US Army Corps
of Engineers
Savannah District

Hartwell Powerplant
Hartwell, Georgia

Solicitation Number
DACW21-03-B-0007
Installation of 230kv Circuit Breakers and Upgrade of Switchyard

April 2003

THIS SOLICITATION IS UNRESTRICTED PURSUANT TO THE "BUSINESS OPPORTUNITY DEVELOPMENT REFORM ACT OF 1988" (PUBLIC LAW 100-656)

U.S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
100 WEST OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3640

TABLE OF CONTENTS

00010 Solicitation/Contract Form and Bidding Schedule

00100 Instructions, Conditions, and Notices to Offerors

00600 Representations and Certifications

00700 Contract Clauses

00800 Special Contract Requirements

Attachment 1 to Section 00800

Specifications - Divisions 1 through 16

SOLICITATION, OFFER, AND AWARD *(Construction, Alteration, or Repair)*	1. SOLICITATION NO. DACW21-03-B-0007-0002	2. TYPE OF SOLICITATION [X] SEALED BID (IFB) [ ] NEGOTIATED *(RFP)*	3. DATE ISSUED 26-Mar-2003	PAGE OF PAGES 1 OF 141

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

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO. W33SJG-3022-3049	6. PROJECT NO.

7. ISSUED BY CODE ESF	8. ADDRESS OFFER TO *(If Other Than Item 7)* CODE
US ARMY ENGINEER DISTRICT SAVANNAH ATTN: CT-P/EDWINA FRAYALL 100 WEST OGLETHORPE AVE SAVANNAH GA 31401-3640 TEL:(912) 652-5987 FAX: (912) 652-6059	**See Item 7** TEL: FAX:

9. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE NO. *(Include area code)* *(NO COLLECT CALLS)*
	EDWINA S FRAYALL	(912) 652-5987

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):*

CONTRACT SPECIALIST: Edwina S. Frayall, 912-652-5987
E-mail: edwina.s.frayall@sas02.usace.army.mil

Project includes installation of 230kv circuit breakers and upgrade of switchyard at Hartwell Powerplant. Scope includes miscellaneous site work and electrical/mechnical work associated with modifications to existing switchyard.

SEE SECTION 00800 COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK.

NOTE: The estimated price range for this project is between $1,000,000.00 and $5,000,000.00.

NOTE: This is an unrestricted solicitation.

11. The Contractor shall begin performance within 30 calendar days and complete it within 766 calendar days after receiving [ ] award, [X] notice to proceed. This performance period is [ ] mandatory, [ ] negotiable. *(See* Section 00800 *.)*

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.)* [X] YES [ ] NO	12B. CALENDAR DAYS 5

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 19 May 2003 *(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 offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee [X] is, [ ] is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than 60 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

Section 00010 - Solicitation Contract Form

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001		1	Lump Sum	$_____	$_____
	Site Mobilization and Demobilization Site Mobilization and Demobilization in accordance with Section 01010				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002		22	Each	$_____	$_____
	Remove and dispose of existing 3-Phase Remove and dispose of existing 3-Phase, 230 kV Disconnect Switches in accordance with Section 16050				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003		21	Each	$_____	$_____
	Furnish and install new 3000 Amperes Furnish and install new 3000 Amperes 3-Phase, 230 kV Vertical-Break Disconnect Switches in accordance with Sections 16050 and 16367				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0004		3	Each	$_____	$_____
	Furnish and install new 3000 Amperes Furnish and install new 3000 Amperes 3-Phase, 230 kV Vertical-Break Disconnect Switches with Ground Switch Option in accordance with Sections 16050 and 16367				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0005		9	Each	$_____	$_____

Remove and dispose of nine breakers
Remove and dispose of nine existing oil circuit breakers in accordance with Section 16050

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0006		60	Each	$_____	$_____

Remove and dispose of existing bushings
Remove and dispose of existing 230 kV Bushings and CCVT's in accordance with Section 16050 and Section 02120 (Hazardous Material)

ITEM NO	SUPPLIES/SERVICES	EST. QUANTITY	UNIT	UNIT PRICE	AMOUNT
0007		69,000	Gallon	$_____	$_____

Remove and dispose of non-PCB contaminated insulation oil in accordance with Section 02120 - quantity is estimated

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0008		1	Lump Sum	$_____	$_____

Furnish and install new concrete pads
Furnish and install new concrete pads for new SF6 gas circuit breakers and footings for new disconnect switches in accordance with Section 03300

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0009		3	Each	$_____	$_____
	Furnish and install new switch Furnish and install new disconnect switch, structural supports in accordance with Section 05120				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0010		12	Each	$_____	$_____
	Install new government furnished Amperes Install new government furnished 3000 Amperes, 230 kV gas circuit breakers in accordance with Section 16050				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0011		1	Each	$_____	$_____
	Remove and dispose of existing Phase C Remove and dispose of existing synchronizing CCVT from main bus phase C in accordance with Section 16050				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0012		6	Each	$_____	$_____
	Relocate existing line PT's Relocate existing line PT's, reinstall on all 3 phases of main and auxiliary buses in accordance with Sections 02315 and 16050				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0013		18	Each	$_____	$_____

Remove existing line CCVT's and CT's
Remove existing line CCVT's (9) and CT's (9) for each of the 3 transmission lines in accordance with Section 16050

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0014		2	Each	$_____	$_____

Furnish and install new CCVT's
Furnish and install new CCVT's on Phase B of transmission lines 3 and 4 in accordance with Section 16050

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0015		7	Each	$_____	$_____

Furnish and install new PT's
Furnish and install new PT's on transmission line 2 and on Phase A and C of transmission lines 3 and 4 in accordance with Section 16050

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0016		9	Each	$_____	$_____

Furnish and install new line CT's
Furnish and install new line CT's on each of the 3 transmission lines in accordance with Section 16050

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0017		1	Lump Sum	$_____	$_____

Remove and dispose of existing Buswork
Remove and dispose of existing 2000 Ampere Buswork complete, including all tubing and flexible connections in accordance with Section 16050

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0018		1	Lump Sum	$_____	$_____

Furnish and install new Buswork
Furnish and install new 3000 Ampere Buswork complete, including all tubing, flexible connections and associated hardware in accordance with Section 16050

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0019		1	Lump Sum	$_____	$_____

Remove and dispose of cabling
Remove and dispose of control, alarm, and relaying cabling in accordance with Section 16050

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0020		1	Lump Sum	$_____	$_____

Furnish and install cabling
Furnish and install control, alarm, power, and relaying cabling in accordance with Section 16050

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0021		9	Each	$_____	$_____

Furnish and install arrestors
Furnish and install nine (9) surge arrestors in accordance with Section 16050

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0022		1	Lump Sum	$_____	$_____

Remove and dispose of comm equipment
Remove and dispose of power-line carrier communications equipment in accordance with Section 16050

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0023		1	Lump Sum	$_____	$_____

Remove and dispose of panel
Remove and dispose of one recorder board panel (rear) and replace with new blank panel in accordance with Section 16050

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0024		1	Lump Sum	$_____	$_____

Remove and dispose of panels
Remove and dispose of six (6) switchboard panels (front and rear) in accordance with Section 16264

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0025		1	Lump Sum	$_____	$_____

Furnish and install panels
Furnish and install six (6) switchboard panels (front and rear) in accordance with Section 16264

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0026		1	Lump Sum	$_____	$_____
	Repair/replace connections Repair/replace structure, equipment, and fencing connections to the ground grid througout switchyard in accordance with Section 16050				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0027		1	Lump Sum	$_____	$_____
	Furnish and install materials Furnish and install miscellaneous switchyard material in accordance with Section 16050				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0028		1	Lump Sum	$_____	$_____
	Furnish concrete, drilling, and grouting Furnish concrete, core drilling, and grouting work in accordance with the specifications				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0029		1	Lump Sum	$_____	$_____
	Furnish spare parts Furnish spare parts in accordance with the specifications				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0030		1	Hours	$_____	$_____

Optional
Furnish electrician hire in accordance with the specifications (optional)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0031		1	Hours	$_____	$_____

Optional
Furnish other skilled craftsman hire in accordance with the specifications (optional)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0032		1	Hours	$_____	$_____

Optional
Furnish general labor hire in accordance with the specifications (optional)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0033		1	Lump Sum	$_____	$_____

Initial Asbestos assessment
Initial Asbestos assessment - initial containment, testing, CIH services, including removal of material containing asbestos, assuming that initial assessment testing are below established action levels.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0034		1	Lump Sum	$_____	$_____

Optional
Additional Asbestos related (optional) cost associated with removal of material containing Asbestos that initial assessment test results are above established action levels.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0035		1	Lump Sum	$_____	$_____

Remove existing oil piping
Remove existing oil piping in accordance with the specifications

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0036		75	Each	$_____	$_____

Repair/Replace grounding connections known to be faulty and connections found to be faulty under Bid Item 0026

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0037		1	Lump Sum	$_____	$_____

Remove and dispose of existing section of switchyard fence. Provide new double gates, posts, hardware, grounding jumpers, post foundations, and temporary access road in accordance with Section 16050.

Section 00100 - Bidding Schedule/Instructions to Bidders

CLAUSES INCORPORATED BY FULL TEXT

52.204-6 DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER (JUN 99)

(a) The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation "DUNS" followed by the DUNS number that identifies the offeror's name and address exactly as stated in the offer.

(b) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one. A DUNS number will be provided immediately by telephone at no charge to the offeror. For information on obtaining a DUNS number, the offeror, if located within the United States, should call Dun and Bradstreet at 1-800-333-0505. The offeror should be prepared to provide the following information:

(1) Company name.

(2) Company address.

(3) Company telephone number.

(4) Line of business.

(5) Chief executive officer/key manager.

(6) Date the company was started.

(7) Number of people employed by the company.

(8) Company affiliation.

(c) Offerors located outside the United States may obtain the location and phone number of the local Dun and Bradstreet Information Services office from the Internet Home Page at http://www.customerservice@dnb.com. If an offeror is unable to locate a local service center, it may send an e-mail to Dun and Bradstreet at globalinfo@mail.dnb.com.

(End of provision)

52.211-2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE DOD INDEX OF SPECIFICATIONS AND STANDARDS (DODISS) AND DESCRIPTIONS LISTED IN THE ACQUISITION MANAGEMENT SYSTEMS AND DATA REQUIREMENTS CONTROL LIST, DOD 5010.12-L (DEC 1999)

Copies of specifications, standards, and data item descriptions cited in this solicitation may be obtained--

(a) From the ASSIST database via the Internet at http://assist.daps.mil; or

(b) By submitting a request to the--Department of Defense Single Stock Point (DoDSSP), Building 4, Section D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Telephone (215) 697-2667/2179, Facsimile (215) 697-1462.

(End of provision)

52.214-3 AMENDMENTS TO INVITATIONS FOR BIDS (DEC 1989)

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date in the space provided for this purpose on the form for submitting a bid, (3) by letter or telegram, or (4) by facsimile, if facsimile bids are authorized in the solicitation. The Government must receive the acknowledgment by the time and at the place specified for receipt of bids.

(End of provision)

52.214-4 FALSE STATEMENTS IN BIDS (APR 1984)

Bidders must provide full, accurate, and complete information as required by this solicitation and its attachments. The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

(End of provision)

52.214-5 SUBMISSION OF BIDS (MAR 1997)

(a) Bids and bid modifications shall be submitted in sealed envelopes or packages (unless submitted by electronic means) (1) addressed to the office specified in the solicitation, and (2) showing the time and date specified for receipt, the solicitation number, and the name and address of the bidder.

(b) Bidders using commercial carrier services shall ensure that the bid is addressed and marked on the outermost envelope or wrapper as prescribed in subparagraphs (a)(1) and (2) of this provision when delivered to the office specified in the solicitation.

(c) Telegraphic bids will not be considered unless authorized by the solicitation; however, bids may be modified or withdrawn by written or telegraphic notice.

(d) Facsimile bids, modifications, or withdrawals, will not be considered unless authorized by the solicitation.

(e) Bids submitted by electronic commerce shall be considered only if the electronic commerce method was specifically stipulated or permitted by the solicitation.

(End of provision)

52.214-6 EXPLANATION TO PROSPECTIVE BIDDERS (APR 1984)

Any prospective bidder desiring an explanation or interpretation of the solicitation, drawings, specifications, etc., must request it in writing soon enough to allow a reply to reach all prospective bidders before the submission of their bids. Oral explanations or instructions given before the award of a contract will not be binding. Any information given a prospective bidder concerning a solicitation will be furnished promptly to all other prospective bidders as an amendment to the solicitation, if that information is necessary in submitting bids or if the lack of it would be prejudicial to other prospective bidders.

(End of provision)

52.214-7 LATE SUBMISSIONS, MODIFICATIONS, AND WITHDRAWALS OF BIDS (NOV 1999)

(a) Bidders are responsible for submitting bids, and any modifications or withdrawals, so as to reach the Government office designated in the invitation for bids (IFB) by the time specified in the IFB. If no time is specified in the IFB, the time for receipt is 4:30 p.m., local time, for the designated Government office on the date that bids are due.

(b)(1) Any bid, modification, or withdrawal received at the Government office designated in the IFB after the exact time specified for receipt of bids is “late” and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late bid would not unduly delay the acquisition; and--

(i) If it was transmitted through an electronic commerce method authorized by the IFB, 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 bids; or

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

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

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

(d) If an emergency or unanticipated event interrupts normal Government processes so that bids cannot be received at the Government office designated for receipt of bids by the exact time specified in the IFB and urgent Government requirements preclude amendment of the IFB, the time specified for receipt of bids 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.

(e) Bids may be withdrawn by written notice received at any time before the exact time set for receipt of bids. If the IFB authorizes facsimile bids, bids may be withdrawn via facsimile received at any time before the exact time set for receipt of bids, subject to the conditions specified in the provision at 52.214-31, Facsimile Bids. A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for receipt of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

(End of provision)

52.214-18 PREPARATION OF BIDS--CONSTRUCTION (APR 1984)

(a) Bids 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 bid must initial each erasure or change appearing on any bid form.

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

(1) Lump sum bidding;

(2) Alternate prices;

(3) Units of construction; or

(4) Any combination of subparagraphs (1) through (3) above.

(c) If the solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "no bid" in the space provided for any item on which no price is submitted.

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

(End of provision)

52.214-19 CONTRACT AWARD--SEALED BIDDING--CONSTRUCTION (AUG 1996)

(a) The Government will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the Government, considering only price and the price-related factors specified elsewhere in the solicitation.

(b) The Government may reject any or all bids, and waive informalities or minor irregularities in bids received.

(c) The Government may accept any item or combination of items, unless doing so is precluded by a restrictive limitation in the solicitation or the bid.

(d) The Government may reject a bid as nonresponsive if the prices bid are materially unbalanced between line items or subline items. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated in relation to cost for other work, and if there is a reasonable doubt that the bid will result in the lowest overall cost to the Government even though it may be the low evaluated bid, or if it is so unbalanced as to be tantamount to allowing an advance payment.

(End of provison)

52.214-34 SUBMISSION OF OFFERS IN THE ENGLISH LANGUAGE (APR 1991)

Offers submitted in response to this solicitation shall be in the English language. Offers received in other than English shall be rejected.

(End of provision)

52.214-35 SUBMISSION OF OFFERS IN U.S. CURRENCY (APR 1991)

Offers submitted in response to this solicitation shall be in terms of U.S. dollars. Offers received in other than U.S. dollars shall be rejected.

(End of provision)

52.214-4002 HAND-CARRIED OR MAILED BIDS/PROPOSALS:

All bids/proposals must be clearly identified with the contractor’s name and address and Notice to Bidder OF-17 label affixed to the lower left corner of the outermost wrapper indicating the Invitation No., Date of Bid/Proposal Opening, Time of Opening, and Bid/Proposals For (title of Project). Bids/Proposals not properly identified on the

outermost wrapper may not be accepted if received later than the time set for opening of bids/proposals, as there may be no way to determine the exact time of receipt.

The Government will not be responsible for bids/proposals delivered to any location or to anyone other than those designated to receive bids/proposals on its behalf as indicated below.

Bids/Proposals delivered by commercial carrier and those sent by U.S. Mail, including U.S. Express Mail, must be addressed as indicated below. Bids/proposals shall not be addressed to any specific person.

U.S. Army Engineer District, Savannah
ATTN: CESAS-CT-P
100 West Oglethorpe Avenue
Savannah, Georgia 31401-3640

Bids/Proposals sent by U.S. Mail or delivered by commercial carrier must be received by mailroom personnel on the first floor of 100 West Oglethorpe Avenue in sufficient time to be delivered to the bid opening room prior to the time set for opening of bids/proposals.

Even if bids/proposals are addressed correctly according to this clause, use of United States Postal Service Express Mail may result in delivery to the Savannah District Post Office Box instead of 100 West Oglethorpe Avenue, which may delay receipt of bids/proposals.

Hand-carried bids/proposals delivered more than a half-hour before bid opening must also be delivered to mailroom personnel on the first floor.

Hand-carried bids/proposals delivered within a half-hour of bid opening must be delivered to the bid opening room on the second floor. Bidders must allow sufficient time to pass through security on the first floor and be escorted to the second floor.

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)

52.216-1 TYPE OF CONTRACT (APR 1984)

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

(End of clause)

52.219-4001 SUBCONTRACTING PLAN FOR SMALL BUSINESS CONCERNS
(SEP 2002 CESAS-CT)

(a) In accordance with FAR Clause 52.219-9, large businesses must submit a subcontracting plan. A sample subcontracting plan is located in Section 00800.

(b) The subcontracting targets (expressed in terms of percentages of total planned subcontracting dollars) of the Savannah District are as follows:

Small Business	-	57.2%
Small Disadvantaged Business	-	8.9%
HUBZone Small Business		3.0%
Women-Owned Business	-	8.1%
Veteran-Owned Small Business		0%*
Service-Disabled Veteran-Owned Small Business	-	3.0%**

If you cannot reach the above-stated targets, you must provide written justification with your subcontracting plan detailing the reasons you cannot meet the requirements.

*(c) While Savannah District does not have a specific target for subcontracting with Veteran-Owned small businesses, this must be addressed in any subcontracting plan.

**(d) Service-disabled Veteran-owned Small Business (SD/VOSB) is a composite of Veteran-Owned Small Business. The SD/VOSB target must be included in the Veteran-Owned small business target.

52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999)

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade	Goals for female participation for each trade
6.9	19.5

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall

be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, within 10 working days following award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the --

(1) Name, address, and telephone number of the subcontractor;

(2) Employer's identification number of the subcontractor;

(3) Estimated dollar amount of the subcontract;

(4) Estimated starting and completion dates of the subcontract; and

(5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is Georgia, Hart County, City of Hartwell

(End of provision)

52.225-10 NOTICE OF BUY AMERICAN ACT REQUIREMENT--CONSTRUCTION MATERIALS (MAY 2002)

(a) Definitions. Construction material, domestic construction material, and foreign construction material, as used in this provision, are defined in the clause of this solicitation entitled “Buy American Act --Construction Materials” (Federal Acquisition Regulation (FAR) clause 52.225-9).

(b) Requests for determinations of inapplicability. An offeror requesting a determination regarding the inapplicability of the Buy American Act should submit the request to the Contracting Officer in time to allow a determination before submission of offers. The offeror shall include the information and applicable supporting data required by paragraphs (c) and (d) of the clause at FAR 52.225-9 in the request. If an offeror has not requested a determination regarding the inapplicability of the Buy American Act before submitting its offer, or has not received a response to a previous request, the offeror shall include the information and supporting data in the offer.

(c) Evaluation of offers. (1) The Government will evaluate an offer requesting exception to the requirements of the Buy American Act, based on claimed unreasonable cost of domestic construction material, by adding to the offered price the appropriate percentage of the cost of such foreign construction material, as specified in paragraph (b)(3)(i) of the clause at FAR 52.225-9.

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

(d) Alternate offers.

(1) When an offer includes foreign construction material not listed by the Government in this solicitation in paragraph (b)(2) of the clause at FAR 52.225-9, the offeror also may submit an alternate offer based on use of equivalent domestic construction material.

(2) If an alternate offer is submitted, the offeror shall submit a separate Standard Form 1442 for the alternate offer, and a separate price comparison table prepared in accordance with paragraphs (c) and (d) of the clause at FAR 52.225-9 for the offer that is based on the use of any foreign construction material for which the Government has not yet determined an exception applies.

(3) If the Government determines that a particular exception requested in accordance with paragraph (c) of the clause at FAR 52.225-9 does not apply, the Government will evaluate only those offers based on use of the equivalent domestic construction material, and the offeror shall be required to furnish such domestic construction material. An offer based on use of the foreign construction material for which an exception was requested--

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

(ii) May be accepted if revised during negotiations.

(End of provision)

52.233-2 SERVICE OF PROTEST (AUG 1996)

52 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 General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from

U.S. Army Corps of Engineers, Savannah District
ATTN: Contracting Officer, CESAS-CT-P
100 West Oglethorpe Ave
Savannah, Georgia 31401-3640

(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) – ALTERNATE I (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 been scheduled for--

April 8, 2003, 9:30 a.m. - 3:00 p.m.

(c) Participants will meet at--

U.S. Army Corps of Engineers
Hartwell Project Office
6961 Anderson Hwy
Hartwell, Georgia

NOTE: Bidders planning to attend the Prebid Conference on April 8, 2003 should notify the Hartwell Dam Powerplant Manager, Mr. David Lee at 706-856-0363

(End of provision)

52.236-4011 Disclosure of Magnitude of Construction (FAR 36.204 and DFARS 236.204)

The estimated price range for this project is between $1,000,000 and $5,000,000 dollars. .

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)

52.203-11 CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (APR 1991)

(a) The definitions and prohibitions contained in the clause, at FAR 52.203-12, Limitation on Payments to Influence

Certain Federal Transactions, included in this solicitation, are hereby incorporated by reference in paragraph (b) of this Certification.

(b) The offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief that on or after December 23, 1989,--

(1) 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 his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) 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 his or her behalf in connection with this solicitation, the offeror shall complete and submit, with its offer, OMB standard form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

(3) He or she will include the language of this certification in all subcontract awards at any tier and require that all recipients of subcontract awards in excess of $100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under 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)

52.204-5 WOMEN-OWNED BUSINESS (OTHER THAN SMALL BUSINESS) (MAY 1999)

(a) Definition. Women-owned business concern, as used in this provision, means a concern that is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of its stock is owned by one or more women; and whose management and daily business operations are controlled by one or more women.

(b) Representation. [Complete only if the offeror is a women-owned business concern and has not represented itself as a small business concern in paragraph (b)(1) of FAR 52.219-1, Small Business Program Representations, of this solicitation.] The offeror represents that it ( ) is a women-owned business concern.

(End of provision)

52.204-4003 TAXPAYER IDENTIFICATION

Taxpayer Identification Number (TIN)," as used in this provision, means the number required by the Internal Revenue Service (IRS) to be used by the offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(a) Taxpayer Identification Number (TIN).

___ TIN:._____

___ TIN has been applied for.

___ TIN is not required because:

___ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

___ Offeror is an agency or instrumentality of a foreign government;

___ Offeror is an agency or instrumentality of the Federal Government.

(b) Type of organization.

___ Sole proprietorship;

___ Partnership;

___ Corporate entity (not tax-exempt);

___ Corporate entity (tax-exempt);

___ Government entity (Federal, State, or local);

___ Foreign government;

___ International organization per 26 CFR 1.6049-4;

___ Other _____

(c) Common parent.

___ Offeror is not owned or controlled by a common parent

___ Name and TIN of common parent:

Name _____

TIN _____

(End of provision)

52.209-5 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (DEC 2001)

(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, or receiving stolen property; 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 subdivision (a)(1)(i)(B) of this provision.

(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) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER SECTION 1001, TITLE 18, UNITED STATES CODE.

(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)

52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (APR 2002) - ALTERNATE I (APR 2002)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 236220.

(2) The small business size standard is $28.5 Millon.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it ( ) is, ( ) is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it ( ) is, ( ) is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a women-owned small business concern.

(4) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a veteran-owned small business concern.

(5) (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(4) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a service-disabled veteran-owned small business concern.

(6) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents, as part of its offer, that--

(i) It ( ) is, ( ) is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It ( ) is, ( ) is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (b)(6)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. (The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture:_____.) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(7) (Complete if offeror represented itself as disadvantaged in paragraph (b)(2) of this provision.) The offeror shall check the category in which its ownership falls:

____ Black American.

____ Hispanic American.

____ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

____ Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

____ Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

____ Individual/concern, other than one of the preceding.

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

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern," means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern," means a small business concern --

(1) That is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; or

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice.

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of provision)

52.219-2 EQUAL LOW BIDS. (OCT 1995)

(a) This provision applies to small business concerns only.

(b) The bidder's status as a labor surplus area (LSA) concern may affect entitlement to award in case of tie bids. If the bidder wishes to be considered for this priority, the bidder must identify, in the following space, the LSA in which the costs to be incurred on account of manufacturing or production (by the bidder or the first-tier subcontractors) amount to more than 50 percent of the contract price.

_____

_____

(c) Failure to identify the labor surplus area as specified in paragraph (b) of this provision will preclude the bidder from receiving priority consideration. If the bidder is awarded a contract as a result of receiving priority consideration under this provision and would not have otherwise received award, the bidder shall perform the contract or cause the contract to be performed in accordance with the obligations of an LSA concern.

52.219-19 SMALL BUSINESS CONCERN REPRESENTATION FOR THE SMALL BUSINESS COMPETITIVENESS DEMONSTRATION PROGRAM (OCT 2000)

(a) Definition.

"Emerging small business" as used in this solicitation, means a small business concern whose size is no greater than 50 percent of the numerical size standard applicable to the North American Industry Classification System (NAICS) code assigned to a contracting opportunity.

(b) [Complete only if the Offeror has represented itself under the provision at 52.219-1 as a small business concern under the size standards of this solicitation.] The Offeror [ ] is, [ ] is not an emerging small business.

(c) (Complete only if the Offeror is a small business or an emerging small business, indicating its size range.)

Offeror's number of employees for the past 12 months (check this column if size standard stated in solicitation is expressed in terms of number of employees) or Offeror's average annual gross revenue for the last 3 fiscal years (check this column if size standard stated in solicitation is expressed in terms of annual receipts). (Check one of the following.)

No. of Employees	Avg. Annual Gross Revenues
____ 50 or fewer	____ $1 million or less
____ 51 - 100	____ $1,000,001 - $2 million
____ 101 - 250	____ $2,000,001 - $3.5 million
____ 251 - 500	____ $3,500,001 - $5 million
____ 501 - 750	____ $5,000,001 - $10 million

____ 751 - 1,000 ____ $10,000,001 - $17 million

____ Over 1,000 ____ Over $17 million

(End of provision)

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)

52.222-38 COMPLIANCE WITH VETERANS' EMPLOYMENT REPORTING REQUIREMENTS (DEC 2001)

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 Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans), it has submitted the most recent VETS-100 Report required by that clause.

(End of provision)

52.223-4 RECOVERED MATERIAL CERTIFICATION (OCT 1997)

As required by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6962(c)(3)(A)(i)), the offeror certifies, by signing this offer, that the percentage of recovered materials to be used in the performance of the contract will be at least the amount required by the applicable contract specifications.

(End of provision)

52.223-13 CERTIFICATION OF TOXIC CHEMICAL RELEASE REPORTING (OCT 2000)

(a) Submission of this certification is a prerequisite for making or entering into this contract imposed by Executive Order 12969, August 8, 1995.

(b) By signing this offer, the offeror certifies that--

(1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA)

(42 U.S.C. 13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or

(2) None of its owned or operated facilities to be used in the performance of this contract is subject to the Form R filing and reporting requirements because each such facility is exempt for at least one of the following reasons: (Check each block that is applicable.)

( ) (i) The facility does not manufacture, process or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

( ) (ii) The facility does not have 10 or more full-time employees as specified in section 313.(b)(1)(A) of EPCRA 42 U.S.C. 11023(b)(1)(A);

( ) (iii) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

( ) (iv) The facility does not fall within Standard Industrial Classification Code (SIC) major groups 20 through 39 or their corresponding North American Industry Classification System (NAICS) sectors 31 through 33; or

( ) (v) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.

(End of clause)

252.209-7001 DISCLOSURE OF OWNERSHIP OR CONTROL BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)

(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 include: Cuba, Iran, Iraq, Libya, North Korea, 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)

252.247-7022 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)

Section 00700 - Contract Clauses

CLAUSES INCORPORATED BY FULL TEXT

52.202-1 DEFINITIONS (MAY 2001) --ALTERNATE I (MAR 2001)

(a) Agency head or head of the agency means the Secretary (Attorney General, Administrator, Governor, Chairperson, or other chief official, as appropriate) of the agency, unless otherwise indicated, including any deputy or assistant chief official of the executive agency.

(b) Commercial component means any component that is a commercial item.

(c) Component means any item supplied to the Government as part of an end item or of another component, except that for use in 52.225-9, and 52.225-11 see the definitions in 52.225-9(a) and 52.225-11(a).

(d) Contracting Officer means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Contracting Officer acting within the limits of their authority as delegated by the Contracting Officer.

(e) Nondevelopmental item means--

(1) Any previously developed item of supply used exclusively for governmental purposes by a Federal agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement;

(2) Any item described in paragraph (f)(1) of this definition that requires only minor modification or modifications of a type customarily available in the commercial marketplace in order to meet the requirements of the procuring department or agency; or

(3) Any item of supply being produced that does not meet the requirements of paragraph (f)(1) or (f)(2) solely because the item is not yet in use.

(f) "Contracting Officer" means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Contracting Officer acting within the limits of their authority as delegated by the Contracting Officer.

(g) Except as otherwise provided in this contract, the term "subcontracts" includes, but is not limited to, purchase orders and changes and modifications to purchase orders under this contract.

(End of clause)

52.203-3 GRATUITIES (APR 1984)

(a) The right of the Contractor to proceed may be terminated by written notice if, after notice and hearing, the agency head or a designee determines that the Contractor, its agent, or another representative--

(1) Offered or gave a gratuity (e.g., an entertainment or gift) to an officer, official, or employee of the Government; and

(2) Intended, by the gratuity, to obtain a contract or favorable treatment under a contract.

(b) The facts supporting this determination may be reviewed by any court having lawful jurisdiction.

(c) If this contract is terminated under paragraph (a) of this clause, the Government is entitled--

(1) To pursue the same remedies as in a breach of the contract; and

(2) In addition to any other damages provided by law, to exemplary damages of not less than 3 nor more than 10 times the cost incurred by the Contractor in giving gratuities to the person concerned, as determined by the agency head or a designee. (This subparagraph (c)(2) is applicable only if this contract uses money appropriated to the Department of Defense.)

(d) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

52.203-5 COVENANT AGAINST CONTINGENT FEES (APR 1984)

(a) The Contractor warrants that no person or agency has been employed or retained to solicit or obtain this contract upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this warranty, the Government shall have the right to annul this contract without liability or, in its discretion, to deduct from the contract price or consideration, or otherwise recover, the full amount of the contingent fee.

(b) "Bona fide agency," as used in this clause, means an established commercial or selling agency, maintained by a contractor for the purpose of securing business, that neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds itself out as being able to obtain any Government contract or contracts through improper influence.

"Bona fide employee," as used in this clause, means a person, employed by a contractor and subject to the contractor's supervision and control as to time, place, and manner of performance, who neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds out as being able to obtain any Government contract or contracts through improper influence.

"Contingent fee," as used in this clause, means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a Government contract.

"Improper influence," as used in this clause, means any influence that induces or tends to induce a Government employee or officer to give consideration or to act regarding a Government contract on any basis other than the merits of the matter.

(End of clause)

52.203-6 RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT (JUL 1995)

(a) Except as provided in (b) of this clause, the Contractor shall not enter into any agreement with an actual or prospective subcontractor, nor otherwise act in any manner, which has or may have the effect of restricting sales by such subcontractors directly to the Government of any item or process (including computer software) made or furnished by the subcontractor under this contract or under any follow-on production contract.

(b) The prohibition in (a) of this clause does not preclude the Contractor from asserting rights that are otherwise authorized by law or regulation.

(c) The Contractor agrees to incorporate the substance of this clause, including this paragraph (c), in all subcontracts under this contract which exceed $100,000.

52.203-7 ANTI-KICKBACK PROCEDURES. (JUL 1995)

(a) Definitions.

"Kickback," as used in this clause, means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided, directly or indirectly, to any prime Contractor, prime Contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a subcontract relating to a prime contract.

"Person," as used in this clause, means a corporation, partnership, business association of any kind, trust, joint-stock company, or individual.

"Prime contract," as used in this clause, means a contract or contractual action entered into by the United States for the purpose of obtaining supplies, materials, equipment, or services of any kind.

"Prime Contractor," as used in this clause, means a person who has entered into a prime contract with the United States.

"Prime Contractor employee," as used in this clause, means any officer, partner, employee, or agent of a prime Contractor.

"Subcontract," as used in this clause, means a contract or contractual action entered into by a prime Contractor or subcontractor for the purpose of obtaining supplies, materials, equipment, or services of any kind under a prime contract.

"Subcontractor," as used in this clause, (1) means any person, other than the prime Contractor, who offers to furnish or furnishes any supplies, materials, equipment, or services of any kind under a prime contract or a subcontract entered into in connection with such prime contract, and (2) includes any person who offers to furnish or furnishes general supplies to the prime Contractor or a higher tier subcontractor.

"Subcontractor employee," as used in this clause, means any officer, partner, employee, or agent of a subcontractor.

(b) The Anti-Kickback Act of 1986 (41 U.S.C. 51-58) (the Act), prohibits any person from -

(1) Providing or attempting to provide or offering to provide any kickback;

(2) Soliciting, accepting, or attempting to accept any kickback; or

(3) Including, directly or indirectly, the amount of any kickback in the contract price charged by a prime Contractor to the United States or in the contract price charged by a subcontractor to a prime Contractor or higher tier subcontractor.

(c)(1) The Contractor shall have in place and follow reasonable procedures designed to prevent and detect possible violations described in paragraph (b) of this clause in its own operations and direct business relationships.

(2) When the Contractor has reasonable grounds to believe that a violation described in paragraph (b) of this clause may have occurred, the Contractor shall promptly report in writing the possible violation. Such reports shall be

made to the inspector general of the contracting agency, the head of the contracting agency if the agency does not have an inspector general, or the Department of Justice.

(3) The Contractor shall cooperate fully with any Federal agency investigating a possible violation described in paragraph (b) of this clause.

(4) The Contracting Officer may (i) offset the amount of the kickback against any monies owed by the United States under the prime contract and/or (ii) direct that the Prime Contractor withhold, from sums owed a subcontractor under the prime contract, the amount of any kickback. The Contracting Officer may order the monies withheld under subdivision (c)(4)(ii) of this clause be paid over to the Government unless the Government has already offset those monies under subdivision (c)(4)(i) of this clause. In either case, the Prime Contractor shall notify the Contracting Officer when the monies are withheld.

(5) The Contractor agrees to incorporate the substance of this clause, including this subparagraph (c)(5) but excepting subparagraph (c)(1), in all subcontracts under this contract which exceed $100,000.

52.203-8 CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)

(a) If the Government receives information that a contractor or a person has engaged in conduct constituting a violation of subsection (a), (b), (c), or (d) of Section 27 of the Office of Federal Procurement Policy Act (41 U.S.C. 423) (the Act), as amended by section 4304 of the 1996 National Defense Authorization Act for Fiscal Year 1996 (Pub. L. 104-106), the Government may--

(1) Cancel the solicitation, if the contract has not yet been awarded or issued; or

(2) Rescind the contract with respect to which--

(i) The Contractor or someone acting for the Contractor has been convicted for an offense where the conduct constitutes a violation of subsection 27(a) or (b) of the Act for the purpose of either--

(A) Exchanging the information covered by such subsections for anything of value; or

(B) Obtaining or giving anyone a competitive advantage in the award of a Federal agency procurement contract; or

(ii) The head of the contracting activity has determined, based upon a preponderance of the evidence, that the Contractor or someone acting for the Contractor has engaged in conduct constituting an offense punishable under subsections 27(e)(1) of the Act.

(b) If the Government rescinds the contract under paragraph (a) of this clause, the Government is entitled to recover, in addition to any penalty prescribed by law, the amount expended under the contract.

(c) The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law, regulation, or under this contract.

(End of clause)

52.203-10 PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)

(a) The Government, at its election, may reduce the price of a fixed-price type contract and the total cost and fee under a cost-type contract by the amount of profit or fee determined as set forth in paragraph (b) of this clause if the head of the contracting activity or designee determines that there was a violation of subsection 27 (a), (b), or (c) of the Office of Federal Procurement Policy Act, as amended (41 U.S.C. 423), as implemented in section 3.104 of the Federal Acquisition Regulation.

(b) The price or fee reduction referred to in paragraph (a) of this clause shall be--

(1) For cost-plus-fixed-fee contracts, the amount of the fee specified in the contract at the time of award;

(2) For cost-plus-incentive-fee contracts, the target fee specified in the contract at the time of award, notwithstanding any minimum fee or "fee floor" specified in the contract;

(3) For cost-plus-award-fee contracts--

(i) The base fee established in the contract at the time of contract award;

(ii) If no base fee is specified in the contract, 30 percent of the amount of each award fee otherwise payable to the Contractor for each award fee evaluation period or at each award fee determination point.

(4) For fixed-price-incentive contracts, the Government may--

(i) Reduce the contract target price and contract target profit both by an amount equal to the initial target profit specified in the contract at the time of contract award; or

(ii) If an immediate adjustment to the contract target price and contract target profit would have a significant adverse impact on the incentive price revision relationship under the contract, or adversely affect the contract financing provisions, the Contracting Officer may defer such adjustment until establishment of the total final price of the contract. The total final price established in accordance with the incentive price revision provisions of the contract shall be reduced by an amount equal to the initial target profit specified in the contract at the time of contract award and such reduced price shall be the total final contract price.

(5) For firm-fixed-price contracts, by 10 percent of the initial contract price or a profit amount determined by the Contracting Officer from records or documents in existence prior to the date of the contract award.

(c) The Government may, at its election, reduce a prime contractor's price or fee in accordance with the procedures of paragraph (b) of this clause for violations of the Act by its subcontractors by an amount not to exceed the amount of profit or fee reflected in the subcontract at the time the subcontract was first definitively priced.

(d) In addition to the remedies in paragraphs (a) and (c) of this clause, the Government may terminate this contract for default. The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

52.203-12 LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (JUN 1997)

(a) Definitions.

"Agency," as used in this clause, means executive agency as defined in 2.101.

"Covered Federal action," as used in this clause, means any of the following Federal actions:

(1) The awarding of any Federal contract.

(2) The making of any Federal grant.

(3) The making of any Federal loan.

(4) The entering into of any cooperative agreement.

(5) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

"Indian tribe" and "tribal organization," as used in this clause, have the meaning provided in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) and include Alaskan Natives.

"Influencing or attempting to influence," as used in this clause, means making, with the intent to influence, any communication to or appearance before 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 in connection with any covered Federal action.

"Local government," as used in this clause, means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee of an agency," as used in this clause, includes the following individuals who are employed by an agency:

(1) An individual who is appointed to a position in the Government under Title 5, United States Code, including a position under a temporary appointment.

(2) A member of the uniformed services, as defined in subsection 101(3),Title 37, United States Code.

(3) A special Government employee, as defined in section 202, Title 18, United States Code.

(4) An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, Title 5, United States Code, appendix 2.

"Person," as used in this clause, means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit, or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Reasonable compensation," as used in this clause, means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Reasonable payment," as used in this clause, means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

"Recipient," as used in this clause, includes the Contractor and all subcontractors. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly employed," as used in this clause, means, with respect to an officer or employee of a person requesting or receiving a Federal contract, an officer or employee who is employed by such person for at least 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.

"State," as used in this clause, means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and multi-State, regional, or interstate entity having governmental duties and powers.

(b) Prohibitions.

(1) Section 1352 of Title 31, United States Code, among other things, prohibits a recipient of a Federal contract, grant, loan, or cooperative agreement from using appropriated funds to pay 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 in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.

(2) The Act also requires Contractors to furnish a disclosure if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) 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 in connection with a Federal contract, grant, loan, or cooperative agreement.

(3) The prohibitions of the Act do not apply under the following conditions:

(i) Agency and legislative liaison by own employees.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.

(B) For purposes of subdivision (b)(3)(i)(A) of this clause, providing any information specifically requested by an agency or Congress is permitted at any time.

(C) The following agency and legislative liaison activities are permitted at any time where they are not related to a specific solicitation for any covered Federal action:

(1) Discussing with an agency the qualities and characteristics (including individual demonstrations) of the person's products or services, conditions or terms of sale, and service capabilities.

(2) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(D) The following agency and legislative liaison activities are permitted where they are prior to formal solicitation of any covered Federal action--

(1) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(2) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(3) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Pub. L. 95-507, and subsequent amendments.

(E) Only those services expressly authorized by subdivision (b)(3)(i)(A) of this clause are permitted under this clause.

(ii) Professional and technical services.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of--

(1) A payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action, if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action.

(2) Any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action. Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(B) For purposes of subdivision (b)(3)(ii)(A) of this clause, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(C) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation and any other requirements in the actual award documents.

(D) Only those services expressly authorized by subdivisions (b)(3)(ii)(A)(1) and (2) of this clause are permitted under this clause.

(E) The reporting requirements of FAR 3.803(a) shall not apply with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

(c) Disclosure.

(1) The Contractor who requests or receives from an agency a Federal contract shall file with that agency a disclosure form, OMB standard form LLL, Disclosure of Lobbying Activities, if such person has made or has agreed to make any payment using nonappropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph (b)(1) of this clause, if paid for with appropriated funds.

(2) The Contractor shall file a disclosure form at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph (c)(1) of this clause. An event that materially affects the accuracy of the information reported includes--

(i) A cumulative increase of $25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

(ii) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

(iii) A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

(3) The Contractor shall require the submittal of a certification, and if required, a disclosure form by any person who requests or receives any subcontract exceeding $100,000 under the Federal contract.

(4) All subcontractor disclosure forms (but not certifications) shall be forwarded from tier to tier until received by the prime Contractor. The prime Contractor shall submit all disclosures to the Contracting Officer at the end of the calendar quarter in which the disclosure form is submitted by the subcontractor. Each subcontractor certification shall be retained in the subcontract file of the awarding Contractor.

(d) Agreement. The Contractor agrees not to make any payment prohibited by this clause.

(e) Penalties.

(1) Any person who makes an expenditure prohibited under paragraph (a) of this clause or who fails to file or amend the disclosure form to be filed or amended by paragraph (b) of this clause shall be subject to civil penalties as provided for by 31 U.S.C. 1352. An imposition of a civil penalty does not prevent the Government from seeking any other remedy that may be applicable.

(2) Contractors may rely without liability on the representation made by their subcontractors in the certification and disclosure form.

(f) Cost allowability. Nothing in this clause makes allowable or reasonable any costs which would otherwise be unallowable or unreasonable. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any other provision.

(End of clause)

52.204-4 PRINTED OR COPIED DOUBLE-SIDED ON RECYCLED PAPER (AUG 2000)

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

“Postconsumer material” means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of “recovered material.” For paper and paper products, postconsumer material means “postconsumer fiber” defined by the U.S. Environmental Protection Agency (EPA) as--

(1) Paper, paperboard, and fibrous materials from retail stores, office buildings, homes, and so forth, after they have passed through their end-usage as a consumer item, including: used corrugated boxes; old newspapers; old magazines; mixed waste paper; tabulating cards; and used cordage; or

(2) All paper, paperboard, and fibrous materials that enter and are collected from municipal solid waste; but not

(3) Fiber derived from printers' over-runs, converters' scrap, and over-issue publications.

“Printed or copied double-sided” means printing or reproducing a document so that information is on both sides of a sheet of paper.

“Recovered material,” for paper and paper products, is defined by EPA in its Comprehensive Procurement Guideline as “recovered fiber” and means the following materials:

(1) Postconsumer fiber; and

(2) Manufacturing wastes such as--

(i) Dry paper and paperboard waste generated after completion of the papermaking process (that is, those manufacturing operations up to and including the cutting and trimming of the paper machine reel into smaller rolls or rough sheets) including: envelope cuttings, bindery trimmings, and other paper and paperboard waste resulting from printing, cutting, forming, and other converting operations; bag, box, and carton manufacturing wastes; and butt rolls, mill wrappers, and rejected unused stock; and

(ii) Repulped finished paper and paperboard from obsolete inventories of paper and paperboard manufacturers, merchants, wholesalers, dealers, printers, converters, or others.

(b) In accordance with Section 101 of Executive Order 13101 of September 14, 1998, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition, the Contractor is encouraged to submit paper documents, such as offers, letters, or reports, that are printed or copied double-sided on recycled paper that meet minimum content standards specified in Section 505 of Executive Order 13101, when not using electronic commerce methods to submit information or data to the Government.

(c) If the Contractor cannot purchase high-speed copier paper, offset paper, forms bond, computer printout paper, carbonless paper, file folders, white wove envelopes, writing and office paper, book paper, cotton fiber paper, and cover stock meeting the 30 percent postconsumer material standard for use in submitting paper documents to the Government, it should use paper containing no less than 20 percent postconsumer material. This lesser standard should be used only when paper meeting the 30 percent postconsumer material standard is not obtainable at a reasonable price or does not meet reasonable performance standards.

(End of clause)

52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT (JUL 1995)

(a) The Government suspends or debars Contractors to protect the Government's interests. The Contractor shall not enter into any subcontract in excess of the $25,000 with a Contractor that is debarred, suspended, or proposed for debarment unless there is a compelling reason to do so.

(b) The Contractor shall require each proposed first-tier subcontractor, whose subcontract will exceed $25,000, to disclose to the Contractor, in writing, whether as of the time of award of the subcontract, the subcontractor, or its principles, is or is not debarred, suspended, or proposed for debarment by the Federal Government.

(c) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is debarred, suspended, or proposed for debarment (see FAR 9.404 for information on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs). The notice must include the following:

(1) The name of the subcontractor.

(2) The Contractor's knowledge of the reasons for the subcontractor being on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(3) The compelling reason(s) for doing business with the subcontractor notwithstanding its inclusion on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(4) The systems and procedures the Contractor has established to ensure that it is fully protecting the Government's interests when dealing with such subcontractor in view of the specific basis for the party's debarment, suspension, or proposed debarment.

(End of clause)

52.211-18 VARIATION IN ESTIMATED QUANTITY (APR 1984)

If the quantity of a unit-priced item in this contract is an estimated quantity and the actual quantity of the unit-priced item varies more than 15 percent above or below the estimated quantity, an equitable adjustment in the contract price shall be made upon demand of either party. The equitable adjustment shall be based upon any increase or decrease in costs due solely to the variation above 115 percent or below 85 percent of the estimated quantity. If the quantity variation is such as to cause an increase in the time necessary for completion, the Contractor may request, in writing, an extension of time, to be received by the Contracting Officer within 10 days from the beginning of the delay, or within such further period as may be granted by the Contracting Officer before the date of final settlement of the contract. Upon the receipt of a written request for an extension, the Contracting Officer shall ascertain the facts and make an adjustment for extending the completion date as, in the judgement of the Contracting Officer, is justified.

52.214-27 PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA - MODIFICATIONS - SEALED BIDDING. (OCT 1997)

(a) This clause shall become operative only for any modification to this contract involving aggregate increases and/or decreases in costs, plus applicable profits, expected to exceed the threshold for the submission of cost or pricing data at FAR 15.403-4(a)(1), except that this clause does not apply to a modification if an exception under FAR 15.403-1(b) applies.

(1) Based on adequate price competition;

(2) Based on established catalog or market prices of commercial items sold in substantial quantities to the general public; or

(3) Set by law or regulation.

(b) If any price, including profit, negotiated in connection with any modification under this clause, was increased by any significant amount because

(1) the Contractor or a subcontractor furnished cost or pricing data that were not complete, accurate, and current as certified in its Certificate of Current Cost or Pricing Data;

(2) a subcontractor or prospective subcontractor furnished the Contractor cost or pricing data that were not complete, accurate, and current as certified in the Contractor's Certificate of Current Cost or Pricing Data; or

(3) any of these parties furnished data of any description that were not accurate, the price shall be reduced accordingly and the contract shall be modified to reflect the reduction. This right to a price reduction is limited to that resulting from defects in data relating to modifications for which this clause becomes operative under paragraph (a) above.

(c) Any reduction in the contract price under paragraph (b) above due to defective data from a prospective subcontractor that was not subsequently awarded the subcontract shall be limited to the amount, plus applicable overhead and profit markup, by which:

(1) the actual subcontract; or

(2) the actual cost to the Contractor, if there was no subcontract, was less than the prospective subcontract cost estimate submitted by the Contractor; provided, that the actual subcontract price was not itself affected by defective cost or pricing data.

(d) If the Contracting Officer determines under paragraph (b) of this clause that a price or cost reduction should be made:

(1) the Contractor agrees not to raise the following matters as a defense:

(i) The Contractor or subcontractor was a sole source supplier or otherwise was in a superior bargaining position and thus the price of the contract would not have been modified even if accurate, complete, and current cost or pricing data had been submitted;

(ii) The Contracting Officer should have known that the cost or pricing data in issue were defective even though the Contractor or subcontractor took no affirmative action to bring the character of the data to the attention of the Contracting Officer;

(iii) The contract was based on an agreement about the total cost of the contract and there was no agreement about the cost of each item procured under the contract; or

(iv) The Contractor or subcontractor did not submit a Certificate of Current Cost or Pricing Data.

(2) Except as prohibited by subdivision (d)(2)(ii) of this clause:

(i) an offset in an amount determined appropriate by the Contracting Officer based upon the facts shall be allowed against the amount of a contract price reduction if:

(A) The Contractor certifies to the Contracting Officer that, to the best of the Contractor's knowledge and belief, the Contractor is entitled to the offset in the amount requested; and

(B) The Contractor proves that the cost or pricing data were available before the date of agreement on the price of the contract (or price of the modification) and that the data were not submitted before such date.

(ii) An offset shall not be allowed if:

(A) The understated data was known by the Contractor to be understated when the Certificate of Current Cost or Pricing Data was signed; or (B) The Government proves that the facts demonstrate that the contract price would not

have increased in the amount to be offset even if the available data had been submitted before the date of agreement on price.

(e) If any reduction in the contract price under this clause reduces the price of items for which payment was made prior to the date of the modification reflecting the price reduction, the Contractor shall be liable to and shall pay the United States at the time such overpayment is repaid:

(1) Simple interest on the amount of such overpayment to be computed from the date(s) of overpayment to the Contractor to the date the Government is repaid by the Contractor at the applicable underpayment rate effective for each quarter prescribed by the Secretary of the Treasury under 26 U.S.C. 6621(a)(2); and

(2) A penalty equal to the amount of the overpayment, if the Contractor or subcontractor knowingly submitted cost or pricing data which were incomplete, inaccurate, or noncurrent.

(End of clause)

52.214-28 SUBCONTRACTOR COST OR PRICING DATA - MODIFICATIONS - SEALED BIDDING. (OCT 1997)

(a) The requirements of paragraphs (b) and (c) of this clause shall:

(1) become operative only for any modification to this contract involving aggregate increases and/or decreases in costs, plus applicable profits, expected to exceed the threshold for submission of cost or pricing data at (FAR) 48 CFR 15.403-4(a)(1); and

(2) be limited to such modifications.

(b) Before awarding any subcontract expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4(a)(1), on the date of agreement on price or the date of award, whichever is later; or before pricing any subcontract modifications involving aggregate increases and/or decreases in costs, plus applicable profits, expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4(a)(1), the Contractor shall require the subcontractor to submit cost or pricing data (actually or by specific identification in writing), unless an exception under FAR 15.403-1(b) applies.

(1) Based on adequate price competition;

(2) Based on established catalog or market prices of commercial items sold in substantial quantities to the general public; or

(3) Set by law or regulation.

(c) The Contractor shall require the subcontractor to certify in substantially the form prescribed in subsection 15.406-2 of the Federal Acquisition Regulation that, to the best of its knowledge and belief, the data submitted under paragraph (b) above were accurate, complete, and current as of the date of agreement on the negotiated price of the subcontract or subcontract modification.

(d) The Contractor shall insert the substance of this clause, including this paragraph (d), in each subcontract that, when entered into, exceeds the threshold for submission of cost or pricing data at FAR 15.403-4(a)(1).

(End of clause)

52.215-21 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA--MODIFICATIONS (OCT 1997)

(a) Exceptions from cost or pricing data. (1) In lieu of submitting cost or pricing data for modifications under this contract, for price adjustments expected to exceed the threshold set forth at FAR 15.403-4 on the date of the agreement on price or the date of the award, whichever is later, the Contractor may submit a written request for exception by submitting the information described in the following subparagraphs. The Contracting Officer may require additional supporting information, but only to the extent necessary to determine whether an exception should be granted, and whether the price is fair and reasonable--

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

(ii) Information on modifications of contracts or subcontracts for commercial items. (A) If--

(1) The original contract or subcontract was granted an exception from cost or pricing data requirements because the price agreed upon was based on adequate price competition or prices set by law or regulation, or was a contract or subcontract for the acquisition of a commercial item; and

(2) The modification (to the contract or subcontract) is not exempted based on one of these exceptions, then the Contractor may provide information to establish that the modification would not change the contract or subcontract from a contract or subcontract for the acquisition of a commercial item to a contract or subcontract for the acquisition of an item other than a commercial item.

(B) For a commercial item exception, the Contractor shall provide, at a minimum, information on prices at which the same item or similar items have previously been sold that is adequate for evaluating the reasonableness of the price of the modification. Such information may include--

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

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

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

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

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

(1) The Contractor shall submit cost or pricing data and supporting attachments in accordance with Table 15-2 of FAR 15.408.

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

(End of clause)

52.219-4 NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS (JAN 1999)

(a) Definition. HUBZone small business concern, as used in this clause, means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.

(b) Evaluation preference. (1) Offers will be evaluated by adding a factor of 10 percent to the price of all offers, except--

(i) Offers from HUBZone small business concerns that have not waived the evaluation preference;

(ii) Otherwise successful offers from small business concerns;

(iii) Otherwise successful offers of eligible products under the Trade Agreements Act when the dollar threshold for application of the Act is exceeded (see 25.402 of the Federal Acquisition Regulation (FAR)); and

(iv) Otherwise successful offers where application of the factor would be inconsistent with a Memorandum of Understanding or other international agreement with a foreign government.

(2) The factor of 10 percent shall be applied on a line item basis or to any group of items on which award may be made. Other evaluation factors described in the solicitation shall be applied before application of the factor.

(3) A concern that is both a HUBZone small business concern and a small disadvantaged business concern will receive the benefit of both the HUBZone small business price evaluation preference and the small disadvantaged business price evaluation adjustment (see FAR clause 52.219-23). Each applicable price evaluation preference or adjustment shall be calculated independently against an offeror's base offer.

These individual preference amounts shall be added together to arrive at the total evaluated price for that offer.

(c) Waiver of evaluation preference. A HUBZone small business concern may elect to waive the evaluation preference, in which case the factor will be added to its offer for evaluation purposes. The agreements in paragraph (d) of this clause do not apply if the offeror has waived the evaluation preference.

___ Offeror elects to waive the evaluation preference.

(d) Agreement. A HUBZone small business concern agrees that in the performance of the contract, in the case of a contract for

(1) Services (except construction), at least 50 percent of the cost of personnel for contract performance will be spent for employees of the concern or employees of other HUBZone small business concerns;

(2) Supplies (other than procurement from a nonmanufacturer of such supplies), at least 50 percent of the cost of manufacturing, excluding the cost of materials, will be performed by the concern or other HUBZone small business concerns;

(3) General construction, at least 15 percent of the cost of the contract performance incurred for personnel will be will be spent on the concern's employees or the employees of other HUBZone small business concerns; or

(4) Construction by special trade contractors, at least 25 percent of the cost of the contract performance incurred for personnel will be spent on the concern's employees or the employees of other HUBZone small business concerns.

(e) A HUBZone joint venture agrees that in the performance of the contract, the applicable percentage specified in paragraph (d) of this clause will be performed by the HUBZone small business participant or participants.

(f) A HUBZone small business concern nonmanufacturer agrees to furnish in performing this contract only end items manufactured or produced by HUBZone small business manufacturer concerns. This paragraph does not apply in connection with construction or service contracts.

(End of clause)

52.219-8 UTILIZATION OF SMALL BUSINESS CONCERNS (OCT 2000)

(a) It is the policy of the United States that small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns shall have the maximum practicable opportunity to participate in performing contracts let by any Federal agency, including contracts and subcontracts for subsystems, assemblies, components, and related services for major systems. It is further the policy of the United States that its prime contractors establish procedures to ensure the timely payment of amounts due pursuant to the terms of their subcontracts with small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns.

(b) The Contractor hereby agrees to carry out this policy in the awarding of subcontracts to the fullest extent consistent with efficient contract performance. The Contractor further agrees to cooperate in any studies or surveys as may be conducted by the United States Small Business Administration or the awarding agency of the United States as may be necessary to determine the extent of the Contractor's compliance with this clause.

Definitions. As used in this contract--

HUBZone small business concern means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

Small business concern means a small business as defined pursuant to Section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto.

Small disadvantaged business concern means a small business concern that represents, as part of its offer that--

(1) It has received certification as a small disadvantaged business concern consistent with 13 CFR part 124, subpart B;

(2) No material change in disadvantaged ownership and control has occurred since its certification;

(3) Where the concern is owned by one or more individuals, the net worth of each individual upon whom the certification is based does not exceed $750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and

(4) It is identified, on the date of its representation, as a certified small disadvantaged business in the database maintained by the Small Business Administration (PRO-Net).

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

Women-owned small business concern means a small business concern--

(1) That is at least 51 percent owned by one or more women, or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as a small business concern, a veteran-owned small business concern, a service-disabled veteran-owned small business concern, a HUBZone small business concern, a small disadvantaged business concern, or a women-owned small business concern.

(End of clause)

52.219-9 SMALL BUSINESS SUBCONTRACTING PLAN (JAN 2002)--ALTERNATE I (OCT 2001).

(a) This clause does not apply to small business concerns.

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

Commercial item means a product or service that satisfies the definition of commercial item in section 2.101 of the Federal Acquisition Regulation.

Commercial plan means a subcontracting plan (including goals) that covers the offeror's fiscal year and that applies to the entire production of commercial items sold by either the entire company or a portion thereof (e.g., division, plant, or product line).

Individual contract plan means a subcontracting plan that covers the entire contract period (including option periods), applies to a specific contract, and has goals that are based on the offeror's planned subcontracting in

support of the specific contract, except that indirect costs incurred for common or joint purposes may be allocated on a prorated basis to the contract.

Master plan means a subcontracting plan that contains all the required elements of an individual contract plan, except goals, and may be incorporated into individual contract plans, provided the master plan has been approved.

Subcontract means any agreement (other than one involving an employer-employee relationship) entered into by a Federal Government prime Contractor or subcontractor calling for supplies or services required for performance of the contract or subcontract.

(c) The apparent low bidder, upon request by the Contracting Officer, shall submit a subcontracting plan, where applicable, that separately addresses subcontracting with small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns. If the bidder is submitting an individual contract plan, the plan must separately address subcontracting with small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns, with a separate part for the basic contract and separate parts for each option (if any). The plan shall be included in and made a part of the resultant contract. The subcontracting plan shall be submitted within the time specified by the Contracting Officer. Failure to submit the subcontracting plan shall make the bidder ineligible for the award of a contract.

(d) The offeror's subcontracting plan shall include the following:

(1) Goals, expressed in terms of percentages of total planned subcontracting dollars, for the use of small business, veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns as subcontractors. The offeror shall include all subcontracts that contribute to contract performance, and may include a proportionate share of products and services that are normally allocated as indirect costs.

(2) A statement of--

(i) Total dollars planned to be subcontracted for an individual contract plan; or the offeror's total projected sales, expressed in dollars, and the total value of projected subcontracts to support the sales for a commercial plan;

(ii) Total dollars planned to be subcontracted to small business concerns;

(iii) Total dollars planned to be subcontracted to veteran-owned small business concerns;

(iv) Total dollars planned to be subcontracted to HUBZone small business concerns;

(v) Total dollars planned to be subcontracted to small disadvantaged business concerns; and

(vi) Total dollars planned to be subcontracted to women-owned small business concerns.

(3) A description of the principal types of supplies and services to be subcontracted, and an identification of the types planned for subcontracting to--

(i) Small business concerns;

(ii) Veteran-owned small business concerns;

(iii) HUBZone small business concerns;

(iv) Small disadvantaged business concerns; and

(v) Women-owned small business concerns.

(4) A description of the method used to develop the subcontracting goals in paragraph (d)(1) of this clause.

(5) A description of the method used to identify potential sources for solicitation purposes (e.g., existing company source lists, the Procurement Marketing and Access Network (PRO-Net) of the Small Business Administration (SBA), veterans service organizations, the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce, or small, HUBZone, small disadvantaged, and women-owned small business trade associations). A firm may rely on the information contained in PRO-Net as an accurate representation of a concern's size and ownership characteristics for the purposes of maintaining a small, veteran-owned small, HUBZone small, small disadvantaged, and women-owned small business source list. Use of PRO-Net as its source list does not relieve a firm of its responsibilities (e.g., outreach, assistance, counseling, or publicizing subcontracting opportunities) in this clause.

(6) A statement as to whether or not the offeror in included indirect costs in establishing subcontracting goals, and a description of the method used to determine the proportionate share of indirect costs to be incurred with—

(i) Small business concerns;

(ii) Veteran-owned small business concerns;

(iii) HUBZone small business concerns;

(iv) Small disadvantaged business concerns; and

(v) Women-owned small business concerns.

(7) The name of the individual employed by the offeror who will administer the offeror's subcontracting program, and a description of the duties of the individual.

(8) A description of the efforts the offeror will make to assure that small business, veteran-owned small business, HUBZone small business, small disadvantaged business and women-owned small business concerns have an equitable opportunity to compete for subcontracts.

(9) Assurances that the offeror will include the clause of this contract entitled ``Utilization of Small Business Concerns'' in all subcontracts that offer further subcontracting opportunities, and that the offeror will require all subcontractors (except small business concerns) that receive subcontracts in excess of $500,000 ($1,000,000 for construction of any public facility) to adopt a subcontracting plan that complies with the requirements of this clause.

(10) Assurances that the offeror will--

(i) Cooperate in any studies or surveys as may be required;

(ii) Submit periodic reports so that the Government can determine the extent of compliance by the offeror with the subcontracting plan;

(iii) Submit Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and/or SF 295, Summary Subcontract Report, in accordance with paragraph (j) of this clause. The reports shall provide information on subcontract awards to small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, small disadvantaged business concerns, women-owned small business concerns, and Historically Black Colleges and Universities and Minority Institutions. Reporting shall be in accordance with the instructions on the forms or as provided in agency regulations.

