make decisions concerning mix modifications based on analysis of the results provided in the control charts. The Quality Control Plan shall indicate the appropriate action to be taken to bring the process into control when certain parameters exceed their Action Limits.

Table 8. Action and Suspension Limits for the Parameters to be Plotted on Individual and Running Average Control Charts

Parameter to be Plotted	Individual Samples		Running Average of Last Four Samples	
	Action Limit	Suspension Limit	Action Limit	Suspension Limit
4.75 mm sieve, Cumulative % Passing, deviation from JMF target; plus or minus values	6	8	4	5
0.6 mm sieve, Cumulative % Passing, deviation from JMF target; plus or minus values	4	6	3	4
0.075 mm sieve, Cumulative % Passing, deviation from JMF target; plus or minus values	1.4	2.0	1.1	1.5
Stability, newtons (minimum) (NA for Superpave) 75 Blow JMF	8000	7560	8440	8000
Flow, 0.25 mm (NA for Superpave) 75 Blow JMF	8 min. 16 max.	7 min. 17 max.	9 min. 15 max.	8 min. 16 max.
Asphalt content, % deviation from JMF target; plus or minus value	0.4	0.5	0.2	0.3
Laboratory Air Voids, % deviation from JMF target value	No specific action and suspension limits set since this parameter is used to determine percent payment			
In-place Mat Density, % of TMD	No specific action and suspension limits set since this parameter is used to determine percent payment			
In-place Joint Density, % of TMD	No specific action and suspension limits set since this parameter is used to determine percent payment)			

3.11 MATERIAL ACCEPTANCE

Testing for acceptability of work will be performed by an independent laboratory hired by the Contractor. Forward test results and payment calculations daily to the Contracting Officer. Acceptance of the plant produced mix and in-place requirements will be on a lot to lot basis. A standard lot for all requirements will be equal to 8 hours of production. Where appropriate, adjustment in payment for individual lots of hot-mix asphalt will be made based on in-place density, laboratory air voids, grade and smoothness in accordance with the following paragraphs. Grade and surface smoothness determinations will be made on the lot as a whole. Exceptions or adjustments to this will be made in situations where the mix within one lot is placed as part of both the intermediate and surface courses, thus grade and smoothness measurements for the entire lot cannot be made. In order to evaluate laboratory air voids and in-place (field) density, each lot will be divided into four equal sublots.

3.11.1 SUBLOT SAMPLING

One random mixture sample for determining laboratory air voids, theoretical maximum density, and for any additional testing the Contracting Officer desires, will be taken from a loaded truck delivering mixture to each sublot, or other appropriate location for each sublot. All samples will be selected randomly, using commonly recognized methods of assuring randomness conforming to ASTM D 3665 and employing

tables of random numbers or computer programs. Laboratory air voids will be determined from three laboratory compacted specimens of each sublot sample in accordance with ASTM D 6926. The specimens will be compacted within 2 hours of the time the mixture was loaded into trucks at the asphalt plant. Samples will not be reheated prior to compaction and insulated containers will be used as necessary to maintain the temperature.

3.11.2 ADDITIONAL SAMPLING AND TESTING

The Contracting Officer reserves the right to direct additional samples and tests for any area which appears to deviate from the specification requirements. The cost of any additional testing will be paid for by the Government. Testing in these areas will be in addition to the lot testing, and the requirements for these areas will be the same as those for a lot.

3.11.3 GRADE

The final wearing surface of pavement shall conform to the elevations and cross sections shown and shall vary not more than 15 mm from the plan grade established and approved at site of work. Finished surfaces at juncture with other pavements shall coincide with finished surfaces of abutting pavements. Deviation from the plan elevation will not be permitted in areas of pavements where closer conformance with planned elevation is required for the proper functioning of drainage and other appurtenant structures involved. The grade will be determined by running lines of levels at intervals of 7.6 m, or less, longitudinally and transversely, to determine the elevation of the completed pavement surface. Within 5 working days, after the completion of a particular lot incorporating the final wearing surface, test the final wearing surface of the pavement for conformance with the specified plan grade. Diamond grinding may be used to remove high spots to meet grade requirements. Skin patching for correcting low areas or planing or milling for correcting high areas will not be permitted.

3.11.4 SURFACE SMOOTHNESS

Use one of the following methods to test and evaluate surface smoothness of the pavement. Perform all testing in the presence of the Contracting Officer. Keep detailed notes of the results of the testing and furnish a copy to the Government immediately after each day's testing. Use the profilograph method for all longitudinal testing, except where the runs would be less than 60 m in length and the ends where the straightedge will be used. Where drawings show required deviations from a plane surface (crowns, drainage inlets, etc.), the surface shall be finished to meet the approval of the Contracting Officer.

3.11.4.1 SMOOTHNESS REQUIREMENTS

a. Straightedge Testing: The finished surfaces of the pavements shall have no abrupt change of 6 mm or more, and all pavements shall be within the tolerances of 6 mm in both the longitudinal and transverse directions, when tested with an approved 4 m straightedge.
b. Profilograph Testing: The finished surfaces of the pavements shall have no abrupt change of 3 mm or more, and each 0.1 km segment of each pavement lot shall have a Profile Index not greater than 140 mm/km when tested with an approved California-type profilograph. If the extent of the pavement in either direction is less than 60 m, that direction shall be tested by the straightedge method and shall meet requirements specified above.