(iv) Ensure that its subcontractors agree to submit SF 294 and SF 295.

(11) A description of the types of records that will be maintained concerning procedures that have been adopted to comply with the requirements and goals in the plan, including establishing source lists; and a description of the offeror's efforts to locate small business, veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns and award subcontracts to them. The records shall include at least the following (on a plant-wide or company-wide basis, unless otherwise indicated)

(i) Source lists (e.g., PRO-Net), guides, and other data that identify small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.

(ii) Organizations contacted in an attempt to locate sources that are small business, veteran-owned small business, HUBZone small business, small disadvantaged business, or women-owned small business concerns.

(iii) Records on each subcontract solicitation resulting in an award of more than $100,000, indicating--

(A) Whether small business concerns were solicited and, if not, why not;

(B) Whether veteran-owned small business concerns were solicited and, if not, why not;

(C) Whether HUBZone small business concerns were solicited and, if not, why not;

(D) Whether small disadvantaged business concerns were solicited and, if not, why not;

(E) Whether women-owned small business concerns were solicited and, if not, why not; and

(F) If applicable, the reason award was not made to a small business concern.

(iv) Records of any outreach efforts to contact--

(A) Trade associations;

(B) Business development organizations;

(C) Conferences and trade fairs to locate small, HUBZone small, small disadvantaged, and women-owned small business sources; and

(D) Veterans service organizations.

(v) Records of internal guidance and encouragement provided to buyers through--

(A) Workshops, seminars, training, etc.; and

(B) Monitoring performance to evaluate compliance with the program's requirements.

(vi) On a contract-by-contract basis, records to support award data submitted by the offeror to the Government, including the name, address, and business size of each subcontractor. Contractors having commercial plans need not comply with this requirement.

(e) In order to effectively implement this plan to the extent consistent with efficient contract performance, the Contractor shall perform the following functions:

(1) Assist small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation by such concerns. Where the Contractor's

lists of potential small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.

(2) Provide adequate and timely consideration of the potentialities of small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns in all ``make-or-buy'' decisions.

(3) Counsel and discuss subcontracting opportunities with representatives of small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business firms.

(4) Provide notice to subcontractors concerning penalties and remedies for misrepresentations of business status as small, veteran-owner small business, HUBZone small, small disadvantaged, or women-owned small business for the purpose of obtaining a subcontract that is to be included as part or all of a goal contained in the Contractor's subcontracting plan.

(f) A master plan on a plant or division-wide basis that contains all the elements required by paragraph (d) of this clause, except goals, may be incorporated by reference as a part of the subcontracting plan required of the offeror by this clause; provided--
(1) the master plan has been approved, (2) the offeror ensures that the master plan is updated as necessary and provides copies of the approved master plan, including evidence of its approval, to the Contracting Officer, and (3) goals and any deviations from the master plan deemed necessary by the Contracting Officer to satisfy the requirements of this contract are set forth in the individual subcontracting plan.

(g) A commercial plan is the preferred type of subcontracting plan for contractors furnishing commercial items. The commercial plan shall relate to the offeror's planned subcontracting generally, for both commercial and Government business, rather than solely to the Government contract. Commercial plans are also preferred for subcontractors that provide commercial items under a prime contract, whether or not the prime contractor is supplying a commercial item.

(h) Prior compliance of the offeror with other such subcontracting plans under previous contracts will be considered by the Contracting Officer in determining the responsibility of the offeror for award of the contract.

(i) The failure of the Contractor or subcontractor to comply in good faith with (1) the clause of this contract entitled "Utilization Of Small Business Concerns," or (2) an approved plan required by this clause, shall be a material breach of the contract.

(j) The Contractor shall submit the following reports:

(1) Standard Form 294, Subcontracting Report for Individual Contracts. This report shall be submitted to the Contracting Officer semiannually and at contract completion. The report covers subcontract award data related to this contract. This report is not required for commercial plans.

(2) Standard Form 295, Summary Subcontract Report. This report encompasses all of the contracts with the awarding agency. It must be submitted semi-annually for contracts with the Department of Defense and annually for contracts with civilian agencies. If the reporting activity is covered by a commercial plan, the reporting activity must report annually all subcontract awards under that plan. All reports submitted at the close of each fiscal year (both individual and commercial plans) shall include a breakout, in the Contractor's format, of subcontract awards, in whole dollars, to small disadvantaged business concerns by North American Industry Classification System (NAICS) Industry Subsector. For a commercial plan, the Contractor may obtain from each of its subcontractors a predominant NAICS Industry Subsector and report all awards to that subcontractor under its predominant NAICS Industry Subsector.

(End of clause)

52.219-16 LIQUIDATED DAMAGES-SUBCONTRACTING PLAN (JAN 1999)

(a) Failure to make a good faith effort to comply with the subcontracting plan, as used in this clause, means a willful or intentional failure to perform in accordance with the requirements of the subcontracting plan approved under the clause in this contract entitled "Small Business Subcontracting Plan," or willful or intentional action to frustrate the plan.

(b) Performance shall be measured by applying the percentage goals to the total actual subcontracting dollars or, if a commercial plan is involved, to the pro rata share of actual subcontracting dollars attributable to Government contracts covered by the commercial plan. If, at contract completion or, in the case of a commercial plan, at the close of the fiscal year for which the plan is applicable, the Contractor has failed to meet its subcontracting goals and the Contracting Officer decides in accordance with paragraph (c) of this clause that the Contractor failed to make a good faith effort to comply with its subcontracting plan, established in accordance with the clause in this contract entitled “Small Business Subcontracting Plan,” the Contractor shall pay the Government liquidated damages in an amount stated. The amount of probable damages attributable to the Contractor's failure to comply shall be an amount equal to the actual dollar amount by which the Contractor failed to achieve each subcontract goal.

(c) Before the Contracting Officer makes a final decision that the Contractor has failed to make such good faith effort, the Contracting Officer shall give the Contractor written notice specifying the failure and permitting the Contractor to demonstrate what good faith efforts have been made and to discuss the matter. Failure to respond to the notice may be taken as an admission that no valid explanation exists. If, after consideration of all the pertinent data, the Contracting Officer finds that the Contractor failed to make a good faith effort to comply with the subcontracting plan, the Contracting Officer shall issue a final decision to that effect and require that the Contractor pay the Government liquidated damages as provided in paragraph (b) of this clause.

(d) With respect to commercial plans, the Contracting Officer who approved the plan will perform the functions of the Contracting Officer under this clause on behalf of all agencies with contracts covered by the commercial plan.

(e) The Contractor shall have the right of appeal, under the clause in this contract entitled Disputes, from any final decision of the Contracting Officer.

(f) Liquidated damages shall be in addition to any other remedies that the Government may have.

(End of clause)

52.222-3 CONVICT LABOR (AUG 1996)

The Contractor agrees not to employ in the performance of this contract any person undergoing a sentence of imprisonment which has been imposed by any court of a State, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or the Trust Territory of the Pacific Islands. This limitation, however, shall not prohibit the employment by the Contractor in the performance of this contract of persons on parole or probation to work at paid employment during the term of their sentence or persons who have been pardoned or who have served their terms. Nor shall it prohibit the employment by the Contractor in the performance of this contract of persons confined for violation of the laws of any of the States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or the Trust Territory of the Pacific Islands who are authorized to work at paid employment in the community under the laws of such jurisdiction, if--

(a)(1) The worker is paid or is in an approved work training program on a voluntary basis;

(2) Representatives of local union central bodies or similar labor union organizations have been consulted;

(3) Such paid employment will not result in the displacement of employed workers, or be applied in skills, crafts, or trades in which there is a surplus of available gainful labor in the locality, or impair existing contracts for services; and

(4) The rates of pay and other conditions of employment will not be less than those paid or provided for work of a similar nature in the locality in which the work is being performed; and

(b) The Attorney General of the United States has certified that the work-release laws or regulations of the jurisdiction involved are in conformity with the requirements of Executive Order 11755, as amended by Executive Orders 12608 and 12943.

(End of clause)

52.222-4 CONTRACT WORK HOURS AND SAFETY STANDARDS ACT - OVERTIME COMPENSATION. (SEP 2000)

(a) Overtime requirements. No Contractor or subcontractor employing laborers or mechanics (see Federal Acquisition Regulation 22.300) shall require or permit them to work over 40 hours in any workweek unless they are paid at least 1 and 1/2 times the basic rate of pay for each hour worked over 40 hours.

(b) Violation; liability for unpaid wages; liquidated damages. The responsible Contractor and subcontractor are liable for unpaid wages if they violate the terms in paragraph (a) of this clause. In addition, the Contractor and subcontractor are liable for liquidated damages payable to the Government. The Contracting Officer will assess liquidated damages at the rate of $10 per affected employee for each calendar day on which the employer required or permitted the employee to work in excess of the standard workweek of 40 hours without paying overtime wages required by the Contract Work Hours and Safety Standards Act.

(c) Withholding for unpaid wages and liquidated damages. The Contracting Officer will withhold from payments due under the contract sufficient funds required to satisfy any Contractor or subcontractor liabilities for unpaid wages and liquidated damages. If amounts withheld under the contract are insufficient to satisfy Contractor or subcontractor liabilities, the Contracting Officer will withhold payments from other Federal or Federally assisted contracts held by the same Contractor that are subject to the Contract Work Hours and Safety Standards Act.

(d) Payrolls and basic records.

(1) The Contractor and its subcontractors shall maintain payrolls and basic payroll records for all laborers and mechanics working on the contract during the contract and shall make them available to the Government until 3 years after contract completion. The records shall contain the name and address of each employee, social security number, labor classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. The records need not duplicate those required for construction work by Department of Labor regulations at 29 CFR 5.5(a)(3) implementing the Davis-Bacon Act.

(2) The Contractor and its subcontractors shall allow authorized representatives of the Contracting Officer or the Department of Labor to inspect, copy, or transcribe records maintained under paragraph (d)(1) of this clause. The Contractor or subcontractor also shall allow authorized representatives of the Contracting Officer or Department of Labor to interview employees in the workplace during working hours.

(e) Subcontracts. The Contractor shall insert the provisions set forth in paragraphs (a) through (d) of this clause in subcontracts exceeding $100,000 and require subcontractors to include these provisions in any lower tier

subcontracts. The Contractor shall be responsible for compliance by any subcontractor or lower-tier subcontractor with the provisions set forth in paragraphs (a) through (d) of this clause.

(End of clause)

52.222-6 DAVIS-BACON ACT (FEB 1995)

(a) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (d) of this clause; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such period. Such laborers and mechanics shall be paid not less than the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in the clause entitled Apprentices and Trainees. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (b) of this clause) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(b)(1) The Contracting Officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The Contracting Officer shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination.

(ii) The classification is utilized in the area by the construction industry.

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Contracting Officer agree on the classification and wage rate (including the amount designated for fringe benefits, where appropriate), a report of the action taken shall be sent by the Contracting Officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator or an authorized representative will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(3) In the event the Contractor, the laborers or mechanics to be employed in the classification, or their representatives, and the Contracting Officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contracting Officer shall refer the questions,

including the views of all interested parties and the recommendation of the Contracting Officer, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits, where appropriate) determined pursuant to subparagraphs (b)(2) and (b)(3) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(c) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(d) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(End of clause)

52.222-7 WITHHOLDING OF FUNDS (FEB 1988)

The Contracting Officer shall, upon his or her own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same Prime Contractor, or any other Federally assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same Prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(End of clause)

52.222-8 PAYROLLS AND BASIC RECORDS (FEB 1988)

(a) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of 3 years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under paragraph (d) of the clause entitled Davis-Bacon Act, that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs

anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(b)(1) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph (a) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The Prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify--

(i) That the payroll for the payroll period contains the information required to be maintained under paragraph (a) of this clause and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR Part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph (b)(2) of this clause.

(4) The falsification of any of the certifications in this clause may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(c) The Contractor or subcontractor shall make the records required under paragraph (a) of this clause available for inspection, copying, or transcription by the Contracting Officer or authorized representatives of the Contracting Officer or the Department of Labor. The Contractor or subcontractor shall permit the Contracting Officer or representatives of the Contracting Officer or the Department of Labor to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit required records or to make them available, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(End of clause)

52.222-9 APPRENTICES AND TRAINEES (FEB 1988)

(a) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or

her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(b) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(c) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(End of clause)

52.222-10 COMPLIANCE WITH COPELAND ACT REQUIREMENTS (FEB 1988)

The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

(End of clause)

52.222-11 SUBCONTRACTS (LABOR STANDARDS (FEB 1988)

(a) The Contractor or subcontractor shall insert in any subcontracts the clauses entitled Davis-Bacon Act, Contract Work Hours and Safety Standards Act-Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Withholding of Funds, Subcontracts (Labor Standards), Contract Termination-Debarment, Disputes Concerning Labor Standards, Compliance with Davis-Bacon and Related Act Regulations, and Certification of Eligibility, and such other clauses as the Contracting Officer may, by appropriate instructions, require, and also a clause requiring subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with all the contract clauses cited in this paragraph.

(b)(1) Within 14 days after award of the contract, the Contractor shall deliver to the Contracting Officer a completed Statement and Acknowledgment Form (SF 1413) for each subcontract, including the subcontractor's signed and dated acknowledgment that the clauses set forth in paragraph (a) of this clause have been included in the subcontract.

(2) Within 14 days after the award of any subsequently awarded subcontract the Contractor shall deliver to the Contracting Officer an updated completed SF 1413 for such additional subcontract.

(End of clause)

52.222-12 CONTRACT TERMINATION--DEBARMENT (FEB 1988)

A breach of the contract clauses entitled Davis-Bacon Act, Contract Work Hours and Safety Standards Act--Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Subcontracts (Labor Standards), Compliance with Davis-Bacon and Related Act Regulations, or Certification of Eligibility may be grounds for termination of the contract, and for debarment as a Contractor and subcontractor as provided in 29 CFR 5.12.

(End of clause)

52.222-13 COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REGULATIONS (FEB 1988)

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are hereby incorporated by reference in this contract.

(End of clause)

52.222-14 DISPUTES CONCERNING LABOR STANDARDS (FEB 1988)

The United States Department of Labor has set forth in 29 CFR Parts 5, 6, and 7 procedures for resolving disputes concerning labor standards requirements. Such disputes shall be resolved in accordance with those procedures and not the Disputes clause of this contract. Disputes within the meaning of this clause include disputes between the

Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(End of clause)

52.222-15 CERTIFICATION OF ELIGIBILITY (FEB 1988)

(a) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(End of clause)

52.222-21 PROHIBITION OF SEGREGATED FACILITIES (FEB 1999)

(a) Segregated facilities, as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(b) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

(End of clause)

52.222-26 EQUAL OPPORTUNITY (APR 2002)

(a) Definition. United States, as used in this clause, means the 50 States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, and Wake Island.

(b) If, during any 12-month period (including the 12 months preceding the award of this contract), the Contractor has been or is awarded nonexempt Federal contracts and/or subcontracts that have an aggregate value in excess of $10,000, the Contractor shall comply with paragraphs (b)(1) through (b)(11) of this clause, except for work performed outside the United States by employees who were not recruited within the United States. Upon request, the Contractor shall provide information necessary to determine the applicability of this clause.

(1) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. However, it shall not be a violation of this clause for the Contractor to extend a publicly announced preference in employment to Indians living on or near an Indian reservation, in connection with employment opportunities on or near an Indian reservation, as permitted by 41 CFR 60-1.5.

(2) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. This shall include, but not be limited to, (i) employment, (ii) upgrading, (iii) demotion, (iv) transfer, (v) recruitment or recruitment advertising, (vi) layoff or termination, (vii) rates of pay or other forms of compensation, and (viii) selection for training, including apprenticeship.

(3) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(4) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(5) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(6) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(7) The Contractor shall furnish to the contracting agency all information required by Executive Order 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor. The Contractor shall also file Standard Form 100 (EEO-1), or any successor form, as prescribed in 41 CFR part 60-1. Unless the Contractor has filed within the 12 months preceding the date of contract award, the Contractor shall, within 30 days after contract award, apply to either the regional Office of Federal Contract Compliance Programs (OFCCP) or the local office of the Equal Employment Opportunity Commission for the necessary forms.

(8) The Contractor shall permit access to its premises, during normal business hours, by the contracting agency or the OFCCP for the purpose of conducting on-site compliance evaluations and complaint investigations. The Contractor shall permit the Government to inspect and copy any books, accounts, records (including computerized records), and other material that may be relevant to the matter under investigation and pertinent to compliance with Executive Order 11246, as amended, and rules and regulations that implement the Executive Order.

(9) If the OFCCP determines that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts, under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended; in the rules, regulations, and orders of the Secretary of Labor; or as otherwise provided by law.

(10) The Contractor shall include the terms and conditions of subparagraphs (b)(1) through (11) of this clause in every subcontract or purchase order that is not exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor.

(11) The Contractor shall take such action with respect to any subcontract or purchase order as the contracting officer may direct as a means of enforcing these terms and conditions, including sanctions for noncompliance; provided, that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor

as a result of any direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

(c) Notwithstanding any other clause in this contract, disputes relative to this clause will be governed by the procedures in 41 CFR 60-1.1.

(End of clause)

52.222-27 AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION (FEB 1999)

(a) Definitions. "Covered area," as used in this clause, means the geographical area described in the solicitation for this contract.

"Deputy Assistant Secretary," as used in this clause, means Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, or a designee.

"Employer's identification number," as used in this clause, means the Federal Social Security number used on the employer's quarterly federal tax return, U.S. Treasury Department Form 941.

"Minority," as used in this clause, means--

(1) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(2) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands);

(3) Black (all persons having origins in any of the black African racial groups not of Hispanic origin); and

(4) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race).

(b) If the Contractor, or a subcontractor at any tier, subcontracts a portion of the work involving any construction trade, each such subcontract in excess of $10,000 shall include this clause and the Notice containing the goals for minority and female participation stated in the solicitation for this contract.

(c) If the Contractor is participating in a Hometown Plan (41 CFR 60-4) approved by the U.S. Department of Labor in a covered area, either individually or through an association, its affirmative action obligations on all work in the plan area (including goals) shall comply with the plan for those trades that have unions participating in the plan. Contractors must be able to demonstrate participation in, and compliance with, the provisions of the plan. Each Contractor or subcontractor participating in an approved plan is also required to comply with its obligations under the Equal Opportunity clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good-faith performance by other Contractors or subcontractors toward a goal in an approved plan does not excuse any Contractor's or subcontractor's failure to make good-faith efforts to achieve the plan's goals.

(d) The Contractor shall implement the affirmative action procedures in subparagraphs (g)(1) through (16) of this clause. The goals stated in the solicitation for this contract are expressed as percentages of the total hours of employment and training of minority and female utilization that the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where that work is actually performed. The Contractor is expected to make substantially uniform

progress toward its goals in each craft.

(e) Neither the terms and conditions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer minorities or women shall excuse the Contractor's obligations under this clause, Executive Order 11246, as amended, or the regulations thereunder.

(f) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

(g) The Contractor shall take affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with this clause shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and implement affirmative action steps at least as extensive as the following:

(1) Ensure a working environment free of harassment, intimidation, and coercion at all sites and in all facilities where the Contractor's employees are assigned to work. The Contractor, if possible, will assign two or more women to each construction project. The Contractor shall ensure that foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at these sites or facilities.

(2) Establish and maintain a current list of sources for minority and female recruitment. Provide written notification to minority and female recruitment sources and community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Establish and maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant, referrals of minorities or females from unions, recruitment sources, or community organizations, and the action taken with respect to each individual. If an individual was sent to the union hiring hall for referral and not referred back to the Contractor by the union or, if referred back, not employed by the Contractor, this shall be documented in the file, along with whatever additional actions the Contractor may have taken.

(4) Immediately notify the Deputy Assistant Secretary when the union or unions with which the Contractor has a collective bargaining agreement has not referred back to the Contractor a minority or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area that expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under subparagraph (g)(2) of this clause.

(6) Disseminate the Contractor's equal employment policy by--

(i) Providing notice of the policy to unions and to training, recruitment, and outreach programs, and requesting their cooperation in assisting the Contractor in meeting its contract obligations;

(ii) Including the policy in any policy manual and in collective bargaining agreements;

(iii) Publicizing the policy in the company newspaper, annual report, etc.;

(iv) Reviewing the policy with all management personnel and with all minority and female employees at least once

a year; and

(v) Posting the policy on bulletin boards accessible to employees at each location where construction work is performed.

(7) Review, at least annually, the Contractor's equal employment policy and affirmative action obligations with all employees having responsibility for hiring, assignment, layoff, termination, or other employment decisions. Conduct review of this policy with all on-site supervisory personnel before initiating construction work at a job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's equal employment policy externally by including it in any advertising in the news media, specifically including minority and female news media. Provide written notification to, and discuss this policy with, other Contractors and subcontractors with which the Contractor does or anticipates doing business.

(9) Direct recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students, and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than 1 month before the date for acceptance of applications for apprenticeship or training by any recruitment source, send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit minority persons and women. Where reasonable, provide after-school, summer, and vacation employment to minority and female youth both on the site and in other areas of the Contractor's workforce.

(11) Validate all tests and other selection requirements where required under 41 CFR 60-3.

(12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities. Encourage these employees to seek or to prepare for, through appropriate training, etc., opportunities for promotion.

(13) Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the Contractor's obligations under this contract are being carried out.

(14) Ensure that all facilities and company activities are nonsegregated except that separate or single-user rest rooms and necessary dressing or sleeping areas shall be provided to assure privacy between the sexes.

(15) Maintain a record of solicitations for subcontracts for minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's equal employment policy and affirmative action obligations.

(h) The Contractor is encouraged to participate in voluntary associations that may assist in fulfilling one or more of the affirmative action obligations contained in subparagraphs (g)(1) through (16) of this clause. The efforts of a contractor association, joint contractor-union, contractor-community, or similar group of which the contractor is a member and participant may be asserted as fulfilling one or more of its obligations under subparagraphs (g)(1) through (16) of this clause, provided the Contractor--

(1) Actively participates in the group;

(2) Makes every effort to ensure that the group has a positive impact on the employment of minorities and women in

the industry;

(3) Ensures that concrete benefits of the program are reflected in the Contractor's minority and female workforce participation;

(4) Makes a good-faith effort to meet its individual goals and timetables; and

(5) Can provide access to documentation that demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply is the Contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

(i) A single goal for minorities and a separate single goal for women shall be established. The Contractor is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of Executive Order 11246, as amended, if a particular group is employed in a substantially disparate manner.

(j) The Contractor shall not use goals or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

(k) The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts under Executive Order 11246, as amended.

(l) The Contractor shall carry out such sanctions and penalties for violation of this clause and of the Equal Opportunity clause, including suspension, termination, and cancellation of existing subcontracts, as may be imposed or ordered under Executive Order 11246, as amended, and its implementing regulations, by the OFCCP. Any failure to carry out these sanctions and penalties as ordered shall be a violation of this clause and Executive Order 11246, as amended.

(m) The Contractor in fulfilling its obligations under this clause shall implement affirmative action procedures at least as extensive as those prescribed in paragraph (g) of this clause, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of Executive Order 11246, as amended, the implementing regulations, or this clause, the Deputy Assistant Secretary shall take action as prescribed in 41 CFR 60-4.8.

(n) The Contractor shall designate a responsible official to--

(1) Monitor all employment-related activity to ensure that the Contractor's equal employment policy is being carried out;

(2) Submit reports as may be required by the Government; and

(3) Keep records that shall at least include for each employee the name, address, telephone number, construction trade, union affiliation (if any), employee identification number, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, separate records are not required to be maintained.

Nothing contained herein shall be construed as a limitation upon the application of other laws that establish different standards of compliance or upon the requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

(End of clause)

52.222-35 EQUAL OPPORTUNITY FOR SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS (DEC 2001)

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

All employment openings means all positions except executive and top management, those positions that will be filled from within the Contractor's organization, and positions lasting 3 days or less. This term includes full-time employment, temporary employment of more than 3 days duration, and part-time employment.

Executive and top management means any employee--

(1) Whose primary duty consists of the management of the enterprise in which the individual is employed or of a customarily recognized department or subdivision thereof;

(2) Who customarily and regularly directs the work of two or more other employees;

(3) Who has the authority to hire or fire other employees or whose suggestions and recommendations as to the hiring or firing and as to the advancement and promotion or any other change of status of other employees will be given particular weight;

(4) Who customarily and regularly exercises discretionary powers; and

(5) Who does not devote more than 20 percent or, in the case of an employee of a retail or service establishment, who does not devote more than 40 percent of total hours of work in the work week to activities that are not directly and closely related to the performance of the work described in paragraphs (1) through (4) of this definition. This paragraph (5) does not apply in the case of an employee who is in sole charge of an establishment or a physically separated branch establishment, or who owns at least a 20 percent interest in the enterprise in which the individual is employed.

Other eligible veteran means any other veteran who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized.

Positions that will be filled from within the Contractor's organization means employment openings for which the Contractor will give no consideration to persons outside the Contractor's organization (including any affiliates, subsidiaries, and parent companies) and includes any openings the Contractor proposes to fill from regularly established “recall” lists. The exception does not apply to a particular opening once an employer decides to consider applicants outside of its organization.

Qualified special disabled veteran means a special disabled veteran who satisfies the requisite skill, experience, education, and other job-related requirements of the employment position such veteran holds or desires, and who, with or without reasonable accommodation, can perform the essential functions of such position.

Special disabled veteran means--

(1) A veteran who is entitled to compensation (or who but for the receipt of military retired pay would be entitled to compensation) under laws administered by the Department of Veterans Affairs for a disability--

(i) Rated at 30 percent or more; or

(ii) Rated at 10 or 20 percent in the case of a veteran who has been determined under 38 U.S.C. 3106 to have a serious employment handicap (i.e., a significant impairment of the veteran's ability to prepare for, obtain, or retain employment consistent with the veteran's abilities, aptitudes, and interests); or

(2) A person who was discharged or released from active duty because of a service-connected disability.

Veteran of the Vietnam era means a person who--

(1) Served on active duty for a period of more than 180 days and was discharged or released from active duty with other than a dishonorable discharge, if any part of such active duty occurred--

(i) In the Republic of Vietnam between February 28, 1961, and May 7, 1975; or

(ii) Between August 5, 1964, and May 7, 1975, in all other cases; or

(2) Was discharged or released from active duty for a service-connected disability if any part of the active duty was performed--

(i) In the Republic of Vietnam between February 28, 1961, and May 7, 1975; or

(ii) Between August 5, 1964, and May 7, 1975, in all other cases.
(b) General. (1) The Contractor shall not discriminate against the individual because the individual is a special disabled veteran, a veteran of the Vietnam era, or other eligible veteran, regarding any position for which the employee or applicant for employment is qualified. The Contractor shall take affirmative action to employ, advance in employment, and otherwise treat qualified special disabled veterans, veterans of the Vietnam era, and other eligible veterans without discrimination based upon their disability or veterans' status in all employment practices such as--

(i) Recruitment, advertising, and job application procedures;

(ii) Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff and rehiring;

(iii) Rate of pay or any other form of compensation and changes in compensation;

(iv) Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;

(v) Leaves of absence, sick leave, or any other leave;

(vi) Fringe benefits available by virtue of employment, whether or not administered by the Contractor;

(vii) Selection and financial support for training, including apprenticeship, and on-the-job training under 38 U.S.C. 3687, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;

(viii) Activities sponsored by the Contractor including social or recreational programs; and

(ix) Any other term, condition, or privilege of employment.

(2) The Contractor shall comply with the rules, regulations, and relevant orders of the Secretary of Labor issued under the Vietnam Era Veterans' Readjustment Assistance Act of 1972 (the Act), as amended (38 U.S.C. 4211 and 4212).

(c) Listing openings. (1) The Contractor shall immediately list all employment openings that exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract, and including those occurring at an establishment of the Contractor other than the one

where the contract is being performed, but excluding those of independently operated corporate affiliates, at an appropriate local public employment service office of the State wherein the opening occurs. Listing employment openings with the U.S. Department of Labor's America's Job Bank shall satisfy the requirement to list jobs with the local employment service office.

(2) The Contractor shall make the listing of employment openings with the local employment service office at least concurrently with using any other recruitment source or effort and shall involve the normal obligations of placing a bona fide job order, including accepting referrals of veterans and nonveterans. This listing of employment openings does not require hiring any particular job applicant or hiring from any particular group of job applicants and is not intended to relieve the Contractor from any requirements of Executive orders or regulations concerning nondiscrimination in employment.

(3) Whenever the Contractor becomes contractually bound to the listing terms of this clause, it shall advise the State public employment agency in each State where it has establishments of the name and location of each hiring location in the State. As long as the Contractor is contractually bound to these terms and has so advised the State agency, it need not advise the State agency of subsequent contracts. The Contractor may advise the State agency when it is no longer bound by this contract clause.

(d) Applicability. This clause does not apply to the listing of employment openings that occur and are filled outside the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, Guam, the Virgin Islands of the United States, and Wake Island.

(e) Postings. (1) The Contractor shall post employment notices in conspicuous places that are available to employees and applicants for employment.

(2) The employment notices shall--

(i) State the rights of applicants and employees as well as the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified employees and applicants who are special disabled veterans, veterans of the Vietnam era, and other eligible veterans; and

(ii) Be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance Programs, Department of Labor (Deputy Assistant Secretary of Labor), and provided by or through the Contracting Officer.

(3) The Contractor shall ensure that applicants or employees who are special disabled veterans are informed of the contents of the notice (e.g., the Contractor may have the notice read to a visually disabled veteran, or may lower the posted notice so that it can be read by a person in a wheelchair).

(4) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement, or other contract understanding, that the Contractor is bound by the terms of the Act and is committed to take affirmative action to employ, and advance in employment, qualified special disabled veterans, veterans of the Vietnam era, and other eligible veterans.

(f) Noncompliance. If the Contractor does not comply with the requirements of this clause, the Government may take appropriate actions under the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(g) Subcontracts. The Contractor shall insert the terms of this clause in all subcontracts or purchase orders of $25,000 or more unless exempted by rules, regulations, or orders of the Secretary of Labor. The Contractor shall act as specified by the Deputy Assistant Secretary of Labor to enforce the terms, including action for noncompliance.

(End of clause)

52.222-36 AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES (JUN 1998)

(a) General. (1) Regarding any position for which the employee or applicant for employment is qualified, the Contractor shall not discriminate against any employee or applicant because of physical or mental disability. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified individuals with disabilities without discrimination based upon their physical or mental disability in all employment practices such as--

(i) Recruitment, advertising, and job application procedures;

(ii) Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff, and rehiring;

(iii) Rates of pay or any other form of compensation and changes in compensation;

(iv) Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;

(v) Leaves of absence, sick leave, or any other leave;

(vi) Fringe benefits available by virtue of employment, whether or not administered by the Contractor;

(vii) Selection and financial support for training, including apprenticeships, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;

(viii) Activities sponsored by the Contractor, including social or recreational programs; and

(ix) Any other term, condition, or privilege of employment.

(2) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor (Secretary) issued under the Rehabilitation Act of 1973 (29 U.S.C. 793) (the Act), as amended.

(b) Postings. (1) The Contractor agrees to post employment notices stating--

(i) The Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified individuals with disabilities; and

(ii) The rights of applicants and employees.

(2) These notices shall be posted in conspicuous places that are available to employees and applicants for employment. The Contractor shall ensure that applicants and employees with disabilities are informed of the contents of the notice (e.g., the Contractor may have the notice read to a visually disabled individual, or may lower the posted notice so that it might be read by a person in a wheelchair). The notices shall be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance of the U.S. Department of Labor (Deputy Assistant Secretary) and shall be provided by or through the Contracting Officer.

(3) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Section 503 of the Act and is committed to take affirmative action to employ, and advance in employment, qualified individuals with physical or mental disabilities.

(c) Noncompliance. If the Contractor does not comply with the requirements of this clause, appropriate actions may be taken under the rules, regulations, and relevant orders of the Secretary issued pursuant to the Act.

(d) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order in excess of $10,000 unless exempted by rules, regulations, or orders of the Secretary. The Contractor shall act as specified by the Deputy Assistant Secretary to enforce the terms, including action for noncompliance.

(End of clause)

52.222-37 EMPLOYMENT REPORTS ON SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS (DEC 2001)

(a) Unless the Contractor is a State or local government agency, the Contractor shall report at least annually, as required by the Secretary of Labor, on--

(1) The number of disabled veterans and the number of veterans of the Vietnam era in the workforce of the contractor by job category and hiring location; and

(2) The total number of new employees hired during the period covered by the report, and of that total, the number of disabled veterans, and the number of veterans of the Vietnam era.

(b) The above items shall be reported by completing the form entitled "Federal Contractor Veterans' Employment Report VETS-100."

(c) Reports shall be submitted no later than September 30 of each year beginning September 30, 1988.

(d) The employment activity report required by paragraph (a)(2) of this clause shall reflect total hires during the most recent 12-month period as of the ending date selected for the employment profile report required by paragraph (a)(1) of this clause. Contractors may select an ending date: (1) As of the end of any pay period during the period January through March 1st of the year the report is due, or (2) as of December 31, if the contractor has previous written approval from the Equal Employment Opportunity Commission to do so for purposes of submitting the Employer Information Report EEO-1 (Standard Form 100).

(e) The count of veterans reported according to paragraph (a) of this clause shall be based on voluntary disclosure. Each Contractor subject to the reporting requirements at 38 U.S.C. 4212 shall invite all disabled veterans and veterans of the Vietnam era who wish to benefit under the affirmative action program at 38 U.S.C. 4212 to identify themselves to the Contractor. The invitation shall state that the information is voluntarily provided; that the information will be kept confidential; that disclosure or refusal to provide the information will not subject the applicant or employee to any adverse treatment; and that the information will be used only in accordance with the regulations promulgated under 38 U.S.C. 4212.

(f) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order of $10,000 or more unless exempted by rules, regulations, or orders of the Secretary.

(End of clause)

52.223-5 POLLUTION PREVENTION AND RIGHT-TO-KNOW INFORMATION (APR 1998)

(a) Executive Order 12856 of August 3, 1993, requires Federal facilities to comply with the provisions of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)(42 U.S.C. 11001-11050) and the Pollution Prevention Act of 1990 (PPA)(42 U.S.C. 13101-13109).

(b) The Contractor shall provide all information needed by the Federal facility to comply with the emergency planning reporting requirements of Section 302 of EPCRA; the emergency notice requirements of Section 304 of EPCRA; the list of Material Safety Data Sheets required by Section 311 of EPCRA; the emergency and hazardous chemical inventory forms of Section 312 of EPCRA; the toxic chemical release inventory of Section 313 of EPCRA, which includes the reduction and recycling information required by Section 6607 of PPA; and the toxic chemical reduction goals requirements of Section 3-302 of Executive Order 12856.

(End of clause)

52.223-6 DRUG-FREE WORKPLACE (MAY 2001)

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

"Controlled substance" means a controlled substance in schedules I through V of section 202 of the Controlled Substances Act (21 U.S.C. 812) and as further defined in regulation at 21 CFR 1308.11 - 1308.15.

"Conviction" means a finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to deter- mine violations of the Federal or State criminal drug statutes.

"Criminal drug statute" means a Federal or non-Federal criminal statute involving the manufacture, distribution, dispensing, possession, or use of any controlled substance.

"Drug-free workplace" means the site(s) for the performance of work done by the Contractor in connection with a specific contract at which employees of the Contractor are prohibited from engaging in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance.

"Employee" means an employee of a Contractor directly engaged in the performance of work under a Government contract. "Directly engaged" is defined to include all direct cost employees and any other Contractor employee who has other than a minimal impact or involvement in contract performance.

"Individual" means an offeror/contractor that has no more than one employee including the offeror/contractor.

(b) The Contractor, if other than an individual, shall-- within 30 days after award (unless a longer period is agreed to in writing for contracts of 30 days or more performance duration), or as soon as possible for contracts of less than 30 days performance duration--

(1) Publish a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition;

(2) Establish an ongoing drug-free awareness program to inform such employees about--

(i) The dangers of drug abuse in the workplace;

(ii) The Contractor's policy of maintaining a drug-free workplace;

(iii) Any available drug counseling, rehabilitation, and employee assistance programs; and

(iv) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(3) Provide all employees engaged in performance of the contract with a copy of the statement required by

subparagraph (b)(1) of this clause;

(4) Notify such employees in writing in the statement required by subparagraph (b)(1) of this clause that, as a condition of continued employment on this contract, the employee will--

(i) Abide by the terms of the statement; and

(ii) Notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than 5 days after such conviction.

(5) Notify the Contracting Officer in writing within 10 days after receiving notice under subdivision (b)(4)(ii) of this clause, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the position title of the employee;

(6) Within 30 days after receiving notice under subdivision (b)(4)(ii) of this clause of a conviction, take one of the following actions with respect to any employee who is convicted of a drug abuse violation occurring in the workplace:

(i) Taking appropriate personnel action against such employee, up to and including termination; or

(ii) Require such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency; and

(7) Make a good faith effort to maintain a drug-free workplace through implementation of subparagraphs (b)(1) though (b)(6) of this clause.

(c) The Contractor, if an individual, agrees by award of the contract or acceptance of a purchase order, not to engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance while performing this contract.

(d) In addition to other remedies available to the Government, the Contractor's failure to comply with the requirements of paragraph (b) or (c) of this clause may, pursuant to FAR 23.506, render the Contractor subject to suspension of contract payments, termination of the contract for default, and suspension or debarment.

(End of clause)

52.223-14 TOXIC CHEMICAL RELEASE REPORTING (OCT 2000)

(a) Unless otherwise exempt, the Contractor, as owner or operator of a facility used in the performance of this contract, shall file by July 1 for the prior calendar year an annual Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023(a) and (g)), and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106). The Contractor shall file, for each facility subject to the Form R filing and reporting requirements, the annual Form R throughout the life of the contract.

(b) A Contractor owned or operated facility used in the performance of this contract is exempt from the requirement to file an annual Form R if--

(1) The facility does not manufacture, process, or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

(2) The facility does not have 10 or more full-time employees as specified in section 313(b)(1)(A) of EPCRA, 42 U.S.C. 11023(b)(1)(A);

(3) The facility does not meet the reporting thresholds of toxic chemicals established under of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

(4) The facility does not fall within Standard Industrial Classification Code (SIC) major groups 20 through 39 or their corresponding North American Industry Classification System (NAICS) sectors 31 through 33; or

(5) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.

(c) If the Contractor has certified to an exemption in accordance with one or more of the criteria in paragraph (b) of this clause, and after award of the contract circumstances change so that any of its owned or operated facilities used in the performance of this contract is no longer exempt--

(1) The Contractor shall notify the Contracting Officer; and

(2) The Contractor, as owner or operator of a facility used in the performance of this contract that is no longer exempt, shall (i) submit a Toxic Chemical Release Inventory Form (Form R) on or before July 1 for the prior calendar year during which the facility becomes eligible; and (ii) continue to file the annual Form R for the life of the contract for such facility.

(d) The Contracting Officer may terminate this contract or take other action as appropriate, if the Contractor fails to comply accurately and fully with the EPCRA and PPA toxic chemical release filing and reporting requirements.

(e) Except for acquisitions of commercial items, as defined in FAR Part 2, the Contractor shall--

(1) For competitive subcontracts expected to exceed $100,000 (including all options), include a solicitation provision substantially the same as the provision at FAR 52.223-13, Certification of Toxic Chemical Release Reporting; and

(2) Include in any resultant subcontract exceeding $100,000 (including all options), the substance of this clause, except this paragraph (e).

(End of clause)

52.225-9 BUY AMERICAN ACT—CONSTRUCTION MATERIALS (MAY 2002)

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

Component means an article, material, or supply incorporated directly into a 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 construction material (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 end product.

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 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.

Foreign construction material means a construction material other than a domestic construction material.

United States means the 50 States and the District of Columbia, U.S. territories and possessions, Puerto Rico, the Northern Mariana Islands, and any other place subject to U.S. jurisdiction, but does not include leased bases.

(b) Domestic preference. (1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) by providing a preference for domestic construction material. The Contractor shall use only domestic construction material in performing this contract, except as provided in paragraphs (b)(2) and (b)(3) of this clause.

(2) This requirement does not apply to the construction material or components listed by the Government as follows: none

(3) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(2) of this clause if the Government determines that

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the requirements of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent;

(ii) The application of the restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American Act. (1)(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(3) of this clause shall include adequate information for Government evaluation of the request, including--

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(3)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American Act applies, use of foreign construction material is noncompliant with the Buy American Act.

(d) Data. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction material description	Unit of measure	Quantity	Price (dollars) \1\
Item 1			
Foreign construction material....	.....	.....	.....
Domestic construction material...	.....	.....	.....
Item 2			
Foreign construction material....	.....	.....	.....
Domestic construction material...	.....	.....	.....

Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).
List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.
Include other applicable supporting information.

(End of clause)

52.225-13 RESTRICTIONS ON CERTAIN FOREIGN PURCHASES (JUL 2000)

(a) The Contractor shall not acquire, for use in the performance of this contract, any supplies or services originating from sources within, or that were located in or transported from or through, countries whose products are banned from importation into the United States under regulations of the Office of Foreign Assets Control, Department of the Treasury. Those countries are Cuba, Iran, Iraq, Libya, North Korea, Sudan, the territory of Afghanistan controlled by the Taliban, and Serbia (excluding the territory of Kosovo).

(b) The Contractor shall not acquire for use in the performance of this contract any supplies or services from entities controlled by the government of Iraq.

(c) The Contractor shall insert this clause, including this paragraph (c), in all subcontracts.

(End of clause)

52.227-1 AUTHORIZATION AND CONSENT (JUL 1995)

(a) The Government authorizes and consents to all use and manufacture, in performing this contract or any subcontract at any tier, of any invention described in and covered by a United States patent (1) embodied in the structure or composition of any article the delivery of which is accepted by the Government under this contract or (2) used in machinery, tools, or methods whose use necessarily results from compliance by the Contractor or a subcontractor with (i) specifications or written provisions forming a part of this contract or (ii) specific written instructions given by the Contracting Officer directing the manner of performance. The entire liability to the Government for infringement of a patent of the United States shall be determined solely by the provisions of the indemnity clause, if any, included in this contract or any subcontract hereunder (including any lower-tier subcontract), and the Government assumes liability for all other infringement to the extent of the authorization and consent hereinabove granted.

(b) The Contractor agrees to include, and require inclusion of, this clause, suitably modified to identify the parties, in all subcontracts at any tier for supplies or services (including construction, architect-engineer services, and materials, supplies, models, samples, and design or testing services expected to exceed the simplified acquisition threshold (however, omission of this clause from any subcontract, including those at or below the simplified acquisition threshold, does not affect this authorization and consent.)

(End of clause)

52.227-2 NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT (AUG 1996)

(a) The Contractor shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the Contractor has knowledge.

(b) In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this contract or out of the use of any supplies furnished or work or services performed under this contract, the Contractor shall furnish to the Government, when requested by the Contracting Officer, all evidence and information in possession of the Contractor pertaining to such suit or claim.

Such evidence and information shall be furnished at the expense of the Government except where the Contractor has agreed to indemnify the Government.

53 The Contractor agrees to include, and require inclusion of, this clause in all subcontracts at any tier for supplies or services (including construction and architect-engineer subcontracts and those for material, supplies, models, samples, or design or testing services) expected to exceed the simplified acquisition threshold at (FAR) 2.101.to exceed the dollar amount set forth in 13.000 of the Federal Acquisition Regulation (FAR).

(End of clause)

52.227-4 PATENT INDEMNITY--CONSTRUCTION CONTRACTS (APR 1984)

Except as otherwise provided, the Contractor agrees to indemnify the Government and its officers, agents, and employees against liability, including costs and expenses, for infringement upon any United States patent (except a patent issued upon an application that is now or may hereafter be withheld from issue pursuant to a Secrecy Order under 35 U.S.C. 181) arising out of performing this contract or out of the use or disposal by or for the account of the Government of supplies furnished or work performed under this contract.

(End of clause)

52.228-1 BID GUARANTEE (SEP 1996)

(a) Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.

(b) The bidder shall furnish a bid guarantee in the form of a firm commitment, e.g., bid bond supported by good and sufficient surety or sureties acceptable to the Government, postal money order, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department regulations, certain bonds or notes of the United States. The Contracting Officer will return bid guarantees, other than bid bonds, (1) to unsuccessful bidders as soon as practicable after the opening of bids, and (2) to the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.-

(c) The amount of the bid guarantee shall be 20 percent (20%) of the bid price or $3,000,000.00 (3 million), whichever is less.-

(d) If the successful bidder, upon acceptance of its bid by the Government within the period specified for acceptance, fails to execute all contractual documents or furnish executed bond(s) within 10 days after receipt of the forms by the bidder, the Contracting Officer may terminate the contract for default.-

(e) In the event the contract is terminated for default, the bidder is liable for any cost of acquiring the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference.

(End of clause)

52.228-2 ADDITIONAL BOND SECURITY (OCT 1997)

The Contractor shall promptly furnish additional security required to protect the Government and persons supplying labor or materials under this contract if--

(a) Any surety upon any bond, or issuing financial institution for other security, furnished with this contract becomes unacceptable to the Government.

(b) Any surety fails to furnish reports on its financial condition as required by the Government;

(c) The contract price is increased so that the penal sum of any bond becomes inadequate in the opinion of the Contracting Officer; or

(d) An irrevocable letter of credit (ILC) used as security will expire before the end of the period of required security. If the Contractor does not furnish an acceptable extension or replacement ILC, or other acceptable substitute, at least 30 days before an ILC's scheduled expiration, the Contracting officer has the right to immediately draw on the ILC.

(End of clause)

52.228-5 INSURANCE--WORK ON A GOVERNMENT INSTALLATION (JAN 1997)

(a) The Contractor shall, at its own expense, provide and maintain during the entire performance of this contract, at least the kinds and minimum amounts of insurance required in the Schedule or elsewhere in the contract.

(b) Before commencing work under this contract, the Contractor shall notify the Contracting Officer in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective (1) for such period as the laws of the State in which this contract is to be performed prescribe, or (2) until 30 days after the insurer or the Contractor gives written notice to the Contracting Officer, whichever period is longer.

(c) The Contractor shall insert the substance of this clause, including this paragraph (c), in subcontracts under this contract that require work on a Government installation and shall require subcontractors to provide and maintain the insurance required in the Schedule or elsewhere in the contract. The Contractor shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the Contracting Officer upon request.

(End of clause)

52.228-11 PLEDGES OF ASSETS (FEB 1992)

(a) Offerors shall obtain from each person acting as an individual surety on a bid guarantee, a performance bond, or a payment bond--

(1) Pledge of assets; and

(2) Standard Form 28, Affidavit of Individual Surety.

(b) Pledges of assets from each person acting as an individual surety shall be in the form of--

(1) Evidence of an escrow account containing cash, certificates of deposit, commercial or Government securities, or other assets described in FAR 28.203-2 (except see 28.203-2(b)(2) with respect to Government securities held in book entry form) and/or;

(2) A recorded lien on real estate. The offeror will be required to provide--

(i) Evidence of title in the form of a certificate of title prepared by a title insurance company approved by the United States Department of Justice. This title evidence must show fee simple title vested in the surety along with any concurrent owners; whether any real estate taxes are due and payable; and any recorded encumbrances against the property, including the lien filed in favor of the Government as required by FAR 28.203-3(d);

(ii) Evidence of the amount due under any encumbrance shown in the evidence of title;

(iii) A copy of the current real estate tax assessment of the property or a current appraisal dated no earlier than 6 months prior to the date of the bond, prepared by a professional appraiser who certifies that the appraisal has been conducted in accordance with the generally accepted appraisal standards as reflected in the Uniform Standards of Professional Appraisal Practice, as promulgated by the Appraisal Foundation.

(End of clause)

52.228-12 PROSPECTIVE SUBCONTRACTOR REQUESTS FOR BONDS. (OCT 1995)

In accordance with Section 806(a)(3) of Pub. L. 102-190, as amended by Sections 2091 and 8105 of Pub. L. 103-355, upon the request of a prospective subcontractor or supplier offering to furnish labor or material for the performance of this contract for which a payment bond has been furnished to the Government pursuant to the Miller Act, the Contractor shall promptly provide a copy of such payment bond to the requester.

(End of clause)

52.228-14 IRREVOCABLE LETTER OF CREDIT (DEC 1999)

(a) “Irrevocable letter of credit” (ILC), as used in this clause, means a written commitment by a federally insured financial institution to pay all or part of a stated amount of money, until the expiration date of the letter, upon presentation by the Government (the beneficiary) of a written demand therefor. Neither the financial institution nor the offeror/Contractor can revoke or condition the letter of credit.

(b) If the offeror intends to use an ILC in lieu of a bid bond, or to secure other types of bonds such as performance and payment bonds, the letter of credit and letter of confirmation formats in paragraphs (e) and (f) of this clause shall be used.

(c) The letter of credit shall be irrevocable, shall require presentation of no document other than a written demand and the ILC (including confirming letter, if any), shall be issued/confirmed by an acceptable federally insured financial institution as provided in paragraph (d) of this clause, and--

(1) If used as a bid guarantee, the ILC shall expire no earlier than 60 days after the close of the bid acceptance period;

(2) If used as an alternative to corporate or individual sureties as security for a performance or payment bond, the offeror/Contractor may submit an ILC with an initial expiration date estimated to cover the entire period for which financial security is required or may submit an ILC with an initial expiration date that is a minimum period of one year from the date of issuance. The ILC shall provide that, unless the issuer provides the beneficiary written notice of non-renewal at least 60 days in advance of the current expiration date, the ILC is automatically extended without amendment for one year from the expiration date, or any future expiration date, until the period of required coverage is completed and the Contracting Officer provides the financial institution with a written statement waiving the right to payment. The period of required coverage shall be:

(i) For contracts subject to the Miller Act, the later of--

(A) One year following the expected date of final payment;

(B) For performance bonds only, until completion of any warranty period; or

(C) For payment bonds only, until resolution of all claims filed against the payment bond during the one-year period following final payment.

(ii) For contracts not subject to the Miller Act, the later of--

(A) 90 days following final payment; or

(B) For performance bonds only, until completion of any warranty period.

(d) Only federally insured financial institutions rated investment grade or higher shall issue or confirm the ILC. The offeror/Contractor shall provide the Contracting Officer a credit rating that indicates the financial institution has the required rating(s) as of the date of issuance of the ILC. Unless the financial institution issuing the ILC had letter of credit business of less than $25 million in the past year, ILCs over $5 million must be confirmed by another acceptable financial institution that had letter of credit business of less than $25 million in the past year.

(e) The following format shall be used by the issuing financial institution to create an ILC:

_____

[Issuing Financial Institution's Letterhead or Name and Address]

Issue Date _____

IRREVOCABLE LETTER OF CREDIT NO. _____

Account party's name _____

Account party's address _____

For Solicitation No. _____(for reference only)

TO: [U.S. Government agency]

[U.S. Government agency's address]

1. We hereby establish this irrevocable and transferable Letter of Credit in your favor for one or more drawings up to United States $_____. This Letter of Credit is payable at [issuing financial institution's and, if any, confirming financial institution's] office at [issuing financial institution's address and, if any, confirming financial institution's address] and expires with our close of business on _____, or any automatically extended expiration date.

2. We hereby undertake to honor your or the transferee's sight draft(s) drawn on the issuing or, if any, the confirming financial institution, for all or any part of this credit if presented with this Letter of Credit and confirmation, if any, at the office specified in paragraph 1 of this Letter of Credit on or before the expiration date or any automatically extended expiration date.

3. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for one year

from the expiration date hereof, or any future expiration date, unless at least 60 days prior to any expiration date, we notify you or the transferee by registered mail, or other receipted means of delivery, that we elect not to consider this Letter of Credit renewed for any such additional period. At the time we notify you, we also agree to notify the account party (and confirming financial institution, if any) by the same means of delivery.

4. This Letter of Credit is transferable. Transfers and assignments of proceeds are to be effected without charge to either the beneficiary or the transferee/assignee of proceeds. Such transfer or assignment shall be only at the written direction of the Government (the beneficiary) in a form satisfactory to the issuing financial institution and the confirming financial institution, if any.

5. This Letter of Credit is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ [state of confirming financial institution, if any, otherwise state of issuing financial institution].

6. If this credit expires during an interruption of business of this financial institution as described in Article 17 of the UCP, the financial institution specifically agrees to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

_____

[Issuing financial institution]

(f) The following format shall be used by the financial institution to confirm an ILC:

_____
[Confirming Financial Institution's Letterhead or Name and Address]

(Date) _____

Our Letter of Credit Advice Number _____

Beneficiary: _____ [U.S. Government agency]

Issuing Financial Institution: _____

Issuing Financial Institution's LC No.: _____

Gentlemen:

1. We hereby confirm the above indicated Letter of Credit, the original of which is attached, issued by _____ [name of issuing financial institution] for drawings of up to United States dollars _____/U.S. $_____ and expiring with our close of business on _____ [the expiration date], or any automatically extended expiration date.

2. Draft(s) drawn under the Letter of Credit and this Confirmation are payable at our office located at _____.

3. We hereby undertake to honor sight draft(s) drawn under and presented with the Letter of Credit and this Confirmation at our offices as specified herein.

4. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a

condition of this confirmation that it be deemed automatically extended without amendment for one year from the expiration date hereof, or any automatically extended expiration date, unless:

(a) At least 60 days prior to any such expiration date, we shall notify the Contracting Officer, or the transferee and the issuing financial institution, by registered mail or other receipted means of delivery, that we elect not to consider this confirmation extended for any such additional period; or

(b) The issuing financial institution shall have exercised its right to notify you or the transferee, the account party, and ourselves, of its election not to extend the expiration date of the Letter of Credit.

5. This confirmation is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ [state of confirming financial institution].

6. If this confirmation expires during an interruption of business of this financial institution as described in Article 17 of the UCP, we specifically agree to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

_____

[Confirming financial institution]

(g) The following format shall be used by the Contracting Officer for a sight draft to draw on the Letter of Credit:

SIGHT DRAFT

_____

[City, State]

(Date) _____

[Name and address of financial institution]

Pay to the order of _____ [Beneficiary Agency] _____ the sum of United States $_____.
This draft is drawn under Irrevocable Letter of Credit No. _____.

_____

[Beneficiary Agency]

By: _____

(End of clause)

52.228-15 PERFORMANCE AND PAYMENT BONDS--CONSTRUCTION (JUL 2000)-

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

Original contract price means the award price of the contract; or, for requirements contracts, the price payable for the estimated total quantity; or, for indefinite-quantity contracts, the price payable for the specified minimum

quantity. Original contract price does not include the price of any options, except those options exercised at the time of contract award.

(b) Amount of required bonds. Unless the resulting contract price is $100,000 or less, the successful offeror shall furnish performance and payment bonds to the Contracting Officer as follows:

(1) Performance bonds (Standard Form 25). The penal amount of performance bonds at the time of contract award shall be 100 percent of the original contract price.

(2) Payment Bonds (Standard Form 25-A). The penal amount of payment bonds at the time of contract award shall be 100 percent of the original contract price.

(3) Additional bond protection. (i) The Government may require additional performance and payment bond protection if the contract price is increased. The increase in protection generally will equal 100 percent of the increase in contract price.

(ii) The Government may secure the additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(c) Furnishing executed bonds. The Contractor shall furnish all executed bonds, including any necessary reinsurance agreements, to the Contracting Officer, within the time period specified in the Bid Guarantee provision of the solicitation, or otherwise specified by the Contracting Officer, but in any event, before starting work.

(d) Surety or other security for bonds. The bonds shall be in the form of firm commitment, supported by corporate sureties whose names appear on the list contained in Treasury Department Circular 570, individual sureties, or by other acceptable security such as postal money order, certified check, cashier's check, irrevocable letter of credit, or, in accordance with Treasury Department regulations, certain bonds or notes of the United States. Treasury Circular 570 is published in the Federal Register or may be obtained from the U.S. Department of Treasury, Financial Management Service, Surety Bond Branch, 401 14th Street, NW, 2nd Floor, West Wing, Washington, DC 20227.

(e) Notice of subcontractor waiver of protection (40 U.S.C. 270b(c). Any waiver of the right to sue on the payment bond is void unless it is in writing, signed by the person whose right is waived, and executed after such person has first furnished labor or material for use in the performance of the contract.

(End of clause)

52.229-3 FEDERAL, STATE, AND LOCAL TAXES (JAN 1991)

(a) "Contract date," as used in this clause, means the date set for bid opening or, if this is a negotiated contract or a modification, the effective date of this contract or modification.

"All applicable Federal, State, and local taxes and duties," as used in this clause, means all taxes and duties, in effect on the contract date, that the taxing authority is imposing and collecting on the transactions or property covered by this contract.

"After-imposed Federal tax," as used in this clause, means any new or increased Federal excise tax or duty, or tax that was exempted or excluded on the contract date but whose exemption was later revoked or reduced during the contract period, on the transactions or property covered by this contract that the Contractor is required to pay or bear as the result of legislative, judicial, or administrative action taking effect after the contract date. It does not include social security tax or other employment taxes.
"After-relieved Federal tax," as used in this clause, means any amount of Federal excise tax or duty, except social security or other employment taxes, that would otherwise have been payable on the transactions or property covered

by this contract, but which the Contractor is not required to pay or bear, or for which the Contractor obtains a refund or drawback, as the result of legislative, judicial, or administrative action taking effect after the contract date.

(b) The contract price includes all applicable Federal, State, and local taxes and duties.

(c) The contract price shall be increased by the amount of any after-imposed Federal tax, provided the Contractor warrants in writing that no amount for such newly imposed Federal excise tax or duty or rate increase was included in the contract price, as a contingency reserve or otherwise.

(d) The contract price shall be decreased by the amount of any after-relieved Federal tax.

(e) The contract price shall be decreased by the amount of any Federal excise tax or duty, except social security or other employment taxes, that the Contractor is required to pay or bear, or does not obtain a refund of, through the Contractor's fault, negligence, or failure to follow instructions of the Contracting Officer.

(f) No adjustment shall be made in the contract price under this clause unless the amount of the adjustment exceeds $250.

(g) The Contractor shall promptly notify the Contracting Officer of all matters relating to any Federal excise tax or duty that reasonably may be expected to result in either an increase or decrease in the contract price and shall take appropriate action as the Contracting Officer directs.

(h) The Government shall, without liability, furnish evidence appropriate to establish exemption from any Federal, State, or local tax when the Contractor requests such evidence and a reasonable basis exists to sustain the exemption.

(End of clause)

52.229-5 TAXES--CONTRACTS PERFORMED IN U.S. POSSESSIONS OR PUERTO RICO (APR 1984)

The term "local taxes," as used in the Federal, State, and local taxes clause of this contract, includes taxes imposed by a possession of the United States or by Puerto Rico.

(End of clause)

52.232-5 PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS (SEP 2002)

(a) Payment of price. The Government shall pay the Contractor the contract price as provided in this contract.

(b) Progress payments. The Government shall make progress payments monthly as the work proceeds, or at more frequent intervals as determined by the Contracting Officer, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer.

(1) The Contractor's request for progress payments shall include the following substantiation:

(i) An itemization of the amounts requested, related to the various elements of work required by the contract covered by the payment requested.

(ii) A listing of the amount included for work performed by each subcontractor under the contract.

(iii) A listing of the total amount of each subcontract under the contract.

(iv) A listing of the amounts previously paid to each such subcontractor under the contract.

(v) Additional supporting data in a form and detail required by the Contracting Officer.

(2) In the preparation of estimates, the Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration. Material delivered to the Contractor at locations other than the site also may be taken into consideration if--

(i) Consideration is specifically authorized by this contract; and

(ii) The Contractor furnishes satisfactory evidence that it has acquired title to such material and that the material will be used to perform this contract.

(c) Contractor certification. Along with each request for progress payments, the Contractor shall furnish the following certification, or payment shall not be made: (However, if the Contractor elects to delete paragraph (c)(4) from the certification, the certification is still acceptable.)

I hereby certify, to the best of my knowledge and belief, that--

(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

(2) All payments due to subcontractors and suppliers from previous payments received under the contract have been made, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements and the requirements of chapter 39 of Title 31, United States Code;

(3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract; and

(4) This certification is not to be construed as final acceptance of a subcontractor's performance.

_____

(Name)

_____

(Title)

_____

(Date)

(d) Refund of unearned amounts. If the Contractor, after making a certified request for progress payments, discovers that a portion or all of such request constitutes a payment for performance by the Contractor that fails to conform to the specifications, terms, and conditions of this contract (hereinafter referred to as the "unearned amount"), the Contractor shall--

(1) Notify the Contracting Officer of such performance deficiency; and

(2) Be obligated to pay the Government an amount (computed by the Contracting Officer in the manner provided in paragraph (j) of this clause) equal to interest on the unearned amount from the 8th day after the date of receipt of the unearned amount until--

(i) The date the Contractor notifies the Contracting Officer that the performance deficiency has been corrected; or

(ii) The date the Contractor reduces the amount of any subsequent certified request for progress payments by an amount equal to the unearned amount.

(e) Retainage. If the Contracting Officer finds that satisfactory progress was achieved during any period for which a progress payment is to be made, the Contracting Officer shall authorize payment to be made in full. However, if satisfactory progress has not been made, the Contracting Officer may retain a maximum of 10 percent of the amount of the payment until satisfactory progress is achieved. When the work is substantially complete, the Contracting Officer may retain from previously withheld funds and future progress payments that amount the Contracting Officer considers adequate for protection of the Government and shall release to the Contractor all the remaining withheld funds. Also, on completion and acceptance of each separate building, public work, or other division of the contract, for which the price is stated separately in the contract, payment shall be made for the completed work without retention of a percentage.

(f) Title, liability, and reservation of rights. All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Government, but this shall not be construed as--

(1) Relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or

(2) Waiving the right of the Government to require the fulfillment of all of the terms of the contract.

(g) Reimbursement for bond premiums. In making these progress payments, the Government shall, upon request, reimburse the Contractor for the amount of premiums paid for performance and payment bonds (including coinsurance and reinsurance agreements, when applicable) after the Contractor has furnished evidence of full payment to the surety. The retainage provisions in paragraph (e) of this clause shall not apply to that portion of progress payments attributable to bond premiums.

(h) Final payment. The Government shall pay the amount due the Contractor under this contract after--

(1) Completion and acceptance of all work;

(2) Presentation of a properly executed voucher; and

(3) Presentation of release of all claims against
the Government arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned under the Assignment of Claims Act of 1940 (31 U.S.C. 3727 and 41 U.S.C. 15).