3.11.4.2 TESTING METHOD

After the final rolling, but not later than 24 hours after placement, test the surface of the pavement in each entire lot in such a manner as to reveal all surface irregularities exceeding the tolerances specified above. Separate testing of individual sublots is not required. If any pavement areas are ground, these areas shall be retested immediately after grinding. Test each lot of the pavement in both a longitudinal and a transverse direction on parallel lines. Set the transverse lines 4.5 m or less apart, as directed. The longitudinal lines shall be at the centerline of each paving lane for lanes less than 6.1 m wide and at the third points for lanes 6.1 m or wider. Also test other areas having obvious deviations. Longitudinal testing lines shall be continuous across all joints.

a. Straightedge Testing. Hold the straightedge in contact with the surface and move it ahead one-half the length of the straightedge for each successive measurement. Determine the amount of

surface irregularity by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between these two high points.

b. Profilograph Testing. Perform profilograph testing using approved equipment and procedures described in CDT Test 526. The equipment shall utilize electronic recording and automatic computerized reduction of data to indicate "must-grind" bumps and the Profile Index for each 0.1 km segment of each pavement lot. Grade breaks on parking lots shall be accomodated by breaking the profile segment into shorter sections and repositioning the blanking band on each segment. The "blanking band" shall be 5 mm wide and the "bump template" shall span 25 mm with an offset of 7.5 mm. Compute the Profile Index for each pass of the profilograph in each 0.1 km segment. The Profile Index for each segment shall be the average of the Profile Indices for each pass in each segment. The profilograph shall be operated by a DOT approved operator. Furnish a copy of the reduced tapes to the Government at the end of each day's testing.

-- END OF SECTION --

ENGINEERING AND CONSTRUCTION DIVISION
AFGHANISTAN ENGINEER DISTRICT - SOUTH
APO AE, 09355

PROJECT NO.

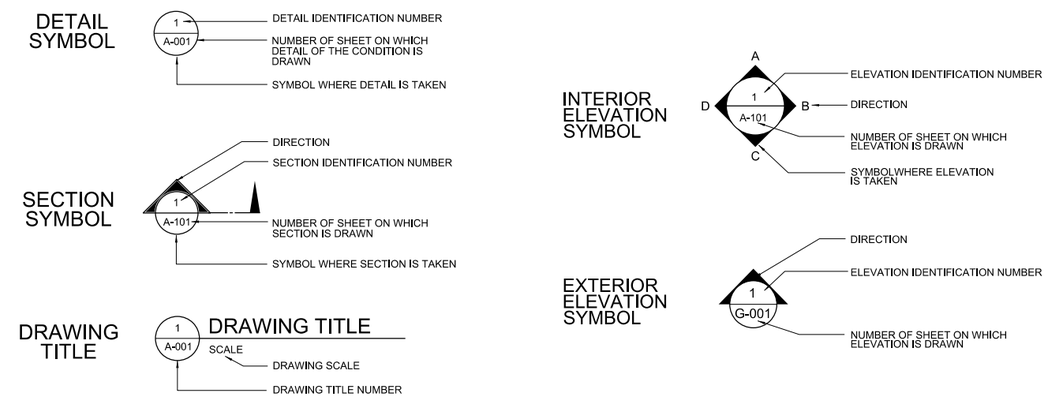
APPENDIX:
ROUTE HEZAR JOFT

HELMAND PROVINCE, AFGHANISTAN

APPENDIX SCHEDULE

SHEET NO	SHEET REFERENCE NO	DESCRIPTION	SHEET NO
01	G-01	APPENDIX TITLE SHEET	
02	C-01	OVERALL CONCEPT PLAN	
03	C-02	CONCEPT PLAN	
04	C-03	CONCEPT PLAN	
05	C-04	CONCEPT PLAN	
06	C-05	CONCEPT PLAN	
07	C-06	CONCEPT PLAN	
08	C-07	CONCEPT PLAN	
09	C-08	CONCEPT PLAN	
10	C-09	CONCEPT PLAN	
11	C-010	TYPICAL ROAD SECTION	
12	C-011	CULVERT DENIAL	
13		LIST COORDINATES WITH STATION REPORT	

SECTION/DETAIL CROSS REFERENCING CONVENTIONS



LEGEND

EOS - EDGED OF SHOULDER
EOR - EDGE OF ROAD
ROW - RIGHT OF WAY
C/L - CENTER LINE
NTS - NOT TO SCALE

NOTE:

COORDINATES FOR ROAD STATION IS ATTACHED AT THE END OF THE APPENDIX.

PROJECT COORDINATION

AFGHANISTAN ENGINEER DISTRICT - SOUTH

PROJECT MANAGER — DATE

CHIEF, DESIGN BRANCH — DATE

THIS PROJECT WAS DESIGNED BY AFGHANASTAN ENGINEER DISTRICT - SOUTH OF THE U.S ARMY CORPS OF ENGINEERS, THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.

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DESIGNED BY: AES
DWN BY: AES
CKD BY: AES
SUBMITTED BY: AES
PLOT SCALE:
PLOT DATE: JULY 2011
DATE:
SOLICITATION NO.: W912P8-##-X-#####
CONTRACT NO.: W912P8-##-X-#####
FILE NUMBER: H-##-#######
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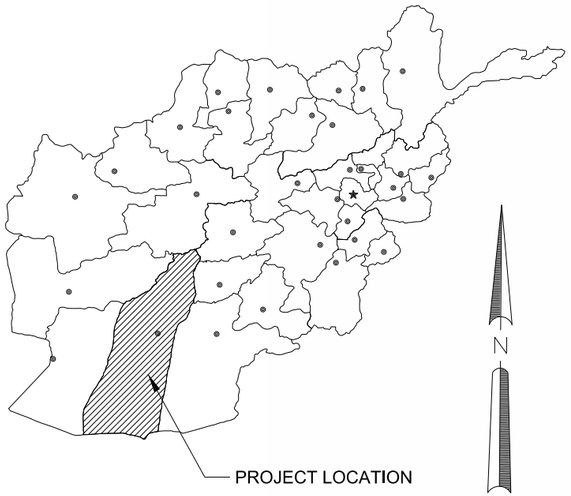
FILE NAME: XXXXXXXX.dgn