(i) Limitation because of undefinitized work. Notwithstanding any provision of this contract, progress payments shall not exceed 80 percent on work accomplished on undefinitized contract actions. A "contract action" is any action resulting in a contract, as defined in FAR Subpart 2.1, including contract modifications for additional supplies or services, but not including contract modifications that are within the scope and under the terms of the contract, such as contract modifications issued pursuant to the Changes clause, or funding and other administrative changes.

(j) Interest computation on unearned amounts. In accordance with 31 U.S.C. 3903(c)(1), the amount payable under subparagraph (d)(2) of this clause shall be--

(1) Computed at the rate of average bond equivalent rates of 91-day Treasury bills auctioned at the most recent auction of such bills prior to the date the Contractor receives the unearned amount; and

(2) Deducted from the next available payment to the Contractor.

(End of clause)

52.232-17 INTEREST (JUNE 1996)

(a) Except as otherwise provided in this contract under a Price Reduction for Defective Cost or Pricing Data clause or a Cost Accounting Standards clause, all amounts that become payable by the Contractor to the Government under this contract (net of any applicable tax credit under the Internal Revenue Code (26 U.S.C. 1481)) shall bear simple interest from the date due until paid unless paid within 30 days of becoming due. The interest rate shall be the interest rate established by the Secretary of the Treasury as provided in Section 12 of the Contract Disputes Act of 1978 (Public Law 95-563), which is applicable to the period in which the amount becomes due, as provided in paragraph (b) of this clause, and then at the rate applicable for each six-month period as fixed by the Secretary until the amount is paid. reproduce, prepare derivative works, distribute copies to the public, and (b) Amounts shall be due at the earliest of the following dates:

(1) The date fixed under this contract.

(2) The date of the first written demand for payment consistent with this contract, including any demand resulting from a default termination.

(3) The date the Government transmits to the Contractor a proposed supplemental agreement to confirm completed negotiations establishing the amount of debt.

(4) If this contract provides for revision of prices, the date of written notice to the Contractor stating the amount of refund payable in connection with a pricing proposal or a negotiated pricing agreement not confirmed by contract modification.

(c) The interest charge made under this clause may be reduced under the procedures prescribed in 32.614-2 of the Federal Acquisition Regulation in effect on the date of this contract.

(End of clause)

52.232-23 ASSIGNMENT OF CLAIMS (JAN 1986)

(a) The Contractor, under the Assignment of Claims Act, as amended, 31 U.S.C. 3727, 41 U.S.C. 15 (hereafter referred to as "the Act"), may assign its rights to be paid amounts due or to become due as a result of the performance of this contract to a bank, trust company, or other financing institution, including any Federal lending agency. The assignee under such an assignment may thereafter further assign or reassign its right under the original assignment to any type of financing institution described in the preceding sentence.

(b) Any assignment or reassignment authorized under the Act and this clause shall cover all unpaid amounts payable under this contract, and shall not be made to more than one party, except that an assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in the financing of this contract.

(c) The Contractor shall not furnish or disclose to any assignee under this contract any classified document (including this contract) or information related to work under this contract until the Contracting Officer authorizes such action in writing.

(End of clause)

52.232-27 PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS (FEB 2002)

Notwithstanding any other payment terms in this contract, the Government will make invoice payments under the terms and conditions specified in this clause. The Government considers payment as being made on the day a check is dated or the date of an electronic funds transfer. Definitions of pertinent terms are set forth in sections 2.101, 32.001, and 32.902 of the Federal Acquisition Regulation. All days referred to in this clause are calendar days, unless otherwise specified. (However, see paragraph (a)(3) concerning payments due on Saturdays, Sundays, and legal holidays.)

(a) Invoice payments--(1) Types of invoice payments. For purposes of this clause, there are several types of invoice payments that may occur under this contract, as follows:

(i) Progress payments, if provided for elsewhere in this contract, based on Contracting Officer approval of the estimated amount and value of work or services performed, including payments for reaching milestones in any project.

(A) The due date for making such payments is 14 days after the designated billing office receives a proper payment request. If the designated billing office fails to annotate the payment request with the actual date of receipt at the time of receipt, the payment due date is the 14th day after the date of the Contractor's payment request, provided the designated billing office receives a proper payment request and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(B) The due date for payment of any amounts retained by the Contracting Officer in accordance with the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts, is as specified in the contract or, if not specified, 30 days after approval by the Contracting Officer for release to the Contractor.

(ii) Final payments based on completion and acceptance of all work and presentation of release of all claims against the Government arising by virtue of the contract, and payments for partial deliveries that have been accepted by the Government (e.g., each separate building, public work, or other division of the contract for which the price is stated separately in the contract).

(A) The due date for making such payments is the later of the following two events:

(1) The 30th day after the designated billing office receives a proper invoice from the Contractor.

(2) The 30th day after Government acceptance of the work or services completed by the Contractor. For a final invoice when the payment amount is subject to contract settlement actions (e.g., release of claims), acceptance is deemed to occur on the effective date of the contract settlement.

(B) If the designated billing office fails to annotate the invoice with the date of actual receipt at the time of receipt, the invoice payment due date is the 30th day after the date of the Contractor's invoice, provided the designated billing office receives a proper invoice and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(2) Contractor's invoice. The Contractor shall prepare and submit invoices to the designated billing office specified in the contract. A proper invoice must include the items listed in paragraphs (a)(2)(i) through (a)(2)(xi) of this clause. If the invoice does not comply with these requirements, the designated billing office must return it within 7 days after receipt, with the reasons why it is not a proper invoice. When computing any interest penalty owed the Contractor, the Government will take into account if the Government notifies the Contractor of an improper invoice in an untimely manner.

(i) Name and address of the Contractor.

(ii) Invoice date and invoice number. (The Contractor should date invoices as close as possible to the date of mailing or transmission.)

(iii) Contract number or other authorization for work or services performed (including order number and contract line item number).

(iv) Description of work or services performed.

(v) Delivery and payment terms (e.g., discount for prompt payment terms).

(vi) Name and address of Contractor official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).

(vii) Name (where practicable), title, phone number, and mailing address of person to notify in the event of a defective invoice.

(viii) For payments described in paragraph (a)(1)(i) of this clause, substantiation of the amounts requested and certification in accordance with the requirements of the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts.

(ix) Taxpayer Identification Number (TIN). The Contractor shall include its TIN on the invoice only if required elsewhere in this contract.

(x) Electronic funds transfer (EFT) banking information.

(A) The Contractor shall include EFT banking information on the invoice only if required elsewhere in this contract.

(B) If EFT banking information is not required to be on the invoice, in order for the invoice to be a proper invoice, the Contractor shall have submitted correct EFT banking information in accordance with the applicable solicitation provision (e.g., 52.232-38, Submission of Electronic Funds Transfer Information with Offer), contract clause (e.g., 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration, or 52.232-34, Payment by Electronic Funds Transfer--Other Than Central Contractor Registration), or applicable agency procedures.

(C) EFT banking information is not required if the Government waived the requirement to pay by EFT.

(xi) Any other information or documentation required by the contract.

(3) Interest penalty. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if payment is not made by the due date and the conditions listed in paragraphs (a)(3)(i) through (a)(3)(iii) of this clause are met, if applicable. However, when the due date falls on a Saturday, Sunday, or legal holiday, the designated payment office may make payment on the following working day without incurring a late payment interest penalty.

(i) The designated billing office received a proper invoice.

(ii) The Government processed a receiving report or other Government documentation authorizing payment and there was no disagreement over quantity, quality, Contractor compliance with any contract term or condition, or requested progress payment amount.

(iii) In the case of a final invoice for any balance of funds due the Contractor for work or services performed, the amount was not subject to further contract settlement actions between the Government and the Contractor.

(4) Computing penalty amount. The Government will compute the interest penalty in accordance with the Office of Management and Budget prompt payment regulations at 5 CFR part 1315.

(i) For the sole purpose of computing an interest penalty that might be due the Contractor for payments described in paragraph (a)(1)(ii) of this clause, Government acceptance or approval is deemed to occur constructively on the 7th day after the Contractor has completed the work or services in accordance with the terms and conditions of the contract. If actual acceptance or approval occurs within the constructive acceptance or approval period, the Government will base the determination of an interest penalty on the actual date of acceptance or approval. Constructive acceptance or constructive approval requirements do not apply if there is a disagreement over quantity, quality, or Contractor compliance with a contract provision. These requirements also do not compel Government officials to accept work or services, approve Contractor estimates, perform contract administration functions, or make payment prior to fulfilling their responsibilities.

(ii) The prompt payment regulations at 5 CFR 1315.10(c) do not require the Government to pay interest penalties if payment delays are due to disagreement between the Government and the Contractor over the payment amount or other issues involving contract compliance, or on amounts temporarily withheld or retained in accordance with the terms of the contract. The Government and the Contractor shall resolve claims involving disputes, and any interest that may be payable in accordance with the clause at FAR 52.233-1, Disputes.

(5) Discounts for prompt payment. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if the Government takes a discount for prompt payment improperly. The Government will calculate the interest penalty in accordance with the prompt payment regulations at 5 CFR part 1315.

(6) Additional interest penalty. (i) The designated payment office will pay a penalty amount, calculated in accordance with the prompt payment regulations at 5 CFR part 1315 in addition to the interest penalty amount only if--

(A) The Government owes an interest penalty of $1 or more;

(B) The designated payment office does not pay the interest penalty within 10 days after the date the invoice amount is paid; and

(C) The Contractor makes a written demand to the designated payment office for additional penalty payment, in accordance with paragraph (a)(6)(ii) of this clause, postmarked not later than 40 days after the date the invoice amount is paid.

(ii)(A) The Contractor shall support written demands for additional penalty payments with the following data. The Government will not request any additional data. The Contractor shall--

(1) Specifically assert that late payment interest is due under a specific invoice, and request payment of all overdue late payment interest penalty and such additional penalty as may be required;

(2) Attach a copy of the invoice on which the unpaid late payment interest was due; and

(3) State that payment of the principal has been received, including the date of receipt.

(B) If there is no postmark or the postmark is illegible--

(1) The designated payment office that receives the demand will annotate it with the date of receipt provided the demand is received on or before the 40th day after payment was made; or

(2) If the designated payment office fails to make the required annotation, the Government will determine the demand's validity based on the date the Contractor has placed on the demand, provided such date is no later than the 40th day after payment was made.

(b) Contract financing payments. If this contract provides for contract financing, the Government will make contract financing payments in accordance with the applicable contract financing clause.

(c) Subcontract clause requirements. The Contractor shall include in each subcontract for property or services (including a material supplier) for the purpose of performing this contract the following:

(1) Prompt payment for subcontractors. A payment clause that obligates the Contractor to pay the subcontractor for satisfactory performance under its subcontract not later than 7 days from receipt of payment out of such amounts as are paid to the Contractor under this contract.

(2) Interest for subcontractors. An interest penalty clause that obligates the Contractor to pay to the subcontractor an interest penalty for each payment not made in accordance with the payment clause--

(i) For the period beginning on the day after the required payment date and ending on the date on which payment of the amount due is made; and

(ii) Computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(3) Subcontractor clause flowdown. A clause requiring each subcontractor to use:

(i) Include a payment clause and an interest penalty clause conforming to the standards set forth in paragraphs (c)(1) and (c)(2) of this clause in each of its subcontracts; and

(ii) Require each of its subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or supplier.

(d) Subcontract clause interpretation. The clauses required by paragraph (c) of this clause shall not be construed to impair the right of the Contractor or a subcontractor at any tier to negotiate, and to include in their subcontract, provisions that--

(1) Retainage permitted. Permit the Contractor or a subcontractor to retain (without cause) a specified percentage of each progress payment otherwise due to a subcontractor for satisfactory performance under the subcontract without incurring any obligation to pay a late payment interest penalty, in accordance with terms and conditions agreed to by the parties to the subcontract, giving such recognition as the parties deem appropriate to the ability of a subcontractor to furnish a performance bond and a payment bond;

(2) Withholding permitted. Permit the Contractor or subcontractor to make a determination that part or all of the subcontractor's request for payment may be withheld in accordance with the subcontract agreement; and

(3) Withholding requirements. Permit such withholding without incurring any obligation to pay a late payment penalty if--

(i) A notice conforming to the standards of paragraph (g) of this clause previously has been furnished to the subcontractor; and

(ii) The Contractor furnishes to the Contracting Officer a copy of any notice issued by a Contractor pursuant to paragraph (d)(3)(i) of this clause.

(e) Subcontractor withholding procedures. If a Contractor, after making a request for payment to the Government but before making a payment to a subcontractor for the subcontractor's performance covered by the payment request, discovers that all or a portion of the payment otherwise due such subcontractor is subject to withholding from the subcontractor in accordance with the subcontract agreement, then the Contractor shall--

(1) Subcontractor notice. Furnish to the subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon ascertaining the cause giving rise to a withholding, but prior to the due date for subcontractor payment;

(2) Contracting Officer notice. Furnish to the Contracting Officer, as soon as practicable, a copy of the notice furnished to the subcontractor pursuant to paragraph (e)(1) of this clause;

(3) Subcontractor progress payment reduction. Reduce the subcontractor's progress payment by an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (e)(1) of this clause;

(4) Subsequent subcontractor payment. Pay the subcontractor as soon as practicable after the correction of the identified subcontract performance deficiency, and--

(i) Make such payment within--

(A) Seven days after correction of the identified subcontract performance deficiency (unless the funds therefor must be recovered from the Government because of a reduction under paragraph
(e)(5)(i)) of this clause; or

(B) Seven days after the Contractor recovers such funds from the Government; or

(ii) Incur an obligation to pay a late payment interest penalty computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty;

(5) Notice to Contracting Officer. Notify the Contracting Officer upon--

(i) Reduction of the amount of any subsequent certified application for payment; or

(ii) Payment to the subcontractor of any withheld amounts of a progress payment, specifying--

(A) The amounts withheld under paragraph (e)(1) of this clause; and

(B) The dates that such withholding began and ended; and

(6) Interest to Government. Be obligated to pay to the Government an amount equal to interest on the withheld payments (computed in the manner provided in 31 U.S.C. 3903(c)(1)), from the 8th day after receipt of the withheld amounts from the Government until--

(i) The day the identified subcontractor performance deficiency is corrected; or

(ii) The date that any subsequent payment is reduced under paragraph (e)(5)(i) of this clause.

(f) Third-party deficiency reports--(1) Withholding from subcontractor. If a Contractor, after making payment to a first-tier subcontractor, receives from a supplier or subcontractor of the first-tier subcontractor (hereafter referred to as a “second-tier subcontractor”) a written notice in accordance with section 2 of the Act of August 24, 1935 (40 U.S.C. 270b, Miller Act), asserting a deficiency in such first-tier subcontractor's performance under the contract for which the Contractor may be ultimately liable, and the Contractor determines that all or a portion of future payments

otherwise due such first-tier subcontractor is subject to withholding in accordance with the subcontract agreement, the Contractor may, without incurring an obligation to pay an interest penalty under paragraph (e)(6) of this clause--

(i) Furnish to the first-tier subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon making such determination; and

(ii) Withhold from the first-tier subcontractor's next available progress payment or payments an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (f)(1)(i) of this clause.

(2) Subsequent payment or interest charge. As soon as practicable, but not later than 7 days after receipt of satisfactory written notification that the identified subcontract performance deficiency has been corrected, the Contractor shall--

(i) Pay the amount withheld under paragraph (f)(1)(ii) of this clause to such first-tier subcontractor; or

(ii) Incur an obligation to pay a late payment interest penalty to such first-tier subcontractor computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts DisputesAct of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(g) Written notice of subcontractor withholding. The Contractor shall issue a written notice of any withholding to a subcontractor (with a copy furnished to the Contracting Officer), specifying--

(1) The amount to be withheld;

(2) The specific causes for the withholding under the terms of the subcontract; and

(3) The remedial actions to be taken by the subcontractor in order to receive payment of the amounts withheld.

(h) Subcontractor payment entitlement. The Contractor may not request payment from the Government of any amount withheld or retained in accordance with paragraph (d) of this clause until such time as the Contractor has determined and certified to the Contracting Officer that the subcontractor is entitled to the payment of such amount.

(i) Prime-subcontractor disputes. A dispute between the Contractor and subcontractor relating to the amount or entitlement of a subcontractor to a payment or a late payment interest penalty under a clause included in the subcontract pursuant to paragraph (c) of this clause does not constitute a dispute to which the Government is a party. The Government may not be interpleaded in any judicial or administrative proceeding involving such a dispute.

(j) Preservation of prime-subcontractor rights. Except as provided in paragraph (i) of this clause, this clause shall not limit or impair any contractual, administrative, or judicial remedies otherwise available to the Contractor or a subcontractor in the event of a dispute involving late payment or nonpayment by the Contractor or deficient subcontract performance or nonperformance by a subcontractor.

(k) Non-recourse for prime contractor interest penalty. The Contractor's obligation to pay an interest penalty to a subcontractor pursuant to the clauses included in a subcontract under paragraph (c) of this clause shall not be construed to be an obligation of the Government for such interest penalty. A cost-reimbursement claim may not include any amount for reimbursement of such interest penalty.

(l) Overpayments. If the Contractor becomes aware of a duplicate payment or that the Government has otherwise overpaid on an invoice payment, the Contractor shall immediately notify the Contracting Officer and request instructions for disposition of the overpayment.

(End of clause)

52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER—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 the payment due date until such time as the Government can make payment by EFT (but see paragraph (d) of this clause).

(b) Contractor's EFT information. The Government shall make payment to the Contractor using the EFT information contained in the Central Contractor Registration (CCR) database. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the CCR database.

(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. If the Contractor's EFT information in the CCR database is incorrect, then the Government need not make payment to the Contractor under this contract until correct EFT information is entered into the CCR database; and 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.

(e) Contractor EFT arrangements. If the Contractor has identified multiple payment receiving points (i.e., more than one remittance address and/or EFT information set) in the CCR database, and the Contractor has not notified the Government of the payment receiving point applicable to this contract, the Government shall make payment to the first payment receiving point (EFT information set or remittance address as applicable) listed in the CCR database.

(f) 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) of this clause shall apply.

(g) 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.

(h) 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 register in the CCR database 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.

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

(j) 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 contained in the CCR database.

(End of Clause)

52.233-1 DISPUTES. (JUL 2002)

(a) This contract is subject to the Contract Disputes Act of 1978, as amended (41 U.S.C. 601-613).

(b) Except as provided in the Act, all disputes arising under or relating to this contract shall be resolved under this clause.

(c) Claim, as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to this contract. However, a written demand or written assertion by the Contractor seeking the payment of money exceeding $100,000 is not a claim under the Act until certified. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim under the Act. The submission may be converted to a claim under the Act, by complying with the submission and certification requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(d)(1) A claim by the Contractor shall be made in writing and, unless otherwise stated in this contract, submitted within 6 years after accrual of the claim to the Contracting Officer for a written decision. A claim by the Government against the Contractor shall be subject to a written decision by the Contracting Officer.

(2)(i) The contractors shall provide the certification specified in subparagraph (d)(2)(iii) of this clause when submitting any claim -

(A) Exceeding $100,000; or

(B) Regardless of the amount claimed, when using -

(1) Arbitration conducted pursuant to 5 U.S.C. 575-580; or

(2) Any other alternative means of dispute resolution (ADR) technique that the agency elects to handle in accordance with the Administrative Dispute Resolution Act (ADRA).

(ii) The certification requirement does not apply to issues in controversy that have not been submitted as all or part of a claim.

(iii) The certification shall state as follows: "I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes the Government is liable; and that I am duly authorized to certify the claim on behalf of the Contractor.

(3) The certification may be executed by any person duly authorized to bind the Contractor with respect to the claim.

(e) For Contractor claims of $100,000 or less, the Contracting Officer must, if requested in writing by the Contractor, render a decision within 60 days of the request. For Contractor-certified claims over $100,000, the Contracting Officer must, within 60 days, decide the claim or notify the Contractor of the date by which the decision will be made.

(f) The Contracting Officer's decision shall be final unless the Contractor appeals or files a suit as provided in the Act.

(g) If the claim by the Contractor is submitted to the Contracting Officer or a claim by the Government is presented to the Contractor, the parties, by mutual consent, may agree to use alternative disput resolution (ADR). If the Contractor refuses an offer for ADR, the Contractor shall inform the Contracting Officer, in writing, of the Contractor's specific reasons for rejecting the request.

(h) The Government shall pay interest on the amount found due and unpaid from (1) the date the Contracting Officer receives the claim (certified, if required); or (2) the date that payment otherwise would be due, if that date is later, until the date of payment. With regard to claims having defective certifications, as defined in (FAR) 48 CFR 33.201, interest shall be paid from the date that the Contracting Officer initially receives the claim. Simple interest on claims shall be paid at the rate, fixed by the Secretary of the Treasury as provided in the Act, which is applicable to the period during which the Contracting Officer receives the claim and then at the rate applicable for each 6-month period as fixed by the Treasury Secretary during the pendency of the claim.

(i) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under the contract, and comply with any decision of the Contracting Officer.

(End of clause)

52.233-3 PROTEST AFTER AWARD (AUG. 1996)

(a) Upon receipt of a notice of protest (as defined in FAR 33.101) or a determination that a protest is likely (see FAR 33.102(d)), the Contracting Officer may, by written order to the Contractor, direct the Contractor to stop performance of the work called for by this contract. The order shall be specifically identified as a stop-work order

issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Upon receipt of the final decision in the protest, the Contracting Officer shall either--

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.

(b) If a stop-work order issued under this clause is canceled either before or after a final decision in the protest, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if--

(1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and

(2) The Contractor asserts its right to an adjustment within 30 days after the end of the period of work stoppage; provided, that if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon a proposal at any time before final payment under this contract.

(c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

(d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.

(e) The Government's rights to terminate this contract at any time are not affected by action taken under this clause.

(f) If, as the result of the Contractor's intentional or negligent misstatement, misrepresentation, or miscertification, a protest related to this contract is sustained, and the Government pays costs, as provided in FAR 33.102(b)(2) or 33.104(h)(1), the Government may require the Contractor to reimburse the Government the amount of such costs. In addition to any other remedy available, and pursuant to the requirements of Subpart 32.6, the Government may collect this debt by offsetting the amount against any payment due the Contractor under any contract between the Contractor and the Government.

(End of clause)

52.236-2 DIFFERING SITE CONDITIONS (APR 1984)

As prescribed in 36.502, insert the following clause in solicitations and contracts when a fixed-price construction contract or a fixed-price dismantling, demolition, or removal of improvements contract is contemplated and the contract amount is expected to exceed the small purchase limitation. The Contracting Officer may insert the clause in solicitations and contracts when a fixed-price construction or a fixed-price contract for dismantling, demolition, or removal of improvements is contemplated and the contract amount is expected to be within the small purchase limitation.

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of

(1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or

(2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, an equitable adjustment shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

(End of clause)

52.236-3 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (APR 1984)

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to

(1) conditions bearing upon transportation, disposal, handling, and storage of materials;

(2) the availability of labor, water, electric power, and roads;

(3) uncertainties of weather, river stages, tides, or similar physical conditions at the site;

(4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Government, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Government.

(b) The Government assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Government. Nor does the Government assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

(End of clause)

52.236-5 MATERIAL AND WORKMANSHIP (APR 1984)

(a) All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the

most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

(b) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. When directed to do so, the Contractor shall submit samples for approval at the Contractor's expense, with all shipping charges prepaid. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

(c) All work under this contract shall be performed in a skillful and workmanlike manner. The Contracting Officer may require, in writing, that the Contractor remove from the work any employee the Contracting Officer deems incompetent, careless, or otherwise objectionable.

(End of clause)

52.236-6 SUPERINTENDENCE BY THE CONTRACTOR (APR 1984)

At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the worksite a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.

(End of clause)

52.236-7 PERMITS AND RESPONSIBILITIES (NOV 1991)

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

(End of clause)

52.236-8 OTHER CONTRACTS (APR 1984)

The Government may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with Government employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work,

heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by Government employees.

(End of clause)

52.236-9 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS (APR 1984)

(a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

(b) The Contractor shall protect from damage all existing improvements and utilities

(1) at or near the work site, and

(2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

(End of clause)

52.236-10 OPERATIONS AND STORAGE AREAS (APR 1984)

(a) The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

(b) Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

(c) The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

(End of clause)

52.236-11 USE AND POSSESSION PRIOR TO COMPLETION (APR 1984)

(a) The Government shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the Government intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The Government's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the Government has such possession or use, the Contractor shall be relieved of the responsibility for the loss of or damage to the work resulting from the Government's possession or use, notwithstanding the terms of the clause in this contract entitled "Permits and Responsibilities." If prior possession or use by the Government delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

(End of clause)

52.236-12 CLEANING UP (APR 1984)

The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Contractor shall remove from the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the Government. Upon completing the work, the Contractor shall leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer.

(End of clause)

52.236-13 ACCIDENT PREVENTION (NOV 1991) – ALTERNATE I (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.

(f) Before commencing the work, the Contractor shall-

(1) Submit a written proposed plan for implementing this clause. The plan shall include an analysis of the significant hazards to life, limb, and property inherent in contract work performance and a plan for controlling these hazards; and

(2) Meet with representatives of the Contracting Officer to discuss and develop a mutual understanding relative to administration of the overall safety program.

(End of clause)

52.236-15 SCHEDULES FOR CONSTRUCTION CONTRACTS (APR 1984)

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as directed by the Contracting Officer, and upon doing so shall immediately deliver three copies of the annotated schedule to the Contracting Officer. If, in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the Government. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

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

(End of clause)

52.236-17 LAYOUT OF WORK (APR 1984)

The Contractor shall lay out its work from Government established base lines and bench marks indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through its negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due or to become due to the Contractor.

(End of clause)

52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FEB 1997)

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by," or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

(c) Where "as shown," as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place," that is "furnished and installed".

(d) Shop drawings means drawings, submitted to the Government by the Contractor, subcontractor, or any lower tier subcontractor pursuant to a construction contract, showing in detail (1) the proposed fabrication and assembly of structural elements, and (2) the installation (i.e., fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the contractor to explain in detail specific portions of the work required by the contract. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or

disapproval of the shop drawings and if not approved as submitted shall indicate the Government's reasons therefor. Any work done before such approval shall be at the Contractor's risk. 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, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Contracting Officer approves any such variation, the Contracting Officer shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the Contracting Officer and one set will be returned to the Contractor.

(End of clause)

52.236-26 PRECONSTRUCTION CONFERENCE (FEB 1995)

If the Contracting Officer decides to conduct a preconstruction conference, the successful offeror will be notified and will be required to attend. The Contracting Officer's notification will include specific details regarding the date, time, and location of the conference, any need for attendance by subcontractors, and information regarding the items to be discussed.

(End of clause)

52.239-4005 Year 2000 Compliance - Construction Contracts

a. In accordance with FAR 39.106, the contractor shall ensure that with respect to any design, construction, goods, or services under this contract as well as any subsequent task/delivery orders issued under this contract (if applicable), all information technology contained therein shall be Year 2000 compliant. Specifically:

The contractor shall:

(1) Perform, maintain, and provide an inventory of all major components to include structures, equipment, items, parts, and furnishings under this contract and each task/delivery order which may be affected by the Y2K compliance requirement.

(2) Indicate whether each component is currently Year 2000 compliant or requires an upgrade for compliance prior to government acceptance.

(End of Clause)

52.242-13 BANKRUPTCY (JUL 1995)

In the event the Contractor enters into proceedings relating to bankruptcy, whether voluntary or involuntary, the Contractor agrees to furnish, by certified mail or electronic commerce method authorized by the contract, written notification of the bankruptcy to the Contracting Officer responsible for administering the contract. This notification shall be furnished within five days of the initiation of the proceedings relating to bankruptcy filing. This notification shall include the date on which the bankruptcy petition was filed, the identity of the court in which the bankruptcy petition was filed, and a listing of Government contract numbers and contracting offices for all Government contracts against which final payment has not been made. This obligation remains in effect until final payment under this contract.

(End of clause)

52.242-14 SUSPENSION OF WORK (APR 1984)

(a) The Contracting Officer may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Government.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified in this contract (or within a reasonable time if not specified), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this contract. (c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

(End of clause)

52.243-4 CHANGES (AUG 1987)

(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 facilities, equipment, materials, services, or site; 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)

52.245-2 GOVERNMENT PROPERTY (FIXED-PRICE CONTRACTS) (DEC 1989)

(a) Government-furnished property. (1) The Government shall deliver to the Contractor, for use in connection with and under the terms of this contract, the Government-furnished property described in the Schedule or specifications together with any related data and information that the Contractor may request and is reasonably required for the intended use of the property (hereinafter referred to as "Government-furnished property").

(2) The delivery or performance dates for this contract are based upon the expectation that Government-furnished property suitable for use (except for property furnished "as is") will be delivered to the Contractor at the times stated in the Schedule or, if not so stated, in sufficient time to enable the Contractor to meet the contract's delivery or performance dates.

(3) If Government-furnished property is received by the Contractor in a condition not suitable for the intended use, the Contractor shall, upon receipt of it, notify the Contracting Officer, detailing the facts, and, as directed by the Contracting Officer and at Government expense, either repair, modify, return, or otherwise dispose of the property. After completing the directed action and upon written request of the Contractor, the Contracting Officer shall make an equitable adjustment as provided in paragraph (h) of this clause.

(4) If Government-furnished property is not delivered to the Contractor by the required time, the Contracting Officer shall, upon the Contractor's timely written request, make a determination of the delay, if any, caused the Contractor and shall make an equitable adjustment in accordance with paragraph (h) of this clause.

(b) Changes in Government-furnished property. (1) The Contracting Officer may, by written notice, (i) decrease the Government-furnished property provided or to be provided under this contract, or (ii) substitute other Government-furnished property for the property to be provided by the Government, or to be acquired by the Contractor for the Government, under this contract. The Contractor shall promptly take such action as the Contracting Officer may direct regarding the removal, shipment, or disposal of the property covered by such notice.

(2) Upon the Contractor's written request, the Contracting Officer shall make an equitable adjustment to the contract in accordance with paragraph (h) of this clause, if the Government has agreed in the Schedule to make the property available for performing this contract and there is any--

(i) Decrease or substitution in this property pursuant to subparagraph (b)(1) of this clause; or

(ii) Withdrawal of authority to use this property, if provided under any other contract or lease.

(c) Title in Government property. (1) The Government shall retain title to all Government-furnished property.

(2) All Government-furnished property and all property acquired by the Contractor, title to which vests in the Government under this paragraph (collectively referred to as "Government property"), are subject to the provisions of this clause. However, special tooling accountable to this contract is subject to the provisions of the Special Tooling clause and is not subject to the provisions of this clause. Title to Government property shall not be affected by its incorporation into or attachment to any property not owned by the Government, nor shall Government property become a fixture or lose its identity as personal property by being attached to any real property.

(3) Title to each item of facilities and special test equipment acquired by the Contractor for the Government under this contract shall pass to and vest in the Government when its use in performing this contract commences or when the Government has paid for it, whichever is earlier, whether or not title previously vested in the Government.

(4) If this contract contains a provision directing the Contractor to purchase material for which the Government will reimburse the Contractor as a direct item of cost under this contract--

(i) Title to material purchased from a vendor shall pass to and vest in the Government upon the vendor's delivery of such material; and

(ii) Title to all other material shall pass to and vest in the Government upon--

(A) Issuance of the material for use in contract performance;

(B) Commencement of processing of the material or its use in contract performance; or

(C) Reimbursement of the cost of the material by the Government, whichever occurs first.

(d) Use of Government property. The Government property shall be used only for performing this contract, unless otherwise provided in this contract or approved by the Contracting Officer.

(e) Property administration. (1) The Contractor shall be responsible and accountable for all Government property provided under this contract and shall comply with Federal Acquisition Regulation (FAR) Subpart 45.5, as in effect on the date of this contract.

(2) The Contractor shall establish and maintain a program for the use, maintenance, repair, protection, and preservation of Government property in accordance with sound industrial practice and the applicable provisions of Subpart 45.5 of the FAR.

(3) If damage occurs to Government property, the risk of which has been assumed by the Government under this contract, the Government shall replace the items or the Contractor shall make such repairs as the Government directs. However, if the Contractor cannot effect such repairs within the time required, the Contractor shall dispose of the property as directed by the Contracting Officer. When any property for which the Government is responsible is replaced or repaired, the Contracting Officer shall make an equitable adjustment in accordance with paragraph (h) of this clause.

(4) The Contractor represents that the contract price does not include any amount for repairs or replacement for which the Government is responsible. Repair or replacement of property for which the Contractor is responsible shall be accomplished by the Contractor at its own expense.

(f) Access. The Government and all its designees shall have access at all reasonable times to the premises in which any Government property is located for the purpose of inspecting the Government property.

(g) Risk of loss. Unless otherwise provided in this contract, the Contractor assumes the risk of, and shall be responsible for, any loss or destruction of, or damage to, Government property upon its delivery to the Contractor or upon passage of title to the Government under paragraph (c) of this clause. However, the Contractor is not responsible for reasonable wear and tear to Government property or for Government property properly consumed in performing this contract.

(h) Equitable adjustment. When this clause specifies an equitable adjustment, it shall be made to any affected contract provision in accordance with the procedures of the Changes clause. When appropriate, the Contracting Officer may initiate an equitable adjustment in favor of the Government. The right to an equitable adjustment shall be the Contractor's exclusive remedy. The Government shall not be liable to suit for breach of contract for--

(1) Any delay in delivery of Government-furnished property;

(2) Delivery of Government-furnished property in a condition not suitable for its intended use;

(3) A decrease in or substitution of Government-furnished property; or

(4) Failure to repair or replace Government property for which the Government is responsible.

(i) Final accounting and disposition of Government property. Upon completing this contract, or at such earlier dates as may be fixed by the Contracting Officer, the Contractor shall submit, in a form acceptable to the Contracting Officer, inventory schedules covering all items of Government property (including any resulting scrap) not consumed in performing this contract or delivered to the Government. The Contractor shall prepare for shipment, deliver f.o.b. origin, or dispose of the Government property as may be directed or authorized by the Contracting Officer. The net proceeds of any such disposal shall be credited to the contract price or shall be paid to the Government as the Contracting Officer directs.

(j) Abandonment and restoration of Contractor's premises. Unless otherwise provided herein, the Government--

(1) May abandon any Government property in place, at which time all obligations of the Government regarding such abandoned property shall cease; and

(2) Has no obligation to restore or rehabilitate the Contractor's premises under any circumstances (e.g., abandonment, disposition upon completion of need, or upon contract completion). However, if the Government-furnished property (listed in the Schedule or specifications) is withdrawn or is unsuitable for the intended use, or if other Government property is substituted, then the equitable adjustment under paragraph (h) of this clause may properly include restoration or rehabilitation costs.

(k) Communications. All communications under this clause shall be in writing.

(l) Overseas contracts. If this contract is to be performed outside of the United States of America, its territories, or possessions, the words "Government" and "Government-furnished" (wherever they appear in this clause) shall be construed as "United States Government" and "United States Government-furnished," respectively.

(End of clause)

52.248-3 VALUE ENGINEERING--CONSTRUCTION (FEB 2000) - ALTERNATE I (APR 1984)

(a) General. The Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECP's) voluntarily. The Contractor shall share in any instant contract savings realized from accepted VECP's, in accordance with paragraph (f) below.

(b) Definitions. "Collateral costs," as used in this clause, means agency costs of operation, maintenance, logistic support, or Government-furnished property.

"Collateral savings," as used in this clause, means those measurable net reductions resulting from a VECP in the agency's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

"Contractor's development and implementation costs," as used in this clause, means those costs the Contractor incurs on a VECP specifically in developing, testing, preparing, and submitting the VECP, as well as those costs the Contractor incurs to make the contractual changes required by Government acceptance of a VECP.

"Government costs," as used in this clause, means those agency costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistic support. The term does not include the normal administrative costs of processing the VECP.

"Instant contract savings," as used in this clause, means the estimated reduction in Contractor cost of performance resulting from acceptance of the VECP, minus allowable Contractor's development and implementation costs, including subcontractors' development and implementation costs (see paragraph (h) below).

"Value engineering change proposal (VECP)" means a proposal that--

(1) Requires a change to this, the instant contract, to implement; and

(2) Results in reducing the contract price or estimated cost without impairing essential functions or characteristics; provided, that it does not involve a change--

(i) In deliverable end item quantities only; or

(ii) To the contract type only.

(c) VECP preparation. As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (7) below. If the proposed change is affected by contractually required configuration management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern VECP preparation. The VECP shall include the following:

(1) A description of the difference between the existing contract requirement and that proposed, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, and the effect of the change on the end item's performance.

(2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.

(3) A separate, detailed cost estimate for (i) the affected portions of the existing contract requirement and (ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under paragraph (h) below.

(4) A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.

(5) A prediction of any effects the proposed change would have on collateral costs to the agency.

(6) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

(7) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.

(d) Submission. The Contractor shall submit VECP's to the Resident Engineer at the worksite, with a copy to the Contracting Officer.

(e) Government action. (1) The Contracting Officer shall notify the Contractor of the status of the VECP within 45 calendar days after the contracting office receives it. If additional time is required, the Contracting Officer shall notify the Contractor within the 45-day period and provide the reason for the delay and the expected date of the decision. The Government will process VECP's expeditiously; however, it shall not be liable for any delay in acting upon a VECP.

(2) If the VECP is not accepted, the Contracting Officer shall notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Government. The Contracting Officer may require that the Contractor provide written notification before undertaking significant expenditures for VECP effort.

(3) Any VECP may be accepted, in whole or in part, by the Contracting Officer's award of a modification to this contract citing this clause. The Contracting Officer may accept the VECP, even though an agreement on price reduction has not been reached, by issuing the Contractor a notice to proceed with the change. Until a notice to proceed is issued or a contract modification applies a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The decision to accept or reject all or part of any VECP is a unilateral decision made solely at the discretion of the Contracting Officer.

(f) Sharing.

(1) Rates. The Government's share of savings is determined by subtracting Government costs from instant contract savings and multiplying the result by (i) 45 percent for fixed-price contracts or (ii) 75 percent for cost-reimbursement contracts.

(2) Payment. Payment of any share due the Contractor for use of a VECP on this contract shall be authorized by a modification to this contract to--

(i) Accept the VECP;

(ii) Reduce the contract price or estimated cost by the amount of instant contract savings; and

(iii) Provide the Contractor's share of savings by adding the amount calculated to the contract price or fee.

(g) Subcontracts. The Contractor shall include an appropriate value engineering clause in any subcontract of $50,000 or more and may include one in subcontracts of lesser value. In computing any adjustment in this contract's price under paragraph (f) above, the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs clearly resulting from a VECP accepted by the Government under this contract, but shall exclude any value engineering incentive payments to a subcontractor. The Contractor may choose any arrangement for subcontractor value engineering incentive payments; provided, that these payments shall not reduce the Government's share of the savings resulting from the VECP.

(h) Data. The Contractor may restrict the Government's right to use any part of a VECP or the supporting data by marking the following legend on the affected parts:

"These data, furnished under the Value Engineering--Construction clause of contract . . . . . , shall not be disclosed outside the Government or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering change proposal submitted under the clause. This restriction does not limit the Government's right to use information contained in these data if it has been obtained or is otherwise available from the Contractor or from another source without limitations."

If a VECP is accepted, the Contractor hereby grants the Government unlimited rights in the VECP and supporting data, except that, with respect to data qualifying and submitted as limited rights technical data, the Government shall have the rights specified in the contract modification implementing the VECP and shall appropriately mark the data. (The terms "unlimited rights" and "limited rights" are defined in Part 27 of the Federal Acquisition Regulation.)

(j) Collateral savings. If a VECP is accepted, the Contracting Officer will increase the instant contract amount by 20 percent of any projected collateral savings determined to be realized in a typical year of use after subtracting any Government costs not previously offset. However, the Contractor's share of collateral savings will not exceed the contract's firm-fixed-price or estimated cost, at the time the VECP is accepted, or $100,000, whichever is greater. The Contracting Officer will be the sole determiner of the amount of collateral savings.

(End of clause)

52.249-2 TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (SEP 1996) - ALTERNATE I (SEP 1996)

(a) The Government may terminate performance of work under this contract in whole or, from time to time, in part if the Contracting Officer determines that a termination is in the Government's interest. The Contracting Officer shall terminate by delivering to the Contractor a Notice of Termination specifying the extent of termination and the effective date.

(b) After receipt of a Notice of Termination, and except as directed by the Contracting Officer, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

(1) Stop work as specified in the notice.

(2) Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the contract.

(3) Terminate all subcontracts to the extent they relate to the work terminated.

(4) Assign to the Government, as directed by the Contracting Officer, all right, title, and interest of the Contractor under the subcontracts terminated, in which case the Government shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.

(5) With approval or ratification to the extent required by the Contracting Officer, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts; the approval or ratification will be final for purposes of this clause.

(6) As directed by the Contracting Officer, transfer title and deliver to the Government (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (ii) the completed or partially completed plans, drawings, information, and other property that, if the contract had been completed, would be required to be furnished to the Government.

(7) Complete performance of the work not terminated.

(8) Take any action that may be necessary, or that the Contracting Officer may direct, for the protection and preservation of the property related to this contract that is in the possession of the Contractor and in which the Government has or may acquire an interest.

(9) Use its best efforts to sell, as directed or authorized by the Contracting Officer, any property of the types referred to in subparagraph (b)(6) of this clause; provided, however, that the Contractor (i) is not required to extend credit to any purchaser and (ii) may acquire the property under the conditions prescribed by, and at prices approved by, the Contracting Officer. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by the Government under this contract, credited to the price or cost of the work, or paid in any other manner directed by the Contracting Officer.

(c) The Contractor shall submit complete termination inventory schedules no later than 120 days from the effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this 120-day period.

(d) After expiration of the plant clearance period as defined in Subpart 45.6 of the Federal Acquisition Regulation, the Contractor may submit to the Contracting Officer a list, certified as to quantity and quality, of termination inventory not previously disposed of, excluding items authorized for disposition by the Contracting Officer. The Contractor may request the Government to remove those items or enter into an agreement for their storage. Within 15 days, the Government will accept title to those items and remove them or enter into a storage agreement. The Contracting Officer may verify the list upon removal of the items, or if stored, within 45 days from submission of the list, and shall correct the list, as necessary, before final settlement.

(e) After termination, the Contractor shall submit a final termination settlement proposal to the Contracting Officer in the form and with the certification prescribed by the Contracting Officer. The Contractor shall submit the proposal promptly, but no later than 1 year from the effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this 1-year period. However, if the Contracting Officer determines that the facts justify it, a termination settlement proposal may be received and acted on after 1 year or any extension. If the Contractor fails to submit the proposal within the time allowed, the Contracting Officer may determine, on the basis of information available, the amount, if any, due the Contractor because of the termination and shall pay the amount determined.

(f) Subject to paragraph (e) of this clause, the Contractor and the Contracting Officer may agree upon the whole or any part of the amount to be paid or remaining to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. However, the agreed amount, whether under this paragraph (g) or paragraph (g) of this clause, exclusive of costs shown in subparagraph (g)(3) of this clause, may not exceed the total contract price as reduced by (1) the amount of payments previously made and (2) the contract price of work not terminated. The contract shall be modified, and the Contractor paid the agreed amount. Paragraph (g) of this clause shall not limit, restrict, or affect the amount that may be agreed upon to be paid under this paragraph.

(g) If the Contractor and Contracting Officer fail to agree on the whole amount to be paid the Contractor because of the termination of work, the Contracting Officer shall pay the Contractor the amounts determined as follows, but without duplication of any amounts agreed upon under paragraph (f) of this clause:

(1) For contract work performed before the effective date of termination, the total (without duplication of any items) of--

(i) The cost of this work;

(ii) The cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the contract if not included in subdivision (g)(1)(i) of this clause; and

(iii) A sum, as profit on subdivision (g)(1)(i) of this clause, determined by the Contracting Officer under 49.202 of the Federal Acquisition Regulation, in effect on the date of this contract, to be fair and reasonable; however, if it appears that the Contractor would have sustained a loss on the entire contract had it been completed, the Contracting Officer shall allow no profit under this subdivision (iii) and shall reduce the settlement to reflect the indicated rate of loss.

(2) The reasonable costs of settlement of the work terminated, including--

(i) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;

(ii) The termination and settlement of subcontracts (excluding the amounts of such settlements); and

(iii) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.

(h) Except for normal spoilage, and except to the extent that the Government expressly assumed the risk of loss, the Contracting Officer shall exclude from the amounts payable to the Contractor under paragraph (g) of this clause, the fair value, as determined by the Contracting Officer, of property that is destroyed, lost, stolen, or damaged so as to become undeliverable to the Government or to a buyer.

(i) The cost principles and procedures of Part 31 of the Federal Acquisition Regulation, in effect on the date of this contract, shall govern all costs claimed, agreed to, or determined under this clause.

(j) The Contractor shall have the right of appeal, under the Disputes clause, from any determination made by the Contracting Officer under paragraph (e), (g), or (l) of this clause, except that if the Contractor failed to submit the termination settlement proposal or request for equitable adjustment within the time provided in paragraph (e) or (l), respectively, and failed to request a time extension, there is no right of appeal.

(k) In arriving at the amount due the Contractor under this clause, there shall be deducted--

(1) All unliquidated advance or other payments to the Contractor under the terminated portion of this contract;

(2) Any claim which the Government has against the Contractor under this contract; and

(3) The agreed price for, or the proceeds of sale of, materials, supplies, or other things acquired by the Contractor or sold under the provisions of this clause and not recovered by or credited to the Government.

(l) If the termination is partial, the Contractor may file a proposal with the Contracting Officer for an equitable adjustment of the price(s) of the continued portion of the contract. The Contracting Officer shall make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this clause shall be requested within 90 days from the effective date of termination unless extended in writing by the Contracting Officer.

(m)(1) The Government may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the contract, if the Contracting Officer believes the total of these payments will not exceed the amount to which the Contractor will be entitled.

(2) If the total payments exceed the amount finally determined to be due, the Contractor shall repay the excess to the Government upon demand, together with interest computed at the rate established by the Secretary of the Treasury under 50 U.S.C. App. 1215(b)(2). Interest shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of retention or other disposition of termination inventory until 10 days after the date of the retention or disposition, or a later date determined by the Contracting Officer because of the circumstances.

(n) Unless otherwise provided in this contract or by statute, the Contractor shall maintain all records and documents relating to the terminated portion of this contract for 3 years after final settlement. This includes all books and other evidence bearing on the Contractor's costs and expenses under this contract. The Contractor shall make these records and documents available to the Government, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Contracting Officer, photographs, microphotographs, or other authentic reproductions may be maintained instead of original records and documents.

(End of clause)

52.249-10 DEFAULT (FIXED-PRICE CONSTRUCTION) (APR 1984)

(a) If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract including any extension, or fails to complete the work within this time, the Government may, by written notice to the Contractor, terminate the right to proceed with the work (or the separable part of the work) that has been delayed. In this event, the Government may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Government resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Government in completing the work.

(b) The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause, if--

(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include

(i) acts of God or of the public enemy,

(ii) acts of the Government in either its sovereign or contractual capacity,

(iii) acts of another Contractor in the performance of a contract with the Government,

(iv) fires,

(v) floods,

(vi) epidemics,

(vii) quarantine restrictions,

(viii) strikes,

(ix) freight embargoes,

(x) unusually severe weather, or delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and

(2) The Contractor, within 10 days from the beginning of any delay (unless extended by the Contracting Officer), notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, the time for completing the work shall be extended. The findings of the Contracting Officer shall be final and conclusive on the parties, but subject to appeal under the Disputes clause.

(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of the Government.

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

(End of clause)

52.253-1 COMPUTER GENERATED FORMS (JAN 1991)

(a) Any data required to be submitted on a Standard or Optional Form prescribed by the Federal Acquisition Regulation (FAR) may be submitted on a computer generated version of the form, provided there is no change to the name, content, or sequence of the data elements on the form, and provided the form carries the Standard or Optional Form number and edition date.

(b) Unless prohibited by agency regulations, any data required to be submitted on an agency unique form prescribed by an agency supplement to the FAR may be submitted on a computer generated version of the form provided there is no change to the name, content, or sequence of the data elements on the form and provided the form carries the agency form number and edition date.

(c) If the Contractor submits a computer generated version of a form that is different than the required form, then the rights and obligations of the parties will be determined based on the content of the required form.

(End of clause)

252.201-7000 CONTRACTING OFFICER'S REPRESENTATIVE (DEC 1991)

(a) "Definition. Contracting officer's representative" means an individual designated in accordance with subsection 201.602-2 of the Defense Federal Acquisition Regulation Supplement and authorized in writing by the contracting officer to perform specific technical or administrative functions.

(b) If the Contracting Officer designates a contracting officer's representative (COR), the Contractor will receive a copy of the written designation. It will specify the extent of the COR's authority to act on behalf of the contracting

officer. The COR is not authorized to make any commitments or changes that will affect price, quality, quantity, delivery, or any other term or condition of the contract.

(End of clause)

252.203-7001 PROHIBITION ON PERSONS CONVICTED OF FRAUD OR OTHER DEFENSE-CONTRACT-RELATED FELONIES (MAR 1999)

(a) Definitions. As used in this clause—

(1) "Arising out of a contract with the DoD" means any act in connection with—

(i) Attempting to obtain;

(ii) Obtaining, or

(iii) Performing a contract or first-tier subcontract of any agency, department, or component of the Department of Defense (DoD).

(2) "Conviction of fraud or any other felony" means any conviction for fraud or a felony in violation of state or Federal criminal statutes, whether entered on a verdict or plea, including a plea of *nolo contendere*, for which sentence has been imposed.

(3) "Date of conviction" means the date judgment was entered against the individual.

(b) Any individual who is convicted after September 29, 1988, of fraud or any other felony arising out of a contract with the DoD is prohibited from serving--

(1) In a management or supervisory capacity on any DoD contract or first-tier subcontract;

(2) On the board of directors of any DoD contractor or first-tier subcontractor;

(3) As a consultant, agent, or representative for any DoD contractor or first-tier subcontractor; or

(4) In any other capacity with the authority to influence, advise, or control the decisions of any DoD contractor or subcontractor with regard to any DoD contract or first-tier subcontract.

(c) Unless waived, the prohibition in paragraph (b) of this clause applies for not less than 5 years from the date of conviction.

(d) 10 U.S.C. 2408 provides that a defense contractor or first-tier subcontractor shall be subject to a criminal penalty of not more than $500,000 if convicted of knowingly—

(1) Employing a person under a prohibition specified in paragraph (b) of this clause; or

(2) Allowing such a person to serve on the board of directors of the contractor or first-tier subcontractor.

(e) In addition to the criminal penalties contained in 10 U.S.C. 2408, the Government may consider other available remedies, such as—

(1) Suspension or debarment;

(2) Cancellation of the contract at no cost to the Government; or

(3) Termination of the contract for default.

(f) The Contractor may submit written requests for waiver of the prohibition in paragraph (b) of this clause to the Contracting Officer. Requests shall clearly identify—

(1) The person involved;

(2) The nature of the conviction and resultant sentence or punishment imposed;

(3) The reasons for the requested waiver; and

(4) An explanation of why a waiver is in the interest of national security.

(g) The Contractor agrees to include the substance of this clause, appropriately modified to reflect the identity and relationship of the parties, in all first-tier subcontracts exceeding the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation, except those for commercial items or components.

(h) Pursuant to 10 U.S.C. 2408(c), defense contractors and subcontractors may obtain information as to whether a particular person has been convicted of fraud or any other felony arising out of a contract with the DoD by contacting The Office of Justice Programs, The Denial of Federal Benefits Office, U.S. Department of Justice, telephone (202) 616-3507.

(End of clause)

252.204-7003 CONTROL OF GOVERNMENT PERSONNEL WORK PRODUCT (APR 1992)

The Contractor's procedures for protecting against unauthorized disclosure of information shall not require Department of Defense employees or members of the Armed Forces to relinquish control of their work products, whether classified or not, to the contractor.

(End of clause)

252.204-7004 REQUIRED CENTRAL CONTRACTOR REGISTRATION (NOV 2001)

(a) Definitions.

As used in this clause--

(1) Central Contractor Registration (CCR) database means the primary DoD repository for contractor information required for the conduct of business with DoD.

(2) Data Universal Numbering System (DUNS) number means the 9-digit number assigned by Dun and Bradstreet Information Services to identify unique business entities.

(3) Data Universal Numbering System +4 (DUNS+4) number means the DUNS number assigned by Dun and Bradstreet plus a 4-digit suffix that may be assigned by a parent (controlling) business concern. This 4-digit suffix may be assigned at the discretion of the parent business concern for such purposes as identifying subunits or affiliates of the parent business concern.

(4) Registered in the CCR database means that all mandatory information, including the DUNS number or the DUNS+4 number, if applicable, and the corresponding Commercial and Government Entity (CAGE) code, is in the CCR database; the DUNS number and the CAGE code have been validated; and all edits have been successfully completed.

(b)(1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee must be registered in the CCR database prior to award, during performance, and through final payment of any contract resulting from this solicitation, except for awards to foreign vendors for work to be performed outside the United States.

(2) The offeror shall provide its DUNS or, if applicable, its DUNS+4 number with its offer, which will be used by the Contracting Officer to verify that the offeror is registered in the CCR database.

(3) Lack of registration in the CCR database will make an offeror ineligible for award.

(4) DoD has established a goal of registering an applicant in the CCR database within 48 hours after receipt of a complete and accurate application via the Internet. However, registration of an applicant submitting an application through a method other than the Internet may take up to 30 days. Therefore, offerors that are not registered should consider applying for registration immediately upon receipt of this solicitation.

(c) The Contractor is responsible for the accuracy and completeness of the data within the CCR, and for any liability resulting from the Government's reliance on inaccurate or incomplete data. To remain registered in the CCR database after the initial registration, the Contractor is required to confirm on an annual basis that its information in the CCR database is accurate and complete.

(d) Offerors and contractors may obtain information on registration and annual confirmation requirements by calling 1-888-227-2423, or via the Internet at http://www.ccr.gov.

(End of clause)

252.205-7000 PROVISION OF INFORMATION TO COOPERATIVE AGREEMENT HOLDERS (DEC 1991)

(a) Definition.

"Cooperative agreement holder" means a State or local government; a private, nonprofit organization; a tribal organization (as defined in section 4(c) of the Indian Self-Determination and Education Assistance Act (Pub. L. 93-268; 25 U.S.C. 450 (c))); or an economic enterprise (as defined in section 3(e) of the Indian Financing Act of 1974 (Pub. L. 93-362; 25 U.S.C. 1452(e))) whether such economic enterprise is organized for profit or nonprofit purposes; which has an agreement with the Defense Logistics Agency to furnish procurement technical assistance to business entities.

(b) The Contractor shall provide cooperative agreement holders, upon their request, with a list of those appropriate employees or offices responsible for entering into subcontracts under defense contracts. The list shall include the business address, telephone number, and area of responsibility of each employee or office.

(c) The Contractor need not provide the listing to a particular cooperative agreement holder more frequently than once a year.

(End of clause)

252.209-7000 ACQUISITION FROM SUBCONTRACTORS SUBJECT TO ONSITE INSPECTION UNDER THE INTERMEDIATE-RANGE NUCLEAR FORCES (INF) TREATY (NOV 1995)

(a) The Contractor shall not deny consideration for a subcontract award under this contract to a potential subcontractor subject to on-site inspection under the INF Treaty, or a similar treaty, solely or in part because of the actual or potential presence of Soviet inspectors at the subcontractor's facility, unless the decision is approved by the Contracting Officer.

(b) The Contractor shall incorporate this clause, including this paragraph (b), in all solicitations and contracts exceeding the simplified acquisition threshold in part 13 of the Federal Acquisition Regulation, except those for commercial items.

(End of clause)

252.209-7004 SUBCONTRACTING WITH FIRMS THAT ARE OWNED OR CONTROLLED BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)

(a) Unless the Government determines that there is a compelling reason to do so, the Contractor shall not enter into any subcontract in excess of $25,000 with a firm, or subsidiary of a firm, that is identified, on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs, as being ineligible for the award of Defense contracts or subcontracts because it is owned or controlled by the government of a terrorist country.

(b) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is identified, on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs, as being ineligible for the award of Defense contracts or subcontracts because it is owned or controlled by the government of a terrorist country. The notice must include the name of the proposed subcontractor notwithstanding its inclusion on the List of Parties Excluded From Federal Procurement and Nonprocurement Programs.

(End of clause)

252.219-7003 SMALL, SMALL DISADVANTAGED AND WOMEN-OWNED SMALL BUSINESS SUBCONTRACTING PLAN (DOD CONTRACTS) (APR. 1996)

This clause supplements the Federal Acquisition Regulation 52.219-9, Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan, clause of this contract.

(a) *Definitions. Historically black colleges and universities,* as used in this clause, means institutions determined by the Secretary of Education to meet the requirements of 34 CFR 608.2. The term also means any nonprofit research institution that was an integral part of such a college or university before November 14, 1986.

Minority institutions, as used in this clause, means institutions meeting the requirements of section 1046(3) of the Higher Education Act of 1965 (20 U.S.C. 1135d-5(3)). The term also includes Hispanic-serving institutions as defined in section 316(b)(1) of such Act (20 U.S.C. 1059c(b)(1)).

(b) Except for company or division-wide commercial items subcontracting plans, the term *small disadvantaged business,* when used in the FAR 52.219-9 clause, includes historically black colleges and universities and minority institutions, in addition to small disadvantaged business concerns.

(c) Work under the contract or its subcontracts shall be credited toward meeting the small disadvantaged business concern goal required by paragraph (d) of the FAR 52.219-9 clause when:

(1) It is performed on Indian lands or in joint venture with an Indian tribe or a tribally-owned corporation, and

(2) It meets the requirements of 10 U.S.C. 2323a.

(d) Subcontracts awarded to workshops approved by the Committee for Purchase from People Who are Blind or Severely Disabled (41 U.S.C. 46-48), may be counted toward the Contractor's small business subcontracting goal.

(e) A mentor firm, under the Pilot Mentor-Protege Program established under Section 831 of Pub. L. 101-510, as amended, may count toward its small disadvantaged business goal, subcontracts awarded--

(f) The master plan approval referred to in paragraph (f) of the FAR 52.219-9 clause is approval by the Contractor's cognizant contract administration activity.

(g) In those subcontracting plans which specifically identify small, small disadvantaged, and women-owned small businesses, the Contractor shall notify the Administrative Contracting Officer of any substitutions of firms that are not small, small disadvantaged, or women-owned small businesses for the firms listed in the subcontracting plan. Notifications shall be in writing and shall occur within a reasonable period of time after award of the subcontract. Contractor-specified formats shall be acceptable.

(End of clause)

252.223-7001 HAZARD WARNING LABELS (DEC 1991)

(a) "Hazardous material," as used in this clause, is defined in the Hazardous Material Identification and Material Safety Data clause of this contract.

(b) The Contractor shall label the item package (unit container) of any hazardous material to be delivered under this contract in accordance with the Hazard Communication Standard (29 CFR 1910.1200 et seq). The Standard requires that the hazard warning label conform to the requirements of the standard unless the material is otherwise subject to the labeling requirements of one of the following statutes:

(1) Federal Insecticide, Fungicide and Rodenticide Act;

(2) Federal Food, Drug and Cosmetics Act;

(3) Consumer Product Safety Act;

(4) Federal Hazardous Substances Act; or

(5) Federal Alcohol Administration Act.

(c) The Offeror shall list which hazardous material listed in the Hazardous Material Identification and Material Safety Data clause of this contract will be labeled in accordance with one of the Acts in paragraphs (b)(1) through (5) of this clause instead of the Hazard Communication Standard. Any hazardous material not listed will be interpreted to mean that a label is required in accordance with the Hazard Communication Standard.

MATERIAL (If None, Insert "None.")	ACT
_____	_____
_____	_____

(d) The apparently successful Offeror agrees to submit, before award, a copy of the hazard warning label for all hazardous materials not listed in paragraph (c) of this clause. The Offeror shall submit the label with the Material Safety Data Sheet being furnished under the Hazardous Material Identification and Material Safety Data clause of this contract.

(e) The Contractor shall also comply with MIL-STD-129, Marking for Shipment and Storage (including revisions adopted during the term of this contract).

(End of clause)

252.223-7006 PROHIBITION ON STORAGE AND DISPOSAL OF TOXIC AND HAZARDOUS MATERIALS (APR 1993)

(a) "Definitions".

As used in this clause --

(1) "Storage" means a non-transitory, semi-permanent or permanent holding, placement, or leaving of material. It does not include a temporary accumulation of a limited quantity of a material used in or a waste generated or resulting from authorized activities, such as servicing, maintenance, or repair of Department of Defense (DoD) items, equipment, or facilities.

(2) "Toxic or hazardous materials" means:

(i) Materials referred to in section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 U.S.C. 9601(14)) and materials designated under section 102 of CERCLA (42 U.S.C. 9602) (40 CFR part 302);

(ii) Materials that are of an explosive, flammable, or pyrotechnic nature; or

(iii) Materials otherwise identified by the Secretary of Defense as specified in DoD regulations.

(b) In accordance with 10 U.S.C. 2692, the Contractor is prohibited from storing or disposing of non-DoD-owned toxic or hazardous materials on a DoD installation, except to the extent authorized by a statutory exception to 10 U.S.C. 2692 or as authorized by the Secretary of Defense or his designee.

(End of clause)

252.225-7012 PREFERENCE FOR CERTAIN DOMESTIC COMMODITIES (APR 2002)

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

(1) Component means any item supplied to the Government as part of an end product or of another component.

(2) End product means supplies delivered under a line item of this contract.

(b) The Contractor shall deliver under this contract only such of the following items, either as end products or components, that have been grown, reprocessed, reused, or produced in the United States, its possessions, or Puerto Rico:

(1) Food.

(2) Clothing.

(3) Tents, tarpaulins, or covers.

(4) Cotton and other natural fiber products.

(5) Woven silk or woven silk blends.

(6) Spun silk yarn for cartridge cloth.

(7) Synthetic fabric, and coated synthetic fabric, including all textile fibers and yarns that are for use in such fabrics.

(8) Canvas products.

(9) Wool (whether in the form of fiber or yarn or contained in fabrics, materials, or manufactured articles).

(10) Any item of individual equipment (Federal Supply Class 8465) manufactured from or containing fibers, yarns, fabrics, or materials listed in this paragraph (b).

(c) This clause does not apply--

(1) To items listed in section 25.104(a) of the Federal Acquisition Regulation (FAR), or other items for which the Government has determined that a satisfactory quality and sufficient quantity cannot be acquired as and when needed at U.S. market prices;

(2) To end products incidentally incorporating cotton, other natural fibers, or wool, for which the estimated value of the cotton, other natural fibers, or wool--

(i) Is not more than 10 percent of the total price of the end product; and (ii) Does not exceed the simplified acquisition threshold in FAR part 2;

(3) To foods that have been manufactured or processed in the United States, its possessions, or Puerto Rico, regardless of where the foods (and any component if applicable) were grown or produced;

(4) To chemical warfare protective clothing produced in the countries listed in subsection 225.872-1 of the Defense FAR Supplement; or

(5) To fibers and yarns that are for use in synthetic fabric or coated synthetic fabric (but does apply to the synthetic or coated synthetic fabric itself), if--

(i) The fabric is to be used as a component of an end product that is not a textile product. Examples of textile products, made in whole or in part of fabric, include--

(A) Draperies, floor coverings, furnishings, and bedding (Federal Supply Group 72, Household and Commercial Furnishings and Appliances);

(B) Items made in whole or in part of fabric in Federal Supply Group 83, Textile/leather/furs/apparel/findings/ tents/flags, or Federal Supply Group 84, Clothing, Individual Equipment and Insignia;

(C) Upholstered seats (whether for household, office, or other use); and

(D) Parachutes (Federal Supply Class 1670); or

(ii) The fibers and yarns are para-aramid fibers and yarns manufactured in the Netherlands.

(End of clause)

252.225-7031 SECONDARY ARAB BOYCOTT OF ISRAEL (JUN 1992)

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

(1) "Foreign person" means any person other than a United States person as defined in Section 16(2) of the Export Administration Act of 1979 (50 U.S.C. App. Sec 2415).

(2) "United States person" is defined in Section 16(2) of the Export Administration Act of 1979 and means any United States resident or national (other than an individual resident outside the United States and employed by other than a United States person), any domestic concern (including any permanent domestic establishment of any foreign concern), and any foreign subsidiary or affiliate (including any permanent foreign establishment) of any domestic concern which is controlled in fact by such domestic concerns, as determined under regulations of the President.

(b) Certification. By submitting this offer, the Offeror, if a foreign person, company or entity, certifies 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. Sec 2407(a) prohibits a United States person from taking.

(End of clause)

252.226-7001 UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES-DOD CONTRACTS (SEP 2001)

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

“Indian” means any person who is a member of any Indian tribe, band, group, pueblo, or community that is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs (BIA) in accordance with 25 U.S.C. 1452(c) and any “Native” as defined in the Alaska Native Claims Settlement Act (43 U.S.C. 1601).

“Indian organization” means the governing body of any Indian tribe or entity established or recognized by the governing body of an Indian tribe for the purposes of 25 U.S.C. Chapter 17.

“Indian-owned economic enterprise” means any Indian-owned (as determined by the Secretary of the Interior) commercial, industrial, or business activity established or organized for the purpose of profit, provided that Indian ownership constitutes not less than 51 percent of the enterprise.

“Indian tribe” means any Indian tribe, band, group, pueblo, or community, including native villages and native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, that is recognized by the Federal Government as eligible for services from BIA in accordance with 25 U.S.C. 1452 (c).

“Interested party” means a contractor or an actual or prospective offeror whose direct economic interest would be affected by the award of a subcontract or by the failure to award a subcontract.

(b) The Contract shall use its best efforts to give Indian organizations and Indian-owned economic enterprises the maximum practicable opportunity to participate in the subcontracts it awards, to the fullest extent consistent with efficient performance of the contract.

(c) The Contracting Officer and the Contractor, acting in good faith, may rely on the representation of an Indian organization or Indian-owned economic enterprise as to its eligibility, unless and interested party challenges its status or the Contracting Officer has independent reason to question that status.

(d) In the event of a challenge to the representation of a subcontractor, the Contracting Officer will refer the matter to the U.S. Department of the Interior, Bureau of Indian Affairs, Attn: Chief, Division of Contracting and Grants Administration, 1849 C Street NW, MS-2626-MIB, Washington, DC 20240-4000. The BIA will determine the eligibility and will notify the Contracting Officer. No incentive payment will be made--

(1) Within 59 working days of subcontract award;

(2) While a challenge is pending; or

(3) If a subcontractor is determined to be an ineligible participant.

(e)(1) The Contractor, on its own behalf or on behalf of a subcontractor at any tier, may request an adjustment under the Indian Incentive Program to the following:

(i) The estimated cost of cost-type contract.

(ii) The target cost of a cost-plus-incentive-fee contract.

(iii) The target cost and ceiling price of a fixed-price incentive contract.

(iv) The price of a firm-fixed-price contract.

(2) The amount of the adjustment that may be made to the contract is 5 percent of the estimated cost, target cost, or firm-fixed price included in the subcontract initially awarded to the Indian organization or Indian-owned economic enterprise.

(3) The Contractor has the burden of proving the amount claimed and must assert its request for an adjustment prior to completion of contract performance.

(4) The Contracting Officer, subject to the terms and conditions of the contract and the availability of funds, will authorize an incentive payment of 5 percent of the amount paid to the subcontractor.

(5) If the Contractor requests and receives an adjustment on behalf of a subcontractor, the Contractor is obligated to pay the subcontractor the adjustment.

(f) The Contractor shall insert the substance of this clause, including this paragraph (f), in all subcontracts that--

(1) Are for other than commercial items; and

(2) Are expected to exceed the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation.

(End of clause)

252.227-7022 GOVERNMENT RIGHTS (UNLIMITED) (MAR 1979)

The Government shall have unlimited rights, in all drawings, designs, specifications, notes and other works developed in the performance of this contract, including the right to use same on any other Government design or construction without additional compensation to the Contractor. The Contractor hereby grants to the Government a paid-up license throughout the world to all such works to which he may assert or establish any claim under design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish the original or copies of all such works on the request of the Contracting Officer.

(End of clause)

252.227-7033 RIGHTS IN SHOP DRAWINGS (APR 1966)

(a) Shop drawings for construction means drawings, submitted to the Government by the Construction Contractor, subcontractor or any lower-tier subcontractor pursuant to a construction contract, showing in detail (i) the proposed fabrication and assembly of structural elements and (ii) the installation (i.e., form, fit, and attachment details) of materials or equipment. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(b) This clause, including this paragraph (b), shall be included in all subcontracts hereunder at any tier.

252.231-7000 SUPPLEMENTAL COST PRINCIPLES (DEC 1991)

When the allowability of costs under this contract is determined in accordance with part 31 of the Federal Acquisition Regulation (FAR), allowability shall also be determined in accordance with part 231 of the Defense FAR Supplement, in effect on the date of this contract.

(End of clause)

252.236-7000 MODIFICATION PROPOSALS - PRICE BREAKDOWN. (DEC 1991)

(a) The Contractor shall furnish a price breakdown, itemized as required and within the time specified by the Contracting Officer, with any proposal for a contract modification.

(b) The price breakdown --

(1) Must include sufficient detail to permit an analysis of profit, and of all costs for --

(i) Material;

(ii) Labor;

(iii) Equipment;

(iv) Subcontracts; and

(v) Overhead; and

(2) Must cover all work involved in the modification, whether the work was deleted, added, or changed.

(c) The Contractor shall provide similar price breakdowns to support any amounts claimed for subcontracts.

(d) The Contractor's proposal shall include a justification for any time extension proposed.

252.242-7000 POSTAWARD CONFERENCE (DEC 1991)

The Contractor agrees to attend any postaward conference convened by the contracting activity or contract administration office in accordance with Federal Acquisition Regulation subpart 42.5.

(End of clause)

252.242-7004 MATERIAL MANAGEMENT AND ACCOUNTING SYSTEM (SEP 1996)

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

(1) Material management and accounting system means the Contractor's system or systems for planning, controlling, and accounting for the acquisition, use, issuing, and disposition of material. Material management and accounting systems may be manual or automated. They may be stand-alone systems or they may be integrated with planning, engineering, estimating, purchasing, inventory, accounting, or other systems.

(2) Valid time-phased requirements means material which is--

Needed to fulfill the production plan, including reasonable quantities for scrap, shrinkage, yield, etc.; and

(ii) Charged/billed to contracts or other cost objectives in a manner consistent with the need to fulfill the production plan.

(3) Contractor means a business unit as defined in section 31.001 of the Federal Acquisition Regulation (FAR).

(b) General. The Contractor agrees to--

(1) Maintain a material management and accounting system (MMAS) that--

(i) Reasonably forecasts material requirements;

(ii) Ensures that costs of purchased and fabricated material charged or allocated to a contract are based on valid time-phased requirements; and

(iii) Maintains a consistent, equitable, and unbiased logic for costing of material transactions.

(2) Assess its MMAS and take reasonable action to comply with the MMAS standards in paragraph (f) of this clause.

(c) Applicability. Paragraphs (d) and (e) of this clause apply only if the Contractor--

(1) Is a large business; and

(2) Received, in its fiscal year preceding award of this contract, Department of Defense prime contracts or subcontracts, and their modifications totaling--

(i) $70 million or more; or

(ii) $30 million or more (but less than $70 million), and is notified in writing by the Contracting Officer that paragraphs (d) and (e) apply.

(d) Disclosure, demonstration, and maintenance requirements. (1) The Contractor shall--

Disclose its MMAS to the Administrative Contracting Officer in writing; and

(ii) If requested by the Administrative Contracting Officer, demonstrate that the MMAS conforms to the standards in paragraph (f) of this clause.

(2) An MMAS disclosure is adequate when the Contractor has provided the Administrative Contracting Officer with documentation which--

(i) Accurately describes those policies, procedures, and practices that the Contractor currently uses in its MMAS; and

(ii) Provides sufficient detail for the Government to reasonably make an informed judgment regarding the adequacy of the MMAS.

(3) An MMAS demonstration is adequate when the Contractor has provided the Administrative Contracting Officer--

(i) Sufficient evidence to demonstrate the degree of compliance of its MMAS with the standards at paragraph (f) of this clause; and

(ii) Identification of any significant deficiencies, the estimated cost impact of the deficiency, and a comprehensive corrective action plan.

(4) The Contractor shall disclose significant changes in its MMAS to the Administrative Contracting Officer within 30 days of implementation.

(5) If the contractor desires the Government to protect such information as privileged or confidential, the Contractor shall--

(i) Notify the Government representative to whom the information is submitted, i.e., the ACO, or the auditor; and

(ii) Ensure an appropriate legend is on the face of the document(s) at the time of submission.

(e) Deficiencies. (1) If the Contractor receives a report which identifies deficiencies in its MMAS, the Contractor agrees to respond as follows--

(i) If the Contractor agrees with the report findings and recommendations, the Contractor shall--

(A) Within 30 days, state its agreement in writing; and

(B) Within 60 days, correct the deficiencies or submit a corrective action plan.

(ii) If the Contractor disagrees with the report findings and recommendations, the Contractor shall, within 30 days, state its rationale for each area of disagreement.

(2) The Administrative Contracting Officer shall evaluate the Contractor's response and notify the Contractor of the--

(i) Determination concerning remaining deficiencies;

(ii) Adequacy of any proposed or completed corrective action plan; and

(iii) Need for any new or revised corrective action plan.

(f) MMAS standards. MMAS systems shall have adequate internal accounting and administrative controls to ensure system and data integrity, and comply with the following:

(1) Have an adequate system description including policies, procedures, and operating instructions which comply with the Federal Acquisition Regulation and Defense FAR Supplement;

(2) Ensure that costs of purchased and fabricated material charged or allocated to a contract are based on valid time-phased requirements as impacted by minimum/economic order quantity restrictions--

(i) A 98 percent bill of material accuracy and a 95 percent master production schedule accuracy are desirable as a goal in order to ensure that requirements are both valid and appropriately time-phased.

(ii) If systems have accuracy levels below these, the Contractor shall demonstrate that--

(A) There is no material harm to the Government due to lower accuracy levels; and

(B) The cost to meet the accuracy goals is excessive in relation to the impact on the Government;

(3) Provide a mechanism to identify, report, and resolve system control weaknesses and manual override. Systems should identify operational exceptions such as excess/residual inventory as soon as known;

(4) Provide audit trails and maintain records (manual and those in machine readable form) necessary to evaluate system logic and to verify through transaction testing that the system is operating as desired;

(5) Establish and maintain adequate levels of record accuracy, and include reconciliation of recorded inventory quantities to physical inventory by part number on a periodic basis. A 95 percent accuracy level is desirable. If systems have an accuracy level below 95 percent, the Contractor shall demonstrate that--

(i) There is no material harm to the Government due to lower accuracy levels; and

(ii) The cost to meet the accuracy goal is excessive in relation to the impact on the Government;

(6) Provide detailed descriptions of circumstances which will result in manual or system generated transfers of parts;

(7) Maintain a consistent, equitable, and unbiased logic for costing of material transactions--

(i) The Contractor shall maintain and disclose written policies describing the transfer methodology and the loan/pay-back technique.

(ii) The costing methodology may be standard or actual cost, or any of the inventory costing methods in 48 CFR 9904.411-50(b). Consistency shall be maintained across all contract and customer types, and from accounting period to accounting period for initial charging and transfer charging.

(iii) The system should transfer parts and associated costs within the same billing period. In the few instances where this may not be appropriate, the Contractor may accomplish the material transaction using a loan/pay-back technique. The “loan/pay-back technique” means that the physical part is moved temporarily from the contract, but

the cost of the part remains on the contract. The procedures for the loan/pay-back technique must be approved by the Administrative Contracting Officer. When the technique is used, the Contractor shall have controls to ensure--

(A) Parts are paid back expeditiously;

(B) Procedures and controls are in place to correct any overbilling that might occur;

(C) Monthly, at a minimum, identification of the borrowing contract and the date the part was borrowed; and

(D) The cost of the replacement part is charged to the borrowing contract;

(8) Where allocations from common inventory accounts are used, have controls (in addition to those in paragraphs (b)(2) and (7) of this clause) to ensure that--

(i) Reallocations and any credit due are processed no less frequently than the routine billing cycle;

(ii) Inventories retained for requirements which are not under contract are not allocated to contracts; and

(iii) Algorithms are maintained based on valid and current data;

(9) Notwithstanding FAR 45.505-3(f)(1)(ii), have adequate controls to ensure that physically commingled inventories that may include material for which costs are charged or allocated to fixed-price, cost-reimbursement, and commercial contracts do not compromise requirements of any of the standards in paragraphs (f)(1) through (8) of this clause. Government furnished material shall not be--

(i) Physically commingled with other material; or

(ii) Used on commercial work; and

(10) Be subjected to periodic internal audits to ensure compliance with established policies and procedures.

(End of clause)

252.243-7001 PRICING OF CONTRACT MODIFICATIONS (DEC 1991)

When costs are a factor in any price adjustment under this contract, the contract cost principles and procedures in FAR part 31 and DFARS part 231, in effect on the date of this contract, apply.

252.243-7002 REQUESTS FOR EQUITABLE ADJUSTMENT (MAR 1998)

(a) The amount of any request for equitable adjustment to contract terms shall accurately reflect the contract adjustment for which the Contractor believes the Government is liable. The request shall include only costs for performing the change, and shall not include any costs that already have been reimbursed or that have been separately claimed. All indirect costs included in the request shall be properly allocable to the change in accordance with applicable acquisition regulations.

(b) In accordance with 10 U.S.C. 2410(a), any request for equitable adjustment to contract terms that exceeds the simplified acquisition threshold shall bear, at the time of submission, the following certificate executed by an individual authorized to certify the request on behalf of the Contractor:

I certify that the request is made in good faith, and that the supporting data are accurate and complete to the best of my knowledge and belief.

(Official's Name)

(Title)

(c) The certification in paragraph (b) of this clause requires full disclosure of all relevant facts, including--

(1) Cost or pricing data if required in accordance with subsection 15.403-4 of the Federal Acquisition Regulation (FAR); and

(2) Information other than cost or pricing data, in accordance with subsection 15.403-3 of the FAR, including actual cost data and data to support any estimated costs, even if cost or pricing data are not required.

(d) The certification requirement in paragraph (b) of this clause does not apply to----

(1) Requests for routine contract payments; for example, requests for payment for accepted supplies and services, routine vouchers under a cost-reimbursement type contract, or progress payment invoices; or

(2) Final adjustment under an incentive provision of the contract.

252.245-7001 REPORTS OF GOVERNMENT PROPERTY (MAY 1994)

(a) The Contractor shall provide an annual report --

(1) For all DoD property for which the Contractor is accountable under the contract;

(2) Prepared in accordance with the requirements of DD Form 1662, DoD Property in the Custody of Contractors, or approved substitute, including instructions on the reverse side of the form;

(3) In duplicate, to the cognizant Government property administrator, no later than October 31.

(b) The Contractor is responsible for reporting all Government property accountable to this contract, including that at subcontractor and alternate locations.

(End of clause)

252.247-7023 TRANSPORTATION OF SUPPLIES BY SEA (MAY 2002)

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

(1) "Components" means articles, materials, and supplies incorporated directly into end products at any level of manufacture, fabrication, or assembly by the Contractor or any subcontractor.

(2) "Department of Defense" (DoD) means the Army, Navy, Air Force, Marine Corps, and defense agencies.

(3) "Foreign flag vessel" means any vessel that is not a U.S.-flag vessel.

(4) "Ocean transportation" means any transportation aboard a ship, vessel, boat, barge, or ferry through international

waters.

(5) "Subcontractor" means a supplier, materialman, distributor, or vendor at any level below the prime contractor whose contractual obligation to perform results from, or is conditioned upon, award of the prime contract and who is performing any part of the work or other requirement of the prime contract.

(6) "Supplies" means all property, except land and interests in land, that is clearly identifiable for eventual use by or owned by the DoD at the time of transportation by sea.

(i) An item is clearly identifiable for eventual use by the DoD if, for example, the contract documentation contains a reference to a DoD contract number or a military destination.

(ii) "Supplies" includes (but is not limited to) public works; buildings and facilities; ships; floating equipment and vessels of every character, type, and description, with parts, subassemblies, accessories, and equipment; machine tools; material; equipment; stores of all kinds; end items; construction materials; and components of the foregoing.

(7) "U.S.-flag vessel" means a vessel of the United States or belonging to the United States, including any vessel registered or having national status under the laws of the United States.

(b)(1) The Contractor shall use U.S.-flag vessels when transporting any supplies by sea under this contract.

(2) A subcontractor transporting supplies by sea under this contract shall use U.S.-flag vessels if--

(i) This contract is a construction contract; or

(ii) The supplies being transported are--

(A) Noncommercial items; or

(B) Commercial items that--

(1) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it contracts for f.o.b. destination shipment);

(2) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(3) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(c) The Contractor and its subcontractors may request that the Contracting Officer authorize shipment in foreign-flag vessels, or designate available U.S.-flag vessels, if the Contractor or a subcontractor believes that --

(1) U.S.-flag vessels are not available for timely shipment;

(2) The freight charges are inordinately excessive or unreasonable; or

(3) Freight charges are higher than charges to private persons for transportation of like goods.

(d) The Contractor must submit any request for use of other than U.S.-flag vessels in writing to the Contracting Officer at least 45 days prior to the sailing date necessary to meet its delivery schedules. The Contracting Officer will process requests submitted after such date(s) as expeditiously as possible, but the Contracting Officer's failure to grant approvals to meet the shipper's sailing date will not of itself constitute a compensable delay under this or any other clause of this contract. Requests shall contain at a minimum --

(1) Type, weight, and cube of cargo;

(2) Required shipping date;

(3) Special handling and discharge requirements;

(4) Loading and discharge points;

(5) Name of shipper and consignee;

(6) Prime contract number; and

(7) A documented description of efforts made to secure U.S.-flag vessels, including points of contact (with names and telephone numbers) with at least two U.S.-flag carriers contacted. Copies of telephone notes, telegraphic and facsimile message or letters will be sufficient for this purpose.

(e) The Contractor shall, within 30 days after each shipment covered by this clause, provide the Contracting Officer and the Maritime Administration, Office of Cargo Preference, U.S. Department of Transportation, 400 Seventh Street SW., Washington, DC 20590, one copy of the rated on board vessel operating carrier's ocean bill of lading, which shall contain the following information:

(1) Prime contract number;

(2) Name of vessel;

(3) Vessel flag of registry;

(4) Date of loading;

(5) Port of loading;

(6) Port of final discharge;

(7) Description of commodity;

(8) Gross weight in pounds and cubic feet if available;

(9) Total ocean freight in U.S. dollars; and

(10) Name of the steamship company.

(f) The Contractor shall provide with its final invoice under this contract a representation that to the best of its knowledge and belief--

(1) No ocean transportation was used in the performance of this contract;

(2) Ocean transportation was used and only U.S.-flag vessels were used for all ocean shipments under the contract;

(3) Ocean transportation was used, and the Contractor had the written consent of the Contracting Officer for all non-U.S.-flag ocean transportation; or

(4) Ocean transportation was used and some or all of the shipments were made on non-U.S.-flag vessels without the written consent of the Contracting Officer. The Contractor shall describe these shipments in the following format:

ITEM DESCRIPTION	CONTRACT LINE ITEMS	QUANTITY

TOTAL_____

(g) If the final invoice does not include the required representation, the Government will reject and return it to the Contractor as an improper invoice for the purposes of the Prompt Payment clause of this contract. In the event there has been unauthorized use of non-U.S.-flag vessels in the performance of this contract, the Contracting Officer is entitled to equitably adjust the contract, based on the unauthorized use.

(h) In the award of subcontracts for the types of supplies described in paragraph (b)(2) of this clause, the Contractor shall flow down the requirements of this clause as follows:

(1) The Contractor shall insert the substance of this clause, including this paragraph (h), in subcontracts that exceed the simplified acquisition threshold in part 2 of the Federal Acquisition Regulation.

(2) The Contractor shall insert the substance of paragraphs (a) through (e) of this clause, and this paragraph (h), in subcontracts that are at or below the simplified acquisition threshold in part 2 of the Federal Acquisition Regulation.

(End of clause)

252.247-7024 NOTIFICATION OF TRANSPORTATION OF SUPPLIES BY SEA (MAR 2000)

(a) The Contractor has indicated by the response to the solicitation provision, Representation of Extent of Transportation by Sea, that it did not anticipate transporting by sea any supplies. If, however, after the award of this contract, the Contractor learns that supplies, as defined in the Transportation of Supplies by Sea clause of this contract, will be transported by sea, the Contractor --

(1) Shall notify the Contracting Officer of that fact; and

(2) Hereby agrees to comply with all the terms and conditions of the Transportation of Supplies by Sea clause of this contract.

(b) The Contractor shall include this clause; including this paragraph (b), revised as necessary to reflect the relationship of the contracting parties--

(1) In all subcontracts under this contract, if this contract is a construction contract; or

(2) If this contract is not a construction contract, in all subcontracts under this contract that are for--

(i) Noncommercial items; or

(ii) Commercial items that--

(A) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it subcontracts for f.o.b. destination shipment);

(B) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(C) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(End of clause)

Section 00800 - Special Contract Requirements

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 30 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 766 calendar days. 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 $864.05 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)

52.219-4002 REPORTING REQUIREMENTS--SUBCONTRACTING PLAN (CESAD-CT JUL 1993)

(a) Retainage will be withheld from progress payments in an amount sufficient to protect the Government's ability to assess Liquidated Damages in accordance with FAR clause 52.219-0016 for failure to submit timely SF 294 and SF 295 Reports. The amount of retainage will be determined in accordance with the following formula:
(b) Total dollar amount proposed for subcontracting to small business multiplied by percentage of actual progress on the contract, up to a maximum of 10% of the given progress payment, shall be withheld from the next progress payment due after a contractor fails to submit a required report. If one or more reports have been submitted before such failure, formula for determining the amount of retainage will be adjusted by deducting any amounts reported as subcontracted to small business from the total dollar amount proposed to be subcontracted and the difference multiplied by the percent of actual progress, up to a maximum of 10% of the given progress payment.
(End of clause)

52.223-4002 U.S. ARMY CORPS OF ENGINEERS SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1

This paragraph applies to contracts and purchase orders that require the contractor to comply with EM 385-1-1 (e.g., contracts that include the Accident Prevention clause at FAR 52.236-13 and/or other safety provisions). EM 385-1-1 and its changes are available at http://www.hq.usace.army.mil. (At the HQ homepage, select Safety and Occupational Health.) The Contractor shall be responsible for complying with the current edition and all changes posted on the web through the date that is 10 calendar days prior to the date offers are due. If the solicitation is amended to extend the time set for receipt of offers, the 10 calendar days rule stated above shall be applied against the amended date. (For example, if offers are due on 10 April, all changes posted on or before 31

March shall apply to the contract. If the time for receipt of offers is extended from 10 April to 20 April, all changes posted on or before 10 April shall apply to the contract.)

52.228-4002 REQUIRED INSURANCE (FEB 1987 SAS) (Ref. FAR 28.307)

(a) The Contractor shall procure and maintain during the entire period of his performance under this contract the following minimum insurance:

Comprehensive and Employer's Liability Insurance in the amount required by the State law in which the work is to be performed under this contract.

Comprehensive General Liability Insurance in an amount not less than $500,000 per accident.

Automobile Liability Insurance: $200,000 per person and $500,000 per accident for bodily injury liability and $20,000 property damage liability.

(b) Prior to the commencement of work hereunder, the Contractor shall furnish to the Contracting Officer a certificate or written statement of the above-required insurance. The policies evidencing required insurance shall contain an endorsement to the effect that cancellation, or any material change in the policies adversely affecting the interests of the Government in such insurance, shall not be effective for such period as may be prescribed by the laws of the State in which this contract is to be performed and in no event less than 30 days after written notice thereof to the Contracting Officer.

(c) The Contractor agrees to insert the substance of this clause, including this subparagraph (c), in all subcontracts hereunder.

(End of clause)

52.231-5000 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE
MAR 1995)--EFARS

(a) This clause does not apply to terminations. See 52.249-5000, Basis for Settlement of Proposals and FAR Part 49.

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

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

(d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet.

(End of clause)

52.232-4007 ACCOUNTING AND APPROPRIATION DATA (APR 1989 CESAS-RM)

96 NA X 3122.0000 K6 X 082447 007380 96096 2520 6DG56D

(End of clause)

52.232-4008 DESIGNATED BILLING OFFICE (APR 1989 CESAS-RM)

Invoices will be mailed to:

U.S. Army Corps of Engineers
Hartwell Construction Office
Attn: Steven Brown
6961 Anderson Hwy.
Hartwell, GA 30643

(End of Clause)

52.232-4009 DESIGNATED PAYMENT OFFICE (AUG 1998 CESAS-RM-F)

Payment will be made by:

U.S. Army Corps of Engineers Finance Center
ATTN: CEFC-AO-P
5720 Integrity Drive
Millington, TN 38054-5005

(End of clause)

52.232-5001 CONTINUING CONTRACTS (MAR 1995)--EFARS

(a) This is a continuing contract, as authorized by Section 10 of the River and Harbor Act of September 22, 1922 (33 U.S. Code 621). The payment of some portion of the contract price is dependent upon reservations of funds from future appropriations, and from future contribution to the project having one or more non-federal project sponsors. The responsibilities of the Government are limited by this clause notwithstanding any contrary provision of the "Payments to Contractor" clause or any other clause of this contract.

(b) The sum of $10,000.00 has been reserved for this contract and is available for payments to the contractor during the current fiscal year. It is expected that Congress will make appropriations for future fiscal years from which additional funds together with funds provided by one or more non-federal project sponsors will be reserved for this contract.

(c) Failure to make payments in excess of the amount currently reserved, or that may be reserved from time to time, shall not entitle the contractor to a price adjustment under the terms of this contract except as specifically provided in paragraphs (f) and (i) below. No such failure shall constitute a breach of this contract, except that this provision shall not bar a breach-of-contract action if an amount finally determined to be due as a termination allowance remains unpaid for one year due solely to a failure to reserve sufficient additional funds therefore.

(d) The Government may at any time reserve additional funds for payments under the contract if there are funds available for such purpose. The contracting officer will promptly notify the contractor of any additional funds reserved for the contract by issuing an administrative modification to the contract.
(e) If earnings will be such that funds reserved for the contract will be exhausted before the end of any fiscal year, the contractor shall give written notice to the contracting officer of the estimated date of exhaustion and the amount of additional funds which will be needed to meet payments due or to become due under the contract during that fiscal year. This notice shall be given not less than 45 nor more than 60 days prior to the estimated date of exhaustion.
(f) No payments will be made after exhaustion of funds except to the extent that additional funds are reserved for the contract. The contractor shall be entitled to simple interest on any payment that the contracting officer determines was actually earned under the terms of the contract and would have been made except for exhaustion of funds. Interest shall be computed from the time such payment would otherwise have been made until actually or constructively made, and shall be at the rate established by the Secretary of the Treasury pursuant to Public Law 92-41, 85 STAT 97, as in effect on the first day of the delay in such payment.
(g) Any suspension, delay, or interruption of work arising from
exhaustion or anticipated exhaustion of funds shall not constitute a breach of this contract and shall not entitle the contractor to any price adjustment under the "Suspension of Work" clause or in any other manner under this contract.
(h) An equitable adjustment in performance time shall be made for any increase in the time required for performance of any part of the work arising from exhaustion of funds or the reasonable anticipation of exhaustion of funds.
(i) If, upon the expiration of sixty (60) days after the beginning of the fiscal year following an exhaustion of funds, the Government has failed to reserve sufficient additional funds to cover payments otherwise due, the contractor, by written notice delivered to the contracting officer at any time before such additional funds are reserved, may elect to treat his right to proceed with the work as having been terminated. Such a termination shall be considered a termination for the convenience of the Government.
(j) If at any time it becomes apparent that the funds reserved for any fiscal year are in excess of the funds required to meet all payments due or to become due the contractor because of work performed and to be performed under the contract during the fiscal year, the Government reserves the right, after notice to the contractor, to reduce said reservation by the amount of such excess.
(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 20 percent (20%) 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)

52.236-14 AVAILABILITY AND USE OF UTILITY SERVICES (APR 1984)

(a) The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the Government or, where the utility is produced by the Government, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

(b) The Contractor, at its expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

(End of clause)

52.236-4013 CONTRACTOR-PREPARED NETWORK ANALYSIS SYSTEM
(January 2002 SAS) (Ref. DFARS 236.273)

The progress chart to be prepared by the contractor pursuant to FAR 52.236-15, Schedules for Construction Contracts, shall utilize the Critical Path Method (CPM) of network calculation. (See Attachment 1 to Section 00800).

52.236-4015 PRECONSTRUCTION CONFERENCE (OCT 1988 SAS) (Ref. FAR 36.305)

(a) A preconstruction conference will be arranged by the Area/Resident Engineer after award of contract and before commencement of work. The Area/Resident Engineer will notify the Contractor of the time and date set for the meeting. At this conference, the Contractor shall be oriented with respect to Government procedures and line of authority, contractual, administrative, and construction matters.

(b) The Contractor shall bring to this conference, in completed form, a Certificate of Insurance, plus the following items in either completed or draft form:

Accident Prevention Plan (5 copies)
(use format shown in Attachment 1 to SECTION 00800)
Quality Control Plan (5 copies)
Letter Appointing Superintendent
Transmittal Register
Power of Attorney and Certified Copy of Resolution
Network Analysis System, when applicable
List of Subcontractors

(c) A letter of record will be written documenting all items discussed at the conference, and a copy will be furnished by the Area/Resident Engineer to all in attendance.

(End of clause)

52.236-4016 VIDEO TAPING OPERATING AND MAINTENANCE INSTRUCTIONS (MAR 1987 SASCD-SQ)

For all of the operating and maintenance instructions which are required in the contract specifications, the Contractor shall video tape these instructions as they are presented to the Government representatives.

These tapes shall provide clear and understandable detailed instructions for all items required by the contract specifications. The tapes shall be prepared by an experienced video director/cameraman using good quality half-inch VHS color tape with correct sound equipment, lighting, and backdrop. The sound and picture quality shall be high and subject to approval by the Contracting Officer. The tapes are intended as followup training for other Government representatives at a later date. They must be suitable for this purpose. The Contractor shall be responsible for the contents of the instructions and shall verify that they are correct prior to taping. The Contractor may submit individual equipment manufacturer's instructional tape(s), provided they meet the above qualifications and cover the actual equipment that is installed. The tape(s) shall be for specific equipment identified by contents and contract name and number. The Contractor shall submit one copy of the tape(s) to the Contracting Officer for review and approval. Unacceptable tapes are to be corrected by the Contractor as indicated by the Contracting Officer at no additional cost to the Government.

(End of clause)

52.236-4017 SUBMITTAL OF MODIFICATION COST ESTIMATE PROPOSALS (MAR 1992 SAS)
(Ref. DFARS 52.236-7000)

When submittals of Cost Estimate Proposals are required for additions or deletions to work under this contract by modification, the Contractor shall use DA Form 5418-R titled "Cost Estimate Analysis" (see Attachment 1 to SECTION 00800). A separate assemblage will be prepared for submittal by each trade affected by the proposed work.
(End of clause)

52.246-12 INSPECTION OF CONSTRUCTION (AUG 1996)

(a) Definition. "Work" includes, but is not limited to, materials, workmanship, and manufacture and fabrication of components.

(b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. The Contractor shall maintain complete inspection records and make them available to the Government. All work shall be conducted under the general direction of the Contracting Officer and is subject to Government inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

(c) Government inspections and tests are for the sole benefit of the Government and do not--

(1) Relieve the Contractor of responsibility for providing adequate quality control measures;

(2) Relieve the Contractor of responsibility for damage to or loss of the material before acceptance;

(3) Constitute or imply acceptance; or

(4) Affect the continuing rights of the Government after acceptance of the completed work under paragraph (i) of this section.

(d) The presence or absence of a Government inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Contracting Officer's written authorization.

(e) The Contractor shall promptly furnish, at no increase in contract price, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The Government may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The Government shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(f) The Contractor shall, without charge, replace or correct work found by the Government not to conform to contract requirements, unless in the public interest the Government consents to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

(g) If the Contractor does not promptly replace or correct rejected work, the Government may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor or (2) terminate for default the Contractor's right to proceed.

(h) If, before acceptance of the entire work, the Government decides to examine already completed work by removing it or tearing it out, the Contractor, on request, shall promptly furnish all necessary facilities, labor, and material. If the work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray the expenses of the examination and of satisfactory reconstruction. However, if the work is found to meet contract requirements, the Contracting Officer shall make an equitable adjustment for the additional services involved in the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(i) Unless otherwise specified in the contract, the Government shall accept, as promptly as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the Government's rights under any warranty or guarantee.

(End of clause)

52.249-4001 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (APR 1991 OCE)
(Ref. FAR 52.249-10)

(a) This provision specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the contract clause entitled DEFAULT (FIXED-PRICE CONSTRUCTION). In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

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

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

(b) The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORKDAYS BASED ON 5-DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
12	11	9	6	6	9	10	9	6	4	7	10

(c) Upon acknowledgment of the Notice to Proceed and continuing through-out the contract, the Contractor will record on the daily Contractor Quality Control report the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled workday. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day in each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph (b) above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather workdays, and issue a modification in accordance with the contract clause entitled DEFAULT (FIXED PRICE CONSTRUCTION).
(End of clause)

52.249-5000 BASIS FOR SETTLEMENT OF PROPOSALS - EFARS

Actual costs will be used to determine equipment costs for a settlement proposal submitted on the total cost basis under FAR 49.206-2(b). In evaluating a terminations settlement proposal using the total cost basis, the following principles will be applied to determine allowable equipment costs:
Actual costs for each piece of equipment, or groups of similar serial or series equipment, need not be available in the contractor's accounting records to determine total actual equipment costs.
If equipment costs have been allocated to a contract using predetermined rates , those charges will be adjusted to actual costs.

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

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

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

ATTACHMENT 1 TO SECTION 00800

LIST OF ATTACHMENTS

1. Contract Drawings: As listed on the Index of Drawings

2. Rates of Wages:

3. Formats:

   Project Sign

   Project Sign Legend Defined

   Project Sign Erection Detail

   Corps of Engineers Logo

   Accident Prevention Plan (Ref. FAR 52.236-13 and EM 385-1-1)

   Construction Quality Control Report

   Small and Disadvantaged Business Subcontracting Plan

   Weekly Temporary Electrical Inspection

4. Minimum Standard for Temporary Electrical Service (Ref. FAR 52.236-14)

5. Forms:

   SAS Form 9 - Activity Hazard Analysis

   SAD Form 1666a-R - Safety Checklist for Crawler, Truck & Wheel Mounted Cranes

   SAD Form 1666b-R - Safety Checklist for Portal, Tower, and Pillar Cranes

   SAD Form 1666c-R - Safety Checklist for Rigging

   SAD Form 1666d-R - Safety Checklist for Motor Vehicles, Trailers and Trucks

   SAD Form 1666e-R - Safety Checklist for Crawler Tractors and Dozers

   SAD Form 1666f-R - Safety Checklist for Scrapers, Motor Graders, and Other Mobile Equipment

   SAD Form 1666g-R - Safety Checklist for Material Hoists

   SAD Form 1666h-R - Safety Checklist for Earth Drilling Equipment

   ENG Form 4025 - Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificates of Compliance

   DA Form 5418-R - Cost Estimate Analysis

   DD Form 1354 - Transfer and Acceptance of Military Real Property

   Standard Form LLL-A - Disclosure of Lobbying Activities

   Real Property Inventory

General Decision Number GA020060
Superseded General Decision No. GA010060
State: Georgia Construction Type:
HEAVY SEWER AND WATER LINE
County(ies):

APPLING	FLOYD	PAULDING
ATKINSON	FORSYTH	PEACH
BACON	FRANKLIN	PICKENS
BAKER	GILMER	PIERCE
BALDWIN	GLASCOCK	PIKE
BANKS	GORDON	POLK
BARROW	GRADY	PULASKI
BARTOW	GREENE	PUTNAM
BEN HILL	HABERSHAM	QUITMAN
BERRIEN	HALL	RABUN
BIBB	HANCOCK	RANDOLPH
BLECKLEY	HARALSON	RICHMOND
BRANTLEY	HARRIS	ROCKDALE
BROOKS	HART	SCHLEY
BRYAN	HEARD	SCREVEN
BULLOCH	HENRY	SEMINOLE
BURKE	HOUSTON	SPALDING
BUTTS	IRWIN	STEPHENS
CALHOUN	JACKSON	STEWART
CANDLER	JASPER	SUMTER
CARROLL	JEFF DAVIS	TALBOT
CATOOSA	JEFFERSON	TALIAFERRO
CHARLTON	JENKINS	TATTNALL
CHATTAHOOCHEE	JOHNSON	TAYLOR
CHATTOOGA	JONES	TELFAIR
CHEROKEE	LAMAR	TERRELL
CLARKE	LANIER	THOMAS
CLAY	LAURENS	TIFT
CLINCH	LEE	TOOMBS
COFFEE	LIBERTY	TOWNS
COLQUITT	LINCOLN	TREUTLEN
COLUMBIA	LONG	TROUP
COOK	LOWNDES	TURNER
COWETA	LUMPKIN	TWIGGS
CRAWFORD	MACON	UNION
CRISP	MADISON	UPSON
DADE	MARION	WALKER
DAWSON	MCDUFFIE	WALTON
DECATUR	MCINTOSH	WARE
DODGE	MERIWETHER	WARREN
DOOLY	MILLER	WASHINGTON
DOUGHERTY	MITCHELL	WAYNE
DOUGLAS	MONROE	WEBSTER
EARLY	MONTGOMERY	WHEELER
ECHOLS	MORGAN	WHITE
ELBERT	MURRAY	WHITFIELD
EMANUEL	MUSCOGEE	WILCOX
EVANS	NEWTON	WILKES
FANNIN	OCONEE	WILKINSON
FAYETTE	OGLETHORPE	WORTH

HEAVY CONSTRUCTION PROJECTS; SEWER AND WATER LINE CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/01/2002

COUNTY(ies):

APPLING	FLOYD	PAULDING
ATKINSON	FORSYTH	PEACH
BACON	FRANKLIN	PICKENS
BAKER	GILMER	PIERCE
BALDWIN	GLASCOCK	PIKE
BANKS	GORDON	POLK
BARROW	GRADY	PULASKI
BARTOW	GREENE	PUTNAM
BEN HILL	HABERSHAM	QUITMAN
BERRIEN	HALL	RABUN
BIBB	HANCOCK	RANDOLPH
BLECKLEY	HARALSON	RICHMOND
BRANTLEY	HARRIS	ROCKDALE
BROOKS	HART	SCHLEY
BRYAN	HEARD	SCREVEN
BULLOCH	HENRY	SEMINOLE
BURKE	HOUSTON	SPALDING
BUTTS	IRWIN	STEPHENS
CALHOUN	JACKSON	STEWART
CANDLER	JASPER	SUMTER
CARROLL	JEFF DAVIS	TALBOT
CATOOSA	JEFFERSON	TALIAFERRO
CHARLTON	JENKINS	TATTNALL
CHATTAHOOCHEE	JOHNSON	TAYLOR
CHATTOOGA	JONES	TELFAIR
CHEROKEE	LAMAR	TERRELL
CLARKE	LANIER	THOMAS
CLAY	LAURENS	TIFT
CLINCH	LEE	TOOMBS
COFFEE	LIBERTY	TOWNS
COLQUITT	LINCOLN	TREUTLEN
COLUMBIA	LONG	TROUP
COOK	LOWNDES	TURNER
COWETA	LUMPKIN	TWIGGS
CRAWFORD	MACON	UNION
CRISP	MADISON	UPSON
DADE	MARION	WALKER
DAWSON	MCDUFFIE	WALTON
DECATUR	MCINTOSH	WARE
DODGE	MERIWETHER	WARREN
DOOLY	MILLER	WASHINGTON
DOUGHERTY	MITCHELL	WAYNE
DOUGLAS	MONROE	WEBSTER
EARLY	MONTGOMERY	WHEELER
ECHOLS	MORGAN	WHITE
ELBERT	MURRAY	WHITFIELD
EMANUEL	MUSCOGEE	WILCOX
EVANS	NEWTON	WILKES
FANNIN	OCONEE	WILKINSON
FAYETTE	OGLETHORPE	WORTH

SUGA1058A 02/07/1992

	Rates	Fringes
BOILERMAKER:		
Storage tank erection/repair	12.96	

All other work	16.20
BRICKLAYER	8.35
CARPENTER	6.50
CEMENT MASON/CONCRETE FINISHER	5.31
ELECTRICIAN	8.78
IRONWORKER	8.72
LABORERS:	
Unskilled	5.15
Pipelayer	5.15
Drill	5.15
PAINTER	8.00
PLUMBER & PIPEFITTER	6.00
POWER EQUIPMENT OPERATORS:	
Backhoe	5.70
Bulldozer	5.73
Crane, derrick, dragline	7.85
Front end loader	5.15
Motor grader	5.34
Roller	5.15
Scraper - pan	5.15
TRUCK DRIVER	5.15
WELL DRILLER	6.40

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(v)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division

U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

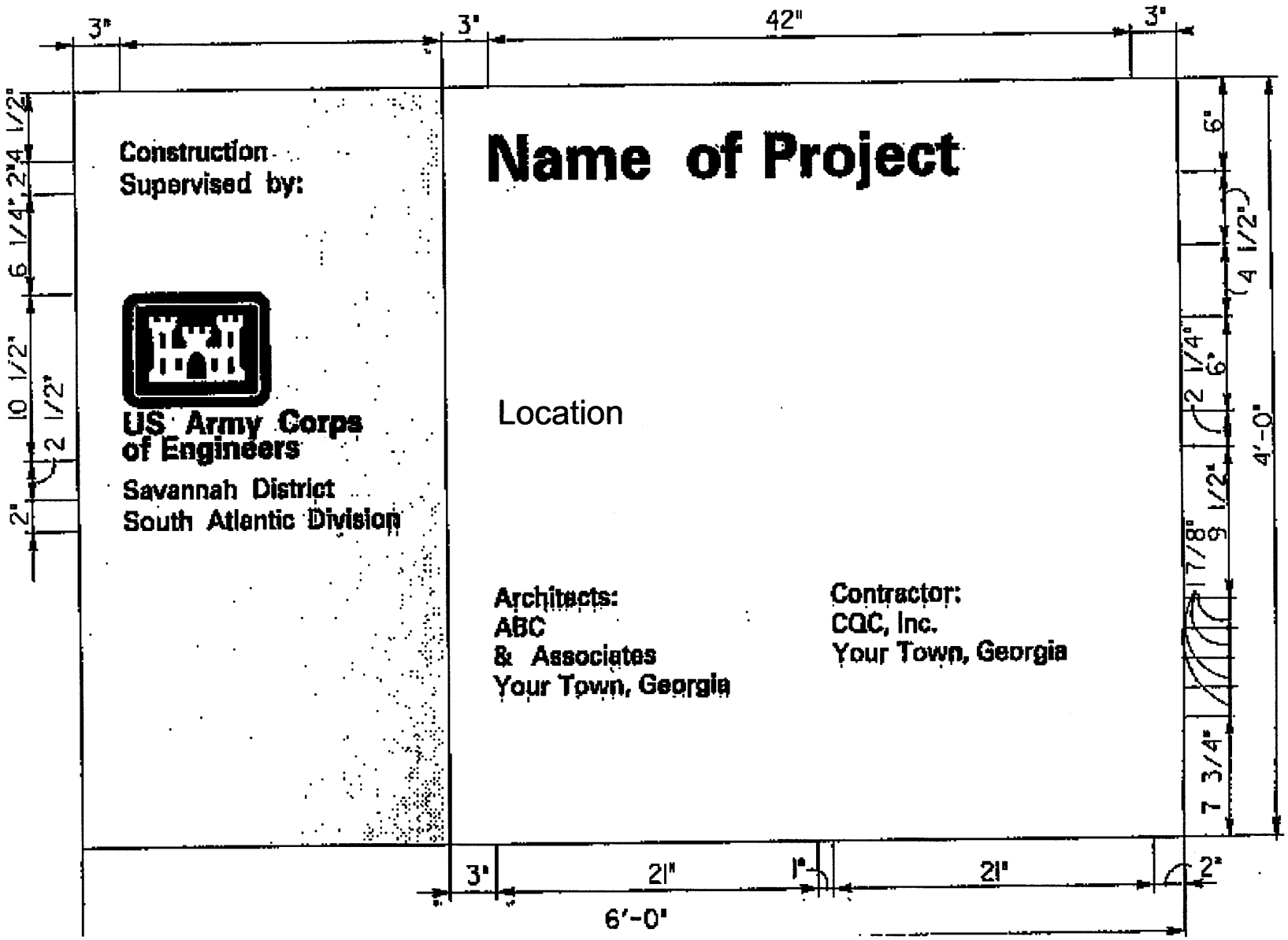
The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION


3"
3"
42"
3"
Construction
Supervised by:
US Army Corps
of Engineers
Savannah District
South Atlantic Division
Name of Project
Location
Architects:
ABC
& Associates
Your Town, Georgia
Contractor:
CQC, Inc.
Your Town, Georgia
10 1/2"
2 1/2"
2"
6 1/4"
2"
4 1/2"
6"
4 1/2"
2 1/4"
6"
4'-0"
9 1/2"
7 7/8"
7 3/4"
3"
21"
1"
21"
2"
6'-0"

PROJECT SIGN LEGEND DEFINED

Legend Group 1: The words:

"Construction Supervised by:" or "Design and Construction Supervised by:"

shall be placed on two lines using black, 1.25" Helvetica regular typeface. Maximum line length is 19".

10.5" Reverse Signature: The Corps symbol shall be a 10.5" white reverse signature using a 6" castle on a red background. The castle and surrounding border lines shall be white. The castle windows, door, and logo background are to be red. The words "U.S. Army Corps of Engineers" shall be black.

Legend Group 2: The words:

"Savannah District
South Atlantic Division"

shall be placed on two lines below the 10.5" reverse signature, using black, 1.25" Helvetica regular typeface.

Legend Group 3: The "Name of Project" shall be placed on one to three lines using white 3" Helvetica bold typeface. Maximum line length is 42".

Legend Group 4: The "Army Installation" shall be a one or two line identification of the facility or name of the sponsoring department. Lettering is to be white, 1.5" Helvetica regular typeface. Maximum line length is 42".

NOTE: Cross-align the first line of legend group 4 with the first line of the Corps signature (U.S. Army Corps) as shown.

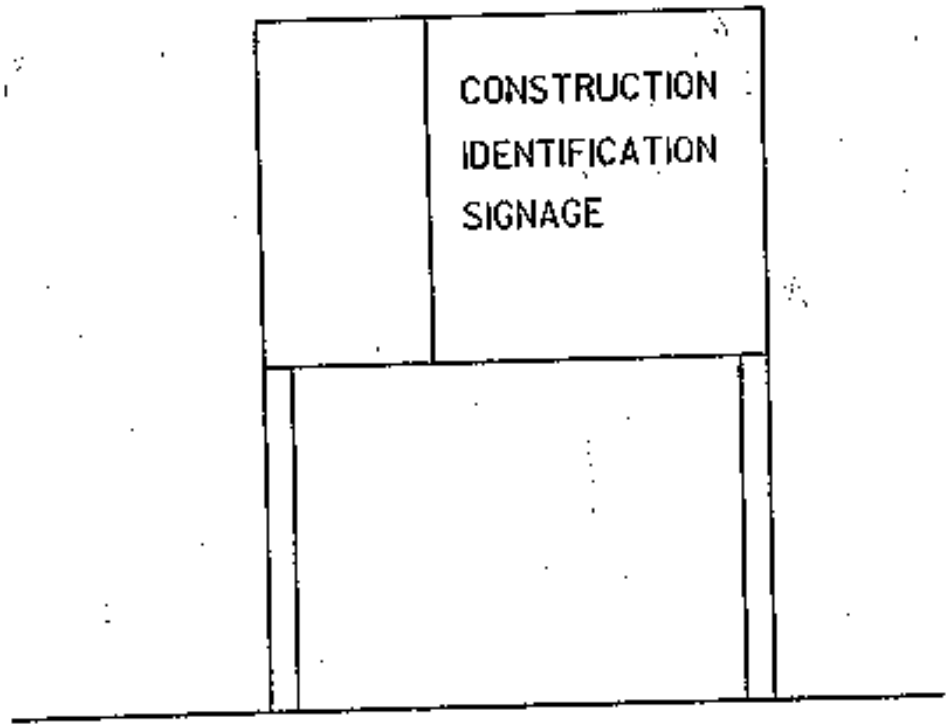
Legend Group 5a: The words:

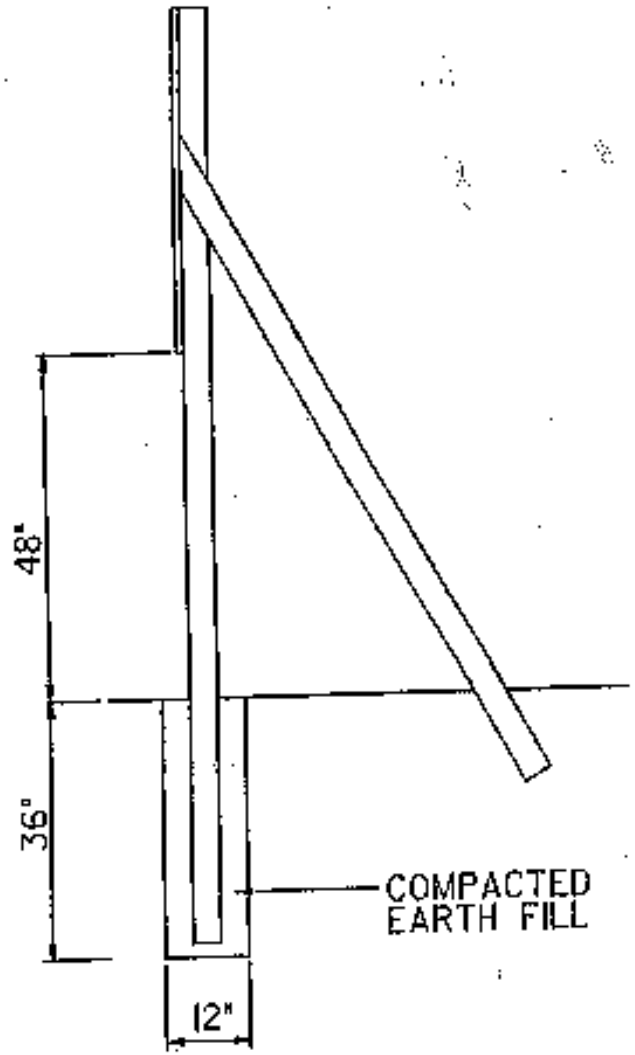
"Architects:" or "Engineers:" or "Architect-Engineers:"

shall be a one to five line identification of the prime architect or engineering corporate or firm name, city, and State. Lettering shall be white, 1.25" Helvetica regular typeface. Maximum line length is 21".

Legend Group 5b: The "Contractor:" shall be a one to five line identification of the prime Contractor corporate or firm name, city, and State. Include type of Contractor, i.e. General Contractor, etc. Lettering shall be white, 1.25" Helvetica regular typeface. Maximum line length is 21".

NOTE: All typography shall be flush left and rag right, upper and lower case with initial capitals only as shown.


CONSTRUCTION
IDENTIFICATION
SIGNAGE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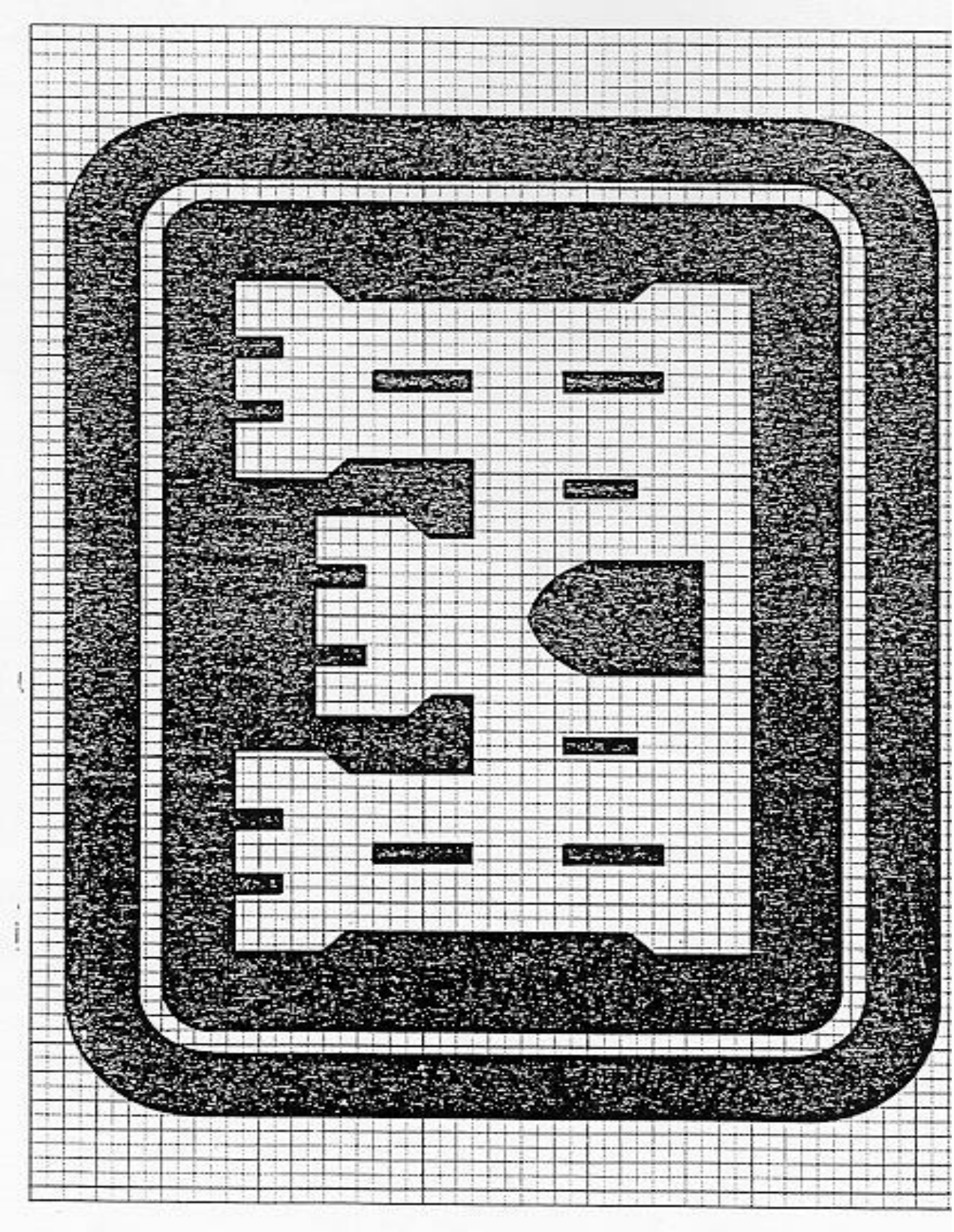
COMPACTED
EARTH FILL



CORPS OF ENGINEERS LOGO
HALF SIZE

Last revised 9 May 97

FORMAT
(Ref. FAR 52.236-13 and EM 385-1-1 dated 3 Sep 96)
ACCIDENT PREVENTION PLAN

MINIMUM BASIC OUTLINE FOR ACCIDENT PREVENTION PLAN

An accident prevention plan is, in essence, a safety and health policy and program document. The following areas are typically addressed in an accident prevention plan, but a plan shall be job specific and shall also address any unusual or unique aspects of the project or activity for which it is written. The accident prevention plan shall interface with the employer's overall safety and health program. Any portions of the overall safety and health program that are referenced in the accident prevention plan shall be included as appropriate.

1. SIGNATURE SHEET. Title, signature, and phone number of the following:

a. Plan preparer (corporate safety staff person, QC);

b. Plan approval, e.g., owner, company president, regional vice president (HTRW activities require approval of a Certified Industrial Hygienist (or qualified Industrial Hygiene personnel for in-house USACE activities; a Certified Safety Professional (or qualified USACE safety personnel for in-house work) may approve the plan for operations involving UST removal where contaminants are known to be petroleum, oils, or lubricants);

c. Plan concurrence (provide concurrence of other applicable corporate and project personnel (contractor)), e.g., Corporate Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional, project QC. The plan will be developed by qualified personnel (plan preparer) and will be signed by a competent person (plan concurrence) and a representative of the prime contractor's project management team (plan approval).

2. BACKGROUND INFORMATION. List the following:

a. Contractor;

b. Contract number;

c. Project name;

d. Brief project description, description of work to be performed, and location (map);

e. Contractor accident experience (provide information such as EMR, OSHA 200 Forms, corporate safety trend analyses);

f. Listing of phases of work and hazardous activities requiring activity hazards analyses.

3. STATEMENT OF SAFETY AND HEALTH POLICY. (In addition to the corporate policy statement, a copy of the corporate safety program may provide a

significant portion of the information required by the accident prevention plan.)

4. RESPONSIBILITIES AND LINES OF AUTHORITIES.

a. Identification and accountability of personnel responsible for safety - at both corporate and project level (contracts specifically requiring safety or industrial hygiene personnel should include a copy of their resume - the District Safety and Occupational Health Office will review the qualifications for acceptance). For items in EM 385-1-1 which require the use of a competent person or a qualified person, the contractor is to maintain documentation demonstrating the competence or qualification of that individual.

b. Lines of authority

5. SUBCONTRACTORS AND SUPPLIERS. Provide the following:

a. Identification of subcontractors and suppliers (if known);

b. Means for controlling and coordinating subcontractors and suppliers;

c. Safety responsibilities of subcontractors and suppliers.

6. TRAINING.

a. List subjects to be discussed with employees in safety indoctrination.

b. List mandatory training and certifications which are applicable to this project (e. g., explosive actuated tools, confined space entry, crane operator, diver, vehicle operator, HAZWOPER training and certification, personal protective equipment) and any requirements for periodic retraining/recertification.

c. Identify requirements for emergency response training.

d. Outline requirements (who attends, when given, who will conduct etc.) for supervisory and employee safety meetings.

e. Identify location at the project site where the records will be maintained.

7. SAFETY AND HEALTH INSPECTIONS. Provide details on:

a. Who will conduct safety inspections (e.g., project manager, safety professional, QC, supervisors, employees, etc.), when inspections will be conducted, how the inspections will be recorded, deficiency tracking system, follow-up procedures, etc;

b. Any external inspections/certifications which may be required (e.g., Coast Guard).

8. SAFETY AND HEALTH EXPECTATIONS, INCENTIVE PROGRAMS, AND COMPLIANCE.

a. The company's written safety program goals, objectives, and accident experience goals for this contract should be provided.

b. A brief description of the company's safety incentive programs (if any) should be provided.

c. Policies and procedures regarding noncompliance with safety requirements (to include disciplinary actions for violation of safety requirements) should be identified.

d. Provide written company procedures for holding managers and supervisors accountable for safety.

9. ACCIDENT REPORTING. The contractor shall identify who shall complete the following, how, and when:

a. Exposure data (man-hours worked);

b. Accident investigations, reports and logs;

c. Immediate notification of major accidents.

10. MEDICAL SUPPORT. Outline on-site medical support and off-site medical arrangements.

11. PERSONAL PROTECTIVE EQUIPMENT. Outline procedures (who, when, how) for conducting hazard assessments and written certifications for use of personal protective equipment.

12. PLANS (PROGRAMS, PROCEDURES) REQUIRED BY THE SAFETY MANUAL (as applicable).

a. Hazard communication program (01.B.04);

b. Emergency response plans:
- procedures and tests (01.E.01)
- spill plans (01.E.01, 06.A.02)
- fire fighting plan (01.E.01, 19.A.04)
- posting of emergency telephone numbers (01.E.04)
- wildfire prevention plan (09.K.01)
- man overboard/abandon ship (19.A.04)

c. Layout plans (04.A.01);

d. Respiratory protection plan (05.E.01);

e. Health hazard control program (06.A.02);

f. Lead abatement plan (06.B.05 & specifications);

g. Asbestos abatement plan (06.B.05 & specifications);

h. Abrasive blasting (06.H.01);

i. Confined space (06.1);

j. Hazardous energy control plan (12.A.07);

k. Critical lift procedures (16.C.17);

l. Contingency plan for severe weather (19.A.03);

m. Access and haul road plan (22.1.10);

n. Demolition plan (engineering and asbestos surveys) (23.A.01);

o. Emergency rescue (tunneling) (26.A.05);

p. Underground construction fire prevention and protection plan (26.D.01);

q. Compressed air plan (26.1.01);

r. Formwork and shoring erection and removal plans (27.B.02);

s. Lift slab plans (27.D.01);

t. SHP and SSHP (for HTRW work an SSHP must be submitted and shall contain all information required by the accident prevention plan - two documents are not required (28.B.01);

u. Blasting plan (29.A.01);

v. Diving plan (30.A.13);

w. Plan for prevention of alcohol and drug abuse (Defense Federal Acquisition Regulation Supplement Subpart 252.223-7004, Drug-Free Work Force).