ROUTE HEZAR ZOFT
CERP - ASPHALT PAVED ROAD PROJECT
HILMAND PROVINCE, AFGHANISTAN

SCHEDULE OF DRAWINGS

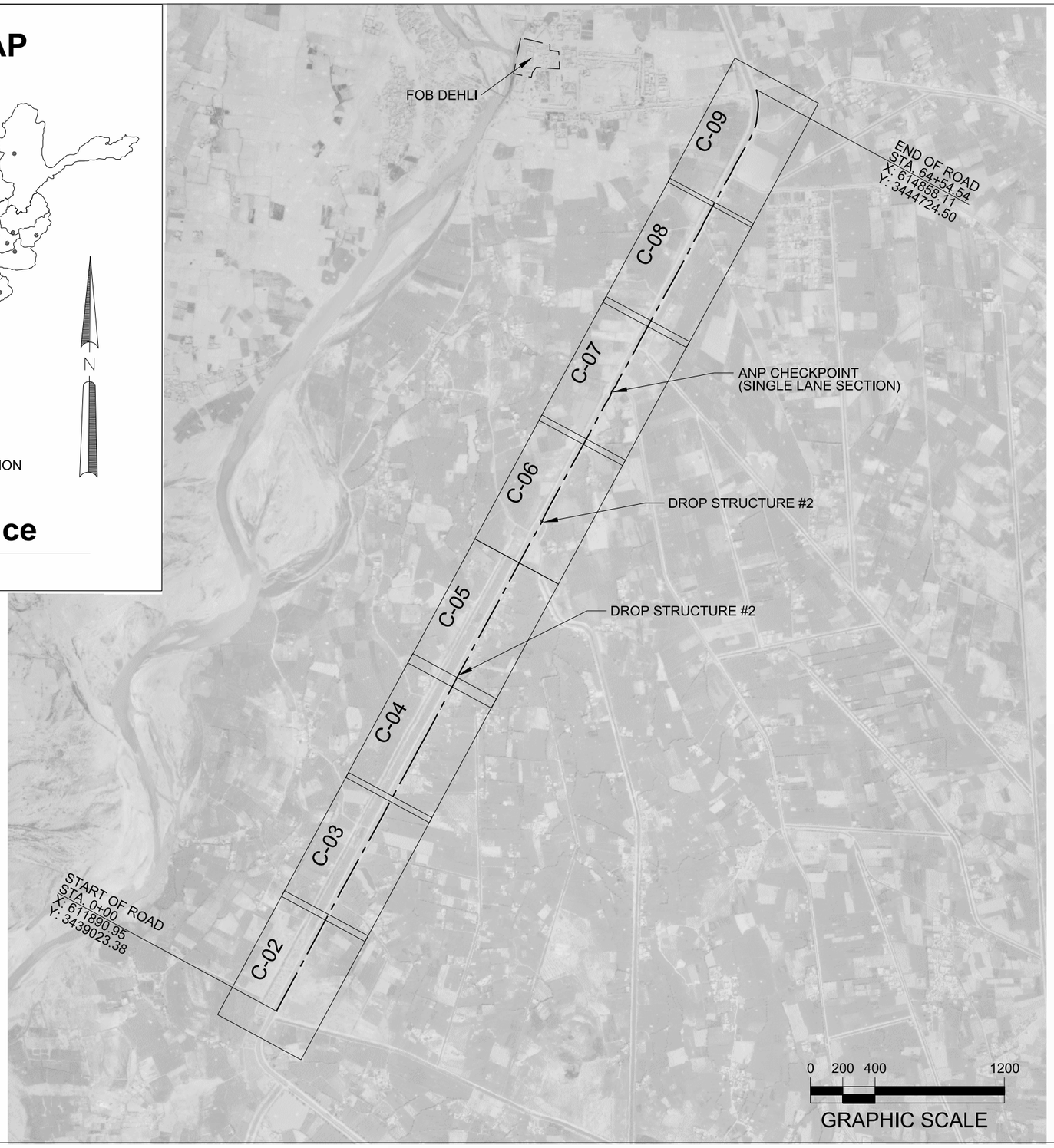
SHEET IDENTIFICATION
G-01

LOCATION MAP



Helmand Province

NTS



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PLOT DATE: JULY 2011
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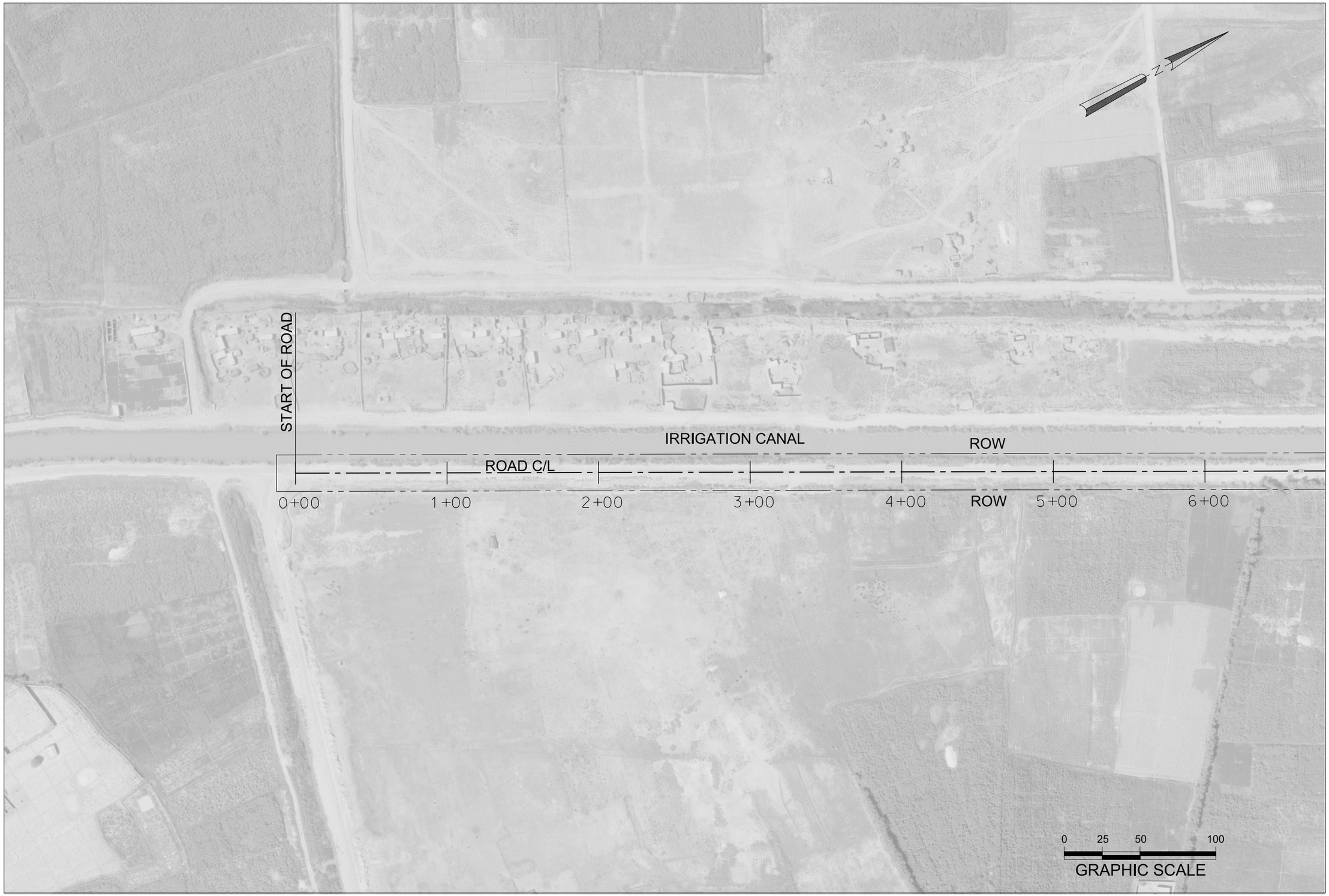
ENGINEERING AND CONSTRUCTION