13. The Contractor shall provide information on how they will meet the requirements of major sections of EM 385-1-1 in the accident prevention plan. Particular attention shall be paid to excavations, scaffolding, medical and first aid requirements, sanitation, personal protective equipment, fire prevention, machinery and mechanized equipment, electrical safety, public safety requirements, and chemical, physical agent, and biological occupational exposure prevention requirements. Detailed site-specific hazards and controls shall be provided in the activity hazard analysis for each phase of the operation. Site-specific hazards are those hazards which would be reasonably be anticipated to occur on the construction site of concern and will be identified through analysis of the activities to be performed. The controls are measures which will be implemented by the contractor to eliminate or reduce each hazard to an acceptable level.

F O R M A T

CONTRACTOR'S NAME
(Address)

CONSTRUCTION QUALITY CONTROL REPORT

Date: _____ Report No. _____

Contract No.: _____

Description and Location of Work: _____

WEATHER: (Clear)(P. Cloudy)(Cloudy); Temperature:___Min,___Max;
Rainfall ___Inches

Contractor/Subcontractors and Area of Responsibility
a._____
b._____
c._____
d._____
e._____
f._____
g._____
h._____

1. Work Performed Today:

(Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in table above.)

_____

2. Results of Control Activities:

(Indicate whether: P-Preparatory, I-Initial, or F-Followup and include satisfactory work completed or deficiencies with action to be taken.)

_____

3. Test Required by Plans and/or Specifications Performed and Results of Tests:

_____

4. Monitoring of Materials and Equipment:

---

5. Offsite Surveillance Activities:

---

6. Job Safety:

(Daily comment required.)

---

7. Remarks:

a. (Cover any conflicts in plans, specifications or instructions.)

b. (Action taken in review of submittal.)

c. (Verbal instructions received.)

_____
Inspector

CONTRACTOR'S VERIFICATION:

The above report is complete and correct and all material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

_____
Contractor's Approved
Authorized Representative

SAMPLE

SMALL AND DISADVANTAGED BUSINESS SUBCONTRACTING PLAN

BETTER BUILDERS, INC.

DATE: February 11, 2003

SOLICITATION NO. DACA21-0X-X-XXXX

TITLE: Barracks Complex, Fort Swampy, Georgia

Type of Work: Design and Construction

In accordance with applicable contract clauses of the solicitation noted above, Better Builders, Inc. submits the following Small Business Subcontracting Plan (includes small, veteran-owned small business, service -disabled veteran-owned small business, HUBZone small business , small disadvantaged business, and women -owned small business concerns).

It is company policy to follow all public laws including P.L. 99 -661, Section 1207, P.L. 100-180, Section 806, P.L. 105-135 and P.L. 106-50. We have informed all purchasers to follow these laws in hiring subcontractors and buying materials.

1. The following goals (expressed in terms of percentages of the total dollars available for subcontract/purchase order award) would be applicable to a contract awarded under the cited solicitatio n. You must also provide the dollar amounts for each of the goals listed below.

    a. Total Proposed Contract Amount: $26,961,000

    b. Total amount available for Subcontract award: $18,300,000

    c. Large Business: $7,832,400 – 42.8%

    d. Total amount to be subcontracted to all small business: $10,467,600 - 57.2%

    e. Small Disadvantaged Business: $1,628,700 – 8.9%

    f. Women-Owned Small Business: $1,482,300 – 8.1%

    g. Service-Disabled Veteran-Owned Small Business: $549,000 - 3%

    h. HUBZone Small Business: $549,000 – 3%

i. There are no options in this solicitation. ***(NOTE: If there are options in the solicitation you must provide the same information as listed in paragraph 1 a-h for each option year/period.)***

j. Indirect and overhead costs have not been included in the goals specified in this section for amounts available for subcontract/purchase order award.

k. Consideration was given to HCBU/MI's but no opportunities were found to be included in the small disadvantaged business goals.

NOTE: While Savannah District does not have a specific goal for subcontracting with Veteran-Owned small business, it must be addressed in any subcontracting plan. However, FAR 52.219-9 requires a goal in your subcontracting plan for Veteran-Owned small business concerns.

2. The following principal products and/or services will be subcontracted under this contract, and the distribution among all small business concerns are as follows:

Large Business - Earthwork
Small Business - Windows and Storm Doors, Recreation, Site Utilities Plumbing
Veteran Owned Small Business – Materials, Equipment
Service Disabled Veteran Owned Small Business – Asphalt, Electrical, Doors
HUBZone Small Business - Window Treatment, HVAC, Concrete
Small Disadvantaged Business - Vinyl Siding, Insulation, Gutters
Women Owned Small Business – Carpentry, Ceramic Tile, Fencing

NOTE: Company names should be provided for each product and/or service listed.

The following method was used in developing our subcontracting goals: (1) all areas of potential subcontract work were determined to be available for subcontract award to all types of small business concerns, and (2) will be actively recruited for participation through the many sources described hereinafter.

3. The following individual will administer this Subcontract Plan on behalf of Better Builders, Inc.:

Name: Freddie Better Title: Executive Vice President

Address and Telephone Number: 4845 Tonka Drive
Fair Haven, CT 27413
800-621-4845

The individual' s specific duties with regard to the conduct of our firm's Subcontracting Plan will include, but will not be limited to the following:

a. Developing and maintaining bidders lists of all types of small business concerns using sources such as the Pronet System developed by the Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, Local Minority Business Development Centers and Minority Contractor Associations, and the General Business Services Center in the project's Standard Metropolitan Statistical Area.

b. Assuring the inclusion of all types of small business concerns in all solicitations for products or services which they are capable of providing; and ensuring that all solicitations are structured to permit the maximum possible participation by all types of small business concerns.

c. Establishing and maintaining records of all solicitations and subcontract awards to all types of small business concerns to ensure that the members of the firm who review bidders proposals document their reasons for selecting or not selecting a bid.

d. Preparing and submitting the Subcontracting Report for Individual Contracts (SF 294) and the Summary Subcontract Report (SF 295) in accordance with the instructions provided on the forms, and coordinating and preparing for all compliance reviews by Federal agencies.

e. Conducting or arranging for all other activities necessary to further the intent and attainment of goals of the Plan to include motivational trainin g of the firm's purchasing personnel attendance at workshop, seminars and trade fairs conducted by or on behalf of all types of small business concerns, and general cooperation with members of these concerns or their representatives.

4. The following s teps will be taken to ensure that all types of small business concerns receive notice and have an equitable opportunity to compete for intended awards of subcontracts and/or purchase orders for the products and/or services described in paragraph 2 above:

a. Sources will be requested through the SBA's ProNet system, business development organizations, small business trade associations and at small business procurement conferences; sources will be contacted and bidding materials will be provided to all respond ing parties with interest.

b. Internally, motivational training will be conducted to guide and encourage purchasing personnel; source lists and guides to all types of small business concerns will be maintained and utilized by purchasing personnel while soli citing subcontracts and purchase orders; activities will be monitored to ensure sufficient time is allowed for interested bidders to prepare their bids and to evaluate continuing compliance with this Subcontracting Plan.

5. Better Builders, Inc. agrees that the clause entitled "Utilization of Small Business Concerns" will be included in all subcontracts which offer further subcontracting opportunities. All subcontractors, except small business concerns, who receive subcontracts in excess of $500,000 ($1,000,000 in the case of construction) will be required to adopt and comply with a subcontracting plan similar to this one. Such plans will be reviewed to assure that all minimum requirements of an acceptable subcontracting plan have been satisfied.

The acceptability of goals shall be determined on a case-by-case basis depending on the supplies/services involved, the availability of all potential small business and prior experience. Once approved and implemented, plans will be monitored through the submission of periodic reports or, as time and availability of funds permit, periodic visits to subcontractor's facilities to review applicable records and subcontracting program progress.

6. Better Builders, Inc. agrees to submit such periodic reports and cooperate in any studies or surveys as may be required by the Contracting agency or the Small Business Administration in order to determine the extent of compliance by the offeror with the subcontracting plan and with the clause entitled "Utilization of Small Business Concerns" contained in the solicitation.

7. Better Builders, Inc. agrees to maintain at least the following types of records to document compliance with this Subcontracting Plan:

a. The names of all organizations, agencies, and associations contacted for all small business sources, along with records of attendance at conferences, seminars and trade fairs where additional sources were developed.

b. Source lists, guides, and other data identifying all types of small business concerns

c. Records on all subcontract solicitations, on a contract-by-contract basis, indicating (1) whether all types of small business concerns were solicited, and if not, why not; and (2) the reasons for the failure of all solicited small businesses to receive a subcontract award.

d. Records of all subcontract award data, to include subcontractor's name and address, to be kept on a contract-by-contract basis.

e. Minutes of internal motivational and training meetings held for the guidance and encouragement of purchasing personnel, and records of all monitoring activities performed for compliance evaluation.

f. Copies of SF 294 and SF 295 showing date and place of filing and copies of all other reports or results of reviews conducted by the contracting agency or other interested agencies of the Federal government to monitor our compliance with this Subcontracting Plan.

In closing Better Builders, Inc. states that it will be the policy of Better Builders, Inc. to afford every practicable opportunity to all types of small business concerns to participate in construction contracts awarded to Better Builders, Inc. by the Federal Government to ensure that equitable opportunity is provided to all types of small business concerns to compete for award of subcontracts and purchase orders, and to diligently pursue the achievement of our goals by participation of all types of small business concerns in the dollars available for subcontract/purchase order award under the solicitation.

BY_____ DATE _____

_____
Signature

_____
Title, and Company Name

_____ DATE _____
Contract Specialist

Approval Recommended

_____ DATE _____
SADBU

Approve/Disapprove

_____ DATE _____
Contracting Officer

Approve/Disapprove

_____ DATE _____
Procurement Center Representative
Small Business Administration

WEEKLY TEMPORARY ELECTRICAL INSPECTION

Week ending _____

Contract No. _____

Contract Description _____

The following items were inspected in accordance with requirements in National Electrical Code and Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1.

1. Wire (size, type, condition).

2. Systems and devices (polarity, continuity of ground, resistance to ground).

3. Resistance of ground rods (25 OHMS) measured and recorded.

4. Check GFI for 15/20 amp 120 volt circuits.

5. Plugs and receptacles (type, NEMA rating).

6. Circuit breakers and disconnect (size, type, weatherproof).

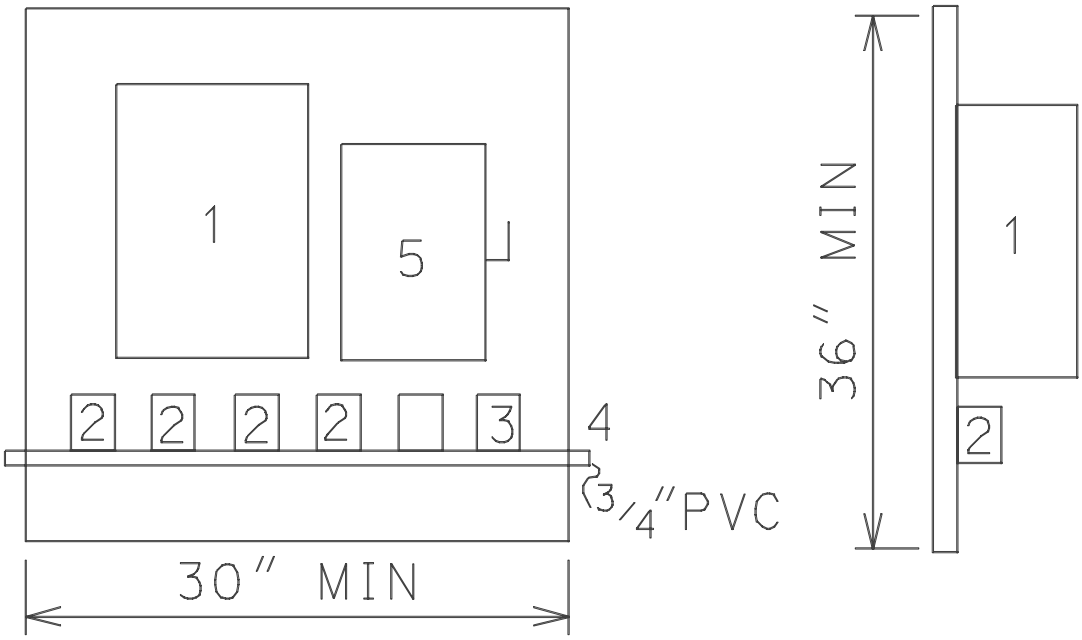
7. Extension cords (type, UL listed, insulation condition, splices, location).

8. Open wiring on insulators, nonmetallic sheathed cable, outside clearance (600 volts or less), Festoon lighting (as applicable).

_____

Signature Electrician/Electrical Engineer

MINIMUM STANDARD FOR TEMPORARY ELECTRICAL SERVICE



(DIMENSIONS ARE APPROXIMATE)

A. The backboard for temporary service shall consist of not less than 1/2 inch plywood of exterior grade.

B. Numbers above correspond to the item below:

Item 1 - NEMA 3R circuit breaker type panelboard. This panelboard shall consist of 1 two-pole 60 amp main circuit breaker, 4* one pole 20 AMP branch circuit breakers, and 1* two pole 20 AMP branch circuit breaker. Breakers shall meet Federal Specifications Standards for Class 1A breakers and shall be plug-in type. (*Number of breakers to be adjusted to suit the job requirements.)

Item 2 - Duplex grounding type convenience outlets in standard utility type outlet boxes with covers, meeting the NEC and NEMA requirements for wet locations. Connections to the branch circuit breakers shall be grounded by two conductors #12 NMC cable.

Item 3 – (Optional) A single three-conductor grounding type outlet rated for 250 volt service meeting the NEC and NEMA requirements for wet locations. Connections from this outlet to the two pole breaker shall be by two conductor grounded type NMC cable.

Item 4 - 3/4 inch PVC. This shall be used to support extension cords.

Item 5 – NEMA 3R service disconnect safety switch – 60 amp minimum.

C. The panelboard shall be grounded by #6 copper wire connected to a 3/4 inch by 10-foot long ground rod.

D. Service to the panel shall consist of three copper conductor #6 minimum service entrance cable. This cable may enter the top or side of the panelboard.

E. Periodic inspections of systems and devices will be made by the Contractor at intervals not to exceed 1 week, and a report will be submitted indicating the results.

F. All receptacle outlets that provide temporary electrical power during construction, remodeling, maintenance, repair, or demolition shall have ground-fault circuit-interrupter (CFCI) protection for personnel. GFCI protection shall be provided on all circuits serving portable electric hand tools or semi-portable electric power tools (such as block/brick saws, table saws, air compressors, welding machines, and drill presses). See EM 385-1-1 for exceptions.

G. Per EM 385-1-1 all temporary power distribution systems shall be submitted to the field office before installation.

ACTIVITY HAZARD ANALYSIS

1. Phase of Construction		
2. Location	3. Contract No.	4. Project
5. Prime Contractor	6. Date of Preparatory	7. Estimated Start Date
Potential Safety Hazard	Procedure to Control Hazard	
8. Contractor's Representative (signature)	9.	

SAS Form 9
1 Jan 82

SAFETY CHECKLIST FOR CRAWLER, TRUCK & WHEEL MOUNTED CRANES

Contract # and title:	
Equipment name & number: owned or leased?	
Contractor:	Subcontractor:
Contract Inspector:	Date inspected:

	Yes	No	N/A
1. Unless the manufacture has specified an on-rubber rating, outriggers will be fully extended and down? (16.D.10)			
2. Are lattice boom cranes equipped with a boom angle indicator, load indicating device, or a load moment indicator? (16.D.01)			
3. Are lattice boom and hydraulic cranes equipped with a means for the operator to visually determine levelness? (16.D.02)			
4. Are lattice boom and hydraulic cranes, except articulating booms cranes, equipped with drum rotation indicators located for use for the operator? (16.D.03)			
5. Are lattice boom and hydraulic mobile cranes equipped with a boom angle or radius indicator within the operator’s view? (16.D.04)			
6. Are lattice boom cranes, with exception of duty cycle cranes, equipped with an anti-two blocking device? (16.D.05)			
7. When duty cycle machines are required to make a non-duty lift, is the crane equipped with an international orange warning device and is a signal person present? (16.D 05)			
8. Are the following with the crane at all times: (16.C.02) a. the manufacturer’s operating manual? b. the load rating chart? c. the crane’s log book documenting use, maintenance, inspections and tests? d. operating manual for crane operator aids used on the crane.			

	Yes	No	N/A
9. Are the following on the project site: a. completed periodic inspection report prior to initial work? (16.C.12) b. pre-operational checklist used for daily inspection? (16.C.12) c. written reports of the operational performance test? (16.C.13) d. written reports of the load performance test? (16.C.13)			
10. Are all operators physically qualified to perform work? (16.C.05)			
11. Are all operators qualified by written and practical exam or by appropriate licensing agency for the type crane they are to operate? (16.C.05)			
12. Is the crane designed and constructed IAW the standards listed in Table 16-1? (16.C.06)			
13. Is a hazard analysis for set-up and set-down available? (16.C.08)			
14. Are accessible areas within the swing radius of the rear of the crane barricaded? (16.C.09)			
15. Are there at least 3 wraps of cable on the drum? (16.C.10)			
16. Are the hoisting ropes installed IAW the manufacturer’s recommendations? (16.C.10)			
17. Are critical lift plans available? (16.C.18)			
18. Are minimum clearance distance for high voltage lines posted at the operator’s position? (11.E.04)			
19. Do older lattice boom cranes with anti-two block warning devices in lieu of anti-two block prevention devices have a written exemption? (16.D.05)			
20. Is the slow moving emblem used on all vehicles which by design move at 25 MPH or less on public roads? (08.A.04)			
21. Are all vehicles which will be parked or moving slower than normal traffic on haul roads equipped with a yellow flashing light or flasher visible from all directions? (16.A.13)			

	Yes	No	N/A
22. Is all equipment to be operated on public roads provided with: (16A.07) a. headlights? b. brake lights? c. taillights? d. back-up lights? e. front and rear turn signals?			
23. Are seat and seat belts provided for the operator and each rider on equipment? (16.A.07 and 16.B.08)			
24. Is all equipment with windshields equipped with powered wipers and defogging or defrosting devices? (16.A.07)			
25. Is the glass in the windshield or other windows clear and unbroken to provide adequate protection and visiblity for the operator? (16.A.07, 16.B.10)			
26. Is all equipment equipped with adequate service brake system and emergency brake system? (16.A.18)			
27. Are areas on equipment where employees walk or climb equipped with platforms, footwalks, steps, handholds, guardrails, toeboards and non-slip surfaces? (16.B.03)			
28. Is all self propelled equipment equipped with automatic, audible, reverse signal alarms? (16.B.01)			
29. Is there a record of manufacturer’s approval of any modification of equipment which affects its capacity or safe operation? (16.A.18)			
30. Are truck and crawler cranes attached to a barge or pontoon by a slack tiedown system? (16.F.06)			
31. Have the following conditions been met for land cranes mounted on barges or pontoons: (16.F.04) a. Have load ratings been modified to reflect the increased loading from list, trim, wave, and wind action? b. Are all deck surfaces above the water? c. Is the entire bottom area of the barge or pontoon submerged? d. Are tie downs available? e. Are cranes blocked and secured?			
32. Are all belts, gears, shafts, spindles, drums, flywheels, or other rotating parts of equipment guarded where is a potential for exposure to workers? (16.B.03)			

	Yes	No	N/A
33. Is the area where the crane is to work level, firm and secured? (16.A.10)			
34. Is a dry chemical or carbon dioxide fire extinguisher rated at least 5-B:C on the crane? (16.A.26)			
35. Are trucks, for truck mounted cranes, equipped with a working reverse signal alarm? (16.B.01)			
36. Is a signal person provided where there is danger from swinging loads, buckets, booms, etc.? (16.B.13)			
37. Is there adequate clearance from overhead structures and electrical sources for the crane to be operated safely? (16.C.09)			
38. Is there adequate lighting for night operations? (16.C.19)			
39. Has the the boom stop test on cable-supported booms been performed? (16.D.06)			
40. Is the boom disenaging device functioning as required? (16.D.06)			
41. Has all rigging and wire rope been inspected? (Section 15)			
Remarks:(Enter actions taken for all “no” answers.)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR PORTAL, TOWER, AND PILLAR CRANES

Contract # and Title:			
Equipment name & number: owned or leased?			
Contractor:	Subcontractor:		
Contract Inspector:	Date Inspected:		
	Yes	No	N/A
1. Are the following available: (16.E.02) a. written erection instructions? b. listing of the weight of each component? c. an activity hazard analysis for the erection? d. does the activity hazard analysis contain (1.) location of crane and adjacent structures? (2.) foundation design and construction requirements? (3.) clearance and bracing requirements?			
2. Is there a boom angle indicator within the operator's view? (16.E.04)			
3. Are luffing jib cranes equipped with: (16.E.05) a. shock absorbing jib stops? b. jib hoist limit switch? c. jib angle indicator visible to operator?			
4. If used, do rail clamps have slack between the point of attachment to the rail and the end fastened to the crane? (16E.06)			
5. Are the following with the crane at all times: (16.C.02) a. the manufacturer's operating manual? b. the load rating chart? c. the crane's log book documenting use, maintenance, inspections and tests? d. the operating manual for crane operational aids used on the crane?			

	Yes	No	N/A
6. Are the following on the project site: a. completed periodic inspection report prior to initial work? (16.C.12) b. pre-operational checklist used for daily inspections? (16.C.12) c. written reports of the operational performance tests? (16.C.13) d. written reports of the load performance tests? (16.C.13)			
7. Is every crane operator certified by a physician to be physically qualified to perform work? (16.C.05)			
8. Are all operators qualified by written and practical exam or by appropriate licensing agency for the type crane they are to operate? (16.C.05)			
9. Is the crane designed and constructed IAW the standards listed in Table 16-1? (16.C.05)			
10. Is a hazard analysis for set-up and set-down available? (16.C.08)			
11. Are there at least 3 wraps of cable on the drum? (16.C.10)			
12. Are the hoisting ropes installed IAW the manufacturer’s recommendations? (16.C.10)			
13. Is the a record of manufacturer’s approval of any modification of equipment which affects its capacity or safe operation? (16.A.07)			
5. Remarks: (Enter actions taken)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR RIGGING

Contract # and title:			
Equipment name & number: owned or leased?			
Contractor	Subcontractor:		
Contractor inspector:	Date inspected:		
	Yes	No	N/A
1. Has all defective rigging been removed? (15.A.01)			
2. Is rigging stored properly? (15.A.01)			
3. Are running lines within 6.5’ of the ground or working level guarded? (15.A.03)			
4. Are all eye splices made in an approved manner with rope thimbles? (sling eyes excepted) (15.A.04)			
5. Are positive latching devices used to secure loads? (15.A.05)			
6. Are all custom lifting accessories marked to indicate their safe working loads? (15A.07)			
7. Are all custom designed lifting accessories proof-tested to 125% of their rated load? (15.A.07)			
8. Are the following conditions met for wire rope: (15.B.01-09) a. Are they free of rust or broken wires? b. Are defective ropes cut up or marked as unusable? c. Do rope clips attached with U-bolts have the U-bolts on the dead end or short end of the rope? d. Are protruding ends of strands in splices on slings and bridles covered or blunted? e. Except for eye splices in the end of wires and for all endless wire rope slings, are all wire ropes used in hoisting, lowering, or pulling loads one continuous piece, free of knots or splices?			

	Yes	No	N/A
f. Do all eye splices have at least 5 full tucks? g. If used, are wedge sockets fastening attached without attached the dead end of the wire rope to the live rope? h. Are they free of eyes or splices formed by wire rope clips or knots?			
9. Are the following conditions met for chain? (15.C.01-04) a. Are all chains alloyed? b. Do all coupling links or other attachments have rated capacities at least equal to that of the chain. c. Are makeshift fasteners restricted from use?			
10. Are the following conditions met for fiber rope:(15.D.01-07) a. Are all ropes protected from freezing, excessive heat or corrosive materials? b. Are all ropes protected from abrasion? c. Are splices made IAW manufacture's recommendations? d. Do all eye splices in manila rope contain at least 3 full tucks and do all short splices contain at least 6 full tucks(3 on each side of the centerline of the splice)? e. Do all splices in layed synthetic fiber rope contain at least 4 full tucks and do short splices contain at least 8 full tucks (4 on each side of the centerline of the splice)? f. Do the tails of fiber rope splices extend at least 6 rope diameters (for rope 1" diameter or greater) past the last full tuck? g. Are all eye splices large enough to provide an included angle of not greater than 60* at the splice when the eye is placed over the load or support?			
11. Are the following conditions met for all slings:(15.E.01-06) a. Is protection provided between the sling and sharp surfaces? b. Do all rope slings have minimum clear length of 40 times the diameter of component ropes between each end fitting or eye splice? c. Do all braided slings have a minimum clear length of 40 times the diameter of component ropes between each end fitting or eye splice?			

	Yes	No	N/A
d. Do all welded alloy steel chain slings have affixed permanent identification stating size, grade, rated capacity and manufacturer? e. Is each synthetic web sling marked or coded to identify its manufacturer, rated capacities for each type hitch and the type material?			
12. Are drums, sheaves, and pulley smooth and free of surface defects? (15.F.01)			
13. Is the ratio of the diameter of the rigging and the drum, block sheave or pulley thread diameter such that the rigging will adjust without excessive wear, deformation, or damage? (15F.02)			
14. Have all damaged drums, sheaves and pulleys been removed from service? (15.F.04)			
15. Are all connections, fittings, fastenings, and attachments of good quality, proper size and strength, and installed IAW manufacturer's recommendations? (15.F.05)			
16. Are all shackles and hooks sized properly? (15.F.06 & .07)			
17. Are hoisting hooks rated at 10 tons or greater provided with safe handling means? (15.F.07)			
18. Do all drums have sufficient rope capacity? (15.F.08)			
19. Is the drum end of the rope anchored by a clamp securely attached to the drum in a manner approved by the manufacturer? (15.F.08)			
20. Do grooved drums have the correct groove pitch for the diameter of the rope and is the groove depth correct? (15.F.08)			
21. Do the flanges on grooved drums project beyond the last layer of rope at a distance of either 2″ or twice the diameter of the rope, whichever is greater? (15.F.08)			
22. Do the flanges on ungrooved drums project beyond the last layer of rope a distance of either 2.5″ or twice the diameter of the rope, which ever is greater.			

	Yes	No	N/A
23. Are the sheaves compatible with the size of rope used and as specified by the manufacture? (15F.09)			
24. Are sheaves properly aligned, lubricated, and in good condition? (15.F.09)			
25. When rope is subject to riding or jumping off a sheave, are sheaves equipped with cablekeepers? 915.F.09)			
26. Are eye bolts loaded in the plane of the eye and at angles less than 45* to the horizontal? (15.F.10)			
27. Remarks: (Enter actions taken for “no” answers.)			
Contractor inspector signature			
Contractor QC/safety/project manager signature			

SAFETY CHECKLIST FOR MOTOR VEHICLES , TRAILERS AND TRUCKS

Contract # and title: owned or leased?	
Equipment name & number:	
Contractor:	Subcontractor:
Contractor inspector:	Date inspected:

	Yes	No	N/A
1. Are records of safety inspections of all vehicles available? (18.A.02)			
2. Are all vehicles to be operated between sunset and sunrise equipped with: (18.A.04) a. 2 headlights? b. taillights and brake lights? c. front and back turn signals? d. 3 emergency flares, reflective markers, or equivalent portable warning devices?			
3. Are vehicles, except trailers or semi-trailers having a gross weight of 5000 lbs or less, equipped with service brakes and manually operated parking brakes? (18.A.05)			
4. Are service brakes on trailers and semitrailers controlled from the driver’s seat of the prime mover? (18A.06)			
5. Does the vehicle have: (18.A.06) a. a speedometer? b. a fuel gage? c. an audible warning device (horn)? d. a windshield & adequate windshield wiper? e. an operable defroster and defogging device? f. an adequate rearview mirror? g. a cab, cab shield, and other protection to protect the driver from the elements and falling or shifting materials? h. non-slip surfaces on steps? I. a power-operated starting device?			

	Yes	No	N/A
6. Is all the glass safety glass and is all broken or cracked glass replace? (18.A.07)			
7. Do trailers meet the following: (18A.08) a. Are all towing devices adequate for the weight drawn? b. Are all towing devices properly mounted? c. Are locking devices or a double safety system provided on every 5th wheel mechanism and tow bar arrangement to prevent accidental separation? d. Are trailers coupled with safety chains or cables to the towing vehicle? e. Are trailers equipped with the power brakes equipped with a break-away device which will lock-up the brakes in the event the trailer separates from the towing vehicle?			
8. Are all dump trucks:(18.A.10) a. equipped with a holding device to prevent accidental lowering of the body? b. equipped with a hoist lever secured to prevent accidental starting or tipping? c. equipped with means to determine (from the operator’s position) if the dump box is lowered? d. equipped with trip handles for tailgates that allow the operator to be clear?			
9. Are all buses, trucks and combination of vehicles with a carrying capacity of 1.5 tons or more, to be operated on public roads equipped with: (18.A.11) a. 3 reflective markers? b. 2 wheel chocks for each vehicle? c. at least one 2A:10B:C fire extinguisher? d. at least two properly rated fire extinguishers (for vehicles carrying flammable cargo)? e. a red flag not less than 1 foot square.			
10. Is vehicle exhaust controlled so as not to present a hazard to personnel? (18.A.13)			
11. Are all rubber tired motor vehicles equipped with fenders or with mud flaps if the vehicle is not designed for fenders? (18.A.14)			

	Yes	No	N/A
12. Are all vehicles, except buses, equipped with seat belts? (18.B.02)			
13. Does all self-propelled construction and industrial equipment have a working reverse signal alarm? (16.B.01)			
14. Are all hot surfaces of equipment, including exhaust pipes or other lines, guarded or insulated to prevent injury or fire? (16.B.03)			
15. If an off the road vehicle, is it equipped with rollover protective structures? (16.B.12)			
16. Remarks: (Enter actions taken for “no” answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR CRAWLER TRACTORS AND DOZERS

Contract # and title:	
Equipment name & number: owned or leased?	
Contractor:	Subcontractor:
Contractor inspector:	Date inspected:

	Yes	No	N/A
1. Are initial and daily/shift inspection records available? (16.A.01& .02)			
2. Are only qualified operators assigned to operate mechanized equipment? (16.A.04)			
3. Are sufficient lights provided for night operations? (16.A.11)			
4. Is the unit shut down before refueling? (16.A.14)			
5. Does the unit have as a minimum a 5-B:C fire extinguisher? (16.A.26)			
6. Is there an effective, working reverse alarm? (16.B.01)			
7. Are moving parts, shafts, sprockets, belts, etc., guarded? (16.B.03 ,07, and 13)			
8. Is protections against hot surfaces, exhausts, etc., provided? (16.B.03 and .13)			
9. Are fuel tanks located in a manner to prevent spills or overflows from running onto engine exhaust or electrical equipment?			

	Yes	No	N/A
10. Are exhaust discharges directed so they do not endanger person of obstruct operator vision?(16.B.05)			
11. Are seat belts provided? (16B.08)			
12. Is protection (grills, canopies, screens) provided to shield operator from falling or flying objects? (16.B.10 and .11)			
13. Is roll over protection provided? (16.B.12)			
14. Remarks: (Enter actions taken for “no” answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLIST FOR SCRAPERS, MOTOR GRADERS , AND OTHER MOBILE EQUIPMENT

Contract # and title:	
Equipment name and number: owned or leased?	
Contractor:	Subcontractor:
Contractor inspector:	Date inspected:

	Yes	No	N/A
1. Are initial and daily/shift inspection records available? (16.A.01 & .02)			
2. Are only qualified operators assigned to operate equipment? (16.A.04)			
3. Are sufficient lights provided for night operations? (16.A.11)			
4. Does the unit have as a minimum a 5-B:C fire extinguisher? (16.A.26)			
5. Is there an effective working reverse alarm? (16.B.01)			
6. Is the unit shut down for refueling? (16.A.14)			
7. Are moving parts, shafts, sprockets, belts, etc., guarded? (16.B.03, .07 and .13)			
8. Is protection against hot surfaces, exhausts, etc., provided? (16.B.03 and .13)			
9. Are fuel tanks located in a manner to prevent spills or overflow from running onto engine exhaust or electrical equipment? (16.B.04)			
10. Are exhaust discharges directed so they do not endanger persons or obstruct operator vision? (16.B.05)			

	Yes	No	N/A
11. Are seat belts provided for each person required to ride on the equipment? (16.B.08)			
12. Is protection (grills, canopies, screens) provided to shield operators from falling or flying objects? (16.B.10 and .11)			
13. Is roll over protection provided? (16.B.12)			
14. Is a safe means of access to the cab provided (steps, grab bars, non-slip surfaces)? (16.B.03)_			
15. Are adequate head and tail lights provided? (16.A.07)			
16. Have brakes been tested and found satisfactory? (16.A.07)			
17. Does the unit have an emergency brake which will automatically stop the equipment upon brake failure? Is this system manually operable from the drivers position? (16.A.07)			
18. Is all equipment with windshields equipped with powered wipers and defogging or defrosting system? (16.A.07)			
19. Are all vehicles which will be parked or moving slower than normal traffic on haul roads equipped with a yellow flashing light or flasher visible from all directions? (16.A.13)			
20. Is the slow moving emblem used on all vehicles which by design move at 25 MPH or less on public roads? (08A.04)			

	Yes	No	N/A
21. Have air tanks been tested and certified? (20.A.01)			
22. Is an air pressure gage in working condition installed on the unit? (20.A.12)			
23. Does the air tank have an accessible drain valve? (20.B.17)			
24. Remarks: (Enter action taken for all “no” answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager			

SAFETY CHECKLIST FOR MATERIAL HOISTS

Contract # and title:	
Equipment name & number:	
Contractor:	Subcontractor:
Contract Inspector:	Date inspected:

	Yes	No	N/A
1. Are all hoist towers, masts, guys or braces, counterweights, drive machinery supports, sheave supports, platforms, supporting structures, and accessories designed by a licensed engineer? (16.K.02)			
2. Is a copy of the hoist operating manual available? (16.K.04)			
3. Do all floors and platforms have slip-resistant surfaces? (16.K.08)			
4. Are landings and runways adequately barricaded and is overhead protection provided where needed? (16.K.08)			
5. Are hoisting ropes installed IAW manufacturer's instructions? (16.K.10)			
6. Are operating rules posted at the hoist operator's station? (16.K.14)			
7. Are air powered hoists connected to an air supply of sufficient capacity and pressure to safely operate the hoist? (16.K.15)			
8. Are pneumatic hoses secured by some positive means to prevent accidental disconnection? (16.K.15)			
9. Remarks: (Enter actions taken for all "no" answers.)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAD Form 1666g-R Mar 97 Previous editions may be used for contracts referencing the 1992 edition of EM 385-1-1.

SAFETY CHECKLIST FOR EARTH DRILLING EQUIPMENT

Contract # and title:	
Equipment name & number:	
Contractor:	Subcontractor:
Contractor inspector:	Date inspected:

	Yes	No	N/A
1. Is a copy of the manual for all drilling equipment available? (16.M.01)			
2. Have all overhead electrical hazards and potential ground hazards been identified in a site layout plan and addressed in an activity hazard analysis? (16.M.02)			
3. Are MSDSs for all drilling fluids available? (16.M.05)			
4. Does the drilling equipment have 2 easily accessible emergency shut down devices (one for the operator and one for the helper)? (16.M.06)			
5. Is the equipment posted with a warning of electrical hazards? (16.M.06)			
6. Is there a spotter or an electrical proximity warning device available to ensure safe distances from power lines are maintained? (16.M.06)			
7. Remarks: (Enter actions taken for “no” answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager			

SAD Form 1666h-R Mar 97 Previous editions may be used for contracts referencing the 1992 edition of EM 385-1-1.

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.

B -- Approved, except as noted on drawings.

C -- Approved, except as noted on drawings.
Refer to attached sheet resubmission required.

D -- Will be returned by separate correspondence.

E -- Disapproved (See attached).

F -- Receipt acknowledged.

FX -- Receipt acknowledged, does not comply as noted with contract requirements.

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)

COST ESTIMATE ANALYSIS

For use of this form, see TM 5-800-2; the proponent agency is USACE.

PROJECT	INVITATION/CONTRACTOR	EFFECTIVE PRICING DATE	DATE PREPARED
LOCATION	CODE (Check one) ☐ A ☐ B ☐ C ☐ OTHER	DRAWING NO.	SHEET OF SHEETS
		ESTIMATOR	CHECKED BY

TASK DESCRIPTION	QUANTITY		LABOR				EQUIPMENT		MATERIAL		TOTAL	SHIPPING	
	NO. OF UNITS	UNIT MEAS	MH UNIT	TOTAL HRS	UNIT PRICE	COST	UNIT PRICE	COST	UNIT PRICE	COST		UNIT WT	TOTAL WT
TOTAL THIS SHEET													

DA FORM 5418-R, Apr 85

TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERTY

Form Approved
OMB No. 0704-0188

PAGE OF PAGES

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, Va 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. **FROM** *(Installation/Activity/Service and Zip code)*	2. OPERATING UNIT	3. DISTRICT CODE	4. OPERATING AGENCY	5. DATE	6. JOB NUMBER	7. SERIAL NUMBER	8. CONTRACT NUMBER

9. **TO** *(Installation/Activity/Service and Zip code)*	10. OPERATING UNIT	11. DISTRICT CODE	12. OPERATING AGENCY	13. ACCOUNTING NUMBER	14. ACCOUNTABLE OFFICE NUMBER	15. TYPE OF TRANSACTION		16. PROJECT NUMBER
						A. ☐ NEW CONSTR. ☐ EXISTING FAC. ☐ CAPITAL IMP. ☐ OTHER *(Specify)*	B. ☐ BENF/O ☐ PHYSICAL COM. ☐ FINAN. COM. ☐ OTHER *(Specify)*	

ITEM NO. 17	CATEGORY CODE 18	FACILITY *(Category description)* 19	NO. OF UNITS 20	TYPE 21	UNIT OF MEAS. 22	TOTAL QUANTITY 23	COST 24	DRAWING NUMBERS 25	REMARKS 26

27.		28. ACCEPTED BY *(Signature)*	DATE
TRANSFERRED BY *(Signature)*	DATE	TITLE *(Post Engr./Base Civ. Engr./Navy Rep.)*	29. PROPERTY VOUCHER NUMBER
TITLE *(Area Engr./Base Engr./DPWO)*			

30. CONSTRUCTION DEFICIENCIES

31. REMARKS

INSTRUCTIONS

This form has been designed and issued for use in connection with the transfer of military real property between the military departments and to or from other government agencies. It supersedes ENG Forms 290 and 290B (formerly used by the Army and Air Force) and NAVDOCKS Form 2317 (formerly used by the Navy).

Existing instructions issued by the military departments relative to the preparation of the three superseded forms are applicable to this form to the extent that the various items and columns on the superseded forms have been retained. Additional instructions, as appropriate, will be promulgated by the military departments in connection with any new items appearing hereon.

With the issuance of this DD form, it is not intended that the departments shall revise and reprint manuals and directives simply to show the number of this DD form. Such action can be accomplished through the normal course of revision for other reasons.

Approved by OM 0348-0046

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure.)

1. Type of Federal Action:

☐ a. contract
b. grant
c. cooperative agreement
d. loan
e. loan guarantee
f. loan insurance

2. Status of Federal Action:

☐ a. bid/offer/application
b. initial award
c. post-award

3. Report Type:

☐ a. initial filing
b. material change

For Material Change Only:
year _____ quarter _____
date of last report _____

4. Name and Address of Reporting Entity:

☐ Prime ☐ Subawardee
Tier _____, *if known*:

Congressional District, *if known:*

5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:

Congressional District, *if known*:

6. Federal Department/Agency:

7. Federal Program Name/Description:

CFDA Number, *if applicable*: _____

8. Federal Action Number, *if known*:

9. Award Amount, *if known*:

$

10. a. Name and Address of Lobbying Entity
(*if individual, last name, first name, MI):*

b. Individuals Performing Services *(including address if different from No. 10a)*
(last name, first name, MI):

(attach Continuation Sheet(s) SF-LLL-A, *if necessary*)

11. Amount of Payment *(check all that apply)*:

$ _____ ☐ actual ☐ planned

12. Form of Payment *(check all that apply)*:

☐ a. cash
☐ b. in-kind; specify: nature _____
value _____

13. Type of Payment *(check all that apply)*:

☐ a. retainer
☐ b. one-time fee
☐ c. commission
☐ d. contingent fee
☐ e. deferred
☐ f. other; specify: _____

14. Brief Description of Services Performed or to be Performed and Date(s) of Service, including officer(s), employee(s), or Member(s) contacted, for Payment indicated in Item 11:

(attach Continuation Sheet(s) SF-LLL-A, *if necessary*)

15. Continuation Sheet(s) SF-LLL-A attached: ☐ Yes ☐ No

16. Information requested through this form is authorized by title 31 U.S.C section 1352. This disclosure of lobbyig activities is a materia representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352 . This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to

Signature: _____

Print Name: _____

Title: _____

Telephone No.: _____ **Date:** _____

Federal Use Only:

Authorized for Local Reproduction

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity 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 in connection with a covered Federal action. Use the SF-LLL-A Continuation Sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.

2. Identify the status of the covered Federal action.

3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.

4. Enter the full name, address, city, state and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.

5. If the organization filing the report in item 4 checks “Subawardee”, then enter the full name, address, city, state and zip code of the prime Federal recipient. Include Congressional District, if known.

6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.

7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.

8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., “RFP-DE-90-001.”

9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.

10. (a) Enter the full name, address, city, state and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influence the covered Federal action.

    (b) Enter the full names of the individuals(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).

11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.

12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.

13. Check the appropriate box(es). Check all boxes that apply. If other, specify nature.

    Provide a specific and detailed description of the services that the lobbyist has performed, or will be expected to perform, and the date(s) of any services rendered. Include all preparatory and related activity, not just time spent in

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, D.C. 20503.

DISCLOSURE OF LOBBYING ACTIVITIES
CONTINUATION SHEET

Approved by OM
0348-0046

Reporting Entity: _____ Page ____ of ____ ____

*U.S. G.P.O. 1990-260-708:00012

REAL PROPERTY INVENTORY

ITEM	TALLY	TOTAL
COMMODES		
LAVATORIES		
URINALS		
EXHAUST FAN (9")		
EXHAUST FAN (OTHER)		
WATER COOLER		
HOTWATER HEATER		
MOP SINK		
AC PLANT	LS 5 TN. 5-25 TN. 25-100 TN. OVER 100 TN.	
AS (WINDOW TYPE)		
FIRE ALARM SYSTEM	MANUAL HALON SPRINKLER	
EMERGENCY LIGHTS		
UNIT HEATER		
STRIP HEATER		
COOLING TOWER		
WALK-IN COOLER		
AIR CURTAIN		
EYE WASH		
SHOWERS		
BOILER	GAS FIRED OIL FIRED STEAM	
FUEL TANK	UNDERGROUND OUTSIDE	

REAL PROPERTY INVENTORY

ITEM	TALLY	TOTAL
WASH BASIN		
AIR COMPRESSOR		
HOISTS		
INVENTORY BY:		DATA:
RECONCILED BY:		DATA:

REAL PROPERTY INVENTORY

ITEM	TALLY	TOTAL
INVENTORIED BY:		DATE:
RECONCILED BY:		DATE:

PROJECT TABLE OF CONTENTS

Section	Title
	DIVISION 1 - GENERAL REQUIREMENTS
*2	
01005	DESCRIPTIVE/SPECIFICATIONS
01010	CONTRACTOR'S SITE OPERATIONS
01270	MEASUREMENT AND PAYMENT
01320A	PROJECT SCHEDULE
01330	SUBMITTAL PROCEDURES
01350	ENVIRONMENTAL PROTECTION
01420	SOURCES FOR REFERENCE PUBLICATIONS
01451A	CONTRACTOR QUALITY CONTROL
	DIVISION 2 THROUGH 16 - TECHNICAL REQUIREMENTS
*2	
02080	ASBESTOS ABATEMENT WORK
02120	TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS
02220	DEMOLITION
02315	FOUNDATION EXCAVATION, FILLING AND BACKFILLING
02821	FENCING, GATE AND ACCESS ROAD
03100	STRUCTURAL CONCRETE FORMWORK
03200	CONCRETE REINFORCEMENT AND ANCHOR BOLTS
03300	CAST-IN-PLACE STRUCTURAL CONCRETE
05055	METALWORK FABRICATION, MACHINE WORK AND MISCELLANEOUS PROVISIONS
05120	STRUCTURAL STEEL
15995	MISCELLANEOUS HIRE
16050	MISCELLANEOUS ELECTRICAL EQUIPMENT AND WORK
16264	MAIN CONTROL SWITCHBOARD PANELS
16367	OUTDOOR DISCONNECT SWITCHES, BUS AND INSULATORS

SECTION 01005

HSWY0201005

DESCRIPTIVE/SPECIFICATIONS

TABLE OF CONTENTS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK
1.2 PRIMARY WORK
1.3 MISCELLANEOUS WORK
1.4 SPECIFICATIONS
1.5 CHANGES IN SPECIFICATIONS AND DRAWINGS
1.6 DEFINITIONS
1.7 PROJECT SECURITY

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

(NOT USED)

SECTION 01005

DESCRIPTIVE/SPECIFICATIONS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

This section is a general summary of the requirements to perform the circuit breaker installation work at the Hartwell Switchyard, which includes, but is not limited to, the following paragraphs.

1.2 PRIMARY WORK

The primary work includes:

a. The removal and disposal of disconnect switches and related controls. Installation of new replacement equipment.

b. The removal and disposal of oil circuit breakers, spare bushings and insulating oil. Installation of new Government-furnished SF6 gas circuit breakers.

c. Removal and disposal of relaying CT’s and PT’s and related power and control wiring in the switchyard. Installation of new equipment.

d. Removal and disposal of existing switchyard bus tubing. Installation of new bus tubing.

e. Modifications to control room main control board, instrument board and relay board and related wiring replacement.

f. Removal of existing equipment, conduit, and wiring including documentation of as-built conditions. Install new equipment.

g. Furnish and installation of conduit, power and control wiring, interconnecting wiring for power, control, and alarm circuits, control panels, relaying, and miscellaneous electrical accessories including as-built documentation of all wiring termination points.

h. Installation of government supplied equipment as noted in these specifications. See Section 16050, Para 3.14.

i. Remove and dispose of oil piping, fittings and valve pits. Cap ends left in place as required.

1.3 MISCELLANEOUS WORK

a. Perform all work required to comply with the site operations, environmental protection, and safety and health provisions.
*2
b. Perform all work required to comply with reporting and handling of any hazardous materials, and disposal of OCB Bushings and other items which may contain Polychlorinated Biphenyls (PCB’s) and similar possibly-PCB contaminated equipment. Other equipment being

removed includes, but is not limited to, oil circuit breakers, circuit breaker bushings, oil in storage tanks within the powerhouse, PT's, CT's, CC/PD's, which contain insulating oil, and all shall be tested for PCBs by contractor.

c. Perform all work required for grouting for supports on existing concrete pads for Government furnished SF6 circuit breakers. Install steel supports for line disconnect switches and controls.

d. Perform all work required to repair or replace all structural and electrical equipment and fencing ground grid connections.

1.4 SPECIFICATIONS

Technical specifications listed below cover the detailed requirements for the equipment and services listed in the Schedule:

SECTION *2	TITLE
01010	CONTRACTOR'S SITE OPERATIONS
01270	MEASUREMENT AND PAYMENT
01330	SUBMITTAL PROCEDURE
01350	ENVIRONMENTAL PROTECTION
01420	SOURCE OF REFERENCED PUBLICATIONS
01451	CONTRACTOR QUALITY CONTROL
02080	ASBESTOS ABATEMENT WORK
02120	TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS
02220	DEMOLITION
02315	FOUNDTION EXCAVATION, FILLING AND BACKFILLING
02821	FENCING, GATE AND ACCESS ROAD
03100	STRUCTURAL CONCRETE FORMWORKS
03200	CONCRETE REINFORCEMENT AND ANCHOR BOLTS
03300	CAST-IN-PLACE STRUCTURAL CONCRETE
05055	METALWORK FABRICATION, MACHINE WORK,AND MISCELLANEOUS PROVISIONS
05120	STRUCTURAL STEEL
16050	MISCELLANEOUS ELECTRICAL EQUIPMENT AND WORK
16264	MAIN CONTROL SWITCHBOARD PANELS
16367	OUTDOOR DISCONNECT SWITCHES, BUS AND INSULATORS

1.5 CHANGES IN SPECIFICATIONS AND DRAWINGS

The Government reserves the right to revise or amend the specifications and/or drawings prior to the date set for opening. Copies of such amendments will be furnished to all prospective bidders. If the revisions and amendments require material changes in quantities or prices bid, or both, the date set for opening bids may be extended to enable bidders the opportunity to revise their technical proposals and/or bids. The amendment will include an announcement of the new date for opening bids.

1.6 DEFINITIONS

1.6.1 Directed, Required, Ordered, Designated, Prescribed

Wherever in the specifications or upon the drawings the words "directed," "required," "ordered," "designated," "prescribed," or words

of like import are used, it shall be understood that the "direction," "requirement," "order," "designation," or "prescription" of the Contracting Officer is intended and similarly the words "approved," "acceptable," "satisfactory," or words of like import shall mean "approved by," or "acceptable to," or "satisfactory to" the Contracting Officer unless otherwise expressly stated.

1.6.2 As Shown, As Indicated, As Detailed

Where "as shown," "as indicated," "as detailed," or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provided complete in-place," that is "furnished and installed." (FAR 52.236-21 (b and c).)

1.6.3 Contracting Officer’s Representative (COR)

Wherever in these specifications or upon the drawings the words "Contracting Officer" or "Contracting Officer's Representative" (COR), are used, it shall be understood to also mean "Government" unless otherwise expressly stated.

1.6.4 Government Quality Assurance Representative (GQAR)

Wherever in these specifications the word "GQAR" is used, it shall be understood to mean "Government Quality Assurance Representative," unless otherwise stated.

1.6.5 Weekend(s)

Wherever in these specifications the word "weekend(s)" is used, it shall be understood to mean "Saturday, Sunday and Federal Holidays," unless otherwise expressly stated.

1.7 PROJECT SECURITY

During periods of heightened security, restricted access to the powerplant area is imposed. Only government employees and approved contractors performing work at the powerplant are permitted beyond the concrete barriers on the entrance road to the powerplant. Positive identification is required for all personnel seeking entrance into the powerplant. Contractor deliveries must be coordinated with the government representative overseeing the contract and with powerplant personnel prior to seeking admittance to the powerplant area. Concrete barricades blocking the entrance road will have to be moved to allow the delivery trucks to enter the facility. Deliveries or attempted deliveries, without prior coordination and government approval, will be denied entry. There will be NO EXCEPTIONS!

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

(NOT USED)

*****

SECTION 01010

HSWY0201010

CONTRACTOR'S SITE OPERATIONS

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 REFERENCES
1.3 SUBMITTALS
1.4 SUPERVISOR(S)
1.5 CONTRACTOR'S GENERAL PERSONNEL
1.6 WORK AREAS AND ACCESS
1.7 VEHICLES
1.8 PROJECT SECURITY AND WORKING HOURS
1.9 SAFE CLEARANCE PROCEDURES
1.10 DRAWINGS AND MANUALS
1.11 EXISTING SANITATION FACILITIES
1.12 UTILITIES
1.13 CONTRACTOR'S EQUIPMENT AND MATERIAL
1.14 CONTRACTOR'S CRANES
1.15 GOVERNMENT FURNISHED TOOLS, EQUIPMENT AND MISCELLANEOUS SITE EQUIPMENT
1.16 STORAGE OF EQUIPMENT AND MATERIALS
1.17 DAMAGED EQUIPMENT OR ABNORMAL CONDITIONS
1.18 PROTECTION OF MATERIAL AND WORK
1.19 DISPOSAL OF ELECTRICAL AND MECHANICAL EQUIPMENT AND MISC. MATERIALS
1.20 PROTECTION AND RESTORATION OF EXISTING FACILITIES
1.21 NOISE CONTROL
1.22 FIRE CONTROL
1.23 DAILY CLEAN-UP AND DISPOSAL
1.24 BARRICADES AND DANGER, DETOUR AND WARNING SIGNS
1.25 WORK BY THE GOVERNMENT CONCURRENT WITH CONTRACTOR WORK
1.26 COOPERATION WITH OTHERS
1.27 SCAFFOLDING
1.28 PROJECT REPORTING
1.29 WEEKLY MEETINGS
1.30 PERMITS AND RESPONSIBILITIES
1.31 QUALITY CONTROL AT THE JOB SITE/POWERHOUSE
1.32 PAYMENT

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

SECTION 01010

CONTRACTOR'S SITE OPERATIONS

PART 1 GENERAL

1.1 GENERAL INFORMATION

This section covers the general requirements applicable to specific Contractor's operations or equipment for work performed on site.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referenced to in the text by basic definition only.

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910	(2002) Occupational Safety and Health Standards
29 CFR 1926	(2002) Safety and Health Regulations for Construction

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

FHWA	(2001) Manual on Uniform Traffic Control Devices for Streets and Highways

US ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(1996) Safety and Health Requirements Manual

1.3 SUBMITTALS

Submittals required by this section of the Technical Specifications shall be for Government approval (GA) or for information only (FIO), and shall be submitted as stated below in accordance with SECTION 01330. The time of submittal shall be in accordance with SECTION 01330, unless otherwise indicated below.

SD-01 Data

Supervisors Qualifications; GA

Qualifications and identification of Contractor's work supervisor(s), a minimum of 30 calendar days prior to the start of site work, paragraph SUPERVISOR(S), below.

Organizational Chart; FIO

Organization chart, a minimum of 30 calendar days prior to the start of site work.

Employee Identification Procedure; GA

Procedure for identification and control of employees entering or leaving site, a minimum of 30 days prior to the start of site work.

List of Employees; FIO

List of personnel working on the site, a minimum of 14 calendar days prior to the start of site work and updated weekly thereafter to reflect a current listing.

Roadway Access Agreement; FIO

Roadway access agreement, a minimum of 14 calendar days from the date of signature, or before the use of the roadways begins, whichever is earliest.

Contractors Vehicle Identification; GA

Method of identifying Contractor’s vehicles, a minimum of 30 days prior to site work.

Working Hours; GA

Working hours, shifts and days of the week to be worked other than those of the Project, a minimum of 7 calendar days in advance.

Site Work Schedule; GA

Site work schedule featuring the major stages of the work, a minimum of 30 calendar days prior to the start of site work.

Control of Hazardous Energy; GA

Clearance to take operating equipment out of service, a minimum of 14 calendar days prior to the outage date.

Temporary Electrical Power Lines; GA

Proposed site power lines and temporary electrical connections, a minimum of 30 calendar days prior to installation.

Transportation of Heavy Equipment; GA

A plan and method of transportation and operation of cranes and heavy equipment, a minimum of 30 calendar days prior to their transportation and site operation.

Indoor Storage Locations; GA

Indoor storage locations for equipment and material, minimum of 30 calendar days, prior to area usage.

Off-site Disposal Area; GA

Location of off-site disposal area and plan for disposal, a minimum of 30 calendar days prior to the commencement of site work.

Signage; GA

Content and location of signage, a minimum of 30 calendar days, prior to performing on-site work.

Access Equipment; GA

Any scaffolding, ladder, stairway, or other access schemes proposed, a minimum of 30 calendar days prior to their installation and use.

Project Status; FIO

Project report giving project status and activities, once a week of on-site work.

SD-08 Statements

Record of Parts Removed from Site; FIO

Record of parts shipped from the project for repair, available for review at all times.

Schedule Change Request; GA

Request to change schedule of regular work hours, etc., minimum 48 hours prior to change.

Request for Drawings and Data; FIO

Request for copies of data and drawings, a minimum of 7 days in advance.

Notification of Damaged Equipment; FIO

Notice of finding damaged equipment or other abnormal conditions of equipment or parts, immediately after discovery.

1.4 SUPERVISOR(S)

At least one (1) full-time employee of the Contractor shall be available at the worksite anytime other Contractor or subcontractor personnel are working on the site to supervise and direct the work specified herein. Supervisor(s) shall be present at the site during erection and shall be responsible for providing complete and correct direction of all rehabilitation work, the initial starting, and all subsequent operation of the equipment until the field tests are completed. The supervisor(s) shall be responsible for following the Government's Safe Clearance Procedures as stated in paragraph SAFE CLEARANCE PROCEDURES, below. The supervisor(s) shall initiate instructions for all actions necessary for the proper inspection, handling, assembly and testing of the equipment. The supervisor(s) shall keep a record of all measurements taken during rehabilitation and shall provide copies on request or on completion of installation of all equipment. The supervisor(s) shall keep all as-built drawings to current standards and provide copies upon completion of the work. The supervisor(s) shall be fluent in the spoken and written English language. The supervisor(s) shall have been engaged in similar work, as is specified herein, for a minimum of 3 years. Documentation of their experience shall be submitted.

1.5 CONTRACTOR'S GENERAL PERSONNEL

1.5.1 General

The Contractor shall submit a project organization chart reflecting at least those positions described herein and defining their work relationships, etc. All personnel employed by the Contractor shall be fully qualified in their respective fields to render the services necessary.

1.5.2 Identification of Contractor's Employees

The Contractor shall be responsible for furnishing employee identification and for requiring each employee to display such identification as may be approved and directed by the Contracting Officer, unless otherwise specified below. All Contractor personnel, prior to engaging in work on project premises, shall be issued an identification card by the Contractor. The I.D. cards shall include the following information:

Name of Contractor
Name of Employee
Social Security Number
Birth date
Height
Weight
Hair color
Eye color
Recent photo

All prescribed identifications shall be returned immediately to the Contractor upon release of any employee. The Contractor shall supply a complete listing of all personnel and their titles who will be working on the project. This listing shall be revised at a minimum of once weekly and revisions provided. When required by the Contracting Officer, the Contractor shall obtain and submit fingerprints of all persons employed by it or to be employed at the powerhouse.

1.6 WORK AREAS AND ACCESS

1.6.1 Access Roads

No new access roads are required for this work. Any damage to existing roadways and surrounding areas that are used for access purposes shall be repaired and the surface shall be restored to its "as found" condition.

1.6.2 Road Restrictions

The Contractor shall comply with any special requirements of the State, County, Local authorities and Corps of Engineers for use of existing roadways. These special requirements include, but are not limited to, traffic regulations and load limits. The Contractor is responsible for investigating and understanding these restrictions. No time extensions or cost claims will be allowed due to road restrictions. Any agreements negotiated with the State or County for road use will be furnished to the Government before use of roadways begin. Both lanes of roads shall not be blocked by the Contractor. If one lane is blocked the Contractor shall provide the necessary flaggers, based on the visibility, to control traffic.

1.6.3 Access by Government Personnel

Clear access shall be maintained for Government personnel and equipment through all work areas.

1.6.4 Contractor's Staging Area and Employee Access

The Contractor's staging area shall be restricted to the area designated by the Government and may be within a five mile radius. His job-site office may be in the staging area, as approved. The project areas off-limits to Contractor shall be all areas other then the work areas. Salespersons or personnel seeking employment will not be permitted inside the powerhouse. Signs may be erected outside the powerhouse containing instructions for

personnel seeking the Contractor. The content and location of the signs must be approved. The Contractor shall provide his own office space and administrative facilities and all temporary storage buildings. All temporary Contractor site facilities shall be disposed of before final acceptance of all work.

1.6.5 Access to Work Areas

1.6.5.1 Powerhouse

Access to the powerhouse shall be obtained from the powerhouse control room operator. The operator can be accessed by pressing the “call operator” button on call box outside the main gate. The employees shall identify themselves by giving their names and identification numbers to the operator before entering the building. When the employees leave the powerhouse for the day they shall notify the operator of their departure. At no time will any doors be blocked open upon entering or leaving the building. The powerhouse elevator shall not be used to transport equipment and material.

1.7 VEHICLES

1.7.1 Use of Private Vehicles

Private vehicles of the Contractor and Contractor’s employees shall not park at the powerhouse parking lot. Parking of private vehicles shall be restricted to the areas designated and may be located up to 1 mile from the powerhouse. Contractor shall maintain his designated parking areas.

1.7.2 Identification of Vehicles

All Contractor's vehicles shall display approved permanent identification of such size and color to allow Government personnel to identify the vehicle.

1.8 PROJECT SECURITY AND WORKING HOURS

1.8.1 General

During periods of heightened security, restricted access to the powerplant area is imposed. Only government employees and approved contractors performing work at the powerplant are permitted beyond the concrete barriers on the entrance road to the powerplant. Positive identification is required for all personnel seeking entrance into the powerplant. Contractor deliveries must be coordinated with the government representative overseeing the contract and with powerplant personnel prior to seeking admittance to the powerplant area. Concrete barricades blocking the entrance road will be moved by the contractor to allow the delivery trucks to enter the facility immediately before delivery and replaced as soon as possible after delivery. Concrete barricades will be restored to their protective positions during unloading for deliveries requiring more than one hour to unload. Deliveries or attempted deliveries, without prior coordination and government approval, will be denied entry. There will be NO EXCEPTIONS!

A procedure shall be prepared and submitted for approval for the identification and control of employees entering or leaving the project during the hours of closure. The security of the Contractor's property and items furnished under this contract are the Contractors responsibility, until accepted, whether stored inside or outside the powerhouse.

1.8.2 Working Hours
*2

~~Arrangement and scheduling of working hours and crews shall be coordinated with the Government.~~ The working hours of the project staff are 7:00 a.m. - 4:30 p.m., Monday through Thursday, 7:00 a.m. - 3:30 p.m., Friday, with every other Friday off work. These are the allowable hours that the Contractor can work on site. Contractor personnel will not be allowed on site beyond these hours, unless written approval has been granted in advance.~~Working hours which extend past 4:00 p.m. weekdays, on those Fridays which are off-days, on weekends, and Federal holidays or which are proposed to be different from that suggested above shall be coordinated and approved by the Contracting Officer 7 days in advance.~~

1.8.3 Site Work Schedule

A site work schedule shall be prepared and submitted. The schedule shall include major and minor work elements and stages of the work. These documents shall be updated and submitted to reflect the actual work elements and progress and that anticipated in the future.