ROUTE HEZAR ZOFT
CERP - ASPHALT PAVED ROAD PROJECT
HELMAND PROVINCE, AFGHANISTAN

OVERALL HEZAR ZOFT
CONCEPT PLAN

SHEET REFERENCE NUMBER
C-01

8.1.2



MATCHLINE SHEET C-03

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PLOT DATE: JULY 2011
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DATE: XX XXX XXXX
SOLICITATION NO.: XXXXXX-##-X-####
CONTRACT NO.: XXXXXX-##-X-####
FILE NUMBER: H-##-#####

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AFGHANISTAN ENGINEER DISTRICT SOUTH

ENGINEERING AND CONSTRUCTION

ROUTE HEZAR ZOFT
CERP - ASPHALT PAVED ROAD PROJECT
HELMAND PROVINCE, AFGHANISTAN

ROUTE HEZAR ZOFT
CONCEPT PLAN

SHEET REFERENCE NUMBER
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CKD BY:
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CONTRACT NO.: XXXXXX-##-X-#####
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ENGINEERING AND CONSTRUCTION

ROUTE HEZAR ZOFT
CERP - ASPHALT PAVED ROAD PROJECT
HELMAND PROVINCE, AFGHANISTAN

ROUTE HEZAR ZOFT
CONCEPT PLAN

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ROUTE HEZAR ZOFT
CERP - ASPHALT PAVED ROAD PROJECT
HELMAND PROVINCE, AFGHANISTAN

ROUTE HEZAR ZOFT
CONCEPT PLAN

SHEET REFERENCE NUMBER
C-04

8.1.2

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AFGHANISTAN ENGINEER DISTRICT SOUTH

MARK	DESCRIPTION	DATE	APPR.

MARK	DESCRIPTION	DATE	APPR.

U.S. ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT SOUTH

DESIGNED BY: AES
DWN BY: AES
CKD BY:
SUBMITTED BY: AES
PLOT SCALE:
PLOT DATE: JULY 2011
DATE: XX XXX XXXX
SOLICITATION NO.: W##XXX-##-#-####
CONTRACT NO.: XXXXXX-##-X-#####
FILE NUMBER: H-##-######
SIZE: XXXX X
FILE NAME:

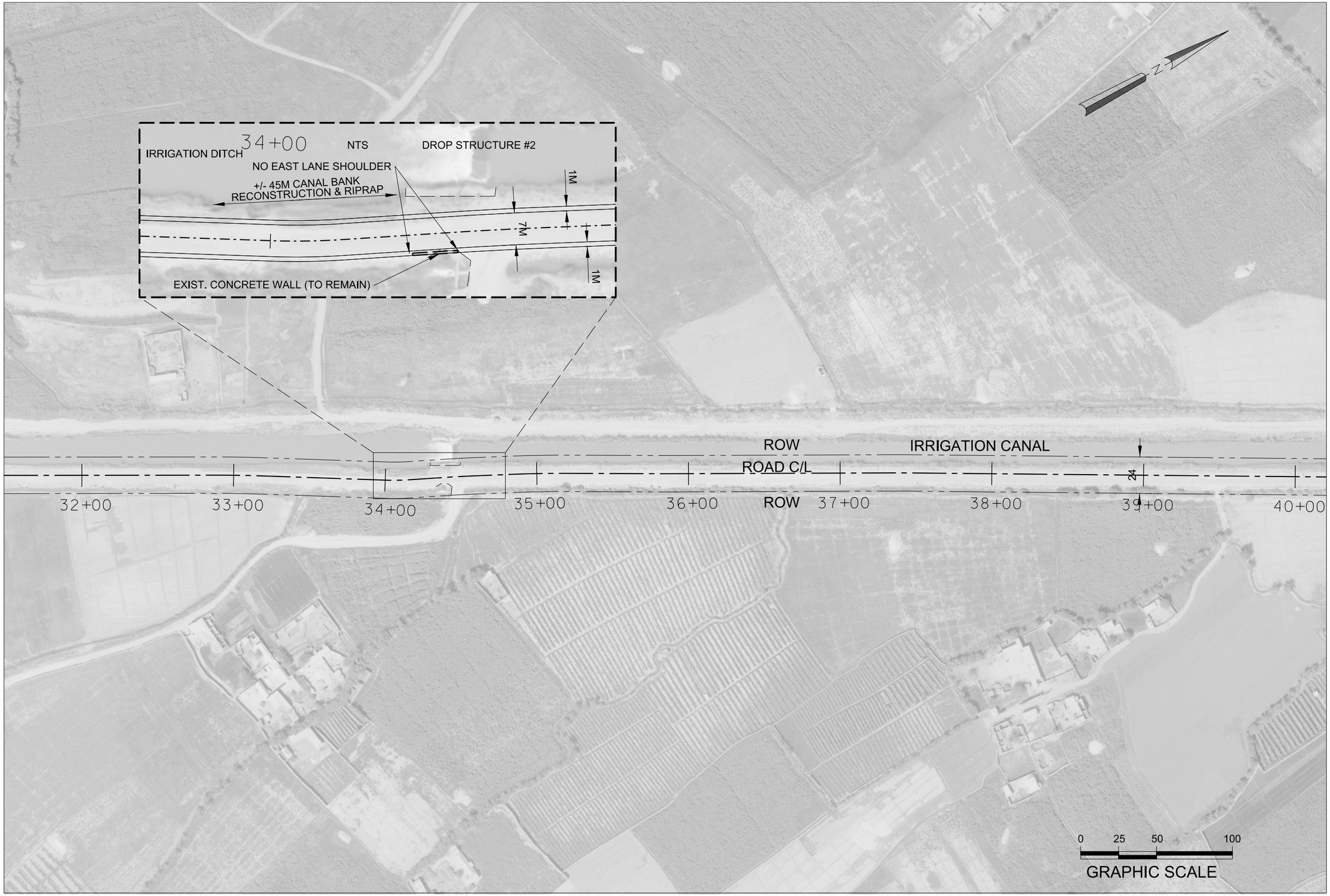
ENGINEERING AND CONSTRUCTION

ROUTE HEZAR ZOFT
CERP - ASPHALT PAVED ROAD PROJECT
HELMAND PROVINCE, AFGHANISTAN

ROUTE HEZAR ZOFT
CONCEPT PLAN

SHEET REFERENCE NUMBER
C-05

8.1.2



MATCHLINE SHEET C-05

MATCHLINE SHEET C-07

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SUBMITTED BY: AES
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PLOT DATE: JULY 2011
SIZE: XXXX X
FILE NAME:
DATE: XX XXX XXXX
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CONTRACT NO.: XXXXX-##-X-####
FILE NUMBER: H-##-######

U.S. ARMY CORPS OF ENGINEERS
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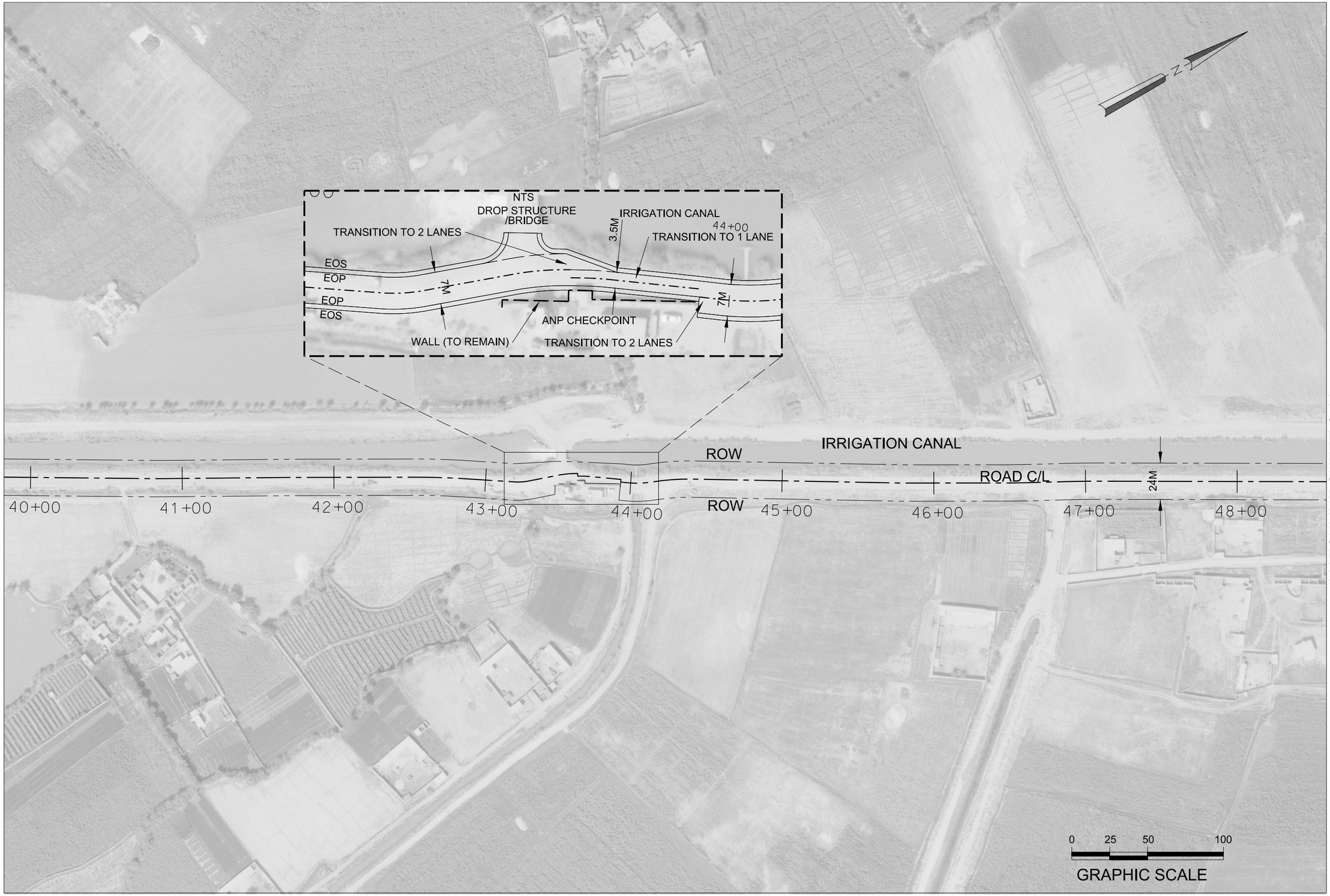
ENGINEERING AND CONSTRUCTION