1.9 SAFE CLEARANCE PROCEDURES

A Hazardous Energy Control (HEC) procedures are implemented for all the maintenance and construction activities on Corps property. These procedures are in accordance with OSHA regulation 29 CFR 1910.147, 1910.333, 1910.269, 29 CFR 1926, and USACE EM 385-1-31, The Control of Hazardous Energy (safe clearance). Any work performed at the Hartwell project will be performed under safe clearance. The Contractor shall request clearance on a piece of equipment or system before any work may begin. The Corps will establish the limits of the clearance, tag and lock the equipment or systems. The Contractor will be required to institute their own safe clearance procedures in accordance with OSHA and USACE regulations, within the perimeter or the Corps clearance. The Contractor’s clearance shall be coordinated with the Corps operation of the plant. The clearances shall not be violated. Any violation of Hazardous Energy Control procedure (Safe Clearance Procedures) will be grounds for removal of the offender(s).

1.10 DRAWINGS AND MANUALS

Existing drawings and manuals of existing and Government Furnished equipment that may be of value for the work will be available for viewing by coordinating in advance with the COR. The drawings and manuals are furnished by the Government for information only and the Government does not guarantee the drawings or manuals will match actual field conditions. Reference drawing deviations shall not be the basis for a contract claim.

1.11 EXISTING SANITATION FACILITIES

The project restroom facilities will not be available to the Contractor personnel. Contractor shall furnish and maintain portable sanitation facilities for contractor personnel.

1.12 UTILITIES

1.12.1 Government Furnished Utilities

All utilities that are required for use in performance of the work under this contract shall be Contractor-furnished except as noted below:

Power. An existing 30A, 480V, 3 phase power source will be made available from an existing outlet. Small tools can be powered from existing 120V outlets in the switchyard. The contractor shall furnish the service

conductor(s), voltage transformer(s), load center(s), ground fault circuit interrupters, and associated electrical equipment.

1.12.2 Temporary Utility Connections

All utilities provided by the Government shall be at no cost. Care shall be exercised in conserving all utilities. The contractor shall provide all necessary hoses, cords, couplings, plugs, GFI’s and other appurtenances as required to connect to the system(s). All temporary connections shall be subject to approval. The location of all power lines and all temporary connections for electricity shall be subject to approval. All temporary circuits and devices shall be provided, connected, and maintained and removed prior to final acceptance. Ground fault protection shall be provided for all circuits used, inside and outside, and shall be Contractor-furnished. Temporary panels shall conform to current NEC standards and EM 385-1-1.

A temporary power box exists on the fence near the motorized gate as shown on the drawings. Available power is approximately 30 Amperes at 480 VAC. Contractor shall provide a disconnect, transformer, distribution panel, and all materials required for connecting to temporary power. Hartwell Project personnel will make the final connections, the Contractor shall coordinate with the COR for this purpose.

1.12.3 Telephone

The project telephone system is not available to the Contractor.

1.13 CONTRACTOR'S EQUIPMENT AND MATERIAL

1.13.1 General

The planned method of transportation and operation of cranes and other heavy equipment to be used in the performance of this contract shall be submitted. This shall include the type, size, and loadings of equipment and the proposed transportation routes and work areas to be used on the project. Operation of heavy equipment adjacent to existing structures shall be avoided when possible. Operation within an energized switchyard will be required, with proper safe clearances maintained at all times, energized equipment identified and marked, and minimum safe working distances observed in accordance with EM 385-1-1.

1.13.2 Movement of Equipment and Material by the Contractor

The Contractor shall provide all cranes, forklifts, rigging, lifts, operators, and other necessary means to move equipment or material as required to pursue and complete the work whether owned by the Government or by the Contractor, unless otherwise specifically mentioned. This includes but is not limited to the unloading and loading of equipment and material.

1.13.3 Area Lighting

The Contractor shall provide all lighting necessary to perform the work and to provide a safe working environment. Lighting intensity shall comply with the requirements of EM 385-1-1.

1.14 CONTRACTOR’S CRANES

1.14.1 General

Contractor’s cranes, equipment and crane operators furnished for this work shall conform with all applicable OSHA requirements and EM 385-1-1.

1.14.2 Loading Diagram

A crawler, wheel, and outrigger loading diagram shall be submitted for approval by the COR five (5) days prior to using any cranes.

1.15 GOVERNMENT FURNISHED TOOLS, EQUIPMENT AND MISCELLANEOUS SITE EQUIPMENT
*2

Government tools and equipment at the project, i.e., lathes, drill presses, hand tools, etc., are not available for use. The new Government-furnished circuit breakers, capacitors, and associated equipment will be transferred to the Contractor for his care, maintenance, installation, and testing within 30 days of contract award. All Government-furnished Equipment (GFE) is to be handled, installed, maintained, and tested in accordance with the manufacturer's instructions. Prior to the transfer a joint, external inspection of the equipment will be performed.~~The lifting slings for the new SF6 circuit breakers will be provided and used exclusively for the lifting of the new circuit breakers. These slings shall only be used when lifting the new circuit breakers, and will be used for no other purpose.~~

1.16 STORAGE OF EQUIPMENT AND MATERIALS

Outdoor storage of equipment and materials will be permitted only at designated storage areas in the vicinity of the powerplant which will be coordinated with the Government during the pre-work conference. Storage shall be within a five mile radius. A minimum access space of three feet shall be maintained between stored items and the existing project equipment.

1.17 DAMAGED EQUIPMENT OR ABNORMAL CONDITIONS

The Government shall be informed immediately upon finding any damaged equipment or other abnormal conditions involving additional work in which the Contractor believes he has no responsibility. The failure or abnormality shall not be disturbed until witnessed by the GQAR. Prior to proceeding further with work on the damaged equipment, the Contractor and the Government shall agree in writing as to the responsibility for the damage or abnormality.

1.18 PROTECTION OF MATERIAL AND WORK

All materials, supplies, tools, equipment and Government property (including all tools, equipment, and special devices supplied by the Contractor and to be turned over to the Government at the end of the Contract) shall at all times be protected and preserved in an approved manner and in accordance with the manufacturer's recommendations. If material, equipment, supplies, and work performed are not adequately protected, such property may be protected by the Government and the cost thereof will be charged to the Contractor or deducted from any payment due.

1.19 DISPOSAL OF ELECTRICAL AND MECHANICAL EQUIPMENT AND MISC MATERIALS

Title to all materials and equipment to be disposed of, excepting salvage items and hazardous waste, is vested in the Contractor upon receipt of signed contract and such materials and equipment are designated scrap only as directed. The Government will not be responsible for the condition, loss or damage to such property after notice to proceed. The Contractor may retain these items in usable form and take possession of them providing that there is no subsequent cost or inconvenience to the Government. The Government does not guarantee that these items are complete or in working order, and the

Contractor shall assume responsibility for any damages caused by their use immediately upon taking possession of them. Scrap materials shall be removed from the Government's property within 14 days of demolition. Scrap shall not be sold on the site. Disposal of hazardous wastes shall be in accordance with SECTION 02120. Disassembly beyond removal of circuit breaker bushing will not be allowed on the project site. All items must be removed complete, with final disassembly occurring at the contractor’s facilities.

1.20 PROTECTION AND RESTORATION OF EXISTING FACILITIES

All existing grounds, property and facilities shall be protected whether or not shown on the drawings. Upon completion of the work, all the existing grounds, property and facilities, not included as a portion of the work, shall be left in a condition equal to the original condition prior to the contract. Costs for repair and restoration of any facilities shall be considered to be incidental to and included in the contract price.

1.21 NOISE CONTROL

Noise control and noise levels shall conform to requirements set forth in the appropriate OSHA regulation and EM 385-1-1.

1.22 FIRE CONTROL

All fire fighting equipment, supplies, and personnel shall be supplied in accordance with EM-385-1-1. Delays due to fire caused by the contractor, sub-contractor, or contractors equipment or personnel will not be acceptable as the basis of a claim for additional compensation.

1.23 DAILY CLEANUP AND DISPOSAL

In conjunction with SECTION 01350 all debris resulting from the work, such as waste metalwork, packing cases, scrap lumber, oil and grease, and other debris shall be collected, removed, and disposed of off site at least once per shift. Disposal shall be in accordance with Federal, State and Local regulations. The location of the Contractor's off-site disposal area and a plan for safe disposal of material shall be approved. The Government's trash cans, dumpsters, etc. shall not be used. Liquid waste shall not be disposed of in project drains. All costs of removing debris shall be incidental to the work, and no separate payment will be made therefore. All temporary structures used by the Contractor in the course of the work shall be kept looking "broom clean."

1.24 BARRICADES AND DANGER, DETOUR AND WARNING SIGNS

1.24.1 Barricades and Danger and Detour Signs

The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient red lights, danger signals, and detour and other signs; provide a sufficient number of watchmen; and take all necessary precautions for the protection of the work and the safety of the public. Roads, etc. closed to traffic shall be protected by effective barricades, and obstruction shall be continuously illuminated day and night. Suitable warning signs shall be illuminated by lanterns or flares day and night.

1.24.2 Warning Signs

Warning signs shall be erected 500 feet in advance of any place on the project where operations interfere with the use of a road by traffic. Warning signs shall conform to the standards established in Part IV of the "Manual on Uniform Traffic Control Devices for Streets and Highways," published by the Federal Highway Administration.

1.25 WORK BY THE GOVERNMENT CONCURRENT WITH CONTRACTOR WORK

The Government will limit interference with the Contractor's work to the maximum reasonable extent and the Government and Contractor shall coordinate as necessary.

1.26 COOPERATION WITH OTHERS

The Government will perform maintenance work and will make every effort to have the area clear. The Contractor shall cooperate with other Contractors and the Government in using the work and storage areas.

1.27 SCAFFOLDING

Any scaffolding, platform, ladder, stairway, or other access schemes proposed to be used shall be submitted for approval, including type, layout, and connections. Approved anti-slip surface material shall be installed on scaffolding platforms. Scaffolding shall comply in every respect with EM 385-1-1.

1.28 PROJECT REPORTING

Weekly reports shall be, submitted by the Contractor, giving project status and activities information. An updated CPM should be included in this report, if appropriate. This report shall include a written summary, accompanied with detailed information relating to current status of procurement, construction, and delivery activities.

1.29 WEEKLY MEETINGS

Once each week, while on site, a general meeting will be held between the Contractor and the Government. This meeting will be used to discuss progress in the last week and work planned in the up coming week. A meeting time and place shall be mutually agreed upon.

1.30 PERMITS AND RESPONSIBILITIES

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, County, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, workers, public, and property of others. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

1.31 QUALITY CONTROL AT THE JOB SITE/POWERHOUSE

1.31.1 General

The Contractor shall maintain an effective quality control system in accordance with SECTION 01451. The Contractor's system shall encompass all actions involving selection of construction material sources and suppliers, on-site and off-site fabrication of Contractor-furnished items to be included in the work, on-site and off-site production of construction materials, work placement procedures, workmanship, inspection, and testing. The system shall provide the necessary supervision, inspection, and tests of all items of work, including that of its suppliers and subcontractors, that will assure the compliance of all work with applicable specifications and drawings in respect to the Contractor furnished equipment, materials, workmanship, construction, finish, functional performance, and identification. The Contractor's system shall encompass all management and supervisory actions taken by its staff that affect quality of the finished construction work, including all inspection controls and tests required for compliance with the contract, except for those inspections and tests specifically reserved to be accomplished by the Government.

1.31.2 Parts Control

A complete written record shall be maintained of the location and estimated date of return of all parts shipped from the project for repair. This record shall be available for review at all times.

1.32 PAYMENT

Unless other wise noted, separate or direct payment will not be made for compliance with this section. All costs thereof are incidental to and included in the contract prices and payment for the various items listed in the bid schedule.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

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SECTION 01270

HSWY0201270

MEASUREMENT AND PAYMENT

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 MEASUREMENT
1.3 PAYMENT

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

(NOT USED)

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 GENERAL INFORMATION

In each instance, the contract price for an item will constitute full compensation as herein specified, as shown, or as otherwise approved. The contract price and payment will also constitute full compensation for all work incidental to completion of the item, unless such work is otherwise specifically mentioned for separate payment under another bid item. All items where equipment is to be provided shall include the labor and materials required for installation. In the event any work is required by the specification sections or by the drawings and not specifically mentioned in the measurement and payment paragraphs, separate or direct payment will not be made, and all costs thereof are incidental to, and included in, the contract prices and payment for all items listed in the bid schedule.

1.2 MEASUREMENT

1.2.1 Lump Sum Items

*2

~~Items measured as a lump sum will be measured for payment as a complete job in the locations indicated.~~ Progress payments shall be made based on actual work progress. This measurement includes all incidental work and materials such as fittings, fasteners, electrical materials, and O&M manuals that are necessary to make a complete job. Unless the payment item paragraph makes a specific exception of any item, incidental items will not be measured under any other item even though there is another listing for the work or material.

1.2.2 Unit Quantity Items

Items measured as a unit quantity will be measured for payment by the actual quantity of material installed in place to make a complete job.

Gallons: Breaker Insulating Oil in U. S. liquid measure.

Hour: Machinist hire, electrician hire, welding services, painter hire, other skilled craftsman hire, general laborer hire, concrete; core drilling and grouting, liquid penetrant method, magnetic particle method, ultrasonic method, and radiographic method; the measurement of time will be units of man-hours, with a man-hour defined as one person working as directed for a period of 60 minutes. To qualify as services of miscellaneous hire, the directed work will be additional to that necessary to comply with specifications requirements. Time will be computed by rounding off to the next higher one-half (1/2) hour. No separate measurement for supervision, helper labor, or overhead will be made, as they are incidental to the service being provided.

1.3 PAYMENT

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BID SCHEDULE, SECTION 00010, and described in the various sections of these specifications. All costs for items of work which are not specifically mentioned to be included in a particular lump sum or unit price payment item shall be included in the listed lump sum item cost most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials and equipment, plus performing any associated Contractor Quality Control (CQC), environmental protection, meeting safety requirements, performing tests, providing reports, while performing all work required for which separate payment is not otherwise provided.

Bid Item 0001; Site Mobilization and Demobilization.

Payment for mobilization and demobilization will be made as a lump sum job under Bid Item 0001. Price and payment shall constitute full compensation for:

a. Site mobilization of all materials, equipment and labor necessary to accomplish the work.

b. Site demobilization. Demobilization will be considered complete when the Contractor has removed all construction equipment, cleaned the area, and restored the work area to "as-found" pre-contract conditions, unless otherwise approved.

Bid Item 0002; Removal and Disposal of Existing 3-Phase, 230 kV Disconnect Switches.

Payment for Bid Item 0002 will be made at the unit bid price under this bid item. Price and payment shall constitute full compensation for the removal and disposal for each of the 22 existing 230 kV, 2000 Ampere, 3-phase, disconnect switches, associated controls, wiring, and related hardware, in accordance with SECTION 16050.

Bid Item 0003; Furnish and Install new 3000 Amperes 3-Phase, 230 kV Vertical-Break Disconnect Switches.

Payment for Bid Item 0003 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment and materials required to provide and install each of the 21 new 3000 Ampere, 3-phase, 230 kV vertical-break disconnect switches, controls, wiring, and related hardware, in accordance with SECTIONS 16050 and 16367.

Bid Item 0004; Furnish and Install New 3000 Amperes 3-Phase, 230 kV Vertical-Break Disconnect Switches, With Ground Switch Option.

Payment for Bid Item 0004 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment and materials required to provide and install each of the (3) new 3000 Ampere, 3-phase, 230 kV vertical-break disconnect switches with Ground Switch Options installed, controls, wiring, and related hardware on the three transmission lines, in accordance with SECTIONS 16050 and 16367.

Bid Item 0005; Remove and Dispose of nine (9) Oil Circuit Breakers.

Payment for Bid Item 0005 will be made as a lump sum job. Price and payment shall include all labor, equipment and materials required to remove and dispose of 9 existing Unit, and Line 230 kV Oil Circuit Breakers, wiring, controls, and related hardware, in accordance with SECTION 16050. Removal of insulating oil shall be paid for under bid item no. 0007.

Bid Item 0006; Remove and Dispose of Existing 230 kV Bushings.
*2
Payment for Bid Item 0006 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment and materials required to test for PCB contamination, remove and dispose of each of the 54 existing 230 kV Oil Circuit Breaker Bushings (six per breaker) in bid item No. 0005 plus 6 spare breaker bushings. Insulating oil is assumed to be PCB-contaminated at a level between 25 and 50 ppm, but must be verified by Contractor test with results submitted to the Government, see Hazardous Material SECTION 02120 for more information.
*2
Bid Item 0007; Remove and Dispose of non-PCB contaminated Insulation Oil

Payment for Bid Item 0007 will be made on a per gallon basis. Price and payment shall include all labor, equipment and materials required to test all insulating oil for PCB's and to remove and dispose of approximately 69,000 gallons of insulation oil, in accordance with SECTION 02120. Oil is presently located in the oil circuit breakers, other equipment to be removed from the switchyard, and in oil storage tanks located within the powerhouse. This includes approximately 8,000 gallons of transformer oil, 61,000 gallons of OCB oil. Coordination with project is required for all oil removal. Copies of the existing oil circuit breaker PCB test can be obtained from the COR.

Bid Item 0008; Furnish and Install new Concrete Pads for new SF6 Gas Circuit Breakers and footings for new Disconnect Switches.

Payment for Bid Item 0008 will be made as a lump sum job under this bid item. Price and payment shall include all labor, equipment and materials required to install each of the 3 concrete pads for new gas circuit breakers and footings for new disconnect switch supports and for bus PT's as shown on the drawings, in accordance with SECTION 03300.

Bid Item 0009; Furnish and install new disconnect switch structural supports.

Payment for Bid Item 0009 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment and materials required to fabricate and install each of the 3 support structures for new disconnect switches on the three line bays as shown on the drawings, in accordance with SECTION 05120.

Bid Item 0010; Install new Government-Furnished 3000 Amperes, 230 kV Gas Circuit Breakers.

Payment for Bid Item 0010 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment and materials required to install each of the 12 new Government Furnished 3000 Ampere, 230 kV Gas Circuit Breakers, wiring, controls, and related hardware, in accordance with SECTION 16050.

Bid Item 0011; Remove and Dispose of Existing Synchronizing CCVT from Main Bus Phase C, including steel support and concrete foundation.

Payment for Bid Item 0011 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment, and materials required to test for PCBs, then remove and dispose of one (1) existing synchronizing CCVT, including steel support and foundation from phase C of the Main Bus in the switchyard, in accordance with SECTION 16050. Oil from this equipment shall be paid for under Bid Item 0007. The bushings from this equipment shall be paid for under Bid Item 0006.

Bid Item 0012; Relocate Existing Line PT’s, Reinstall on all 3 Phases of Main and Auxiliary Buses.

Payment for Bid Item 0012 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment, and materials required to relocate each of the 6 existing line PT’s and reinstall on the Main and Auxiliary Buses in the switchyard, in accordance with SECTIONS 02315 and 16050. Relocation shall include all wiring, insulating oil, controls, steel work, concrete work and related hardware.

Bid Item 0013; Remove Existing Line CCVT’s (9) and CT’s (9) for the outgoing Transmission Lines.

Payment for Bid Item 0013 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment, and materials required to remove the line CCVT's and CT's, as well as line tuners, for the outgoing transmission lines, in accordance with SECTION 16050.

Bid Item 0014; Furnish and Install New CCVT’s on Phase B of Transmission Lines 3 and 4.

Payment for Bid Item 0014 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment, and materials required to furnish and install 2 new CCVT’s, 2 new line tuners, wiring, insulating oil, and related hardware on phase B of transmission lines 3 and 4 in the switchyard as shown on the contract drawings, and in accordance with SECTION 16050.

Bid Item 0015; Furnish and Install New PT’s on Transmission Lines. (Total of seven (7))

Payment for Bid Item 0015 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment, and materials required to furnish and install new PT’s, wiring, insulating oil, and related hardware on transmission line 2 and on phases A and C of transmission lines 3 and 4 in the switchyard as shown on the contract drawings, and in accordance with SECTION 16050.

Bid Item 0016; Furnish and Install New Line CT’s (9) on the Transmission Lines.

Payment for Bid Item 0016 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment, and materials required to furnish and install 3 new line CT’s, wiring, insulating oil, and related hardware on the transmission lines as shown on the contract drawings, and in accordance with SECTION 16050.

Bid Item 0017; Remove and Dispose of existing 2000 Ampere Buswork complete, including all tubing and flexible connections.

Payment for Bid Item 0017 will be made as a lump sum job. Price and payment shall include all labor, equipment, and materials required to remove and dispose of all existing 2000 Ampere bus and related connections and hardware as shown on the contract drawings or required by equipment removal under this contract, in accordance with SECTION 16050.

Bid Item 0018; Furnish and Install new 3000 Ampere Buswork complete, including all tubing, flexible connections and associated hardware.

Payment for Bid Item 0018 will be made as a lump sum job. Price and payment shall include all labor, equipment, and materials required to provide and install new 3000 Ampere bus and related connections and hardware as shown on the contract drawings, and in accordance with SECTION 16050.

Bid Item 0019; Remove and Dispose of Control, Alarm, Power, and Relaying Cabling.

Payment for Bid Item 0019 will be made as a lump sum job. Price and payment shall include all labor, equipment, and materials required to record existing connections, remove and dispose of existing control, alarm, power, and relaying cabling as shown on the contract drawings, in accordance with SECTION 16050.

Bid Item 0020; Furnish and Install Control, Alarm, Power, and Relaying Cabling.

Payment for Bid Item 0020 will be made as a lump sum job. Price and payment shall include all labor, equipment, and materials required to furnish and install all control, alarm, power, and relaying cabling including complete as-built wiring termination diagrams, as shown on the contract drawings, in accordance with SECTION 16050, and required for equipment being installed under this contract.

Bid Item 0021; Furnish and Install nine (9) Surge Arrestors.

Payment for Bid Item 0021 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment, and materials required to furnish and install 9 surge arrestors and related fittings and hardware on the transmission lines as shown on the contract drawings, in accordance with SECTION 16050.

Bid Item 0022; Remove and Dispose of Power-Line Carrier Communications Equipment.

Payment for Bid Item 0022 will be made as a lump sum job. Price and payment shall include all labor, equipment, and materials required to remove and dispose of power-line carrier communications equipment located in the communications equipment room, in accordance with SECTION 16050.

Bid Item 0023; Remove and Dispose of one Recorder Board Panel (Rear) and Replace with New Blank Panel.

Payment for Bid Item 0023 will be made as a lump sum job. Price and payment shall include all labor, equipment, and materials required to remove and dispose of one Recorder Board panel (1R) located in the control room and replace it with a new blank panel, as shown on the contract drawings in accordance with SECTION 16050.

Bid Item 0024; Remove and Dispose of six Switchboard Panels (Front and Rear).

Payment for Bid Item 0024 will be made as a lump sum job. Price and payment shall include all labor, equipment, and materials required to remove and dispose of six control switchboard panels (1-6, front and rear) located in the control room. Remove existing equipment that will be reused on the new panels. Remove miscellaneous equipment on other switchboard panels, as shown on the contract drawings, in accordance with SECTION 16264. Coordination with project personnel and other contracts is required.

Bid Item 0025; Furnish and Install six Switchboard Panels (Front and Rear).

Payment for Bid Item 0025 will be made as a lump sum job. Price and payment shall include all labor, equipment, and materials required to furnish and install six control switchboard panels (1-6, front and rear) located in the control room. Install government-furnished equipment and furnish and install new equipment, as shown on the contract drawings and as required to provide a fully functional system, in accordance with SECTION 16264. Coordination with project personnel and other contracts is required.

Bid Item 0026; Test/Inspect/Report structure, equipment and fencing connections to the Ground Grid Throughout Switchyard.

Payment for Bid Item 0026 will be made as a lump sum job. Price and payment shall include all labor, equipment and materials required to test and inspect all grounding connections of existing switchyard structure, ground mats, electrical equipment, and fencing. Each connection shall be excavated, visually inspected and tested by the current injection method to verify a good ground connection. A visual inspection of the grounding conductor and all fittings to the ground grid will be made, and reported along with the results of the current injection test in a report submitted to the COR for approval.

Bid Item 0027; Furnish and Install Miscellaneous Switchyard Materials.

Payment for Bid Item 0027 will be made as a lump sum job. Price and payment shall include all labor, equipment and materials required to furnish and install miscellaneous switchyard materials to include but not limited to, sections of aluminum bus and related bus fittings, connection hardware, cabling, connectors, supports, conduit, junction boxes, conduit fittings, grounding equipment, and all related equipment required to provide a complete and functional switchyard and as shown on the contract drawings, in accordance with SECTION 16050.

Bid item 0028; Furnish Concrete, Core Drilling and Grouting Work.

Payment for Bid Item 0028 will be made as a lump sum job. Price and payment shall include all labor, equipment and materials required to furnish all required new concrete and grouting for the installation of all new switchyard equipment as per the contract drawings and specifications. Existing conduits entering the existing cable tunnel shall be replaced, requiring new core drilling into the cable tunnel. Coordination with project personnel is required. Work shall be Contracting Officer Representative (COR) directed in accordance with SECTION 16050.

Bid Item 0029; Furnish Spare Parts.

Payment for Bid Item 0029 will be made as a lump sum job. Price and payment shall include all labor, equipment and materials required to furnish spare parts as required by the contract specifications and drawings, in accordance with the specifications.

Bid Item 0030; Furnish Electrician Hire.

Payment for Bid Item 0030 will be made on a per man-hour basis. Man-hours shall be as defined in paragraph 1.2.2 of this Section. Work shall be Contracting Officer Representative (COR) directed in accordance with the specifications.

Bid Item 0031; Furnish Other Skilled Craftsman Hire.

Payment for Bid Item 0031 will be made on a per man-hour basis. Man-hours shall be as defined in paragraph 1.2.2 of this Section. Work shall be Contracting Officer Representative (COR) directed in accordance with the specifications.

Bid Item 0032; Furnish General Labor Hire.

Payment for Bid Item 0032 will be made on a per man-hour basis. Man-hours shall be as defined in paragraph 1.2.2 of this Section. Work shall be Contracting Officer Representative (COR) directed in accordance with the specifications.

Bid Item 0033; Initial Asbestos Assessment and Removal

Payment for Bid Item 0033 will be made as a lump sum job. Price and payment shall include all labor, equipment and materials required for the initial asbestos assessment and initial containment, testing, CIH Services. Refer to Section 02080 of the specifications.

Bid Item 0034; Additional Asbestos Related Costs

Payment for Bid Item 0034 will be made on a 1000 feet of asbestos-insulated wire unit basis. Price and payment shall include all labor, equipment and materials required for the asbestos related costs associated with removal and disposal of materials containing asbestos and removal and disposal of materials that are in contact with materials containing asbestos, when initial assessment test results are above established action levels per the specifications. Estimated quantity is 5 (5000 feet total).

Bid Item 0035; Removal of the existing oil piping from the switchyard and tunnel areas.

Payment for bid item 0035 will be made as a lump sum job. Oil piping includes valve heads by each OCB and the piping to the cable tunnel and piping in the cable tunnel to the powerhouse. Piping shall be removed completely from the OCB’s to the powerhouse. The existing piping penetrations into the cable tunnel shall be removed by core drilling larger than the pipe, and grouting the opening.

Bid Item 0036; Repair/Replace grounding connections known to be faulty and connections found to be faulty under bid item 0026.

Payment for Bid Item 0036 will be made at the unit bid price under this bid item. Price and payment shall include all labor, equipment and materials required to repair/replace switchyard steel structure and switchyard equipment connections to the ground grid and fencing ground connections throughout the switchyard as required. Some ground connections between switchyard equipment and fencing and the ground grid are suspected as being a bad connection. The ground grid lies approximately 1.5-2 feet under the surface of the switchyard. If the connection fails testing or as directed by the COR, in accordance with SECTION 16050, the connection shall be replaced with a complete new connection per the specifications. All ground connections to new equipment shall be new and continuous from the existing grid to the new equipment. The list below includes known faulty connections that require repair or replacement.

- 52 disconnect ground connections
- 9 bus support structure ground connections
- 9 fence ground connections
- 5 additional, not identified ground connections

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Bid Item 0037; Remove and dispose of existing section of switchyard fence. Provide new double gates, posts, hardware, grounding jumpers, post foundations, and temporary access road in accordance with Section 16050.

Payment for Bid Item 0037 will be made as a lump sum job. Price and payment shall include all labor, equipment and materials required to furnish and install a new double access gate in the existing switchyard fence, with connecting road, in accordance with SECTION 16050 and shown on the drawings.

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

(NOT USED)

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UFGS-01320A (May 2002)

SECTION 01320A

*2 PROJECT SCHEDULE
05/02

PART 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.

PART 2 PRODUCTS (Not Applicable)

PART 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 shall be the responsibility of the Contractor. Contractor management personnel shall actively participate in its development. 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.

3.1.1 SCHEDULING SOFTWARE

The contractor shall prepare the NAS schedule using a computer software system. The system utilized by the Contractor shall be capable of satisfying all requirements of this specification and ER 1-1-11. Manual methods used to produce any required information shall require prior approval by the Contracting Officer. The Contracting Officer intends to use PRIMAVERA P3. {Should the contractor utilize software that is different than that utilized by the Contracting Officer, based on the software utilized by the contractor for the preparation of the NAS schedule, the contractor shall provide a copy of the software and a license to the Administrative Contracting Officer at the Government field office until final payment. The software and license shall be returned to the contractor. The Contractor shall submit a copy of the user's manual outlining the selected CPM computer program's mathematical analysis capabilities, details, functions and operation.}

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 retainage 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:

Significant Procurement Activities Shown
All Milestone Dates Can Be Determined
Generally No Activities Exceeding 30 Days
The Steps Required To Complete Each Phase of Work Can Be Determined
Critical Submittals Are Shown

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 Omitted.

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 shall be listed as separate line activities on the Contractor's project schedule:

a. Submission and approval of mechanical/electrical layout drawings.

b. Submission and approval of O & M manuals.

c. Submission and approval of as-built drawings.

d. Performance Verification testing.

n. Other systems testing, if required.

o. Prefinal inspection.

p. Correction of punchlist from prefinal inspection.

q. 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: approvals, inspections, utility tie-in, Government Furnished Equipment (GFE) and Notice to Proceed (NTP) for phasing requirements.

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 Bid Item

All activities shall be identified in the project schedule by the Bid Item to which the activity belongs. An activity shall not contain work in more than one bid item. The bid item for each appropriate activity shall be identified by the Bid 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 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 NTP to the contract completion date.

3.3.3.1 Project Start Date

The schedule shall start no earlier than the date on which the NTP 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 NTP 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 NTP 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 Preliminary Project Schedule Submission

The Preliminary Project Schedule, defining the Contractor's planned operations for the first 90 calendar days shall be submitted for approval within 20 calendar days after the NTP is acknowledged. The approved preliminary schedule shall be used for payment purposes not to exceed 90 calendar days after NTP.

3.4.2 Initial Project Schedule Submission

The Initial Project Schedule shall be submitted for approval within 40 calendar days after NTP. 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.

3.4.3 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 judgement 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.

3.4.4 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 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 3.5 disks, formatted to hold 1.44 MB of data, under the MS-DOS Version 5. or 6.x, 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 or person responsible for the schedule, and the MS-DOS 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. Preceeding 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 the NTP 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 bid item and sorted by activity numbers. This report shall: sum all activities in a bid item and provide a bid item percent; and complete and sum all bid 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 NTP on 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 NTP or 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 the NTP is issued for changes prior to settlement of price and/or time, the Contractor shall submit proposed schedule revisions to the Contracting Officer within 2 weeks of the NTP 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 01330

HSWY0201330

SUBMITTAL PROCEDURES

TABLE OF CONTENTS

PART 1 - GENERAL

1.1 SUMMARY
1.2 REFERENCES
1.3 SUBMITTAL CLASSIFICATION
1.4 APPROVED SUBMITTALS
1.5 DISAPPROVED SUBMITTALS
1.6 WITHHOLDING OF PAYMENTS

PART 2 - NOT APPLICABLE

PART 3 - EXECUTION

3.1 ENG FORMS 4025 AND 4288
3.2 SCHEDULING
3.3 SUBMITTAL PROCEDURE
3.4 CONTROL OF SUBMITTALS
3.5 "GOVERNMENT-APPROVED" SUBMITTALS
3.6 "INFORMATION ONLY" SUBMITTALS
3.7 SUBMITTAL DESCRIPTION CATEGORY CODES IN TECHNICAL REQUIREMENT SECTIONS
3.8 STAMPS
3.9 CERTIFICATES OF COMPLIANCE
3.10 CONTRACTOR'S FILES

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

This section covers procedures involved with submittal of documents required in other sections of this specification.

1.2 REFERENCES

Refer to the ENG Form 4025, Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificates of Compliance, or ENG Form 4288, Submittal Register (included at the end of this section) for further information on terms discussed in this section.

1.3 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

a. Government-Approved.

(1) Government approval is required for extension of design such as Contractor's, manufacturer's, or fabricator's drawings; descriptive literature included but not limited to catalog cuts, diagrams; operating charts or curves; critical materials; test cylinders; samples; warranties; deviations; equipment whose compatibility with the entire system must be checked will be listed on the ENG Form 4288. Within the terms of Special Clause, SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, these submittals are also considered to be "shop drawings."

(2) Other items (such as environmental plans, safety plans, access, security procedures, Contractor Quality Control (CQC) plans, etc.) designated in the requirements of the technical sections to be "submitted for approval/acceptance” which do not fall under the definitions in paragraph 1.3(a)(1) will not be listed on ENG Form 4288, but will be transmitted as instructed in Special Clauses, Submittals.

b. Information Only. Any submittals on ENG Form 4288 not requiring Government approval (such as certifications and test results, etc.) will be submitted for "information only." See paragraph 3.9 for further information on certificates and test reports. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to at the end of paragraph 1.3(a)(1).

1.4 APPROVED SUBMITTALS

All submittals for Government approval shall be Contractor-approved first and stamped as shown in paragraph 3.8. The approval of submittals by the Government 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 the Contractor under the CQC requirements of this contract is responsible for the dimensions, design of adequate connections, and details, and the satisfactory construction of all work. After submittals have been Government-approved no resubmittal for the purpose of substituting materials or equipment will be given consideration unless accompanied by an explanation as to why a substitution is necessary.

1.5 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required and promptly furnish a corrected submittal in the form and number of copies as specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, notice as required under SECTION 00700, Clause CHANGES, shall be given promptly to the Government.

1.6 WITHHOLDING OF PAYMENTS

Payments for materials incorporated in the work will not be made if required approvals have not been obtained.

PART 2 - NOT APPLICABLE

PART 3 - EXECUTION

3.1 ENG FORMS 4288 AND 4025

3.1.1 General

All items listed on ENG Form 4288 shall be submitted using ENG Form 4025. The Government may request submittals in addition to those listed or specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control representative (CQCR), and each respective transmittal item shall be stamped, signed, and dated by the CQCR, as shown in paragraph 3.8, certifying that the accompanying submittal complies with the contract requirements. Proposed deviations from the contract requirements shall be clearly identified as stated in paragraph 3.3.2. Submittals shall include items such as: Contractor’s, manufacturer’s, or fabricator’s drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with the manufacturer’s Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

3.1.2 Submittal Register (ENG Form 4288)

See ENG Form 4288 listing both “Government-Approved” and “information only” items. Columns “d” through “q” have been completed by the Government. The Contractor shall complete columns “a,” “b,” “c” and “r” through “w” and return two completed copies for approval within 15 calendar days after Notice to Proceed. The approved submittal register will become the scheduling document and will be used to control submittals to the items described in paragraph 1.3(a)(1) throughout the life of the contract. This register and the progress schedules shall be coordinated.

3.1.3 Transmittal Form (ENG Form 4025)

See ENG Form 4025 to be used for submitting both “Government approved” and “information only” submittals listed on ENG Form 4288 in accordance with the instruction on the reverse side of the form and repeated in paragraph 3.3.1.1 below. 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.

3.2 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications in accordance with paragraph 3.7, to be submitted with the pertinent drawings shall be so scheduled.

3.3 SUBMITTAL PROCEDURE

3.3.1 "Shop Drawing" Procedures

a. General. The procedure for "shop drawings" shall be as follows:

(1) "Shop Drawings" Approved by Contractor. All "shop drawings" submittals shall be reviewed and corrected to make them complete and in accordance with the contract. Approval shall be indicated on each drawing by an "Approved" stamp as shown in paragraph 3.8. Names and titles of individuals authorized by the Contractor to approve drawings shall be provided prior to any submission. All shop drawings shall be submitted as indicated herein. Submittals which are not required to be approved by the Government ("information only") will be monitored and spot-checks will be made. When such checks indicate noncompliance, the Contractor will be notified by the same method used for Government approvals.

(2) "Shop Drawings" Approved by the Government. Before submission the Contractor shall review and approve all "shop drawings" prepared by subcontractors, suppliers, and the Contractor for completeness and compliance with plans and specifications, and shall so certify by stamp on each drawing or item of printed material. (Red markings are reserved for the Government.) Suppliers or subcontractors

certifications are not acceptable as meeting this requirement. Submittals will be reviewed and processed as follows: NOTE: The following action codes are to further define only the referenced codes on the reverse side of ENG Form 4025.

(a) Action Code A (Approved as Submitted). Shop drawings, which can be approved without correction, will be stamped "Approved" and one reproducible, or two copies of catalog and other printed data, will be returned to the Contractor.

(b) Action Code B (Approved, Except as Noted, Resubmission Not Required). Shop drawings, which have only minor discrepancies, will be corrected and stamped "Approved as Corrected" or "Except as Noted." Corrections will be identified. Distribution will be same as for "Approved" drawings.

(c) Action Code C (Approved, Except as Noted, Resubmission Required). Two prints of shop drawings, which are incomplete or require more than minor corrections will be marked in red to indicate necessary corrections. One marked copy will be returned to the Contractor stamped "Approved, Except as Noted, Resubmission Required." Transparencies of such drawings will be destroyed.

(d) Action Code E (Disapproved). One print of shop drawings which are fundamentally in error, cover wrong equipment or construction, or require extensive corrections will be returned to the Contractor stamped "Disapproved." An explanation will be furnished on the print or on ENG Form 4025 indicating reason for disapproval. Transparencies of such drawings will be destroyed.

(3) Resubmittal. Resubmittal will not be required for drawings with Action Code A or B unless subsequent changes are made by the Contractor or by a contract modification. For drawings with Action Code C or E, corrections required shall be made, any changes shall be noted by dating the revisions to correspond with the change request date, and the drawings shall be promptly resubmitted for review. Government costs incurred after the first resubmittal will be charged to the Contractor.

b. "Shop Drawings" Submittal.

(1) General. ENG Form 4025, in triplicate, shall be used when transmitting "shop drawings" submittals. Five copies are required for (GA) submittals. Three copies are required for (FIO) submittals. All submittals shall separately name the subcontractor, supplier, or manufacturer, specification paragraph number(s), drawing/sheet number(s), pay item number, and any other information needed to identify the item, define its use, and locate it in the work. Each submittal shall be complete containing all information needed to determine contract compliance.

(2) Drawings. Each drawing shall be not more than 14 inches high by 20 inches wide, with a title block in lower right-hand corner and a 3 inches wide by 2 inches high clear area adjacent to the title block. The title block shall contain the subcontractor's or fabricator's name, contract number, description of item(s), bid item

number, and a revision block. A blank margin of 0.75 inches at bottom, 2 inches at left, and 0.25 inches at top and right shall be provided. Separate drawings are required for each bid item. Where drawings are submitted for assemblies of more than one piece of equipment or systems of components dependent on each other for compatible characteristics, complete information shall be submitted on all such related components at the same time. The information shall be complete and the sequence of drawing submittal shall be such that all information is available for reviewing each drawing. Drawings for all items and equipment, of special manufacture or fabrication, shall consist of complete assembly and detail drawings. All revisions after initial submittal, shall be shown by number, date, and subject in revision block. Any drawing or electronic drawing file submitted that is not of satisfactory quality will be returned without action.

(3) Shop Drawing Reproducibles. Upon completion of the work under this contract, the Contractor shall furnish a complete set of files for MicroStation ver. J for all the drawings as finally approved under this contract. The files shall be recorded on CD ROM’s. These files shall show the drawings with all changes and revisions, including any field changes, made up to the time that the equipment is completed and accepted. In addition, the Contractor shall furnish a complete set of reproducibles of the drawings. They shall be no larger than 14 inches high by 20 inches wide, of such quality and clarity as to permit sharp and thoroughly legible microfilm copying. They shall be on permanent translucent, matte-surface two side, polyester-base film at least 0.004 in. thick. Reproducibles shall be right reading positive. They shall show all revisions, including field changes, up to the time that the equipment is accepted.

3.3.2 Deviations

For submittals which include proposed deviations requested, the column "variation" of ENG Form 4025 shall be checked. The reason for any deviations shall be set forth in writing and such deviations annotated on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

3.3.3 Other Submittals

All requirements for "shop drawings" under paragraphs 3.3.1(1) and 3.3.1(2) shall apply to catalog cuts, illustrations, printed specifications, or other data submitted. Submittals shall be made on standard letter-size paper or, when appropriate, as a drawing not larger than 14 inches high by 20 inches wide. Inapplicable portions shall be marked out and applicable items such as model numbers, sizes, and accessories shall be indicated. Decisions on these other submittals will be given in accordance with paragraph 3.5.

3.4 CONTROL OF SUBMITTALS

The Contractor's procurement operations shall be carefully controlled to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved ENG Form 4288.

3.5 "GOVERNMENT-APPROVED" SUBMITTALS

Decisions on the submittals will be given by letter. Within 30 working days after receipt, one copy will be returned to the Contractor marked "Approved," "Approved, Except as Noted, Resubmission Not Required," "Approved, Except as Noted, Resubmission Required," or "Disapproved."" The Government will endeavor to accelerate submittal review and turn-around to facilitate the Contractors submittal procedure and work plan. The notations "Approved" and "Approved, Except as Noted" authorize the Contractor to proceed with the work covered by such drawings, subject to the corrections if any, indicated thereon or described in the letter of transmittal. When prints of drawings have been "Disapproved," the Contractor shall make the necessary revisions on the drawings and shall submit one reproducible copy for approval in the same routine as before. Every revision made during the life of the contract shall be shown by number, date, and subject in a revision block and a notation shall be made in the drawing margin to permit rapid location of the revision. The time consumed by the Contractor in submitting and obtaining approval of assembly and shop drawings shall be included in the time allowed for completion of the contract.

3.6 "INFORMATION ONLY" SUBMITTALS

Normally submittals for "information only" will not be returned. Government approval is not required on information only 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 Government from requiring removal and replacement if non-conforming material is incorporated in the work. This does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or check testing by the Government in those instances where the technical specifications so prescribe.

3.7 SUBMITTAL DESCRIPTION CATEGORY CODES IN TECHNICAL REQUIREMENT SECTIONS

Submittal description category codes used in paragraph 1.3 of the technical requirement sections are as follows:

SD-01 Data. Submittals that provide calculations, descriptions, or documentation regarding the work specified.

SD-04 Drawings. Submittals which graphically show relationship of various components of the work, schematic diagrams of systems, details of fabrication, layouts of particular elements, connections, and other relational aspects of the work.

SD-06 Instructions. Preprinted material describing installation of a product, system, system, or material including special notices and material safety data sheets, if any, concerning impedances, hazards, and safety precautions. Operation and maintenance manuals are

considered deliverables under the contract and not submittals; however, when necessary to review information to be included in the final manuals such information should be called for under this submittal description.

SD-07 Schedules. Tabular listings showing location, features, or other pertinent information regarding products, materials, equipment, or components to be used in the work.

SD-08 Statements. A document required of the Contractor or through the Contractor, from a supplier, installer, manufacturer, or other lower-tiered Contractor, the purpose of which is to confirm the quality or orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel, qualifications, or other verifications of quality.

SD-09 Reports. Reports of inspection or tests including analysis and interpretation of test results. Each report shall be properly identified. Test methods used shall be identified and test results shall be recorded.

SD-13 Certificates. Statement signed by an official authorized to certify on behalf of the manufacturer of a product, system, or material, attesting that the product, system, or material meets specified requirements. The statement must have these items: be dated after the award of the contract, state the Contractor’s name and address, name the project and location, and list the specific requirements which are being certified.

SD-14 Samples. Samples including both fabricated and unfabricated physical examples of materials, products, and units of work as complete units or as portions of units of work.

SD-18 Records. Documentation to record compliance with technical or administrative requirements.

3.8 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets the contract requirements shall be similar to the sample at the end of this Section.

3.9 CERTIFICATES OF COMPLIANCE

Any certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in the original and two copies. Each certificate shall be signed by an official authorized to certify in behalf of the manufacturing company and shall contain the name and address of the Contractor, the project name and location, and the quantity 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 if, after tests

are performed on selected samples, the material is found not to meet the specific requirements.

3.10 CONTRACTOR'S FILES

"Approved" and "Approved Except as Noted, Resubmission Not Required" (Action Codes A and B) drawing files shall be maintained in fabrication shops and at field sites for Government use.

CONTRACTOR

(Firm Name)

Approved

Approved with corrections as noted on submittal data and/or attached sheet(s).

SIGNATURE: _____

TITLE: _____

DATE: _____

****

SUBMITTAL REGISTER

(ER 415-1-10)

CONTRACT NO:

TITLE AND LOCATION:
HARTWELL SWITCHYARD UPGRADE

CONTRACTOR:

SPECIFICATION SECTION:

TRANSM-ITTAL NO.	ITEM NO	SPECIFICA-TION PARA-GRAPH NUMBER	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL									CLASSI-FICATION		REVIEWER (ORG CODE)	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS
				DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	INFORMATION ONLY	GOVERNMENT APPROVED		SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERNMENT	CODE	DATE	
A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.	V.	W.	X.	Y.
			SECTION 01010																					
		1.3	Supervisor(s) Qualifications	X										X		30 days								Prior to start work
			Organizational Chart	X									X			30 days								Prior to start work
			Employee ID Procedure	X										X		30 days								Prior to start work
			List of Employees	X									X			14 days								Prior to start work
			Roadway Access Agreement	X									X			14 days								Prior to start work
			Contractors Vehicle ID	X										X		30 days								Prior to start work
			Working Hours	X										X		7 days								In advance of work
			Site work Schedule	X										X		30 days								Prior to start work
			Control of Hazadrous Energy	X										X		14 days								Prior to outage date
			Temp. Electrical Lines	X										X		30 days								Prior to Install
			Transportation of Heavy Equipment	X										X		30 days								Prior to Transportation
			Indoor Storage Location	X										X		30 days								Prior to area useage
			Off-Site Disposal Area	X										X		30 days								Prior to Commencement
			Signage	X										X		30 days								Prior to On-site work
			Access Equipment	X										X		30 days								Prior to their Installation
			Project Status	X										X		7 days								Once a week, on-site
			Record of Parts Removed from Site					X					X											Available for Review
			Schedule Change Request					X						X		48hrs								Prior to any change
			Request for Dwgs & Data					X					X			7 days								In advance of work

SUBMITTAL REGISTER

(ER 415-1-10)

CONTRACT NO:

TITLE AND LOCATION:
HARTWELL SWITCHYARD UPGRADE

CONTRACTOR:

SPECIFICATION SECTION:

TRANSM-ITTAL NO.	ITEM NO	SPECIFICA-TION PARA-GRAPH NUMBER	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL									CLASSI-FICATION		REVIEWER (ORG CODE)	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS
				DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	INFORMATION ONLY	GOVERNMENT APPROVED		SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERNMENT	CODE	DATE	
A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.	V.	W.	X.	Y.
			Notification of Damaged Equipment					X					X			Immed								After discovery
			SECTION 01350																					
		1.3	Environmental Protection Plan					X						X		180 days								After Receipt of Notice
			Contaminant Containment & Clean Up Plan					X						X										Accord w/State,Fed,Local
			SECTION 02080																					
		1.4	Mfg's Data for items a-f	X										X										Prior to Commencement
			Sampling Plan	X										X										Prior to Commencement
			Asbestos Plan	X										X										Prior to Commencement
			Testing Lab & Air Monitoring Personnel	X										X										Prior to Commencement
			Industrial Hygienist	X										X										Prior to Commencement
			Training of Contractors Employees	X									X											Prior to Commencement
			Medical Exams	X									X											Prior to Commencement
			Respirator Fit tests covering items a-f	X									X											Prior to Commencement
			Permits & Notification	X									X											State, Federal & Local
			Waste Disposal Site (WDS)	X									X											Prior to Disposal

SUBMITTAL REGISTER

(ER 415-1-10)

CONTRACT NO:

TITLE AND LOCATION:
HARTWELL SWITCHYARD UPGRADE

CONTRACTOR:

SPECIFICATION SECTION:

TRANSM-ITTAL NO. A.	ITEM NO B.	SPECIFICA-TION PARA-GRAPH NUMBER C.	DESCRIPTION OF ITEM SUBMITTED D.	TYPE OF SUBMITTAL: DATA E.	DRAWINGS F.	INSTRUCTIONS G.	SCHEDULES H.	STATMENTS I.	REPORTS J.	CERTIFICATES K.	SAMPLES L.	RECORDS M.	CLASSI-FICATION: INFORMATION ONLY N.	GOVERNMENT APPROVED O.	REVIEWER (ORG CODE) P.	CONTRACTOR SCHEDULE DATES: SUBMIT Q.	APPROVAL NEEDED BY R.	MATERIAL NEEDED BY S.	CONTRACTOR ACTION: CODE T.	DATE U.	SUBMIT TO GOVERNMENT V.	GOVERNMENT ACTION: CODE W.	DATE X.	REMARKS Y.
			Insurance	X									X											Prior to Commencement
			Previous Citations	X									X											Prior to Commencement
			Work Site Entry Logbook	X									X			Daily								
			Daily Narrative	X									X			Daily								
			Pressure Differential Recordings	X									X			Daily								
			Air Monitoring Results	X									X			1 hr								Of obtaining Results
			Waste Shipment Record (WSR)	X									X			10 days								After Transport
			SECTION 02120																					
		1.3	On-site Hazadrous Waste Management	X										X										Prior to start of work
			Off-site Hazadrous Waste Management	X										X										Prior to start of work
			Record Keeping									X		X										Info to file State Rpt.
			Spill response									X	X											As Needed
			Exception Reports									X		X		37 days								Of Shipment Initiation
			Qualifications							X			X											
			Off-Site Policy Compliance Certification							X			X											
			Certifictes of Disposal							X			X			180 days								Initial Shipment
			Shipping Documents & Packing Certs							X														When Shipments Originate

SUBMITTAL REGISTER

(ER 415-1-10)

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TITLE AND LOCATION:
HARTWELL SWITCHYARD UPGRADE

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A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.	V.	W.	X.	Y.
			Notice of Non-Compliance/Violation									X	X											Any work under this contact
			SECTION 02220																					
		1.3	Work Plan	X										X										
			SECTION 02315																					
		1.4	Plan of Excavation, Fill & Backfilling	X										X		30 days								Prior to Construction
			Lab & Field test Reports						X					X		24hrs								After Completion
		*2	SECTION 02821																					
		1.3	Chain Link Fence											X										
			SECTION 03100																					
		1.3	Formwork	X									X											
			Design	X									X											
			Form Materials	X									X											
			Form Releasing Agents	X									X											

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A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.	V.	W.	X.	Y.
			SECTION 03200																					
		1.3	Reinforcement		X									X										
			Anchor Bolts		X									X										
			Reinforcing Steel							X			X											
			SECTION 03300																					
		1.3	Concrete Mixture Proportions	X										X		14 days								Prior to Work
			Non-Shrink Grout Material	X										X		Varies								1,3,7 & 28 days
			Flatness Measurement Tool Specs					X						X										
			Testing & Inspection for Contractor Qual. Cntl.						X					X										Samples for this Project
			Qualifications							X			X											Written Documentation
			SECTION 05055																					
		1.3	Detail Dwgs		X									X										Submit prior to Fabrication
			Materials Orders		X								X											Prior to Use of materials
			Materials List		X								X											Submit w/Detail Dwgs
			Shipping Bill		X								X											Ship w/Delivery of Pieces

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			Tests,Inspections & Verifications						X				X											For all materials Delivered
			Qualification of Welders & Welding Operators							X			X											Prior to Fabrication
			SECTION 05120																					
		1.3	Erection	X										X										Prior to erection
			Structural Steel System		X									X										
			Structural Connections		X									X										Submit for Approval
			Mill Test Reports							X			X											Prior to Installation
			Welder Qualifications							X			X											
			Welding Inspector Qualifications							X			X											
			Fabrication							X			X											
																								Completion of Proj-Give copies

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			SECTION 16050																					
		1.3	Electrical Equipment :											X										Mfg/Catalog Cuts
			Nameplates	X										X										
			Terminal Blocks	X										X										
			Wire & Cable	X										X										
			Conduit & All Fittings	X										X										
			Specialty Boxes	X										X										
			Circuit Breakers	X										X										
			Terminal Cabinets	X										X										
			Dist. Panels & Related Equipment	X										X										
			CT's,PT's & CCVT's	X										X										
			Line Turners	X										X										
			Insulators	X										X										
			Disconnect Switch Assemblies	X										X										
			Swichyard Bus Tubing & Fittings	X										X										
			Grd.Conductors & Connection Fittings	X										X										
			Steel/Fittings/Hardware for Support Struct	X										X										

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A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.	V.	W.	X.	Y.
			Main Cntl Board Related Equip	X										X										
			Connection Drawings		X									X		60 days								After Award
			CT's,PT's,CCVT's & Line Tuners		X									X		60 days								After Award
			Deviations					X						X										Any Reason to Deviate
			Instrument Transformer Factory Tests						X				X											
			Wire & Cable Factory Tests						X					X										
			Wire & Cable Field tests						X					X										
			Operational Field tests						X					X										
			Wire Markers						X					X										
			Insulator Production tests						X				X											
			Mech, Elect and/or Elect Equipment			X								X										
			SECTION 16264																					
		1.3	Catalog Data	X										X										Submit for items a-m
			Shop Drawings		X									X		30 days								After date of Award
			O&M Manuals			X								X		30 days								Prior to Delivery of Equipment
			Factory Test Procedures						X					X		30 days								Prior to Start of Tests
			Factory test Reports						X					X		30 days								After Completion of tests

SUBMITTAL REGISTER

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			Mimic Buses & Equip Symbols								X			X										
			Nameplates								X			X										Submit for Approval
			SECTION 16367																					
		1.3	Equipment data/catalog cuts for items a-h	X										X		30 days								After Receiprt of Notice
			Disconnect Swt,Grd,Mount & etc		X									X		30 days								After Receiprt of Notice
			O&M Manuals			X								X		14 days								Prior to delivery of Switchs
			Factory Tests						X				X											
			Disconnect Switch Design Test Rpts						X							30 days								After Receipt of Notice
			Disconnect Switch Production Test Reports						X				X			14 days								Completion of Tests
			Insulator Production Tests						X				X			14 days								Completion of Tests

SECTION 01350

HSWY0201350

ENVIRONMENTAL PROTECTION

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL
1.2 QUALITY CONTROL
1.3 SUBMITTALS
1.4 SUBCONTRACTORS
1.5 NOTIFICATIONS

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 PROTECTION OF ENVIRONMENTAL RESOURCES
3.2 CLEAN-UP OF CONTAMINANT RELEASES
3.3 POST-CONSTRUCTION CLEAN-UP
3.4 MAINTENANCE OF POLLUTION CONTROL FACILITIES
3.5 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL
3.6 ENVIRONMENTAL LITIGATION

SECTION 01350

ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.1 GENERAL

This section covers prevention of environmental pollution and damage as the result of construction operations under this contract and for those measures set forth in other Technical Provisions of these specifications. 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 man; 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, and land resources; and includes management of visual aesthetics; noise; solid, chemical, and liquid waste; radiant energy and radioactive materials; as well as other pollutants.

1.2 QUALITY CONTROL

The Contractor shall establish and maintain quality control for environmental protection of all items set forth herein. The Contractor shall record on daily reports any problems in complying with laws, regulations and ordinances and corrective action taken. Copies of these records shall be furnished to the Government weekly.

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330.

SD-08 Statement

Environmental Protection Plan; GA.

The Contractor shall submit an Environmental Protection Plan 180 calendar days after receipt of notice of contract award. The Contractor shall meet with the Contracting Officer to develop mutual understanding relative to compliance with this provision and administration of the environmental protection program. No physical work at the site shall begin until the Contracting Officer has approved the above plan(s) or provided specific authorization to start a phase of the work. Preparation and submittal of supplemental plans may be required if additional environmental protection planning is found necessary for later phases of work. Approval of the Contractor's plan will not relieve the Contractor of responsibility for complying with all applicable environmental laws or regulations, for performing adequate and continuing control of pollutants, and for taking other required environmental protection measures. The Government reserves the right to make changes in the above plans and operations as necessary to maintain satisfactory environmental protection performance. The Environmental Protection Plan shall include but not be limited to the following:

a. Listing of Applicable Laws and Regulations. A list of Federal, State and local laws, regulations, and permits concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations and permits. NOTE: The Contractor shall perform all work in compliance with the provisions of the Contract and applicable Federal, State, and local environmental laws and regulations. It is the Contractor's responsibility to obtain all necessary permits, licenses, and authorizations for a project.

b. Procedures. Procedures to be implemented to provide the required environmental protection and to comply with the applicable laws and regulations. The Contractor shall set out the procedures to be followed to correct pollution of the environment due to accident, natural causes or failure to follow the procedures set out in accordance with the environmental protection plan.

c. Permit or license. Permit or license and location of the solid waste and/or hazardous waste disposal areas, and listing of other permits obtained by the Contractor to perform the specified work.

d. Drawings. Drawings showing locations of any proposed temporary material storage areas, structures and sanitary facilities.

d. Monitoring. Environmental monitoring plans for the job site, which incorporate land, water, air, and noise monitoring.

e. Methods of Water Protection. Methods of protecting surface and ground water during construction activities. These waters shall be protected from pollutants such as petroleum products, fuels, oils, lubricants, bentonite, bitumens, calcium chloride, acids, waste washings, sewage, chlorinated solutions, herbicides, insecticides, lime, wet concrete, cement, silt, or organic or other deleterious material. Chemical emulsifiers, dispersants, coagulants, or other cleanup compounds shall not be used without prior written approval from the Contracting Officer. Waters used to wash equipment shall be disposed of in a manner to prevent their entry into a waterway prior to treatment to an acceptable quality. Fuels, oils, greases, bitumens, chemicals, and other non-biodegradable materials shall be contained with total containment systems and removed from the site.

f. Noise Control. Noise control plan for the job site. The Contractor shall keep construction activities under surveillance and shall exercise all necessary controls to minimize damage to the environment by noise from equipment and various construction activities. All Contractor's, subcontractor's, and repetitious supplier's equipment used on or in the vicinity of the job site shall be equipped with the best generally available noise suppression devices. Equipment not so suppressed and properly maintained must be approved for use in writing by the Contracting Officer. Areas that have noise levels greater than 85 dB continuous or 140 dB peak (unweighted) impulse must be designated as noise hazardous areas. These work areas must have caution signs displayed at the perimeter of the noise area indicating the presence of hazardous noise levels and requiring the use of hearing protection devices.

g. Work Area. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. The plan should include measures for marking the limits of use areas.
*2

h. Contaminant Prevention Statement. Prior to initiating any construction, the Contractor shall prepare a contaminant prevention statement which identifies all potentially hazardous substances on the job site and the intended actions to be taken to prevent the accidental or intentional introduction of such materials into the air, the water or the ground. The Contractor shall also detail special provisions taken to meet Federal, State, and local laws and regulations regarding the storage and handling of these materials. The statement shall also include but not be limited to plans for preventing polluted runoff from plants, equipment parking, and maintenance areas from entering local surface and groundwater sources. Attention to specific site conditions is required, including but not limited to, runoff into the rock ditch behind the switchyard and control of the existing system that drains the switchyard into the tailrace. It is imperative that all pollution runoff (spills) be retained in the switchyard catch basin.

Contaminant Containment and Cleanup Plan; GA.
*2

The Contractor shall prepare and submit a Contaminant Containment and Cleanup Plan in accordance with local, State and Federal requirements and include requirements for 110% secondary containment of all containers used to catch, store or pump and liquid other than potable water. This secondary containment requirement also applies to valves, pumps, and tanks mounted on portable equipment and trucks when actually pumping and when stored on Government property.

1.4 SUBCONTRACTORS

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

1.5 NOTIFICATION

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with Federal, State or local laws, regulations, permits and other elements. The Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action and take such action as may be approved. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. 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 any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it was later determined that the Contractor was in compliance.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 PROTECTION OF ENVIRONMENTAL RESOURCES

The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The Contractor shall confine his activities to areas defined by the drawings and specifications. Prior to starting the work under this contract, the Contractor shall perform and provide the Contracting Officer a pre-work

survey, including photographs. If during the contract work activities the Contractor becomes aware of the presence of pre-project chemical hazard, all personnel are to leave the work area and the Contractor will immediately report the find to the Contracting Officer. Environmental protection and replacement shall be as stated in the following subparagraphs:

3.1.1 Disposal of Solid Wastes

Solid wastes includes any waste excavated or generated by the Contractor which meets the most complete definition of solid waste as described by Federal, State and local laws and regulations. Solid waste excluding hazardous wastes shall be placed in containers which are emptied on a regular schedule. All handling and disposal shall be conducted to prevent spillage and contamination. The Contractor shall participate in any State or local recycling programs and reduce the volume of solid waste materials at the source whenever practical.

3.1.1.1 Disposal of Solid Waste by Removal from Government Property

The Contractor shall transport all solid waste off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal.

3.1.2 Disposal of Discarded Materials

Discarded materials other than those which can be included in the solid waste category shall be handled as directed by the Contracting Officer.

3.1.3 Disposal of Hazardous Wastes
*2
Hazardous waste shall be stored, removed from the work area and disposed of in accordance with Federal, State and local laws and regulations. Fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants, used solvents, waste oil, and other regulated wastes shall be stored in corrosion-resistant containers with 110% (by volume) secondary containment and disposed of in accordance with SECTION 02120 TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS of this contract.

3.1.4 Protection of Water Resources

The Contractor shall keep construction activities under surveillance, management and control to avoid pollution of surface and ground waters. Discharges of any pollutant into the adjacent watercourses is strictly prohibited, except as otherwise specified or allowed in other sections of the Technical Specifications. Special management techniques as set out below shall be implemented to control water pollution by the listed construction activities which are included in this contract.

3.1.5 Protection of Air Resources

The Contractor shall keep construction activities under surveillance, management and control to minimize pollution of air resources. All activities, equipment, processes, and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the State air quality standards, and all Federal, State and local emission and performance laws and standards. Ambient Air Quality Standards set by the Environmental Protection Agency shall

be maintained for those construction operations and activities specified in this section. Dust particles from all construction activities shall be controlled at all times.