ROUTE HEZAR ZOFT
CERP - ASPHALT PAVED ROAD PROJECT
HELMAND PROVINCE, AFGHANISTAN

ROUTE HEZAR ZOFT
CONCEPT PLAN

SHEET REFERENCE NUMBER
C-06

8.1.2



MATCHLINE SHEET C-06

MATCHLINE SHEET C-08

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CONTRACT NO.: XXXXXX-##-X-####
PLOT SCALE:
PLOT DATE: JULY 2011
FILE NUMBER: H-##-#####
SIZE: XXXX X
FILE NAME:

U.S. ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT SOUTH

ENGINEERING AND CONSTRUCTION

ROUTE HEZAR ZOFT
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ROUTE HEZAR ZOFT
CONCEPT PLAN

SHEET REFERENCE NUMBER
C-07

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CONTRACT NO.: XXXXXX-##-X-#####
PLOT SCALE:
PLOT DATE: JULY 2011
FILE NUMBER: H-##-#####
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FILE NAME:

ENGINEERING AND CONSTRUCTION

ROUTE HEZAR ZOFT
CERP - ASPHALT PAVED ROAD PROJECT
HELMAND PROVINCE, AFGHANISTAN

ROUTE HEZAR ZOFT
CONCEPT PLAN

SHEET REFERENCE NUMBER
C-08

8.1.2

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PLOT SCALE:
PLOT DATE: JULY 2011
DATE: XX XXX XXXX
SOLICITATION NO.: XXXXXX-##-X-####
CONTRACT NO.: XXXXXX-##-X-#####
FILE NUMBER: H-##-#####
SIZE: XXXX X
FILE NAME:

U.S. ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT SOUTH

ENGINEERING AND CONSTRUCTION

ROUTE HEZAR ZOFT
CERP - ASPHALT PAVED ROAD PROJECT
HELMAND PROVINCE, AFGHANISTAN

ROUTE HAZER ZOFT
CONCEPT PLAN

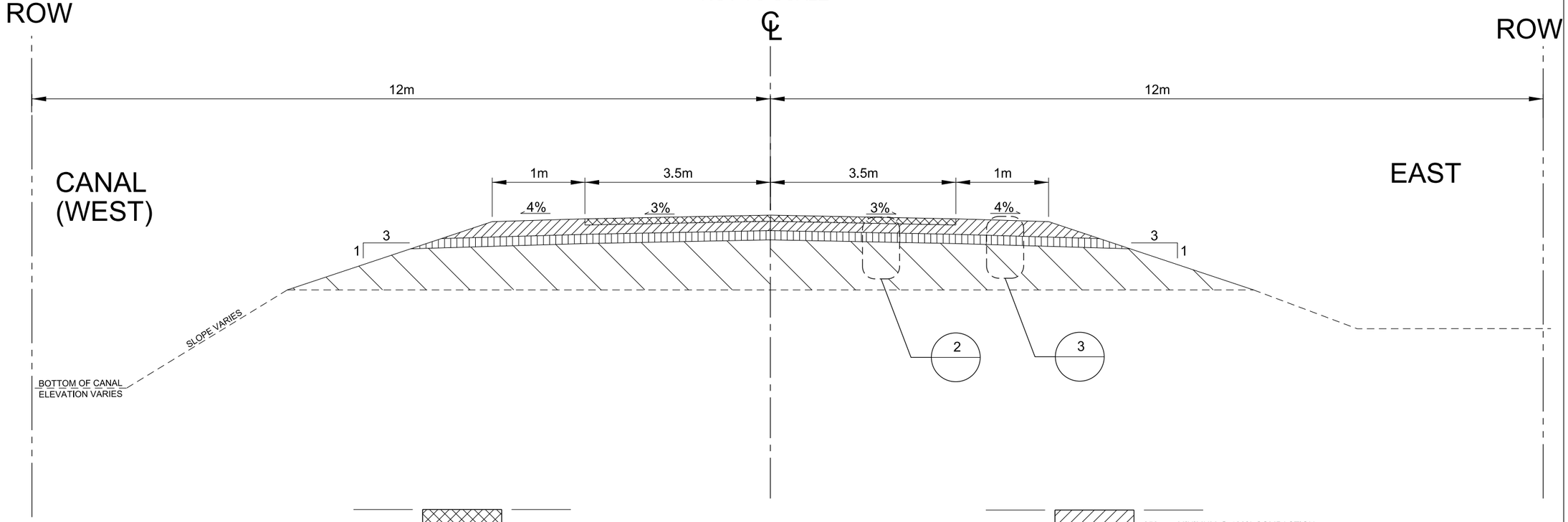
SHEET REFERENCE NUMBER
C-09

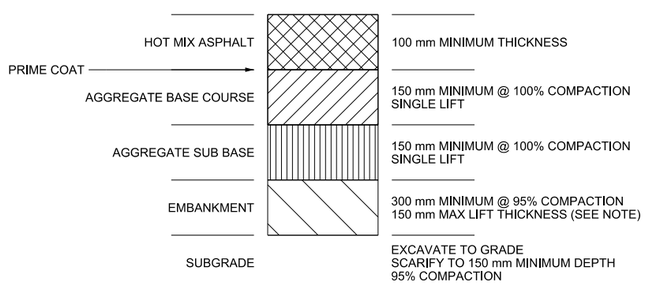
8.1.2

TYPICAL ROAD SECTION

NOT TO SCALE

Note: This is a typical section, actual existing conditions vary.
ROW will vary in some locations.

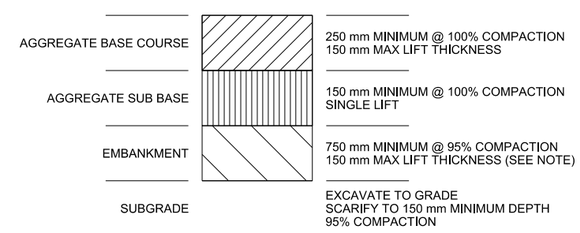




Note: Embankment work as required, existing embankment may be suitable for construction and the stated thickness is worst case.

2 LANE PAVEMENT DETAIL

NTS



Note: Embankment work as required, existing embankment may be suitable for construction and the stated thickness is worst case.