3.1.5.1 Hydrocarbons and Carbon Monoxide

Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.

3.1.5.2 Odors

Odors shall be controlled at all times for all construction activities, processing and preparation of materials.

3.1.5.3 Monitoring

Monitoring of air quality shall be the responsibility of the Contractor. All air areas affected by the construction activities shall be monitored by the Contractor.

3.1.6 Burning

Material may not be burned on Government property at any time.

3.1.7 Inspection

When the Contracting Officer notifies the Contractor in writing of any observed noncompliance with Federal, State, or local laws, regulation, or permits, the Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action and take such action as may be approved. If the Contractor fails 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 time extensions will be granted or costs or damages allowed to the Contractor for any such suspension.

3.1.8 Government Performed Environmental Assessment

The Contract specifications have been prepared to comply with the special conditions and mitigation measures addressed in the Environmental Assessment (EA), Environmental Impact Statement (EIS), or other National Environmental Policy Act (NEPA) document for this work. The Contractor is advised that deviations from the drawings, specifications (e.g., disposal areas, staging areas, alternate access routes, etc.) could result in the requirement for the Government to prepare an additional or amended EA pursuant to NEPA. An EA requires a minimum of 90 days for review, processing, and approval time by the Government. Before the Government will commence the environmental assessment, the Contractor must submit all required information necessary to evaluate the alternate proposal as a single and complete package. The Contracting Officer reserves the right to disapprove the alternate proposal if located in woodlands, wetlands or other sensitive areas.

3.2 CLEAN-UP OF CONTAMINANT RELEASES

The Contractor shall provide the Contracting Officer a containment and cleanup plan 30 days after contract award including the procedures, instructions, and reports to be used in the event of an unforeseen oil or hazardous substance release. This plan shall include as a minimum:

a. The name of the individual who will be responsible for implementing and supervising the containment and cleanup.
*2

b. A list of materials and equipment to be immediately available, including actual items to be stored at the construction site and those not stored onsite. Materials and equipment for other cleanup work shall be tailored to the potential hazards involved.

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 cleanup.
*2

e. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual must immediately notify the Contracting Officer, in addition to the legally required~~ reporting channels~~local, State and Federal agencies, when a reportable quantity spill of oil or hazardous substance occurs.

3.3 POST-CONSTRUCTION CLEAN-UP

The Contractor shall clean up areas used for construction and remove all signs of temporary construction facilities (i.e., work areas, structures, foundations of structures, stockpiles of excess or waste materials); Contractor office, storage and staging areas; and any other vestiges of construction within the project area shall be removed.

3.4 MAINTENANCE OF POLLUTION CONTROL FACILITIES

During the life of this contract, the Contractor shall maintain all facilities constructed for pollution control and all portable pollution control devices used under this contract for as long as the operations creating the particular pollutant are being carried out or until the material concerned has been stabilized to the extent that pollution is no longer being created.

3.5 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL
*2

Early in the construction period, the Contractor shall conduct a training course for employees and subcontractors that will emphasize environmental protection. Personnel are to be informed of provisions to be taken for hazardous and toxic material container labeling and for managing Material Safety Data Sheets (MSDS). Anticipated hazardous or toxic chemicals shall also be reviewed. In addition, personnel designated to control and clean up releases must have a minimum of 8 hours' training or have documented experience to objectively demonstrate competency in control and cleanup of hazardous substances. They must be certified as competent to perform First Responder – Operations Level spill response duties by their employer.

3.6 ENVIRONMENTAL LITIGATION

3.6.1 Suspension, Delay or Interruption of Work

If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting

Officer shall determine whether the order is due in any part to acts or omissions of the Contractor, or subcontractor at any tier, not required by the terms of the contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor, or a Subcontractor at any tier, other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the Contract Clause "SUSPENSION OF WORK" of this contract. The period of such suspension, delay, or interruption shall be considered reasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

3.6.2 Definition

The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantively or procedurally, the effect of the work on the environment.

*****

SECTION 01420

HSWY0201420

SOURCES FOR REFERENCE PUBLICATIONS

PART 1 GERERAL

1.1 REFERENCES
1.2 ORDERING INFORMATION

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

(NOT USED)

SECTION 01420

SOURCES FOR REFERENCE PUBLICATIONS

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the sponsoring organization, e.g. ASTM B 564 Nickel Alloy Forgings. However, when the sponsoring organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the organizations whose publications are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the sponsoring organization should be ordered from the source by title rather than by number.

NAME	ABBREVIATION
ALUMINUM ASSOCIATION 900 19TH street, N.W. Washington, D.C. Ph: 202-862-5100 Internet: http://www.aluminum.org	AA
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS 444 N. Capital St., NW, Suite 249 Washington, DC 20001 Ph: 800-231-3475 202-624-5800 Fax: 800-525-5562 202-624-5806 Internet: www.aashto.org	AASHTO
ACI INTERNATIONAL P.O. Box 9094 Farmington Hills, MI 48333-9094 Ph: 248-848-3700 Fax: 248-848-3701 Internet: http://www.aci-int.org	ACI

NAME	ABBREVIATION
AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS 1330 Kemper Meadow Dr. Suite 600 Cincinnati, OH 45240 Ph: 513-742-2020 Fax: 513-742-3355 Internet: www.acgih.org E-mail: pubs@acgih.org	ACGIH
AMERICAN HARDBOARD ASSOCIATION **NOTE**: To Order any Hardboard Stds. Please reference ANSI	AHA
AMERICAN INSTITUTE OF STEEL CONSTRUCTION One East Wacker Dr, Suite 3100 Chicago, IL 60601 Ph: 312-670-2400 Internet: www.aise.org	AISC
AMERICAN NATIONAL STANDARDS INSTITUTE 11 West 42nd St New York, NY 10036 Ph: 212-642-4900 Fax: 212-398-0023 Internet: www.ansi.org/	ANSI
AMERICAN SOCIETY OF CIVIL ENGINEERS 1801 Alexander Bell Drive Reston, VA 20190 Ph: 703-295-6300 or 1-800-548-2723 Internet: www.asce.org	ASCE
ASME INTERNATIONAL Three Park Avenue New York, NY 10016-5990 Ph: 212-591-7722 Fax: 212-591-7674 Internet: www.asme.org	ASME
AMERICAN SOCIETY FOR TESTING AND MATERIALS 100 Barr Harbor Drive West Conshohocken, PA 19428-2959 Ph: 610-832-9585 Fax: 610-832-9555 Internet: www.astm.org	ASTM

NAME	ABBREVIATION
AMERICAN WELDING SOCIETY 550 N.W. LeJeune Road Miami, FL 33126 Ph: 800-443-9353 - 305-443-9353 Fax: 305-443-7559 Internet: http://www.amweld.org	AWS
CODE OF FEDERAL REGULATIONS Order from: Government Printing Office Washington, DC 20402 Ph: 202-512-1800 Fax: 202-275-7703 Internet: http://www.gpo.gov	CFR
COMMERCIAL ITEM DESCRIPTIONS Order from: General Services Administration Federal Supply Service Bureau 470 E L'Enfant Plaza, S.W., Suite 8100 Washington, DC 20407 Ph: 202-619-8925 Internet: http://pub.fss.gsa.gov/h1-pub.html	CID
CORPS OF ENGINEERS Order CRD-C documents from: U.S. Army Engineer Waterways Experiment Station ATTN: Technical Report Distribution Section, Services Branch, TIC 3909 Halls Ferry Rd. Vicksburg, MS 39180-6199 Ph: 601-634-2664 Fax: 601-634-2388 Internet: www.libweb.wes.usace.army.mil/index.htm	COE
FEDERAL HIGHWAY ADMINISTRATION Office of Highway Safety (HHS-31) 400 Seventh St, SW Washington, D.C. 20590 Ph: 202-366-0411 Internet: www.fhwa.dot.gov	FHWA
ENGINEERING MANUALS USACE Publications Depot Attn: CEIM-SP-D 2803 52nd Avenue Hyattsville, MD 20781-1102 Ph: 301-394-0081 Fax: 301-394-0084 Internet: www.usace.army.mil	EM

NAME	ABBREVIATION
ENVIRONMENTAL PROTECTION AGENCY Ariel Rios Building 1200 Pennsylvania Avenue, N.W. Washington, DC 20460 Ph: 202-260-2090 FAX: 202-260-6257 Internet: http://www.epa.gov **NOTE**: Some documents are available only from: National Technical Information Services (NTIS) 5285 Port Royal Rd. Springfield, VA 22161 Ph: 800-553-6847 Fax: 703-321-8547 Internet: www.ntis.gov	EPA
INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS 445 Hoes Ln, P. O. Box 1331 Piscataway, NJ 08855-1331 Ph: 732-981-0060 OR 800-701-4333 Fax: 732-981-9667 Internet: www.ieee.org E-mail: customer.service@ieee.org	IEEE
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION 1300 N. 17th St., Suite 1847 Rosslyn, VA 22209 Ph: 703-841-3200 Fax: 703-841-3300 Internet: http//www.nema.org/	NEMA
NATIONAL FIRE PROTECTION ASSOCIATION 1 Batterymarch Park P.O. Box 9101 Quincy, MA 02269-9101 Ph: 617-770-3000 Fax: 617-770-0700 Internet: www.nfpa.org	NFPA
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY Department of Commerce Gaithersburg, MD 20899-0001 Ph: 301-975-4025 Order Documents from: Superintendent of Documents U.S. Government Printing Office (GPO) Washington, D.C. Ph: 202-512-1800 Fax: 202-512-2250	NIST

NAME	ABBREVIATION
NATIONAL READY-MIX CONCRETE ASSOCIATION 900 Spring Street Silver Spring, MD Ph: 301-587-1400 Internet: www.nrmca.org	NRMCA
STEEL DOOR INSTITUTE 30200 Detroit Rd. Cleveland, OH 44145 Ph: 440-899-0010 Internet: www.steeldoor.org	SDOI
THE SOCIETY FOR PROTECTIVE COATINGS 40 24th Street, 6th Floor Pittsburgh, PA 15222-4656 Ph: 412-281-2331 Fax: 412-281-9992 Internet: www.sspc.org	SSPC
UNDERWRITERS LABORATORIES 333 Pfingsten Rd. Northbrook, IL 60062-2096 Ph: 847-272-8800 Fax: 847-272-8129 Internet: http://www.ul.com/ e-mail: northbrook@us.ul.com	UL

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UFGS-01451A (January 2003)

SECTION 01451A

*2 CONTRACTOR QUALITY CONTROL
01/03

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D 3740	(2001) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(2000b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." 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 operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The CQC System Manager 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 CQC System Manager shall maintain a physical presence at the site at all times that work is in progress, except as otherwise acceptable to the Contracting Officer, and shall be responsible for quality control related activities at the site.

3.2 QUALITY CONTROL PLAN

The Contractor shall furnish for review by the Government, not later than 14 days after receipt of notice to proceed, the Contractor Quality Control

(CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 90 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan.

3.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, 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 manager.

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, and purchasing agents. These procedures shall be in accordance with Section 01330 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. (Laboratory facilities approved by the Contracting Officer shall be used.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks,

has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.2 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of . Acceptance is conditional and will be predicated on satisfactory performance during the . The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.3 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC 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 7 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 onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, shop drawing

submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of 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 of construction management, with a minimum of 5 years construction experience on construction similar to this contract. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager for the following areas: electrical, civil, and environmental. These individuals may be employees of the prime or subcontractor; be responsible to the CQC System Manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan.

Experience Matrix

	Area	Qualifications
a.	Civil	Graduate Civil Engineer with 2 years experience in the type of work being performed on this project or technician with 5 yrs related experience
b.	Mechanical	Graduate Mechanical Engineer with 2 yrs experience or person with 5 yrs related experience
c.	Electrical	Graduate Electrical Engineer with 2 yrs related experience or person with 5 yrs related experience
d.	Structural	Graduate Structural Engineer with 2 yrs experience or person with 5 yrs related experience

Experience Matrix

	Area	Qualifications
e.	Architectural	Graduate Architect with 2 yrs experience or person with 5 yrs related experience
f.	Environmental	Graduate Environmental Engineer with 3 yrs experience

3.4.4 Additional Requirement

In addition to the above experience and education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". This course is periodically offered at the Richard B. Russell Area Office.

3.4.5 Safety Engineer

(1) The Contractor shall employ at the project site to cover all hours of work at least one Safety and Occupational Health person to manage the Contractor's accident prevention program. Duties which are not germane to the safety program shall not be assigned to the Safety and Health person. The principal safety person shall report to the CQC System Manager, higher level offical, or the corporate safety office. The Safety and Health person shall have the authority to take immediate steps to correct unsafe or unhealthful conditions. The presence of a Safety and Health person will not abrogate safety responsibilities of other personnel.

(2) Qualifications of Safety and Health person

(a) Shall have a degree in engineering safety in at least a 4-year program from an accredited school; or

(b) Shall have legal registration as a Professional Engineer or a Certified Safety Professional and, in addition, shall have been engaged in safety and occupational health for at least one (1) year of experience, no time being credited to this one (1) year experience unless at least fifty (50) percent of the time was devoted to safety and occupational health; or

(c) Shall have a degree other than that specified in (a) above and, in addition, shall have been engaged in safety and occupational health for at least three (3) years, no time being credited to these three (3) years unless at least fifty (50) percent of the time each year was devoted to safety and occupational health; or

(d) In lieu of a degree shall have been engaged in safety and occupational health for at least five (5) years, no time being credited to these five (5) years unless at least fifty (50) percent of the time each year was devoted to safety and occupational health.

(e) First aide work is not creditable experience.

(3) The name and qualifications of the nominated safety person shall be furnished to the Contracting Officer for acceptability and a functional

description of duties shall be provided prior to the prework conference.

3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of the construction work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/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 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. Review of provisions that 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 assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Discussion of the initial control phase.

k. The Government shall be notified at least 48 hours in advance of beginning the preparatory control 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 CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure 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 required 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 48 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 CQC 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 onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, 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 deficiencies corrected prior to the start of additional features of work which may be affected by the

deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. 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 CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of $1,000.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Division Laboratory, f.o.b., at the address given by the Contracting Officers' Representative.

Coordination for each specific test, exact delivery location, and dates will be made through the Area Office.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the SPECIAL CONTRACT REQUIREMENTS Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

a. Contractor/subcontractor and their area of responsibility.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.

e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

g. Offsite surveillance activities, including actions taken.

h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily, not later that 1000 hours of the following day. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 SAMPLE FORMS

Sample forms are in section 00800.

3.11 NOTIFICATION OF NONCOMPLIANCE

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

-- End of Section --

SECTION 02080

ASBESTOS ABATEMENT WORK

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 REFERENCES
1.3 DEFINITIONS
1.4 SUBMITTALS
1.5 PROTECTION OF ADJACENT WORK AREAS
1.6 TITLE TO MATERIALS
1.7 SITE SECURITY
1.8 TRAINING
1.9 RESPIRATORY PROTECTION
1.10 MEDICAL EXAMINATIONS
1.11 INSURANCE
1.12 PERMITS AND NOTIFICATIONS
1.13 INDUSTRIAL HYGIENIST
1.14 AIR MONITORING PERSONNEL
1.15 PROJECT DOCUMENTATION

PART 2 PRODUCTS

2.1 MATERIALS

PART 3 EXECUTION

3.1 ABATEMENT WORK DESCRIPTION
3.2 BULK SAMPLING FOR ASBESTOS-CONTAINING MATERIAL
3.3 WARNING SIGNS & LABELS
3.4 WORK PROCEDURES
3.5 COMMENCEMENT OF WORK
3.6 PERSONNEL AND AREA AIR MONITORING
3.7 SITE INSPECTION
3.8 DISPOSAL OF ASBESTOS CONTAINING MATERIALS
3.9 WASTE SHIPMENT RECORD (WSR)
3.10 GOVERNING AGENCIES

APPENDIX ‘A’

1998 Asbestos Report

SECTION 02080

ASBESTOS ABATEMENT WORK

PART 1 GENERAL

1.1 GENERAL INFORMATION

This section covers the removal and disposal of all asbestos-containing materials designated to be removed during the execution of this contract. This work includes the incidental procedures and equipment required to prevent the airborne release of, and protect workers and occupants of the buildings and/or areas from contact with, asbestos fibers. During the performance of the contract, the laws, ordinances, rules, and regulations of Federal, State, Regional, and local authorities shall be complied with regarding the removal, storage, transportation, and disposal of asbestos-containing materials. Where the requirements of these specifications and Federal, State, Regional or local regulations vary, the most stringent requirements shall be enforced.

1.2 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.

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR Part 1910	Occupational Safety and Health Standards
29 CFR Part 1926	Safety and Health Regulations for Construction
40 CFR Part 61	National Emissions Standards for Hazardous Air Pollutants
40 CFR Part 241	Guidelines for the Land Disposal of Solid Waste
40 CFR Part 257	Criteria for Classification of Solid Waste Disposal Facilities and Practices
40 CFR Part 763	Asbestos
49 CFR Part 171	General Information Regulations, and Definitions (Hazardous Materials)
49 CFR Part 172	Hazardous Materials Table, Special Provision, Hazardous Materials Communications, Emergency Response

Information, and Training Requirements

ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 560/5-85-024	(1985)Guidance for Controlling Asbestos Containing Materials in Buildings
EPA 340/1-90-018	(1990) Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance
EPA 340/1-90-019	(1990) Asbestos/HESHAP Adequately Wet Guidance

NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH-01	(1991) Manual of Analytical Methods

1.3 DEFINITIONS

Terms associated with removal and disposal are defined as follows:

a. Abatement.

Various processes used to control asbestos containing materials in buildings. There are three alternative methods of abatement: removal, encapsulation, or enclosure of asbestos.

b. Action Level.

An 8-hour time weighted average of an airborne concentration of asbestos fibers equal to 0.1 fiber per cubic centimeter of air (0.1 f/cc).

c. Airlock.

A system for permitting ingress and egress with minimum air exchange between a contaminated area and an uncontaminated area. The airlock typically consists of two multi-curtained doorways separated by a distance of at least 3 feet. The airlock permits a person to pass through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before the person proceeds through the second doorway, thereby preventing flow-through contamination.

d. Amended Water.

Water containing a wetting agent or surfactant.

e. Area Monitoring.

Sampling of asbestos fiber concentrations within the asbestos control area and outside the asbestos control area which is representative of the airborne concentrations of asbestos fibers which may reach the breathing zone.

f. Asbestos.

A class of magnesium-silicate minerals that occur in fibrous form. Minerals that are included in this group are chrysolite, crocidolite, amosite, anthophylite, tremolite, and actinolite.

g. Asbestos Containing Material (ACM).

A friable or non-friable material composed of asbestos of any type and in an amount greater than 1 percent by weight, either alone or mixed with other fibrous or non-fibrous materials.

h. Asbestos Control Area.

An area where asbestos abatement work is performed which is isolated by a containment barrier to prevent the spread of asbestos dust, fibers, or debris.

i. Asbestos Fibers.

Asbestos having an aspect ratio of at least 3 to 1 and are 5 micrometers or longer in length.

j. Asbestos Permissible Exposure Limit (PEL).

An 8-hour time weighted average of an airborne concentration of asbestos fibers equal to 0.2 fiber per cubic centimeter of air (0.2 f/cc).

k. Authorized Person.

A person authorized to be present in the regulated areas by either the Contractor, industrial hygienist, or the Contracting Officer.

l. Clean Room.

An uncontaminated outer chamber of the decontamination room having facilities for storage of employee's street clothing and uncontaminated materials and equipment.

m. Containment Barrier.

A near airtight barrier, usually constructed with polyethylene sheets and duct tape, surrounding and sealing the outer perimeter of the asbestos control and decontamination areas.

n. Decontamination Area.

An enclosed area connected to the asbestos control area that consists of an equipment room, a shower area, and a clean room. This series of connected rooms are separated from the asbestos control area and from each other by air locks for the decontamination of the workers and equipment.

o. Employee Exposure.

The exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

p. Encapsulate.

The process whereby an encapsulant is applied to asbestos-containing materials (ACM) to control the release of asbestos fibers into the air.

q. Encapsulant.

A liquid material which can be applied to ACM which controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).

r. Equipment Room.

A room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

s. Excursion Limit.

A 30-minute average of an airborne concentration of asbestos fibers equal to 1.0 fiber per cubic centimeter of air (1.0 f/cc).

t. Fiber Count.

The average number of asbestos fibers in a cubic centimeter (F/CC) of air.

u. Friable Asbestos Material.

Material that contains more than 1 percent asbestos by weight which when dry can be crumbled, pulverized, or reduced to powder by hand pressure.

v. Glovebag Technique.

A method for removing asbestos containing material from HVAC ducts, piping, valves, joints, elbows, and other nonplanar surfaces within a clear plastic containment bag. The glovebag is a premanufactured or custom fabricated bag, typically constructed of 6 mil transparent polyethylene material, that has at least two inward projecting long sleeves and gloves. The glovebag is constructed and installed in such a manner that it surrounds the object or material to be removed and contains all asbestos fibers released during the process. A portable exhaust system equipped with HEPA type filtration is used to maintain negative pressure within the glovebag enclosure relative to the pressure outside of it.

w. High-Efficiency Particulate Air (HEPA) Filter.

A filter capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 microns in diameter or larger.

x. Negative Pressure System.

A system that has been designed to maintain a minimum pressure differential of at least minus 0.02 inches of water column in the asbestos control area relative to adjacent, unsealed areas outside of the asbestos control area.

y. Non-friable Asbestos Material.

Material that contains more than 1 percent asbestos by weight in which the fibers have been locked in by a bonding agent, coating, binder, or other material so that the asbestos is bound and normally does not release fibers during any routine appropriate end-use, handling, storage, transportation, or processing. Non-friable asbestos containing material may release excessive asbestos fiber concentrations during controlled handling, abrading, sanding, drilling, cutting, machining, removal or demolition operations. Non-friable asbestos containing material is considered hazardous during abatement and disposal procedures that destroy the material's integrity.

x. Occupied Area.

Any area adjacent to the asbestos work area which is occupied by unprotected employees during any time abatement activities are performed.

aa. Personal Monitoring.

Sampling of asbestos fiber concentrations within the breathing zone of an employee.

bb. Phase Contrast Illumination Microscopy (PCM).

An analytical method for counting fibers using the sampling and analytical method specified in NIOSH method 7400, latest revision.

cc. Prior Experience.

Experience required of the Contractor and Industrial Hygienist on asbestos projects of similar nature and scope to insure their capability of performing the asbestos removal in a satisfactory manner. Similarities shall be in areas related to material composition, project size, number of employees, and the engineering work practice and personal protection control required. A minimum of 2 years of such experience shall be mandatory for both the Contractor and the industrial hygienist.

dd. Qualitative Fit Tests and checks.

A group of tests that can be easily performed to test the fit of a respirator face-piece to the wearer's face. Examples are the negative and positive pressure checks, the irritant smoke test, and the isoamyl acetate (banana oil) test.

ee. Quantitative Fit Tests.

A group of tests that can be performed to quantitatively test the fit of a respirator face-piece to the wearer's face.

ff. Regulated Area.

An area established to demarcate areas where the possibility of airborne concentrations of asbestos exceed or can reasonably be expected to exceed the permissible exposure limit.

gg. Supervisory Personnel.

A person who supervises activities in the regulated area. The supervisory person is capable of identifying existing asbestos hazards in the work place and has the authority to take prompt corrective measures to eliminate them. The duties of the competent person includes as a minimum the following: establishing the negative-pressure enclosure, ensuring its integrity, and controlling entry to and exit from the enclosure; supervising all employee exposure monitoring as required; ensuring that all employees working within such enclosure wear the appropriate personal protective equipment, are trained in the use of appropriate methods of exposure control, and use the hygiene facilities and decontamination procedures specified; and ensuring that engineering controls in use are in proper operating condition and are functioning. The supervisory person must have attended an EPA approved comprehensive course on asbestos hazards and its proper methods of abatement.

hh. Surfactant.

A wetting agent that reduces the surface tension of water. The three types are cationic, anionic, and non-ionic.

ii. Time Weighted Average (TWA).

The TWA is an 8-hour time weighted average of airborne concentrations of asbestos fibers that have an aspect ratio of at least 3 to 1 and are 5 micrometers or longer per cubic centimeter of air.

jj. Transmission Electron Microscope Analysis (TEMA).

A method for detecting and counting asbestos fibers using NIOSH method 7402. TEM analysis is typically used to confirm asbestos fiber concentrations as counted by Phase Contrast Illumination Microscopy analysis.

kk. Waste Transfer Airlock.

A decontamination system utilized for transferring containerized waste

from inside to outside of the work area.

1.4 SUBMITTALS

Submittals required by this section of the Technical Specifications shall be for Government approval (GA) or for information only (FIO), and shall be submitted as stated below in accordance with SECTION 01330 The time of submittal shall be in accordance with SECTION 01330, unless otherwise indicated below.

SD-01 Data

Prior to the commencement of any work involving asbestos containing materials:

Manufacturer’s Data; GA

The manufacturer's data, certificates of compliance, and any material safety data sheets (MSDS) for the following items:

a. Surfactants.

b. Encapsulants.

c. Respirators.

d. Vacuum equipment.

e. Local exhaust equipment.

f. Pressure differential equipment.

Sampling Plan; GA

This plan shall include a description of the methods to be used to determine the magnitude and characteristics of asbestos removal work.

Asbestos Plan; GA

A detailed asbestos plan, approved and signed by the certified Industrial Hygienist, of the containment and work procedures to be used in the removal and demolition of asbestos containing materials. The plan shall include a sketch showing the location, size, and details of the asbestos control areas, location, layout, and details of the decontamination areas, and the locations of negative pressure equipment and pressure differential monitoring devices. The plan shall also include interface of trades involved in the construction, sequencing of asbestos-related work, disposal plan, type of wetting agent to be used, air monitoring, respirators, protective equipment, pressure differential monitoring device, and a detailed description of the method to be employed in order to control pollution. Prior to the start of any abatement work, the Contractor and the certified Industrial Hygienist shall meet with the Government to discuss in detail the asbestos plan including work procedures and safety precautions.

Testing Laboratory and Air Monitoring Personnel; GA

The name, address, and telephone number of the testing laboratory selected to perform the monitoring, testing, and reporting of airborne concentrations of asbestos fibers shall be submitted. Certification shall also be submitted to verify that the persons counting the samples have met the requirements as set forth in paragraph 1.14, "AIR MONITORING PERSONNEL".

Industrial Hygienist;. GA

The name, address, and telephone number of the industrial hygienist selected to approve the asbestos plan and direct monitoring. In addition, a copy of certification from the American Board of Industrial Hygiene for the Industrial Hygienist shall also be submitted.

Training. FIO

Certificates of training verifying that each employee, within the past 2 years, has successfully passed an EPA or State certified asbestos worker course and has a current asbestos worker identification card. Certificates indicating the successful completion of an EPA or State approved "Competent Person" course shall also be submitted for those persons to be designated as the Contractor's supervisor for this abatement project.

Medical Examination. FIO

A certificate of compliance that includes the name, date of the most current medical examination, and the name and signature of the examining physician for all employees who will be exposed to airborne asbestos fibers in performing their assigned work.

Respirator Fit Test Results. FIO

A record of the most recent respirator fit test for each employee

required to wear a respirator during the performance of their work. The respirator fit test results shall include as a minimum the following information:

a. Type of respirator fit test used and agent.

b. Specific make, model, size, and approval number of the respirator tested.

c. Name of the person tested.

d. Name of the test operator.

e. Date of the test.

f. Results of the respirator fit test.

Permits and Notification. FIO

A copy of all permits and notifications as required by Federal, State, and local agencies.

Waste Disposal Site (WDS). FIO

Prior to disposal, written evidence stating that the landfill for disposal is approved for asbestos disposal by the State and local regulatory agencies.

Insurance. FIO

A certificate of compliance that includes the insurance company's name, agent, type of coverage, amount of coverage, policy number, and effective dates.

Previous Citations; FIO

A list of any citation and their resulting penalties issued by Federal, State, or Local regulatory agencies relating to asbestos abatement activities. This list shall include the name of the project, dates, and resolutions. In addition, a list of any asbestos related contract that has been terminated prior to its completion shall also be submitted. This list shall include the project's name, date, and reasons for termination.

Subsequent Submittals.

Work Site Entry Logbook. FIO

A copy of the work site entry logbook shall be submitted daily for the previous work day. The entries in the log shall be consistent with the requirements set forth in paragraph 1.7, "SITE SECURITY".

Daily Narrative Log. FIO

A copy of the daily narrative log submitted daily for the previous work day. The entries in the log shall be consistent with the requirements set forth in paragraph 1.15, "PROJECT DOCUMENTATION".

Pressure Differential Recordings. FIO

Pressure differential recordings of the negative pressure system for each workday shall be reviewed by the industrial hygienist, or his designee, and submitted to the Government on site within 24 hours from the end of each workday.

Air Monitoring Results. FIO

Fiber counting shall be completed and results reviewed by the industrial hygienist, or their designee, within 1 hour of the time the samples were taken. Monitoring results, signed by the testing laboratory employee performing the air monitoring, and the employee that analyzed the sample shall be submitted to the Government on site within 3 working days.

Waste Shipment Record (WSR). FIO

A copy of the completed WSR within 10 days after the transport of any asbestos containing materials to a Waste Disposal Site and before the completion date of this contract.

1.5 PROTECTION OF ADJACENT WORK AREAS

All asbestos removal shall be performed without contamination of adjacent work areas. Where such work contaminates adjacent work areas, these areas shall be decontaminated.

1.6 TITLE TO MATERIALS

Asbestos containing materials resulting from the abatement work shall become the property of the Contractor and shall be disposed of as specified herein.

1.7 SITE SECURITY

1.7.1 Authorized Personnel

During abatement work, the regulated area shall be restricted to only authorized, trained, and protected personnel. These personnel may include the Contractor's employees, the Government authorized representatives, State and local inspectors, and any other designated individuals. A list of authorized personnel shall be established prior to the initiation of work and the Contractor shall be responsible for site security during the abatement work.

1.7.2 Work Site Entry Log

A work site entry logbook shall be kept with the list of the names of all workers and visitors including the date and time of entry and departure that enter the asbestos control area.

1.8 TRAINING

1.8.1 Asbestos Abatement Workers

All personnel who are exposed to, or might reasonably be expected to be exposed to, airborne concentrations of asbestos at or above the action level, are required to have successfully completed an Environmental Protection Agency approved or State accredited asbestos abatement workers course. Successful completion of the course shall be prior to the time of initial assignment and a refresher course is required every two years thereafter.

1.8.2 Supervisory Person

Personnel to be designated as "Supervisory Persons" for this abatement project shall have successfully completed an Environmental Protection Agency approved or State accredited Contractor/supervisor 32-hour course. Successful completion of the course shall be prior to the time of initial assignment and an annual refresher course is required thereafter.

1.9 RESPIRATORY PROTECTION

1.9.1 General

As a minimum, half-mask air-purifying respirators equipped with high-efficiency particulate air (HEPA) filters shall be used during all abatement work. Respirators providing greater protection for higher environmental concentrations of asbestos fibers shall be required, if their use is dictated by air sampling results. All respirators shall be jointly approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH). Each asbestos worker shall be provided with a personally issued and individually identified respirator.

1.9.2 Respirator Fit Testing

Each respirator issued to the worker shall be properly fitted. A qualitative respirator fit test shall be used to determine the ability of each worker to obtain a satisfactory fit. A respirator fit test shall be performed for each worker on initial fitting of the respirator and at least every 6 months thereafter. Fit test procedures shall be used as specified in 29 CFR 1926.58, Appendix C, "Qualitative and Quantitative Fit Testing Procedures".

1.9.3 Respirator Fit Checks

The workers shall be required to perform a positive and negative pressure fit check each time a respirator is worn.

1.10 MEDICAL EXAMINATIONS

As a minimum, a medical examination shall be given to each abatement worker on a annual basis. The content of the examination shall be consistent with the requirements set forth in 29 CFR 1926.58 (m)(2)(ii).

1.11 INSURANCE

In conjunction with SECTION 00800, para 1.9(2), Contract Clause "INSURANCE - WORK ON A GOVERNMENT INSTALLATION ", a "per occurrence" insurance policy in the minimum amount of $2,000,000 shall be required to protect against any asbestos related claim that may arise out of or result from the Contractor's activities under this contract.

1.12 PERMITS AND NOTIFICATIONS

All permits and notifications relating to the asbestos removal, storage, hauling, and disposition, as required to perform the work described herein shall be the Contractor's responsibility. Timely notification of such actions as may be required by Federal, State, regional, and local agencies is the sole responsibility of the Contractor, including notification of the State's Environmental Protection Agency and the Contracting Officer in writing at least 10 working days prior to the commencement of work in accordance with 40 CFR 61.145 (b) and 40 CFR 2H.

1.13 INDUSTRIAL HYGIENIST

The industrial hygienist shall be certified by the American Board of Industrial Hygiene and have a minimum of 2 years of prior experience working on asbestos related projects. The project's industrial hygienist may also be a professional engineer or certified safety professional with a minimum of 5 years experience in industrial hygiene including 2 years of prior experience working on asbestos related projects. This individual shall not be affiliated in any way other than through this contract with the Contractor performing the abatement work.

1.14 AIR MONITORING PERSONNEL

Personnel performing air monitoring shall have, as a minimum, 1 year experience in the analysis of air samples and shall have successfully completed the NIOSH 582 course. In addition, within the past year the persons counting the samples shall have been judged proficient by their successful participation in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing (PAT) Program. In lieu of this requirement, the individual performing the monitoring, testing and reporting shall participate and be listed on the Asbestos Analysis Registry. The laboratory that employs the air monitoring personnel shall be currently accredited by the National Institute for Standards and Technology (NIST) under the National Voluntary Laboratory

Accreditation Program (NVLAP) for bulk asbestos analysis. Air monitoring personnel shall not be affiliated in any way other than through this contract with the Contractor performing the abatement work.

1.15 PROJECT DOCUMENTATION

Maintain and have available for inspection at the job site, the following:

a. Daily Narrative Log.

A daily narrative log kept by the industrial hygienist or his designee shall be maintained. This log shall document the major events which occur each day. This log shall provide a comprehensive description of conditions in and around the job site. It shall include the names of all persons who visit the job site and all persons who enter the sealed or restricted work areas. It shall contain the details of all accidents, emergencies, breakdowns of equipment, and any material, procedural or safety difficulties including issues and complaints brought to management attention by the Contractor's employees. It shall contain details such as the number of persons on the job, the time they entered the work area and the time they left, and the nature of the work-in-progress. Each day's entries shall be signed and dated by the person who made them.

b. Personnel and Area Air Monitoring Log.

A daily air monitoring log which records all required items outlined in paragraph 3.6, "PERSONNEL AND AREA AIR MONITORING".

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 General

Deliver all the materials in their original packages, containers, or bundles bearing the name of the manufacturer and where applicable, the brand name. Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient enough to protect them from damage or contamination. Replacement materials shall be stored outside of the work area until abatement is completed.

2.1.2 Polyethylene Sheeting

Polyethylene sheeting used for walls and floors shall have a minimum thickness of 6-mils. Polyethylene sheeting utilized for worker decontamination enclosures shall be opaque white or black in color. All polyethylene sheeting shall be used in widths selected to minimize the frequency of joints. Methods of attaching polyethylene sheeting to the building or structures in the building shall be submitted for approval. The method submitted shall be selected to minimize damage to equipment

and surfaces; any resulting damage shall be the responsibility of the Contractor to repair at no additional cost to the Government.

2.1.3 Asbestos Disposal Bags

Disposal bags shall be of 6 mil polyethylene, pre-printed with labels as required in paragraph 3.3, "WARNING SIGNS AND LABELS".

2.1.4 Disposal Drums

If used, disposal drums shall be metal or fiberboard with locking ring tops and shall be labeled as required in paragraph 3.3, "WARNING SIGNS AND LABELS".

2.1.5 Encapsulant

The encapsulant shall be the bridging or penetrating type, depending on the particular application. The encapsulant shall not be solvent-based, utilize a vehicle consisting of hydrocarbons or be flammable. All encapsulants shall have been EPA approved prior to their application.

PART 3 EXECUTION

3.1 ABATEMENT WORK DESCRIPTION

The work includes the removal, encapsulation, management in place and disposal of all materials containing asbestos encountered during the execution of this contract. These materials may be found in, but are not limited to, powerhouse control panel wiring found in the control room and cable training areas.

3.2 BULK SAMPLING FOR ASBESTOS-CONTAINING MATERIALS

Prior to any work in or around the powerhouse control panel wiring, Contractor shall follow federal, state and industry standard guidelines for vacuuming, painting of the edges, encapsulating, or preparing the wiring for the work involved.

3.3 WARNING SIGNS AND LABELS

3.3.1 Warning Signs

Warning signs shall be posted at all approaches to any location where airborne concentrations of asbestos may be expected to exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from the work area to permit an employee to read the sign and take the necessary protective measure to avoid exposure. Warning signs shall be provided that are of sufficient size to be clearly legible, printed on a contrasting background, and display the following legend:

DANGER

ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING ARE REQUIRED
IN THIS AREA

3.3.2 Warning Labels

Warning labels shall be affixed on all containers that store asbestos waste materials. The warning label shall be legible, printed in large bold letters on a contrasting background, and display the following legend:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

3.4 WORK PROCEDURES

3.4.1 General

All abatement work shall be performed by certified asbestos abatement workers, under the direct supervision of the approved Contractor's supervisory personnel. Abatement work shall be performed as detailed in the approved asbestos abatement plan, unless alternative procedures have been submitted and approved. No abatement work shall proceed without a GQAR present to witness the work. The Contracting Officer shall be notified in writing at least ten days prior to each individual occurrence of abatement work. All asbestos work shall be performed in accordance with 29 CFR 1926.58, 40 CFR 241, 40 CFR 763, EPA standards 560/5-85-024, 340/1-90-018, 340-1-90-019, state and local regulations and the requirements specified herein. Eating, smoking, drinking, chewing tobacco, or gum shall not be permitted in the regulated area. Personnel of other trades not engaged in the removal and disposal of asbestos containing materials shall not be in the regulated area.

3.4.2 Replace Electrical Wiring

Where electrical equipment contains non-friable asbestos materials, the following removal method may be used.

3.4.2.1 Air Monitoring Results Below 0.05f/cc

If subsequent air monitoring indicate fiber counts are below 0.05 fibers per cubic centimeters of air, the following removal method may be used.

Workers shall be double-suited in disposable coveralls, wearing respirators, and gloves. Upon completion of the abatement work the outer coverall and gloves shall be considered as asbestos contaminated materials and disposed of properly. Disposal bags shall have the air evacuated and the bag properly sealed. All asbestos containing materials shall be doubled bagged.

3.4.2.2 Air Monitoring Results Above 0.05 f/cc

If subsequent air monitoring indicate fiber counts are above 0.05 fibers per cubic centimeters of air, the following removal method may be used.

a. An asbestos control area enclosure shall be installed and a negative pressure system for the area operated continuously, 24 hours a day, until the enclosure is removed. The negative pressure equipment shall be sized so to provide a minimum of 4 air changes per hour in the asbestos control enclosure and to maintain a minimum pressure differential of minus 0.02 inch of water column relative to adjacent unsealed areas. Negative pressure equipment shall be exhausted to the outside of the building, unless otherwise approved. Exhausted air shall be filtered to remove all asbestos. Pressure differential readings between the asbestos control enclosure and adjacent unsealed areas shall be taken at the beginning of each workday and every 2 working hours thereafter.

b. Removal of asbestos containing material shall then proceed as identified in paragraph 3.4.2.1 .

3.4.3 Managing Asbestos Containing Wastes

In order to maintain asbestos concentrations at a minimum, the saturated or encapsulated or otherwise enclosed asbestos containing material must be removed in manageable sections. Asbestos-bearing waste shall not be dropped from a height in excess of 15 feet. Plastic shovels, rubber squeegees, rubber dustpans, HEPA vacuum cleaners and other appropriate tools shall be used to gather gross asbestos waste on floors.

3.4.4 Waste Containers

Asbestos waste shall be placed in approved containers, and caution labels applied on the containers in accordance with 29 CFR 1926.1101 (k), (8), and if not already preprinted on the containers. External surfaces of the filled containers shall be thoroughly cleaned by wet sponging in the designated areas. The containers shall then be moved to the decontamination unit, thoroughly wet-cleaned, and moved to a holding area pending removal. Bags shall not be overfilled and shall be securely sealed to prevent accidental opening and leakage by twisting and taping the tops of bags in a gooseneck fashion. Bags shall not be sealed with wire or cord. Bags shall be placed in drums for staging and transportation to the approved landfill. Bags shall be decontaminated on the exterior surfaces by wet cleaning and HEPA vacuuming. Asbestos containing brake shoes and asbestos containing waste with sharp-edged components, or which may puncture the disposal bags or plastic sheeting, shall be placed into drums and sealed with locking ring tops for disposal.

3.5 COMMENCEMENT OF WORK

Commencement of abatement work shall not occur until:

a. All pre-abatement submittals, notifications, postings, and permits have been provided and approved.

b. All required enclosure systems (if used) have been constructed and tested.

c. Negative pressure systems (if used) are functioning properly.

d. All equipment for abatement, clean-up, and disposal are on-site.

e. The Contractor receives written permission to commence abatement.

3.6 PERSONNEL AND AREA AIR MONITORING

Monitoring of airborne concentrations of asbestos fibers shall be in accordance with 29 CFR 1926.1101. All air monitoring shall be performed by the Industrial Hygienist, or their approved designee and shall include as a minimum, pre-abatement, personal, area, and post-abatement air samples as required by Federal, State, and local regulations. Analysis of the air samples shall be performed at the work site, unless otherwise approved. The Industrial Hygienist, or their designee, shall notify the Contractor, and the Government on site immediately of the results of any air sample that indicates airborne fiber concentrations in excess of the acceptable limits.

3.6.1 Pre-Abatement Air Sampling

Area air samples shall be taken for each asbestos removal site and the reference TWA established prior to the start of any abatement work. The number of general air samples required to be taken to establish the reference TWA for each abatement site shall be determined by the Industrial Hygienist and submitted for approval in the abatement plan.

3.6.2 Air Monitoring During Abatement Work

Personal and area air monitoring shall be provided and the TWA and excursion exposure levels shall be established during the first exposure to airborne concentrations of asbestos. Thereafter, provided the same type of work is performed, air monitoring shall be provided at a frequency as designated by the Industrial Hygienist. If monitoring outside the asbestos control area shows airborne concentrations have reached the action level, work shall be stopped and the Government on site notified immediately. The condition(s) causing this increase shall be corrected prior to the continuance of any abatement work.

3.6.3 Post-Abatement Air Sampling

Area air samples shall be taken, under aggressive conditions, to establish the clearance TWA in the asbestos control area. A maximum TWA of less than 0.01 fibers/cc shall be established after final cleanup and

before removal of the containment barrier. The fiber counts from these samples shall be less than 0.01 fibers/cc or less than or equal to the reference TWA whichever is less. Should any of the final samplings indicate a higher value, appropriate actions shall be taken by the Contractor to clean the area and the area air sampling repeated.

3.7 SITE INSPECTION

While performing asbestos removal work, the Contractor shall be subject to on-site inspection. If the work is in violation of specification requirements or any Federal, State, or local regulations, a stop work order will be issued to be in effect immediately and until the violation is resolved. Standby time and expenses required to resolve the violation shall be at the Contractor's expense.

3.8 DISPOSAL OF ASBESTOS CONTAINING MATERIALS

Asbestos containing materials shall be disposed of by burial at a State-permitted sanitary landfill. The asbestos containing materials shall be hauled to the landfill in a closed container and all procedures for hauling and disposal shall comply with 40 CFR 61 Subpart M, 40 CFR 241 and 257, 49 CFR 171 and 172, and State, and local standards. ACM shall not be allowed to accumulate on site for more than 90 days.

3.9 WASTE SHIPMENT RECORD (WSR)

A WSR shall be completed and submitted for this contract as specified in CFR 40 Part 61, subpart M and other state waste manifest shipment records within 10 days of delivery to the landfill.

3.10 GOVERNING AGENCIES

1. Rules of Georgia Department of Natural Resources Environmental Protection Division
   Chapter 391-3-14, Asbestos Removal and Encapsulation
2. Georgia Asbestos Safety Act, O.C.G.A. Section 12 - 12, 1996

APPENDIX ‘A’

1998 Asbestos Report

DEPARTMENT OF THE NAVY
SUPERVISOR OF SHIPBUILDING, CONVERSION AND REPAIR, USN
PORTSMOUTH, VIRGINIA, ENVIRONMENTAL DETACHMENT CHARLESTON
1899 NORTH HOBSON AVENUE, BUILDING 38
NORTH CHARLESTON, SOUTH CAROLINA 29405-2108

IN REPLY REFER TO:
Ser: 793

SEP 18 1998

MEMORANDUM

From: Director, Supervisor of Shipbuilding, Conversion and Repair, USN, Portsmouth, Environmental Detachment Charleston, SC (SPORTENVDETCHASN)
To: Army Corps of Engineers – Hartwell Dam Project
Hartwell, Ga.
Ms. Kim Whetzel

Subj: ELECTRICAL WIRE INSULATION ASBESTOS SAMPLE RESULTS

ENCL: (1) Chain of Custody
(2) Bulk Analysis

1. Per your request, Supervisor of Shipbuilding, Conversion and Repair, USN, Portsmouth., Environmental Detachment - Charleston (SPORTENVDETCHASN) conducted an inspection of electrical wiring insulation for the possibility of being asbestos containing material (ACM) at the ACE Lake Hartwell Dam, Hartwell, Ga. Inspection was performed on 16 September 1998.

2. Four (4) bulk samples were taken by a SPORTENVDETCHASN inspector licensed through an EPA accredited program administrated by the South Carolina Department of Health and Environmental Control (SCDHEC). Samples were taken of accessible wiring insulation located in the elevator house and main control room board #1. Samples were analyzed using Polarized Light Microscopy and dispersion staining. **Lab results indicate the presence of chrysotile asbestos in the wire insulation sample taken from the main control room board #1. No other asbestos was found. Lab results are listed in Table 1.**

3. Prior to the renovation of any building or machinery EPA requires the removal of all asbestos containing material. EPA also requires a Notification of Removal prior to removal of asbestos containing material. A project license will also be required for the removal of more than 160 linear or 260 square feet of asbestos containing material.

4. Abatement of regulated asbestos containing material must be performed by licensed asbestos personnel in accordance with EPA and OSHA requirements.

5. Copies of Chain of Custody forms and bulk sample analysis are presented as Enclosures (1) and (2).

6. If you require any additional information or assistance, please contact Royce Charpia at (843) 743-6777, (ext. 230).

for E. R. DEARHART

Table 1

ASBESTOS LABORATORY RESULTS

United States Army Corps of Engineering
Lake Hartwell Dam
Hartwell, Ga.

September 16, 1998

Lab Sample No.	Homogenous Material	Material	No. Samples taken	Sample Locations	Results
1	1	Wire insulation	1	Elevator Wiring Panel Middle	Contains ***NO*** asbestos
2	1	Wire insulation	1	Elevator Wiring Panel - Side	Contains ***NO*** asbestos
3	1	Wire insulation	1	Elevator Wiring Panel - Side	Contains ***NO*** asbestos
4	1	Wire insulation	1	Main Control Room Board No. 1	20% Chrysotile asbestos

Note:

1. Homogenous areas consist of those areas that are uniform by color, texture, construction/application, date and general appearance.

ASBESTOS
CHAIN OF CUSTODY FORM

FACILITY: ACE Lake Hartwell Dam BUILDING #: —

INSPECTOR'S NAME(S): Royce Charpia (PRINT) DATE : 9/16/98

TOTAL NUMBER OF SAMPLES RELINQUISHED: 4

Sample #s	Relinquished by:	Received by:	Date
1 thru 4	Royce B. Charpia	J. L. Smith	9-17-98

Additional Information / Comments

ANALYSIS

Analysis Completed		Sample #s
Authenticated by; Jeremy L. Smith	Date 9-17-98	LAKE HARTWELL DAM 1 THRU 4
Authenticated by;	Date	
Authenticated by;	Date	

>Identification is determined by Polarized Light Microscopy and Dispersion Staining<

Notify of Results: Royce Charpia Phone ext 230

ENVIRONMENTAL DETACHMENT CHARLESTON
1899 NORTH HOBSON AVENUE
NORTH CHARLESTON, SC 29405-2106
(803) 743-6777

COC-98

ASBESTOS LABORATORY SAMPLE

FACILITY: ACE LAKE Hartwell Dam

BUILDING #: — DATE : 9/16/98

INSPECTORS NAMES: Royce Charpia (PRINT)

INSPECTOR SIGNATURE / LICENSE # : Royce B. Charpia / 21680

SAMPLE NO.	HOMO #	SAMPLE LOCATION (Room #, Floor #, Etc.)	SAMPLE DESCRIPTION	RESULTS
1	1	ELEVATOR CONTROL ROOM - ON CONTROL PANEL	ELECTRICAL WIRING COVER (INSULATION)	NONE
2	1	BLACK WIRE ON SIDE		NONE
3	1	white wire on side		NONE
4	1	MN CONT. BD unit 1 MAIN CONTROL RM		20% CHRYSOTILE

SHEET 1 OF 1

SMPLOG-98

*****

SECTION 02120

HSWY0202120

TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 REFERENCES
1.3 SUBMITTALS
1.4 QUALIFICATIONS
1.5 LAWS AND REGULATIONS REQUIREMENTS
1.6 DEFINITIONS

PART 2 PRODUCTS

2.1 MATERIALS
2.2 EQUIPMENT AND TOOLS

PART 3 EXECUTION

3.1 ON-SITE HAZARDOUS WASTE MANAGEMENT
3.2 OFF-SITE HAZARDOUS WASTE MANAGEMENT
3.3 HAZARDOUS MATERIALS MANAGEMENT
3.4 OBTAINING EPA ID NUMBERS
3.5 SPECIAL REQUIREMENTS FOR ASBESTOS WASTES
3.6 WASTE MINIMIZATION
3.7 RECORDKEEPING
3.8 SPILL RESPONSE
3.9 EMERGENCY CONTACTS

SECTION 02120

TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS

PART 1 GENERAL

1.1 GENERAL INFORMATION

This Section covers requirements and regulations for the transportation and disposal of hazardous waste materials generated as a result of the site operations under this contract. The specific requirements of SECTIONS 01350, and 02080 shall be in conjunction with this section in addition to other sections which may contain hazardous material requirements.

1.2 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.

CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 61	National Emission Standards for Hazardous Air Pollutants
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 270	EPA Administered Permit Programs: The Hazardous Waste Permit Program
40 CFR 279	Standards for the Management of Used Oil
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR 302	Designation, Reportable Quantities, and Notification
49 CFR 107	Hazardous Materials Program Procedures

49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 173	Shippers - General Requirements for Shipments and Packaging
49 CFR 178	Specifications for Packaging

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330.

SD-01 Data

On-site Hazardous Waste Management; GA

Off-site Hazardous Waste Management; GA

Prior to start of work, a plan detailing the manner in which hazardous wastes shall be managed.

SD-09 Reports

Record keeping; GA

Information necessary to file state annual or EPA biennial reports for all hazardous waste transported, treated, stored, or disposed of under this contract. The Contractor shall not forward these data directly to the regulatory agency but to the Contracting Officer at the specified time. The submittal shall contain all the information necessary for filing of the formal reports in the form and format required by the governing Federal or state regulatory agency. A cover letter shall accompany the data to include the contract number, Contractor name, and project location.

Spill Response; FIO

In the event of a spill or release of a hazardous substance (as designated in 40 CFR 302), or pollutant or contaminant, or oil (as governed by the Oil Pollution Act (OPA), 33 U.S.C. 2701 et seq.), the Contractor shall notify the Contracting Officer immediately. If the spill exceeds a reporting threshold, the Contractor shall follow the pre-established procedures for immediate reporting to the Contracting Officer.

Exception Reports; GA

In the event that a manifest copy documenting receipt of hazardous waste at the treatment, storage, and disposal facility is not received within 35 days of shipment initiation, the Contractor shall prepare and submit an exception report to the Contracting Officer within 37 days of shipment initiation.

SD-13 Certificates

Qualifications; FIO

Copies of the current certificates of registration issued to the Contractor and/or subcontractors or written statements certifying exemption from these requirements.

Off-Site Policy Compliance Certification; FIO

A letter certifying that EPA considers the facilities to be used for all off-site disposal to be acceptable in accordance with the Off-Site policy in 40 CFR 300, Section .440. This certification shall be provided for wastes from Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901 et seq., sites as well as from Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 42 U.S.C. 9601 et seq., responses. See Attachment A sample certification at the end of this section.

Certificates of Disposal; FIO

Certificates documenting the ultimate disposal of hazardous wastes within 180 days of initial shipment. Receipt of these certificates will be required for final payment.

Shipping Documents and Packaging Certification; GA

All transportation related shipping documents to the Contracting Officer, including draft hazardous waste manifests, draft land disposal restriction notifications, draft bill of loadings for hazardous materials, lists of corresponding proposed labels, packages, marks, and placards to be used for shipment, waste profiles, and supporting waste analysis documents, for review a minimum of 14 days prior to anticipated pickup. Packaging assurances shall be furnished prior to transporting hazardous material; "generator copies" of hazardous waste manifests, land disposal restriction notifications, "generator copies" of manifests used for initiating shipments of used oil invoices/shipment records, bill of loadings and supporting waste analysis documents shall be furnished when shipments are originated.

SD-18 Records

Notices of Non-Compliance and Notices of Violation; FIO

Notices of non-compliance or notices of violation by a Federal, state, or local regulatory agency issued to the Contractor in relation to any work performed under this contract. The Contractor shall immediately provide copies of such notices to the Contracting Officer. The Contractor shall also furnish all relevant documents regarding the incident and any information requested by the Contracting Officer, and shall coordinate its response to the notice with the Contracting Officer or his designated representative prior to submission to the notifying authority. The Contractor shall also furnish a copy to the Contracting Officer of all documents submitted to the regulatory authority, including the final reply to the notice, and all other materials, until the matter is resolved.

1.4 QUALIFICATIONS

1.4.1 Transportation and Disposal Coordinator

The Contractor shall designate, by position and title, one person to act as the Transportation and Disposal Coordinator (TDC) for this contract. The TDC shall serve as the single point of contact for all environmental regulatory matters and shall have overall responsibility for total environmental compliance at the site including but not limited to accurate identification and classification of hazardous waste and hazardous materials; determination of proper shipping names; identification of marking, labeling, packaging and placarding requirements; completion of waste profiles, hazardous waste manifests, asbestos waste shipment records, bill of loadings, exception and discrepancy reports; and all other environmental documentation. The TDC shall have, at a minimum, one year of specialized experience in the management and transportation of hazardous waste.

1.4.2 Training

The Contractor's employees transporting hazardous materials or preparing hazardous materials for transportation shall be trained, tested, and certified in accordance with 49 CFR 172.

1.4.3 Certification

The Contractor and/or subcontractors transporting hazardous materials shall possess a current certificate of registration issued by the Research and Special Programs Administration (RSPA), U.S. Department of Transportation, when required by 49 CFR 107, Subpart G.

1.5 LAWS AND REGULATIONS REQUIREMENTS

Work shall meet or exceed the minimum requirements established by Federal, state, and local laws and regulations which are applicable. These requirements are amended frequently and the Contractor shall be responsible for complying with amendments as they become effective. In the event that compliance exceeds the scope of work or conflicts with specific requirements of the contract, the Contractor shall notify the Contracting Officer immediately.

1.6 DEFINITIONS

a. Hazardous Material. A substance or material which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated pursuant to the Hazardous Materials Transportation Act, 49 U.S.C. Appendix Section 1801 et seq. The term includes materials designated as hazardous materials under the provisions of 49 CFR 172, Sections .101 and .102 and materials which meet the defining criteria for hazard classes and divisions in 49 CFR 173. EPA designated hazardous wastes are also hazardous materials.

b. Hazardous Waste. A waste which meets criteria established in RCRA or specified by the EPA in 40 CFR 261 or which has been designated as hazardous by a RCRA authorized state program.

PART 2 PRODUCTS

2.1 MATERIALS

The Contractor shall provide all of the materials required for the packaging, labeling, marking, placarding and transportation of hazardous wastes and hazardous materials in conformance with Department of Transportation standards. Details in this specification shall not be construed as establishing the limits of the Contractor's responsibility.

2.1.1 Packaging

The Contractor shall provide non-bulk containers for packaging hazardous materials/wastes consistent with the authorizations referenced in the Hazardous Materials Table in 49 CFR 172, Section .101, Column 8. Bulk and non-bulk packaging shall meet the corresponding specifications in 49 CFR 173 referenced in the Hazardous Materials Table, 49 CFR 172, Section 101. Each packaging shall conform to the general packaging requirements of Subpart B of 49 CFR 173, to the requirements of 49 CFR 178 at the specified packing group performance level, to the requirements of special provisions of column 7 of the Hazardous Materials Table in 49 CFR 172, Section .101, and shall be compatible with the material to be packaged as required by 40 CFR 262. The Contractor shall also provide other packaging related materials such as materials used to cushion or fill voids in overpacked containers, etc. Sorbent materials shall not be capable of reacting dangerously with, being decomposed by, or being ignited by the hazardous materials being packaged. Additionally, sorbents used to treat free liquids to be disposed of in landfills shall be non-biodegradable as specified in 40 CFR 264, Section .314.

2.1.2 Markings

The Contractor shall provide markings for each hazardous material/waste package, freight container, and transport vehicle consistent with the requirements of 49 CFR 172, Subpart D and 40 CFR 262, Section .32 (for hazardous waste). Markings must be capable of withstanding, without deterioration or substantial color change, a 180 day exposure to conditions reasonably expected to be encountered during container storage and transportation.

2.1.3 Labeling

The Contractor shall provide primary and subsidiary labels for hazardous materials/wastes consistent with the requirements in the Hazardous Materials Table in 49 CFR 172, Section .101, Column 6. Labels shall meet design specifications required by 49 CFR 172, Subpart E including size, shape, color, printing, and symbol requirements. Labels shall be durable and weather resistant and capable of withstanding, without deterioration or substantial color change, a 180 day exposure to conditions reasonably expected to be encountered during container storage and transportation.

2.1.4 Placards

For each off-site shipment of hazardous material/waste, the Contractor shall provide primary and subsidiary placards consistent with the requirements of 49 CFR 172, Subpart F. Placards shall be provided for each side and each end of bulk packaging, freight containers, transport vehicles, and rail cars requiring such placarding. Placards may be plastic, metal, or other material capable of withstanding, without

deterioration, a 30 day exposure to open weather conditions and shall meet design requirements specified in 49 CFR 172, Subpart F.

2.1.5 Spill Response Materials

The Contractor shall provide spill response materials including, but not limited to, containers, adsorbent, shovels, and personal protective equipment. Spill response materials shall be available at all times in which hazardous materials/wastes are being handled or transported. Spill response materials shall be compatible with the type of material being handled.

2.2 EQUIPMENT AND TOOLS

The Contractor shall provide miscellaneous equipment and tools necessary to handle hazardous materials and hazardous wastes in a safe and environmentally sound manner.

PART 3 EXECUTION

3.1 ON-SITE HAZARDOUS WASTE MANAGEMENT

These paragraphs apply to Government owned waste only. Contractors are prohibited by 10 U.S.C. 2692 from storing contractor owned waste on site for any length of time. The Contractor shall be responsible for ensuring compliance with all Federal, state, and local hazardous waste laws and regulations and shall verify those requirements when preparing reports, waste shipment records, hazardous waste manifests, or other documents. The Contractor shall identify hazardous wastes using criteria set forth in 40 CFR 261 or all applicable state and local laws, regulations, and ordinances. When accumulating hazardous waste on-site, the Contractor shall comply with generator requirements in 40 CFR 262 and any applicable state or local law or regulations. On-site accumulation times shall be restricted to applicable time frames referenced in 40 CFR 262, Section .34 and any applicable state or local law or regulation. Accumulation start dates shall commence when waste is first generated (i.e. containerized or otherwise collected for discard). The Contractor shall only use containers in good condition and compatible with the waste to be stored. The Contractor shall be responsible for ensuring containers are closed except when adding or removing waste. The Contractor shall be responsible for immediately marking all hazardous waste containers with the words "hazardous waste" and other information required by 40 CFR 262, Section .32 and any applicable state or local law or regulation as soon as the waste is containerized. An additional marking shall be placed on containers of "unknowns" designating the date sampled, and the suspected hazard. The Contractor shall be responsible for inspecting containers for signs of deterioration and shall be responsible for responding to any spills or leaks. The Contractor shall inspect all hazardous waste areas weekly and shall provide written documentation of the inspection. Inspection logs will contain date and time of inspection, name of individual conducting the inspection, problems noted, and corrective actions taken.

3.1.1 Hazardous Waste Classification

The Contractor, in consultation with the Contracting Officer, shall identify all waste codes applicable to each hazardous waste stream based on requirements in 40 CFR 261 or any applicable state or local law or regulation. The Contractor shall also identify all applicable treatment standards in 40 CFR 268 and state land disposal restrictions and shall make a determination as to whether or not the waste meets or exceeds the standards. Waste profiles, analyses, classification and treatment

standards information shall be submitted to Contracting Officer for review and approval.

3.1.2 Management Plan

The Contractor shall prepare a plan detailing the manner in which hazardous wastes shall be managed and describing the types and volumes of hazardous wastes anticipated to be managed as well as the management practices to be utilized. The plan shall identify the method to be used to ensure accurate piece counts and/or weights of shipments; shall identify waste minimization methods; shall propose facilities to be utilized for treatment, storage, and/or disposal; shall identify areas on-site where hazardous wastes are to be handled; shall identify whether transfer facilities are to be utilized; and if so, how the wastes will be tracked to ultimate disposal.

3.2 OFF-SITE HAZARDOUS WASTE MANAGEMENT

The Contractor shall use RCRA Subtitle C permitted facilities which meet the requirements of 40 CFR 264 or facilities operating under interim status which meet the requirements of 40 CFR 265. Off-site treatment, storage, and/or disposal facilities with significant RCRA violations or compliance problems (such as facilities known to be releasing hazardous constituents into ground water, surface water, soil, or air) shall not be used.

3.2.1 Description of TSD Facility and Transporter

The Contractor shall provide the Contracting Officer with EPA ID numbers, names, locations, and telephone numbers of TSD facilities and transporters. This information shall be contained in the Hazardous Waste Management Plan for approval prior to waste disposal.