3 SHOULDER PAVEMENT DETAIL

NTS

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DESIGNED BY: AES
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PLOT DATE: JULY 2011
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SOLICITATION NO.: W00XXX-##-#####
CONTRACT NO.: XXXXXX-##-X-#####
FILE NUMBER: H-##-#####
SIZE: XXXX X
FILE NAME:

U.S. ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT SOUTH

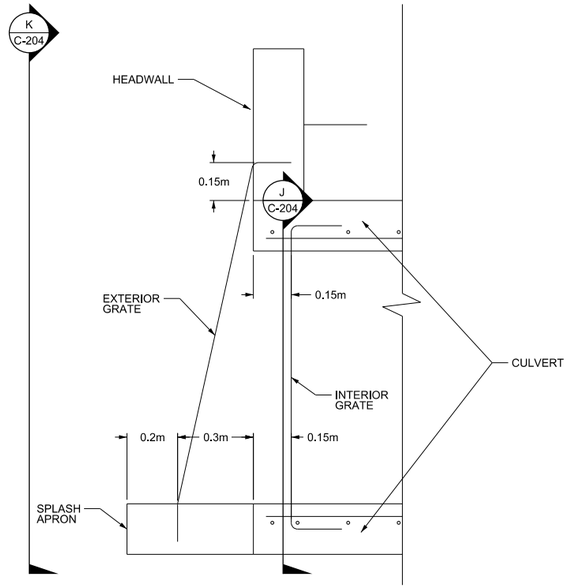
ENGINEERING AND CONSTRUCTION

ROUTE HEZAR ZOFT
CERP - ASPHALT PAVED ROAD PROJECT
HELMAND PROVINCE, AFGHANISTAN

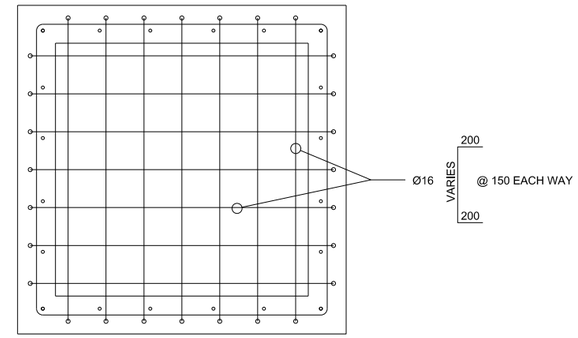
TYPICAL ROAD SECTION

SHEET REFERENCE NUMBER
C-10

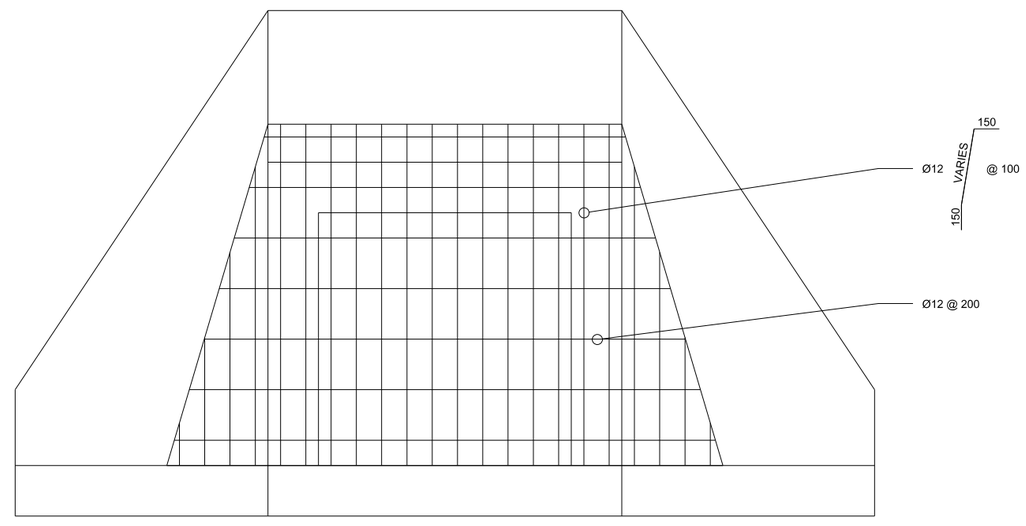
8.1.2



1 C-204 CULVERT DENIAL GRATE SECTION
SCALE: 1 : 10



J C-204 CULVERT DENIAL INTERIOR GRATE SECTION
SCALE: 1 : 10



K C-204 CULVERT DENIAL EXTERIOR GRATE ELEVATION
SCALE: 1 : 10

NOTES:

GENERAL

MINIMUM CULVERT OPENING SHALL BE 1 METER x 1 METER OR A 1 METER DIAMETER PIPE.

CULVERT DENIAL SHALL BE INSTALLED ON ALL CULVERTS WITH OPENINGS SMALLER THAN 2 METERS x 2 METERS.

GRATES SHALL EITHER BE CAST INTO CONCRETE OR ATTACHED WITH HOOKS DRILLED AND EPOXIED INTO CONCRETE. MINIMUM EMBEDMENT OF BARS INTO THE CONCRETE FOR EITHER METHOD IS 150 MILIMETERS.

EXTERIOR DENIAL GRATE

EXTERIOR GRATES SHALL BE SIZED AND SHAPED TO FIT THE HEADWALL OF EACH CULVERT.

EXTERIOR BARS SHALL BE EMBEDDED A MINIMUM OF 150 MILIMETERS INTO THE HEADWALLS AT BOTH ENDS.

VERTICAL BARS SHALL BE PLACED ON THE OUTSIDE OF THE DENIAL GRATE.

ADDITIONAL HEADWALL REINFORCING BARS SHALL BE PLACED ACROSS THE EMBEDDED ENDS OF THE VERTICAL BARS OF THE EXTERIOR DENIAL GRATE.

HEADWALLS MUST BE CONSTRUCTED OF CAST IN PLACE CONCRETE TO A MINIMUM OF 200 MILIMETERS BEYOND THE EXTENT OF THE EXTERIOR GRATE. STONE MASONRY CONSTRUCTION IS PROHIBITED WITHIN THESE EXTENTS.

INTERIOR DENIAL GRATE

ADDITIONAL CULVERT REINFORCING BARS SHALL BE PLACED AT THE BENDS IN ALL BARS OF THE INTERIOR DENIAL GRATE.

IF THE INTERIOR GRATE IS CONSTRUCTED AS A PRE-CAST UNIT, THE LENGTH OF THE UNIT SHALL BE A MINIMUM OF 1 METER.

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U.S. ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT SOUTH

ENGINEERING AND CONSTRUCTION

ROUTE HEZAR ZOFT
CERP - ASPHALT PAVED ROAD PROJECT
HELMAND PROVINCE, AFGHANISTAN

CULVERT DENIAL CONCEPT PLAN

SHEET REFERENCE NUMBER
C-11

8.1.2

List Coordinates with Station Report

Report Created: 6/24/2011
Time: 10:30am

Project: Cowboy

Description:

File Name: \\TAS-FS1KNQ\KNQ-Share\Engineering & Construction\Engineering\01 RFP In Progress\CERP - Hezar Zoft\Cowboys\DGN\cowboy.alg

Last Revised: N2AESPRG 6/24/2011 10:29:13 AM

Input Grid Factor: 1.00000000

Note: ~~All units in this report are in feet unless specified otherwise.~~

Alignment Name: 1

Station	Point Type	Easting (X)	Northing (Y)	Elevation (Z)
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44+18.60	PC	613997.22	3442907.79	0.00
44+41.47	PT	614006.91	3442928.48	0.00
44+50.00	S+O EVT	614011.11	3442935.91	0.00
45+00.00	S+O EVT	614035.72	3442979.43	0.00
45+50.00	S+O EVT	614060.33	3443022.95	0.00
45+75.87	PC	614073.07	3443045.48	0.00
45+85.96	PT	614077.94	3443054.31	0.00
46+00.00	S+O EVT	614084.60	3443066.66	0.00
46+45.65	PC	614106.27	3443106.85	0.00
46+50.00	S+O EVT	614108.32	3443110.68	0.00
46+67.44	PT	614116.34	3443126.16	0.00
46+85.65	PC	614124.54	3443142.42	0.00
47+00.00	S+O EVT	614131.12	3443155.17	0.00
47+10.24	PT	614135.96	3443164.20	0.00
47+50.00	S+O EVT	614154.94	3443199.13	0.00
48+00.00	S+O EVT	614178.82	3443243.06	0.00
48+50.00	S+O EVT	614202.71	3443286.99	0.00
49+00.00	S+O EVT	614226.59	3443330.92	0.00
49+50.00	S+O EVT	614250.47	3443374.84	0.00
50+00.00	S+O EVT	614274.35	3443418.77	0.00
50+28.31	PC	614287.87	3443443.65	0.00
50+42.91	PT	614294.96	3443456.40	0.00
50+50.00	S+O EVT	614298.46	3443462.57	0.00
51+00.00	S+O EVT	614323.14	3443506.06	0.00
51+08.11	PC	614327.14	3443513.11	0.00
51+25.11	PT	614335.37	3443527.98	0.00
51+50.00	S+O EVT	614347.19	3443549.89	0.00
52+00.00	S+O EVT	614370.94	3443593.89	0.00
52+50.00	S+O EVT	614394.69	3443637.89	0.00
53+00.00	S+O EVT	614418.44	3443681.89	0.00
53+17.92	PC	614426.95	3443697.65	0.00

	PT	614435.35	3443713.65	0.00
53+50.00	S+O EVT	614441.72	3443726.12	0.00
54+00.00	S+O EVT	614464.47	3443770.65	0.00
54+04.19	PC	614466.37	3443774.37	0.00
54+43.66	PT	614485.19	3443809.07	0.00
54+50.00	S+O EVT	614488.35	3443814.57	0.00
55+00.00	S+O EVT	614513.27	3443857.91	0.00
55+04.73	PC	614515.63	3443862.01	0.00
55+26.34	PT	614525.01	3443881.46	0.00
55+30.84	PC	614526.67	3443885.64	0.00
55+48.77	PT	614534.26	3443901.87	0.00
55+50.00	S+O EVT	614534.85	3443902.96	0.00
56+00.00	S+O EVT	614558.69	3443946.90	0.00
56+50.00	S+O EVT	614582.54	3443990.85	0.00
57+00.00	S+O EVT	614606.38	3444034.80	0.00
57+50.00	S+O EVT	614630.23	3444078.75	0.00
57+91.53	PC	614650.03	3444115.25	0.00
58+00.00	S+O EVT	614654.13	3444122.66	0.00
58+02.56	PT	614655.40	3444124.89	0.00
58+50.00	S+O EVT	614678.94	3444166.08	0.00
59+00.00	S+O EVT	614703.74	3444209.49	0.00
59+00.64	PC	614704.06	3444210.04	0.00
59+15.38	PT	614710.73	3444223.17	0.00
59+31.01	PC	614717.12	3444237.45	0.00
59+44.97	PT	614723.41	3444249.90	0.00
59+50.00	S+O EVT	614725.88	3444254.28	0.00
60+00.00	S+O EVT	614750.46	3444297.82	0.00
60+50.00	S+O EVT	614775.04	3444341.36	0.00
61+00.00	S+O EVT	614799.63	3444384.90	0.00
61+40.59	PC	614819.58	3444420.25	0.00
61+50.00	S+O EVT	614823.95	3444428.58	0.00
61+56.64	PT	614826.71	3444434.62	0.00
62+00.00	S+O EVT	614843.87	3444474.44	0.00
62+12.43	PC	614848.79	3444485.86	0.00
62+50.00	S+O EVT	614859.21	3444521.85	0.00
62+55.02	PT	614859.91	3444526.82	0.00
63+00.00	S+O EVT	614865.43	3444571.46	0.00
63+27.23	PC	614868.77	3444598.49	0.00
63+50.00	S+O EVT	614870.71	3444621.17	0.00
64+00.00	S+O EVT	614868.90	3444671.08	0.00
64+35.43	PT	614862.61	3444705.92	0.00

	S+O EVT	614859.18	3444720.08	0.00
64+54.54	POE	614858.11	3444724.50	0.00