3.2.2 Status of the Facility
*2
Facilities receiving hazardous waste must be permitted in accordance with 40 CFR 270 or operating under interim status in accordance with 40 CFR 265 requirements or must be permitted by an authorized state program. Additionally, prior to using a TSD Facility, the Contractor shall contact the EPA Regional Off-site Coordinator specified in 40 CFR 300, Section .440, to determine the facility's status and document all information necessary to satisfy the requirements of the EPA Off-Site policy and furnish this information to the Contracting Officer at least 10 days before delivery of any materials to the facility.

3.2.3 Packaging Certification

Prior to shipment of any hazardous material off-site, the Contractor's TDC shall provide written certification to the Contracting Officer that hazardous materials have been properly packaged, labeled, and marked in accordance with Department of Transportation and EPA requirements.

3.2.4 Transportation
*2
The Contractor shall use manifests for transporting hazardous wastes as required by 40 CFR 263 or any applicable state or local law or regulation and shall be submitted to the Contracting Officer at least 10 days prior to actual shipment. Transportation shall comply with all requirements in the Department of Transportation referenced regulations in the 49 CFR series. The Contractor shall acquire manifests in accordance with the hierarchy established in 40 CFR 262, Section .21.

The Contractor shall prepare hazardous waste manifests for each shipment of hazardous waste shipped off-site. Manifests shall be completed using instructions in 40 CFR 262, Subpart B and any applicable state or local law or regulation. Manifests and waste profiles shall be submitted to Contracting Officer for review and approval. The Contractor shall prepare land disposal restriction notifications as required by 40 CFR 268 or any applicable state or local law or regulation for each shipment of hazardous waste. Notifications shall be submitted with the manifest to the Contracting Officer for review and approval. When the additional cost of sending a qualified USACE representative to a remote location for a small clean up project is unwarranted, the option of requiring the on-site Contractor to sign the manifests on behalf of the generator is permitted and should be considered. This option shall only be exercised on a project specific basis, if prior to the solicitation process, written authorization of the customer and approval of the Chief, Construction Division at the executing district has been obtained, and the technical provisions of the contract solicitation provide competing contractors notice of the requirement.

3.2.5 Treatment and Disposal of Hazardous Wastes

The hazardous waste shall be transported to an approved hazardous waste treatment, storage, or disposal facility within 90 days of the accumulation start date on each container. The Contractor shall ship hazardous wastes only to facilities which are properly permitted to accept the hazardous waste or operating under interim status. The Contractor shall ensure wastes are treated to meet land disposal treatment standards in 40 CFR 268 prior to land disposal. The Contractor shall propose TSD facilities via submission of the Hazardous Waste Management Plan, subject to the approval of the Contracting Officer.

3.3 HAZARDOUS MATERIALS MANAGEMENT

The Contractor, in consultation with the Contracting Officer, shall evaluate prior to shipment of any material off-site whether the material is regulated as a hazardous waste in addition to being regulated as a hazardous material; this shall be done for the purpose of determining proper shipping descriptions, marking requirements, etcetera, as described below.

3.3.1 Identification of Proper Shipping Names

The Contractor shall use 49 CFR 172, Section .101 to identify proper shipping names for each hazardous material (including hazardous wastes) to be shipped off-site. Proper shipping names shall be submitted to the Contracting Officer in the form of draft shipping documents for review and approval.

3.3.2 Packaging, Labeling, and Marking

The Contractor shall package, label, and mark hazardous materials/wastes using the specified materials and in accordance with the referenced authorizations. The Contractor shall mark each container of hazardous waste of 110 gallons or less with the following:

"HAZARDOUS WASTE - Federal Law Prohibits Improper Disposal.
If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.
Generator's name ___
_____
Manifest Document Number _____".

3.3.3 Shipping Documents
*2
The Contractor shall ensure that each shipment of hazardous material sent off-site is accompanied by properly completed shipping documents, submitted for review and approval by the Contracting Officer at least 10 days prior to actual shipment. The Contractor shall prepare a bill of lading for each shipment of hazardous material which is not accompanied by a hazardous waste manifest which fulfills the shipping paper requirements. The bill of lading shall satisfy the requirements of 49 CFR 172, Subpart C, and any applicable state or local law or regulation, and shall be submitted to the Contracting Officer for review and approval. For laboratory samples and treatability study samples, the Contractor shall prepare bills of lading and other documentation as necessary to satisfy conditions of the sample exclusions in 40 CFR 261, Section .4(d) and (e) and any applicable state or local law or regulation. Bill of loadings requiring shipper's certifications shall be signed by the Government.

3.4 OBTAINING EPA ID NUMBERS

The Contractor shall complete EPA Form 8700-12, Notification of Hazardous Waste Activity, and submit to the Contracting Officer for review and approval. The Contractor shall allow a minimum of 30 days for processing the application and assigning the EPA ID number. Shipment shall be made not earlier than one week after receipt of the EPA ID number.

3.5 SPECIAL REQUIREMENTS FOR ASBESTOS WASTES

If work involves asbestos containing wastes, the Contractor shall manage these wastes in accordance with specification Section 02080 ASBESTOS ABATEMENT.

3.6 WASTE MINIMIZATION

The Contractor shall minimize the generation of hazardous waste to the maximum extent practicable. The Contractor shall take all necessary precautions to avoid mixing clean and contaminated wastes. The Contractor shall identify and evaluate recycling and reclamation options as alternatives to land disposal. Requirements of 40 CFR 266 shall apply to: hazardous wastes recycled in a manner constituting disposal; hazardous waste burned for energy recovery; lead-acid battery recycling; and hazardous wastes with economically recoverable precious metals.

3.7 RECORDKEEPING
*2

The Contractor shall be responsible for maintaining adequate records to support information provided to the Contracting Officer regarding exception reports, annual reports, and biennial reports. The Contractor shall be responsible for maintaining asbestos waste shipment records for a minimum of 3 years from the date of shipment or any longer period required by any applicable law or regulation or any other provision of

this contract. Copies of all records will be submitted to the Contracting Officer.

3.8 SPILL RESPONSE
*2
The Contractor shall respond to any spill of hazardous materials or hazardous waste which are in the custody or care of the Contractor pursuant to this contract. Any direction from the Contracting Officer concerning a spill or release shall not be considered a change under the contract. The Contractor shall comply with all applicable requirements of Federal, state, or local laws or regulations regarding any spill incident. A comprehensive Spill Response Plan shall be prepared specifically for all phases of work under this contract and submitted for approval prior to commencing work.

3.9 EMERGENCY CONTACTS

The Contractor shall be responsible for complying with the emergency contact provisions in 49 CFR 172, Section .604. Whenever the Contractor ships hazardous materials, the Contractor shall provide a 24-hr emergency response contact and phone number of a person knowledgeable about the hazardous materials being shipped and who has comprehensive emergency response and incident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information. The phone must be monitored on a 24-hour basis at all times when the hazardous materials are in transportation including during storage incidental to transportation. The Contractor shall ensure that information regarding this emergency contact and phone number are placed on all hazardous materials shipping documents. The Contractor shall designate an emergency coordinator and post the following information at areas in which hazardous wastes are managed:

a. The name of the emergency coordinator.

b. Phone number through which the emergency coordinator can be contacted on a 24 hour basis.

c. The telephone number of the local fire department.

d. The location of fire extinguishers and spill control materials.

Attachment A

SAMPLE OFF-SITE POLICY CERTIFICATION MEMO

Project/Contract #:_____
Waste Stream:_____
Primary TSD Facility, EPA ID # and Location: _____
Alter. TSD Facility, EPA ID # and Location:_____

EPA Region	Primary Contact	Secondary Contact
I	(617) 573-5755	(617) 573-1754
II	(212) 264-9504	(212) 264-2638
III	(215) 597-1857	(215) 597-8338
IV	(404) 347-7603	(404) 347-7603
V	(312) 353-7921	(312) 886-4445
VI	(214) 655-2282	(214) 655-2281
VII	(913) 551-7816	(913) 551-7667
VIII	(303) 293-1823	(303) 293-1506
IX	(415) 744-2129	(415) 744-2114
X	(206) 553-6646	(206) 553-1061

EPA representative contacted: _____
EPA representative phone number: _____
Date contacted: _____
Comment: _____

The above EPA representative was contacted on _____. As of that date the above sites were considered acceptable in accordance with the Off-Site Policy in 40 CFR 300.440.

Signature: _____ Date: _____
Phone number: _____

SECTION 02220

HSWY0202220

DEMOLITION

TABLE OF CONTENTS

PART 1 GENERAL

1.1 REFERENCES
1.2 GENERAL REQUIREMENTS
1.3 SUBMITTALS
1.4 DUST CONTROLS
1.5 PROTECTION
1.6 BURNING
1.7 USE OF EXPLOSIVES

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

3.1 EXISTING STRUCTURES
3.2 OIL PIPING AND VALVE PITS
3.3 FILLING AND BACKFILLING
3.4 DISPOSITION OF MATERIALS
3.5 CLEAN UP

SECTION 02220

DEMOLITION

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (1996) U.S. Army Corps of Engineers Safety and Health Requirements Manual

1.2 GENERAL REQUIREMENTS

The work includes demolition, salvage of identified items and materials, and removal of resulting rubbish and debris. The work also includes excavations for those existing footings to be removed and to provide temporary shoring as required. Rubbish and debris shall be removed from Government property daily, unless otherwise directed, to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the Contracting Officer. In the interest of occupational safety and health, the work shall be performed in accordance with EM 385-1-1, SECTION 23, Demolition, and other applicable Sections. In the interest of conservation, salvage shall be pursued to the maximum extent possible; salvaged items and materials shall be disposed of as specified. This section is relative to Section 02315 Excavation, filling and backfilling.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals not having a "GA" designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Work Plan; GA,

The procedures proposed for the accomplishment of the work. The procedures shall provide for safe conduct of the work, including procedures and methods to provide necessary supports, lateral bracing and shoring when required, careful removal and disposition of materials specified to be salvaged, protection of property which is to remain undisturbed, coordination with other work in progress, and timely disconnection of utility services. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations in accordance with EM 385-1-1.

1.4 DUST CONTROL

The amount of dust resulting from demolition shall be controlled to prevent the spread of dust to occupied portions of the construction site and to avoid creation of a nuisance in the surrounding area. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as ice, flooding and pollution.

1.5 PROTECTION

1.5.1 Protection of Personnel

During the demolition work the Contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site. No area, section, or component of floors, roofs, walls, columns, pilasters, or other structural element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.

1.5.2 Protection of Existing Property

The Contractor is responsible for safely removing of structures and their footings as required without causing any disruption to the on going hydroelectric power plant and the switchyard operation.

Contractor shall take proper measures to protect existing groundings, adjacent existing utilities, structures and their footings from any damage during the demolition operation.

Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the extent of the work. The Contractor shall take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Government; any damaged items shall be repaired or replaced as approved by the Contracting Officer. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.5.3 Environmental Protection

The contractor shall comply with the project specifications, local, State and the Federal government related requirements of ENVIRONMENTAL PROTECTION

1.6 BURNING

The use of burning at the project site for the disposal of refuse and debris, or any other use, will not be permitted.

1.7 USE OF EXPLOSIVES

Use of explosives will not be permitted.

PART 2 PRODUCTS

(NOT APPLICABLE)

PART 3 EXECUTION

3.1 EXISTING STRUCTURES

Existing structures including footings as indicated shall be removed completely. Contractor shall complete remove of structures above finish grade before starting excavation to remove footings.

3.2 OIL PIPING AND VALVE PITS
*2

Existing OCB oil piping and concrete valve pits shall be removed complete within the switchyard from the OCB connection point to the cable tunnel, and within the cable tunnel to the powerhouse. The existing mounting brackets within the cable tunnel will be abandoned in place. The penetrations into the cable tunnel shall be 4" core-drilled to remove the pipe, and sealed with non-shrink grout to provide a watertight closure. The excavation of the buried piping shall be backfilled, compacted and gravel-surfaced as required in SECTION 02315 FOUNDATION EXCAVATION, FILLING AND BACKFILLING.

3.3 FILLING AND BACKFILLING

For each existing footing removal, the contractor shall place satisfactory backfill material to the elevation that matches the existing sub-surface grade, then surface rock applied to match existing. The backfill material shall be free of organic material, construction debris, cobbles and boulders. The backfill material shall be placed in lifts and compacted. The contractor shall compact backfill material to a minimum of 90% modified proctor in accordance with ASTM D 1557. for additional requirements, see Filling and Backfilling of Section 02315.

3.4 DISPOSITION OF MATERIAL

Title to material and equipment to be demolished, except Government salvage and historical items, is vested in the Contractor upon receipt of notice to proceed. The Government will not be responsible for the condition, loss or damage to such property after notice to proceed.

3.4.1 Salvageable Items and Material

Contractor shall salvage items and material to the maximum extent possible.

3.4.1.1 Material Salvaged for the Contractor

Material salvaged for the Contractor shall be stored as approved by the Contracting Officer and shall be removed from Government property before completion of the contract. Material salvaged for the Contractor shall not be sold on the site.

3.5 CLEAN UP

Debris and rubbish shall be removed from site. Debris shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.

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SECTION 02315

HSWY0202315

FOUNDATION EXCAVATION, FILLING AND BACKFILLING

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 REFERENCES
1.3 SUBGRADE PREPARATION OF COMPACTION
1.4 SUBMITTALS
1.5 QUALITY ASSURANCE SUBMITTALS
1.6 SAMPLES (SWITCHYARD SURFACING)

PART 2 PRODUCTS

2.1 MATERIALS

PART 3 EXECUTION

3.1 EXCAVATION
3.2 DRAINAGE AND DEWATERING
3.3 SHORING
3.4 BLASTING
3.5 UTILITY AND DRAIN TRENCHES
3.6 BORROW
3.7 EXCAVATED MATERIALS
3.8 FINAL GRADE OF SURFACES TO SUPPORT CONCRETE
3.9 SUBGRADE PREPARATION
3.10 SWITCHYARD SURFACE ROCK PLACEMENT
3.11 FILLING AND BACKFILLING
3.12 TESTING
3.13 SWITCHYARD SURFACE MATERIALS
3.14 GRADING
3.15 PROTECTION
3.16 MEASUREMENT AND PAYMENT
3.17 PROTECTION OF EXISTING GROUNDING GRID

SECTION 02315

FOUNDATION EXCAVATION, FILLING AND BACKFILLING

PART 1 GENERAL

1.1 GENERAL INFORMATION

This section covers foundation excavation, filling and backfilling. This section is relative to Section 02220A Demolition.

1.2 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.

Unless otherwise specified, the standards that are referenced are the most current.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

T 210	(1996) Standard Method of Test for Aggregate Durability Index Twentieth Edition

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

C 29	(1997) Standard Test Method for Bulk Density ('Unit Weight') and Voids in Aggregate
C 88	(1999) Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
C 131	(2001) Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
C 136	(2001) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
D 75	(1997) Standard Practice for Sampling Aggregates (AASHTO T2)
D 1556	(2000) Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
D 2167	(2001) Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method R(2001)
D 2216	(1998) Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

D 2419 (2002) Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate

D 2487 (2000) Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

D 2922 (2001) Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

D 3017 (2001) Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

FEDERAL HIGHWAY ADMINISTRATION, (FHWA)

FHWA – R10 Accelerated Weathering of Aggregate by use of Dimethyl Sulfoxide

BONNEVILLE POWER ADMINISTRATION (BPA)

BPA LABORATORY ROCK RESISTIVITY TEST

Procedure (or equivalent as determined by GQAR), ELMM-004, dated January 1, 1994

1.3 SUBGRADE PREPARATION OF COMPACTION

Degree of compaction is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557, abbreviated as percent laboratory maximum density.

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.

SD-01 Data

Plan of Excavation, Filling and Backfilling Plan; GA

Contractor shall submit the above plan 30 days prior to construction

SD-06 09 Reports

Laboratory and Field Test Reports; GA

The Contractor shall submit copies of all laboratory and field test reports within 24 hours of the completion of the test. At the discretion of the GQAR, additional certifications for crushed rock materials may be requested, and testing of switchyard surfacing materials may be repeated after delivery has begun to ensure continued acceptability of the materials.

1.5 QUALITY ASSURANCE SUBMITTALS

Perform compaction testing to verify densities of sub-base materials as required within this section. Submit reports of testing results to GQAR.

1.6 SAMPLES (SWITCHYARD SURFACING)

Not less than 20 days before the time set to deliver switchyard surface rock, send a sample of switchyard surface rock to a laboratory capable of conducting resistivity testing. The Contractor shall locate the lab and arrange testing of the switchyard rock. Package the samples in strong, 5 gallon plastic buckets with tight fitting lids to preserve natural moisture content. Notify the GQAR that the samples have been sent.

Any delay and costs brought about by failure to submit the samples of the material within the specified time is the responsibility of the Contractor.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Subgrade Materials/ Satisfactory Materials

Subgrade materials removed during excavation of the foundation may be re-utilized if determined to be satisfactory materials. Satisfactory materials shall herein be defined as cohesionless and include GW, GP, SW, and SP as classified in ASTM D 2487. Materials classified as GM, GP-GM, GW-GM, SW-SM, SP-SM, and SM shall be identified as cohesionless only when the fines are nonplastic. In the event insufficient quantities of excavated material are available to achieve the required subgrade elevation satisfactory materials having similar material properties and gradation (ASTM D2487) to existing subgrade materials shall be obtained and placed. Use of any material obtained offsite is subject to the approval of the GQAR.

2.1.2 Unsatisfactory Materials

Materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Unsatisfactory materials also include cohesive fill, man-made fills, trash, or refuse. Unsatisfactory material also includes material classified as satisfactory which contains root and other organic matter, frozen material, and stones larger than 4 inches. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH as classified in ASTM D 2487. The GQAR shall be notified of any contaminated materials.

2.1.3 Switchyard Surface Materials

2.1.3.1 Fracture Gradation: As determined utilizing tests specified in para. 3.12

Testing switchyard surface rock shall be graded as follows,

US Standard Sieve Sizes Square Openings inch (mm)	Percentage Passing (by weight)
1-1/2 (37.5)	100
3/4 or 5/8 (19.0 or 15.9)	0-25
1/4 (6.3)	0-5

2.1.3.2 Fracture of gravel: Produce crushed material from gravel or quarry rock. On 95% of all particles retained on each sieve 1/4 inch (6.3 mm) and above shall have at least one mechanically fractured face. In addition, 70% of same particles shall have at least three mechanically fractured faces.

PART 3 EXECUTION

3.1 EXCAVATION

Excavation shall conform to the dimensions and elevations indicated for each structure and footing except as specified, and shall include trenching for utility and foundation drainage systems to a point 5 feet, when approved by the Government, beyond the building line of each building and structure or as directed by the Government to a certain distance beyond the building line of each building and structure. Excavation shall extend a sufficient distance from walls and footings to allow for placing and removal of forms. 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 by the GQAR, replaced with satisfactory material. Satisfactory material removed below the depths indicated, without specific direction of the Contracting Officer, shall be replaced, at no additional cost to the Government, with satisfactory materials to the indicated excavation grade; except that concrete footings shall be increased in thickness to the bottom of the overdepth excavations and over-break in rock excavation. Satisfactory material shall be placed and compacted as specified in paragraph FILLING AND BACKFILLING. Determination of elevations and measurements of approved overdepth excavation of unsatisfactory material below grades indicated shall be done under the direction of the Contracting Officer.

3.2 DRAINAGE AND DEWATERING

3.2.1 Drainage

Surface water shall be directed away from excavation and construction sites to prevent erosion and undermining of foundations. Diversion ditches, dikes and grading shall be provided and maintained as necessary during construction. Excavated slopes and backfill surfaces shall be protected to prevent erosion and sloughing. Excavation shall be performed so that the site, the area immediately surrounding the site, and the area affecting operations at the site shall be continually and effectively drained.

3.2.2 Dewatering

Groundwater flowing toward or into excavations shall be controlled to prevent sloughing of excavation slopes and walls, boils, uplift and

heave in the excavation and to eliminate interference with orderly progress of construction. French drains, sumps, ditches or trenches will not be permitted within 3 feet 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. Control measures shall be taken by the time the excavation reaches the water level in order to maintain the integrity of the on site material. While the excavation is open, the water level shall be maintained continuously, at least 1 feet below the working level.

3.3 SHORING

Shoring, including sheet piling, shall be furnished and installed as necessary to protect workmen, banks, adjacent paving, structures, and utilities. Shoring, bracing, and sheeting shall be removed as excavations are backfilled, in a manner to prevent caving.

3.4 BLASTING

Blasting will not be permitted.

3.5 UTILITY AND DRAIN TRENCHES

Trenches for underground utilities systems and drain lines shall be excavated to the required alignments and depths. The bottoms of trenches shall be graded to secure the required slope and shall be tamped if necessary to provide a firm pipe bed. Recesses shall be excavated to accommodate bells and joints so that pipe will be uniformly supported for the entire length. Rock, where encountered, shall be excavated to a depth of at least 6 inches below the bottom of the pipe, and the overdepth shall be backfilled with satisfactory material placed and compacted in conformance with paragraph FILLING AND BACKFILLING.

3.6 BORROW

Satisfactory materials can be obtained from off-site source. Such offsite sources are subject to the approval of the GQAR.

3.7 EXCAVATED MATERIALS

Satisfactory excavated material required for fill or backfill shall be placed in the proper section of the permanent work required under this section or shall be separately stockpiled if it cannot be readily placed. Satisfactory material in excess of that required for the permanent work and all unsatisfactory material shall be disposed of as directed by the GQAR.

3.8 FINAL GRADE OF SURFACES TO SUPPORT CONCRETE

Excavation to final grade shall not be made until just before concrete is to be placed. Approximately level surfaces shall be roughened, and sloped surfaces shall be cut as indicated into rough steps or benches to provide a satisfactory bond. Shales shall be protected from slaking and all surfaces shall be protected from erosion resulting from ponding or flow of water.

3.9 SUBGRADE PREPARATION

Unsatisfactory material in surfaces to receive fill or in excavated areas shall be removed and replaced with satisfactory materials as directed by the GQAR. The surface shall be scarified to a depth of 6 inches before the fill is started. Sloped surfaces steeper than 1 vertical to 4 horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When subgrades are less than the specified density, the ground surface shall be broken up to a minimum depth of 6 inches, pulverized, and compacted to the specified density. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. Compaction shall be accomplished by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, or other approved equipment well suited to the soil being compacted. Material shall be moistened or aerated as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used. Minimum subgrade density shall be as specified in paragraph 3.11, “FILLING AND BACKFILLING”.

3.10 SWITCHYARD SURFACE ROCK PLACEMENT

Surfacing material shall not be placed in snow, or on a soft, muddy, or frozen subgrade. Recently crushed and graded surface rock will be utilized; surface rock removed during excavations will not be reused. Only clean rock meeting all specifications will be allowed for surfacing use. Switchyard crushed rock surfacing material shall be placed loose, in one layer, on the prepared subgrade, and shaped to the specified cross section. Upon completion, a smooth even surface shall be left which will be acceptable to the GQAR.

Road and parking area crushed rock surfacing, of each gradation, shall be placed in layers of not more than 7.62 cm (3 inch) in depth per layer upon the subgrade. Each layer shall be thoroughly compacted by rolling with a roller approved by the GQAR. Rolling shall be continued until the surface course layer is compacted into a dense mass with the surface true to lines, grade, and cross section as shown on the drawings. Water shall be used as directed by the GQAR. Switchyard surface rock shall be placed to a depth equivalent to average depths encountered during the excavation of the site.

3.11 FILLING AND BACKFILLING

Satisfactory materials shall be used in bringing fills and backfills to the lines and grades indicated and for replacing unsatisfactory materials. Satisfactory materials shall be placed in horizontal layers not exceeding 8 inches in loose thickness, or 6 inches when hand-operated compactors are used. After placing, each layer shall be plowed, disked, or otherwise broken up, moistened or aerated as

necessary, thoroughly mixed and compacted as specified. Backfilling shall not begin until construction below finish grade has been approved, underground utilities systems have been inspected, tested and approved, forms removed, and the excavation cleaned of trash and debris. Backfill shall be brought to indicated finish grade. Backfill shall not be placed in wet or frozen areas. Heavy equipment for spreading and compacting backfill shall not be operated closer to foundation or retaining walls than a distance equal to the height of backfill above the top of footing; the area remaining shall be compacted in layers not more than 4 inches in compacted thickness with power-driven hand tampers suitable for the material being compacted. Backfill shall be placed carefully around pipes or tanks to avoid damage to coatings, wrappings, or tanks. Each layer of cohesionless fill and backfill shall be compacted to not less than 95 percent of maximum density. Approved compacted subgrades that are disturbed by the Contractor's operations or adverse weather shall be scarified and compacted as specified herein before to the required density prior to further construction thereon. Re-compaction over underground utilities and heating lines shall be by hand tamping.

3.12 TESTING

3.12.1 Borrow, Fill, And Backfill For Subgrade

Testing shall be performed by an approved commercial testing laboratory or may be performed by the Contractor subject to approval by the GQAR. Field in-place density shall be determined in accordance with ASTM D 1556, ASTM D 2167, or ASTM D 2922. When ASTM D 2922 is used, the calibration curves shall be checked and adjusted if necessary by the procedure described in ASTM D 2922, paragraph ADJUSTING CALIBRATION CURVE. ASTM D 2922 results in a wet unit weight of soil and when using this method ASTM D 3017 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 3017. The calibration checks of both the density and moisture gauges shall be made at the beginning of a job on each different type of material encountered and at intervals as directed by the Contracting Officer. The following number of tests, if performed at the appropriate time, shall be the minimum acceptable for each type operation.

3.12.1.1 In-Place Densities

In-place density and moisture content test results shall be included with the Contractor's daily construction quality control reports.

3.12.1.2 In-Place Density of Subgrades:

One test per 2000 square feet or fraction thereof.

3.12.1.3 In-Place Density of Fills and Backfills:

The density for each lift of fill or backfill materials for trenches and pits which are compacted with hand or hand-operated machines shall be tested as follows: One test per each area less than 2000 square feet or fraction thereof using either ASTM D 2922 or ASTM D 1556.

3.12.1.4 Moisture Content

In the stockpile, excavation or borrow areas, a minimum of two tests per day per type of material or source of materials being placed is required during stable weather conditions. During unstable weather, tests shall be made as dictated by local conditions and approved moisture content shall be tested in accordance with ASTM D 2216.

3.12.1.5 Optimum Moisture and Laboratory Maximum Density

Tests shall be made for each type material or source of material, including borrow material to determine the optimum moisture and laboratory maximum density values. Due to the relatively small quantity of material required three representative tests will be made.

3.13 SWITCHYARD SURFACE MATERIALS

3.13.1 Fracture Gradation:

Replacement switchyard surface rock shall be graded utilizing ASTM D75 "Sampling Aggregates", and ASTM C 136 "Sieve Analysis".

3.13.2 Resistivity:

Replacement switchyard surface rock shall possess a minimum electrical resistivity of 3,000 ohm meters when tested in accordance with BPA's Laboratory Rock Resistivity Test Procedure (or equivalent as determined by GQAR), ELMM-004, dated January 1, 1994. The test shall be performed by a qualified materials test laboratory, approved by the GQAR.
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3.13.3 Replacement switchyard surfacing shall conform to specific test requirements. ~~Tests specified in this section may be made by and at the discretion of the GQAR.~~ Up to two samples will be tested by the Contractor. Time, and type of test will be directed by the GQAR.

3.13.3.1 The following specifications are applicable to ascertain test information:

a. Sampling Aggregates: ASTM D 75

b. Unit Weight of Aggregate: ASTM C 29/C 29M

c. Sieve Analysis: ASTM C 136

3.13.3.2 All crushed rock or crushed gravel used to re-surface switchyard shall conform to the test requirements as follows:

SPECIFIC ROCK PROPERTIES
Limitations - Percent
Maximum Except as Noted

Test No.	Description	Spec. No.	Sw'Yd. Surf.	Road Rock	Drainage Rock
1.	Abrasion - Small Size Coarse Agg.	ASTM C 131	35	40	35
2.	Soundness, Sodium Sulfate 5 cycles	ASTM C 88	12	12	12
3.	Soundness, Magnesium Sulfate 5 cycles	ASTM C 88	17	17	17
4.	Sand Equivalent	ASTM D 2419	N/A	30 Min.	N/A
5.	Durability	AASHTO T 210	35 Min.	35 Min.	35 Min.
6.	Accelerated Weathering...(See note (1))	FHWA-R10	12%	12%	12%

Note(1) Weathering: FHWA A-R10, maximum of 12 percent loss

3.14 GRADING

Areas within 5 feet outside of each building and structure line shall be constructed true-to-grade, shaped to drain, and shall be maintained free of trash and debris until final inspection has been completed and the work has been accepted.

3.15 PROTECTION

Settlement or washing that occurs in graded, topsoiled, or backfilled areas prior to acceptance of the work, shall be repaired and grades reestablished to the required elevations and slopes.

3.16 MEASURMENT AND PAYMENT

3.16.1 Excavated Material

Excavated material replaced and recompacted shall be paid for on a lump sum basis as established in the Bid Schedule and shall constitute full compensation for all materials, labor, equipment, tools, testing, and accessories required to complete the work in an acceptable manner.

3.16.2 Borrow Material

Borrow material shall be paid for on a lump sum basis as established in the Bid Schedule and shall constitute full compensation for all

materials, labor, equipment, tools, testing, and accessories required to complete the work in an acceptable manner.

3.16.3 Switchyard Surface Rock

Switchyard surface rock shall be paid for on a lump sum basis as established in the Bid Schedule and shall constitute full compensation for all materials, labor, equipment, tools, testing, and accessories required to complete the work in an acceptable manner.

3.16.4 Testing

Testing shall be the responsibility of the Contractor and shall be performed at no additional cost to the Government.

3.17 PROTECTION OF EXISTING GROUNDING GRID

The contractor shall not cut the existing grounding grid without the Government’s approval. The existing grounding grid (called grids below) are approximately 18” below the existing finish grade. When new footings and slabs interfere with the existing grounding grid, the contractor shall provide and install proper sizes of PVC sleeve pipe(s) to protect the grounding grid from being cast into the concrete. Grounding grid shall be maintained in its original position (horizontally and vertically), in proper working condition and shall be free and movable in the PVC sleeve pipe(s). It is the contractor’s responsibility to design the PVC sleeve pipe details. The contractor shall submit the details to the Government for review and approval prior to placing any reinforcing steel in footings and slabs.

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*2

SECTION 02821

HSWY0202821

FENCING, GATE AND ACCESS ROAD

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 REFERENCES
1.3 SUBMITTALS

PART 2 PRODUCTS

2.1 FENCE FABRIC
2.2 GATES
2.3 POSTS
2.4 BRACES AND RAILS
2.5 WIRE
2.6 ACCESSORIES
2.7 CONCRETE
2.8 ACCESS ROAD SURFACE

PART 3 EXECUTION

3.1 INSTALLATION
3.2 EXCAVATION
3.3 POST INSTALLATION
3.4 RAILS
3.5 BRACES AND TRUSS RODS
3.6 TENSION WIRES
3.7 CHAIN LINK FABRIC
3.8 BARBED WIRE SUPPORTING ARMS AND BARBED WIRE
3.9 GATE INSTALLATION
3.10 GROUNDING
3.11 ACCESS ROAD

SECTION 02821

FENCING, GATE AND ACCESS ROAD

PART 1 GENERAL

1.1 GENERAL INFORMATION

The existing switchyard fence shall be modified by removing a section of fence fabric, adding required gate posts, furnish and install a new double gate complete with locking hardware and grounding jumpers, and other associated modifications or additional hardware as required to provide a new vehicle access gate as indicated on the drawings. A temporary access road suitable for use by a fully-loaded multi-axle truck with semi-trailer shall be furnished and installed connecting the new access gate to the existing paved roadway.

1.2 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 116	(2000) Metallic-Coated, Steel Woven Wire Fence Fabric
ASTM A 121	(1999) Zinc-Coated (Galvanized) Steel Barbed Wire
ASTM A 153/A 153M	(2001) Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 392	(1996) Zinc-Coated Steel Chain-Link Fence Fabric
ASTM A 702	(1989; R 1994el) Steel Fence Posts and Assemblies, Hot Wrought
ASTM A 780	(2000) Repair of Damaged and Uncoated Areas of Hot-Dipped Galvanized Coatings
ASTM A 824	(1995) Metallic-Coated Steel Marcelled Tension Wire for Use With Chain Link Fence
ASTM C 94/C 94M	(2000e2) Ready-Mixed Concrete
ASTM D 4541	(1995el) Pull-Off Strength of Coatings Using Portable Adhesion Testers
ASTM F 1043	(2000) Strength and Protective Coatings on Metal Industrial Chain-Link Fence Framework

ASTM F 1083	(1997) Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures
ASTM F 626	(1996a) Fence Fittings
ASTM F 900	(1994) Industrial and Commercial Swing Gates
ASTM G 23	(1996) Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials
ASTM G 26	(1996) Operating Light-Exposure Apparatus (Xenon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials
ASTM G 53	(1996) Operating Light- and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials

AMERICAN WOOD-PRESERVERS' ASSOCIATION (AWPA)

AWPA C1	(2000) All Timber Products - Preservative Treatment by Pressure Processes

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. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Chain Link Fence; GA

Statement, signed by an official authorized to certify on behalf of the manufacturer, attesting that the chain link fence and component materials meet the specified requirements.

PART 2 PRODUCTS

2.1 FENCE FABRIC

Fence fabric shall conform to the following:

2.1.1 Chain Link Fence Fabric

ASTM A 392, Class 2, zinc-coated steel wire with minimum coating weight of 2.0 ounces of zinc per square foot of coated surface. Fabric shall be fabricated of 9 gauge wire woven in 2 inch mesh. Fabric height shall be 6 feet or as required to match existing. Fabric shall be twisted and barbed on the top and bottom selvage.

2.2 GATES

Gate shall conform to ASTM F 900. Gate shall be the type and swing to match existing gate. Gate frames shall conform to strength and coating requirements of ASTM F 1083 for Group IA, steel pipe, with external coating Type A, nominal pipe size (NPS) 1-1/2. Gate frames shall conform to strength and coating requirements of ASTM F 1043, for Group IC, steel pipe with external coating Type A or Type B, nominal pipe size (NPS) 1-1/2. Gate fabric shall be as specified for chain link fabric. Gate leaves more than 8 feet wide shall have either intermediate members and diagonal truss rods or shall have tubular members as necessary to provide rigid construction, free from sag or twist. Gate leaves less than 8 feet wide shall have truss rods or intermediate braces. Intermediate braces shall be provided on all gate frames with an electro-mechanical lock. Gate fabric shall be attached to the gate frame by method standard with the manufacturer except that welding will not be permitted. Latches, hinges, stops, keepers, rollers, and other hardware items shall be furnished as required for the operation of the gate. Latches shall be arranged for padlocking so that the padlock will be accessible from both sides of the gate. Stops shall be provided for holding the gates in the open position. Each end member of gate frames shall be extended sufficiently above the top member to carry three strands of barbed wire in horizontal alignment with barbed wire strands on the fence.

2.3 POSTS

2.3.1 Metal Posts for Chain Link Fence

Metal posts for chain link fencing shall conform with ASTM F 1083, zinc-coated, Group IA, with external coating Type A steel pipe. Group IC steel pipe, zinc-coated with external coating Type A or Type B and Group II , roll-formed steel sections, shall meet the strength and coating requirements of ASTM F 1043. Sizes shall be as shown on the drawings. Line posts and terminal (corner, gate, and pull) posts selected shall be of the same designation throughout the fence. Gate post shall be for the gate type specified subject to the limitation specified in ASTM F 900.

2.4 BRACES AND RAILS

Braces and rails shall conform with ASTM F 1083, zinc-coated, Group IA, steel pipe, size NPS 1-1/4. Group IC steel pipe, zinc-coated, shall meet the strength and coating requirements of ASTM F 1043. Group II, formed steel sections, size 1-21/32 inch, conforming to ASTM F 1043, may be used as braces and rails if Group II line posts are furnished.

2.5 WIRE

2.5.1 Tension Wire

Tension wire shall be Type I or Type II, Class 2 coating, in accordance with ASTM A 824.

2.6 ACCESSORIES

Accessories shall conform with ASTM F 626. Ferrous accessories shall be zinc or aluminum coated. Truss rods shall be furnished for each terminal post. Truss rods shall be provided with turnbuckles or other equivalent provisions for adjustment. Barbed wire shall be 2 strand, 12-1/2 gauge wire, zinc-coated, Class 3 in accordance with ASTM A 121. Barbed wire shall be four-point barbed type steel wire. Barbed wire support arms shall be the single arm type and of the design required for the post furnished. Tie wire for attaching fabric to rails, braces, and posts shall be 9 gauge steel wire and match the coating of the fence fabric. Miscellaneous hardware coatings shall conform to ASTM A 153/A 153M unless modified.

2.7 CONCRETE

Concrete shall conform with ASTM C 94/C 94M, using 3/4 inch maximum size aggregate, and having minimum compressive strength of 3000 psi at 28 days. Grout shall consist of one part portland cement to three parts clean, well-graded sand and the minimum amount of water to produce a workable mix.

2.8 ACCESS ROAD SURFACE

A temporary road surface planking system design shall be submitted for approval. Treated timbers conforming with AWPA C1 and rated for direct ground contact or steel-reinforced concrete planking shall be utilized. Calculations showing wheel loading, overall loading, stress and strain maximums, and safety factor(s) shall be prepared by the contractor and submitted for approval.

PART 3 EXECUTION

3.1 INSTALLATION

Fence shall be installed to the lines and grades indicated. Line posts shall be spaced equidistant at intervals not exceeding 10 feet. Terminal (corner, gate, and pull) posts shall be set at abrupt changes in vertical and horizontal alignment or as required or indicated. Fabric shall be continuous between terminal posts; however, runs between terminal posts shall not exceed 500 feet. Any damage to galvanized surfaces, including welding, shall be repaired with paint containing zinc dust in accordance with ASTM A 780.

3.2 EXCAVATION

Post holes shall be cleared of loose material. Waste material shall be spread where directed. The ground surface irregularities along the fence line shall be eliminated to the extent necessary to maintain a minimal clearance between the bottom of the fabric and finish grade. Switchyard surface rock shall be replaced to the satisfaction of the COR.

3.3 POST INSTALLATION

3.3.1 Posts for Chain Link Fence

Posts shall be set plumb and in alignment. Except where solid rock is encountered, posts shall be set in concrete to a minimum depth of 24 inches. Where solid rock is encountered with no overburden, posts shall be set to a minimum depth of 18 inches in rock. Where solid rock is covered with an overburden of soil or loose rock, posts shall be set to the 24 inch minimum depth unless a penetration of 18 inches in solid rock is achieved before reaching 24 inches, in which case depth of penetration shall terminate. All portions of posts set in rock shall be grouted. Portions of posts not set in rock shall be set in concrete from the rock to ground level. Posts set in concrete shall be set in holes not less than 6 inches in diameter, or as shown on the drawings. Diameters of holes in solid rock shall be at least 1 inch greater than the largest cross section of the post. Concrete and grout shall be thoroughly consolidated around each post, shall be free of voids and finished to form a dome. Concrete and grout shall be allowed to cure for 72 hours prior to attachment of any item to the posts. Fence post rigidity shall be tested by applying a 50 pound force on the post, perpendicular to the fabric, at 5 feet above ground; post movement measured at the point where the force is applied shall be less than or equal to 3/4 inch from the relaxed position; every tenth post and every corner and gate post shall be tested for rigidity; when a post fails this test, further tests on the next four posts on either side of the failed post shall be made; all failed posts shall be removed, replaced, and retested at the Contractor's expense.

3.4 RAILS

3.4.1 Top Rail

Top rail shall be supported at each post to form a continuous brace between terminal posts. Where required, sections of top rail shall be joined using sleeves or couplings that will allow expansion or contraction of the rail.

3.4.2 Middle Rail

The middle rail shall be bolted to double rail ends and double rail ends shall be securely fastened to the posts. Bolts shall be peened to prevent easy removal. Middle rail shall be installed before chain link fabric.

3.5 BRACES AND TRUSS RODS

Braces and truss rods shall be installed to match existing, as indicated or as required, and in conformance with the standard practice for the fence furnished. Horizontal (compression) braces and diagonal truss (tension) rods shall be installed on fences over 6 feet in height. A center brace or 2 diagonal truss rods shall be installed on 12 foot fences. Braces and truss rods shall extend from terminal posts to line posts. Diagonal braces shall form an angle of approximately 40 to 50 degrees with the horizontal. No bracing is required on fences 6 feet high or less if a top rail is installed, unless needed to match the existing fence.

3.6 TENSION WIRES

Tension wires shall be installed along the bottom of the fence line and attached to the terminal posts of each stretch of the fence. Bottom tension wire shall be installed within the bottom 6 inches of the installed fabric. Tension wire shall be pulled taut and shall be free of sag.

3.7 CHAIN LINK FABRIC

Chain link fabric shall be installed on the side of the post indicated or as required to match the existing fence. Fabric shall be attached to terminal posts with stretcher bars and tension bands. Bands shall be spaced at approximately 15 inch intervals. The fabric shall be installed and pulled taut to provide a smooth and uniform appearance free from sag, without permanently distorting the fabric diamond or reducing the fabric height. Fabric shall be fastened to line posts at approximately 15 inch intervals and fastened to all rails and tension wires at approximately 12 inch intervals. Fabric shall be cut by untwisting and removing pickets. Splicing shall be accomplished by weaving a single picket into the ends of the rolls to be joined. The bottom of the installed fabric shall be flush with the finish surface rock. After the fabric installation is complete, the fabric shall be exercised by applying a 50 pound push-pull force at the center of the fabric between posts; the use of a 30 pound pull at the center of the panel shall cause fabric deflection of not more than 2-1/2 inches when pulling fabric from the post side of the fence; every second fence panel shall meet this requirement; all failed panels shall be resecured and retested at the Contractor's expense.

3.8 BARBED WIRE SUPPORTING ARMS AND BARBED WIRE

3.8.1 General Requirements

Barbed wire supporting arms and barbed wire shall be installed to match the existing switchyard fence, as indicated, and as recommended by the manufacturer. Supporting arms shall be anchored with 3/8 inch diameter plain pin rivets or, at the Contractor's option, with studs driven by low-velocity explosive-actuated tools for steel, wrought iron, ductile iron, or malleable iron. Studs driven by an explosive-actuated tool shall not be used with gray iron or other material that can be fractured. A minimum of two studs per support arm shall be used. Barbed wire shall be pulled taut and attached to the arms with clips or other means that will prevent easy removal.

3.9 GATE INSTALLATION

The new access gate shall be installed at the approximate location shown in order to provide straight-in access to the existing travel lane on the Auxiliary Bus side of the switchyard. Hinged gates shall be mounted to swing out of the switchyard or as indicated. Latches, stops, and keepers shall be installed as required. Hinge pins, and hardware shall be welded or otherwise secured to prevent removal. Flexible ground bonding jumpers shall be furnished and installed in accordance with SECTION 16050 MISCELLANEOUS ELECTRICAL EQUIPMENT AND WORK.

3.10 GROUNDING

The switchyard fence shall be grounded as specified in Section 16050 MISCELLANEOUS ELECTRICAL EQUIPMENT AND WORK. Electrical equipment attached to the fence shall be grounded as specified in SECTION 16050 MISCELLANEOUS ELECTRICAL EQUIPMENT AND WORK. Fences shall be grounded on each side of all gates, at each corner, at the closest approach to each building located within 50 feet of the fence, and where the fence alignment changes more than 15 degrees. Grounding locations shall not exceed 150 feet. Each gate panel shall be bonded with a flexible bond strap to its gate post. Ground conductor shall consist of No. 8 AWG solid copper wire connected directly to the existing ground grid conductor by exothermic weld.

3.11 ACCESS ROAD

A temporary access road shall be furnished and installed as required to provide construction access to the Auxiliary Bus side of the switchyard. The planking used shall be placed to minimize damage to the existing surface, existing sprinkler outlets, buried utilities and any other wires, cables, pipes, culverts, or other existing equipment. Contractor must obtain approval in writing from the COR for the type of system to be used prior to road surface placement. Upon completion of all work requiring vehicle access to the Auxiliary Bus side of the switchyard, the temporary road surface planking shall be removed and the grass reseeded. Any damage to the area shall be repaired to the satisfaction of the COR.

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SECTION 03100

HSWY0203100

STRUCTURAL CONCRETE FORMWORK

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 REFERENCES
1.3 SUBMITTALS
1.4 DESIGN

PART 2 PRODUCTS

2.1 FORM MATERIALS

PART 3 EXECUTION

3.1 INSTALLATION
3.2 CHAMFERING
3.3 COATING
3.4 REMOVAL OF FORMS
3.5 TOLERANCES FOR FORMED SURFACES

SECTION 03100

STRUCTURAL CONCRETE FORMWORK

PART 1 GENERAL

1.1 GENERAL INFORMATION

This section covers concrete formwork and it is relative to SECTION 03300 CAST-IN-PLACE STRUCTURAL CONCRETE.

1.2 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.

ACI INTERNATIONAL (ACI)

ACI 347R (2001) Guide to Formwork for Concrete

AMERICAN HARDBOARD ASSOCIATION (AHA)

AHA A135.4 (1995) (ANSI A135.4) Basic Hardboard

1.3 SUBMITTALS

SD-03 Data

Formwork; FIO

Drawings showing details of formwork, including dimensions of fiber voids, joints, supports, studding and shoring, and sequence of form and shoring removal.

Design; FIO

Design analysis and calculations for form design and methodology used in the design.

Form Materials; FIO

Manufacturer's data including literature describing form materials, accessories, and form releasing agents.

Form Releasing Agents; FIO

Manufacturer's recommendation on method and rate of application of form releasing agents.

1.4 DESIGN

Formwork shall be designed in accordance with methodology of ACI 347R for anticipated loads, lateral pressures, and stresses. Forms shall be capable of producing a surface which meets the requirements of the class of finish specified in SECTION 03300 CAST-IN-PLACE STRUCTURAL CONCRETE. Forms shall be capable of withstanding the pressures resulting from placement and vibration of concrete.

PART 2 PRODUCTS

2.1 FORM MATERIALS

2.1.1 Forms For Class A and Class B Finish

Forms for Class A and Class B finished surfaces shall be plywood panels conforming to PS-1, Grade B-B concrete form panels, Class I or II. Other form materials or liners may be used provided the smoothness and appearance of concrete produced will be equivalent to that produced by the plywood concrete form panels. Forms for round columns shall be the prefabricated seamless type.

2.1.2 Forms For Class C Finish

Forms for Class C finished surfaces shall be shiplap lumber; plywood conforming to PS-1, Grade B-B concrete form panels, Class I or II; tempered concrete form hardboard conforming to AHA A135.4; other approved concrete form material; or steel, except that steel lining on wood sheathing shall not be used. Forms for round columns may have one vertical seam.

2.1.3 Forms For Class D Finish

Forms for Class D finished surfaces, except where concrete is placed against earth, shall be wood or steel or other approved concrete form material.

2.1.4 Form Ties

Form ties shall be factory-fabricated metal ties, shall be of the removable or internal disconnecting or snap-off type, and shall be of a design that will not permit form deflection and will not spall concrete upon removal. Solid backing shall be provided for each tie. Except where removable tie rods are used, ties shall not leave holes in the concrete surface less than 1/4 inch nor more than 1 inch deep and not more than 1 inch in diameter. Removable tie rods shall be not more than 1-1/2 inches in diameter.

2.1.5 Form Releasing Agents

Form releasing agents shall be commercial formulations that will not bond with, stain or adversely affect concrete surfaces. Agents shall not impair subsequent treatment of concrete surfaces depending upon bond or adhesion nor impede the wetting of surfaces to be cured with water or curing compounds.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Formwork

Forms shall be mortar tight, properly aligned and adequately supported to produce concrete surfaces meeting the surface requirements specified in SECTION 03300 CAST-IN-PLACE STRUCTURAL CONCRETE and conforming to construction tolerance given in paragraph 3.5 TOLERANCES FOR FORMED SURFACES. Where concrete surfaces are to have a Class A or Class B finish, joints in form panels shall be arranged as approved. Where forms for continuous surfaces are placed in successive units, the forms shall fit over the completed surface to obtain accurate alignment of the surface and to prevent leakage of mortar. Forms shall not be reused if there is any evidence of surface wear and tear or defects which would impair the quality of the surface. Surfaces of forms to be reused shall be cleaned of mortar from previous concreting and of all other foreign material before reuse. Form ties that are to be completely withdrawn shall be coated with a nonstaining bond breaker.

3.2 CHAMFERING

*2

~~Except as otherwise shown, all~~ All external corners that will be exposed shall be chamfered ¾ inch.

3.3 COATING

Forms for Class A and Class B finished surfaces shall be coated with a form releasing agent before the form or reinforcement is placed in final position. The coating shall be used as recommended in the manufacturer's printed instructions. Forms for Class C and D finished surfaces may be wet with water in lieu of coating immediately before placing concrete, except that in cold weather with probable freezing temperatures, coating shall be mandatory. Surplus coating on form surfaces and coating on reinforcing steel and construction joints shall be removed before placing concrete.

3.4 REMOVAL OF FORMS

Forms shall be removed preventing injury to the concrete and ensuring the complete safety of the structure. Formwork for columns, walls, side of beams and other parts not supporting the weight of concrete may be removed when the concrete has attained sufficient strength to resist damage from the removal operation but not before at least 24 hours has elapsed since concrete placement. Supporting forms and shores shall not be removed from beams, floors and walls until the structural units are strong enough to carry their own weight and any other construction or natural loads. Supporting forms or shores shall not be removed before the concrete strength has reached 70 percent of design strength, as determined by field cured cylinders or other approved methods. This strength shall be demonstrated by job-cured test specimens, and by a structural analysis considering the proposed loads in relation to these test strengths and the strength of forming and shoring system. The job-cured test specimens for form removal purposes shall be provided in numbers as directed and shall be in addition to those required for concrete quality control. The specimens shall be removed from molds at the age of 24 hours and shall receive, insofar as possible, the same curing and protection as the structures they represent.

3.5 TOLERANCES FOR FORMED SURFACES

1.	Variations from the plumb:	In any 10 feet of length ---------- 1/4 inch
	a. In the lines and surfaces of columns, piers, walls and in arises	Maximum for entire length ---------- 1 inch
	b. For exposed corner columns, control-joint grooves, and other conspicuous lines	In any 20 feet of length ---------- ---- 1/4 inch Maximum for entire length---------- 1/2 inch
2.	Variation from the level or from the grades indicated on the drawings:	In any 10 feet of length ----------1/4 inch In any bay or in any 20 feet of length---------- 3/8 inch
	a. In slab soffits, ceilings, beam soffits, and in arises, measured before removal of supporting shores	Maximum for entire length ---------- 3/4 inch
	b. In exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines	In any bay or in any 20 feet of length ---------- ----- 1/4 inch Maximum for entire length---------- 1/2 inch
3.	Variation of the linear building lines from established position in plan	In any 20 feet --------- 1/2 inch Maximum ----------1 inch
4.	Variation of distance between walls, columns, partitions	1/4 inch per 10 feet of distance, but not more than 1/2 inch in any one bay, and not more than 1 inch total variation
5.	Variation in the sizes and locations of sleeves, floor openings, and wall opening	Minus ---------- 1/4 inch Plus ---------- 1/2 inch
6.	Variation in cross-sectional dimensions of columns and beams and in the thickness of slabs and walls	Minus ---------- 1/4 inch Plus ---------- 1/2 inch
7.	Footings:	
	a. Variation of dimensions in plan	Minus ---------- 1/2 inch Plus ---------- 2 inches

		when formed or plus 3 inches when placed against unformed excavation
b.	Misplacement of eccentricity	2 percent of the footing width in the direction of misplacement but not more than 2 inches
c.	Reduction in thickness of specified thickness	Minus ---------- 5 percent

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SECTION 03200

HSWY0203200

CONCRETE REINFORCEMENT AND ANCHOR BOLTS

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 REFERENCES
1.3 SUBMITTALS
1.4 DELIVERY AND STORAGE

PART 2 PRODUCTS

2.1 DOWELS
2.2 ANCHOR BOLTS
2.3 REINFORCING STEEL
2.4 SUPPORTS

PART 3 EXECUTION

3.1 REINFORCEMENT
3.2 DOWELS AND ANCHOR BOLTS INSTALLATION

SECTION 03200

CONCRETE REINFORCEMENT AND ANCHOR BOLTS

PART 1 GENERAL

1.1 GENERAL INFORMATION

This section covers the requirements for concrete reinforcement and anchor bolts. Section 03300 Cast-In-Place Structural Concrete is relative to this section.

1.2 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.

ACI INTERNATIONAL (ACI)

ACI 318/318R	(2002) Building Code Requirements for Structural Concrete and Commentary

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 82	(2001) Steel Wire, Plain, for Concrete Reinforcement
ASTM A 615/A 615M	(2001) Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM A 767/A 767M	(2000) Zinc-Coated (Galvanized) Steel Bars in Concrete Reinforcement
ASTM A 775/A 775M	(2001) Epoxy-Coated Reinforcement Steel Bars
ASTM F 1554	(1999) Standard Specifications for Anchor Bolts, Steel, 36, 55, and 105 ksi Yield Strength

AMERICAN WELDING SOCIETY (AWS)

AWS D1.4	(1998) Structural Welding Code - Reinforcing Steel

CONCRETE REINFORCING STEEL INSTITUTE (CRSI)

CRSI MSP-1 (1996) Manual of Standard Practice

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having a "FIO " designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Reinforcement; GA

Detail drawings showing reinforcing steel placement, schedules, sizes, grades, and splicing and bending details. Drawings shall show support details including types, sizes and spacing.

Anchor Bolts; GA

Detail drawings showing anchor bolts' grade, size, placement, embedment and projection lengths.

SD-13 Certificates

Reinforcing Steel; FIO

Certified copies of mill reports attesting that the reinforcing steel furnished contains no less than 25 percent recycled scrap steel and meets the requirements specified herein, prior to the installation of reinforcing steel.

1.4 DELIVERY AND STORAGE

Reinforcement, anchor bolts and accessories shall be stored off the ground on platforms, skids, or other supports.

PART 2 PRODUCTS

2.1 DOWELS

Dowels shall be deformed bars conforming to ASTM A 615, Grade 60.

2.2 ANCHOR BOLTS

Anchor bolts shall be conforming to ASTM F 1554-99 Grade 55. Anchor bolts' projection above concrete, exposed end, shall be zinc coated by hot dipping in accordance with Metal Finish Coating of SECTION 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3 REINFORCING STEEL

Reinforcing steel shall be deformed bars conforming to ASTM A 615/A 615M or, grades and sizes as indicated. Cold drawn wire used for spiral reinforcement shall conform to ASTM A 82. In highly corrosive environments or when directed by the Contracting Officer, reinforcing steel shall conform to ASTM A 767/A 767M or ASTM A 775/A 775M as appropriate.

2.4 SUPPORTS

Bar supports for formed surfaces shall be designed and fabricated in accordance with CRSI MSP-1 and shall be steel or precast concrete blocks. Precast concrete blocks shall have wire ties and shall be not less than 4 inches square when supporting reinforcement on ground. Precast concrete block shall have compressive strength equal to that of the surrounding concrete. Where concrete formed surfaces will be exposed to weather or where surfaces are to be painted, steel supports within 1/2 inch of concrete surface shall be galvanized, plastic protected or of stainless steel. Concrete supports used in concrete exposed to view shall have the same color and texture as the finish surface. For slabs on grade, supports shall be precast concrete blocks, plastic coated steel fabricated with bearing plates, or specifically designed wire-fabric supports fabricated of plastic.

PART 3 EXECUTION

3.1 REINFORCEMENT

Reinforcement shall be fabricated to shapes and dimensions shown and shall conform to the requirements of ACI 318/318R. Reinforcement shall be cold bent unless otherwise authorized. Bending may be accomplished in the field or at the mill. Bars shall not be bent after embedment in concrete. Safety caps shall be placed on all exposed ends of vertical concrete reinforcement bars

that pose a danger to life safety. Wire tie ends shall face away from the forms.

3.1.1 Placement

Reinforcement shall be free from loose rust and scale, dirt, oil, or other deleterious coating that could reduce bond with the concrete. Reinforcement shall be placed in accordance with ACI 318/318R at locations shown plus or minus one bar diameter. Reinforcement shall not be continuous through expansion joints and shall be as indicated through construction or contraction joints. Concrete coverage shall be as indicated or as required by ACI 318/318R. If bars are moved more than one bar diameter to avoid interference with other reinforcement, conduits or embedded items, the resulting arrangement of bars, including additional bars required to meet structural requirements, shall be approved before concrete is placed.

3.1.2 Splicing

Splices of reinforcement shall conform to ACI 318/318R and shall be made only as required or indicated. Splicing shall be by lapping or by mechanical or welded butt connection; except that lap splices shall not be used for bars larger than No. 11 unless otherwise indicated. Welding shall conform to AWS D1.4. Welded butt splices shall be full penetration butt welds. Lapped bars shall be placed in contact and securely tied or spaced transversely apart to permit the embedment of the entire surface of each bar in concrete. Lapped bars shall not be spaced farther apart than one-fifth the required length of lap or 6 inches. Mechanical butt splices shall be in accordance with the recommendation of the manufacturer of the mechanical splicing device. Butt splices shall develop 125 percent of the specified minimum yield tensile strength of the spliced bars or of the smaller bar in transition splices. Bars shall be flame dried before butt splicing. Adequate jigs and clamps or other devices shall be provided to support, align, and hold the longitudinal centerline of the bars to be butt spliced in a straight line.

3.2 DOWELS AND ANCHOR BOLTS INSTALLATION

Dowels and anchor bolts shall be installed in foundation at locations indicated. Dowels and anchor bolts shall be accurately positioned. Dowels and anchor bolts shall be rigidly supported during concrete placement. Each group of anchor bolts shall be set within the allowable hole tolerance of base plates by using at least two steel templates, one near top and the other near the bottom. Use steel nuts to tight the templates prior to placing concrete.

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SECTION 03300

HSWY0203300

CAST-IN-PLACE STRUCTURAL CONCRETE

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 REFERENCES
1.3 SUBMITTALS
1.4 QUALIFICATIONS
1.5 GENERAL REQUIREMENTS
1.6 MIXTURE PROPORTIONS
1.7 STORAGE OF MATERIALS
1.8 GOVERNMENT ASSURANCE INSPECTION AND TESTING

PART 2 PRODUCTS

2.1 CEMENTITIOUS MATERIALS
2.2 AGGREGATES
2.3 CHEMICAL ADMIXTURES
2.4 CURING MATERIALS
2.5 WATER
2.6 NONSHRINK GROUT
2.7 EMBEDDED ITEMS

PART 3 EXECUTION

3.1 PREPARATION FOR PLACING
3.2 CONCRETE PRODUCTION
3.3 TRANSPORTING CONCRETE TO PROJECT
3.4 CONVEYING CONCRETE ON SITE
3.5 PLACING CONCRETE
3.6 JOINTS
3.7 FINISHING FORMED SURFACES
3.8 REPAIRS
3.9 CURING AND PROTECTION
3.10 SETTING BASE PLATES AND BEARING PLATES
3.11 TESTING AND INSPECTION FOR CONTRACTOR QUALITY CONTROL

SECTION 03300

CAST-IN-PLACE STRUCTURAL CONCRETE

PART 1 GENERAL

1.1 GENERAL INFORMATION

This section covers concrete work. The following specifications are relative to this section:

SECTION 03100 STRUCTURAL CONCRETE FORMWORK

SECTION 03200 CONCRETE REINFORCEMENT AND ANCHOR BOLTS

1.2 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)

M 182	(1991) Standard Specification for Burlap Cloth Made from Jute or Kenaf Twentieth Edition R(1996)

ACI INTERNATIONAL (ACI)

ACI 117/117R	(1990; Errata) Standard Tolerances for Concrete Construction and Materials
ACI 211.1	(1997) Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete
ACI 214.3R	(1988; R 1997) Simplified Version of the Recommended Practice for Evaluation of Strength Test Results of Concrete
ACI 305R	(1999) Hot Weather Concreting
ACI 318/318R	(1999) Building Code Requirements for Structural Concrete and Commentary

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 31/C 31M	(2000e1) Making and Curing Concrete Test Specimens in the Field
ASTM C 33	(1999ae1) Concrete Aggregates

ASTM C 39/C 39M	(2001) Compressive Strength of Cylindrical Concrete Specimens
ASTM C 42/C 42M	(1999) Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
ASTM C 78	(1994) Flexural Strength of Concrete (Using Simple Beam With Third-Point Loading)
ASTM C 94/C 94M	(2000e2) Ready-Mixed Concrete
ASTM C 136	(1996a) Sieve Analysis of Fine and Coarse Aggregates
ASTM C 143/C 143M	(2000) Slump of Hydraulic Cement Concrete
ASTM C 150	(1999a) Portland Cement
ASTM C 171	(1997a) Sheet Materials for Curing Concrete
ASTM C 172	(1999) Sampling Freshly Mixed Concrete
ASTM C 173	(1994ael) Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C 192/C 192M	(2000) Making and Curing Concrete Test Specimens in the Laboratory
ASTM C 231	(1997el) Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 260	(2000) Air-Entraining Admixtures for Concrete
ASTM C 309	(1998a) Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 494/C 494M	(1999ae1) Chemical Admixtures for Concrete
ASTM C 937	(1997) Grout Fluidifier for Preplaced-Aggregate Concrete
ASTM C 1017/C 1017M	(1998) Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C 1064/C 1064M	(1999) Temperature of Freshly Mixed Portland Cement Concrete
ASTM C 1077	(1998) Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM C 1107	(1999) Packaged Dry, Hydraulic-Cement Grout(Nonshrink)
ASTM D 75	(1987; R 1997) Sampling Aggregates

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

NIST HB 44	(1997) NIST Handbook 44: Specifications, Tolerances, and other Technical Requirements for Weighing and Measuring Devices

NATIONAL READY-MIXED CONCRETE ASSOCIATION (NRMCA)

NRMCA CPMB 100	(1996) Concrete Plant Standards \n/c\X
NRMCA QC 3	(1984) Quality Control Manual: Section 3, Plant Certifications Checklist: Certification of Ready Mixed Concrete Production Facilities
NRMCA TMMB 100	(1994) Truck Mixer Agitator and Front Discharge Concrete Carrier Standards

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE CRD-C 104	(1980) Method of Calculation of the Fineness Modulus of Aggregate
COE CRD-C 400	(1963) Requirements for Water for Use in Mixing or Curing Concrete
COE CRD-C 521	(1981) Standard Test Method for Frequency and Amplitude of Vibrators for Concrete
COE CRD-C 540	(1971; R 1981) Standard Specification for Nonbituminous Inserts for Contraction Joints in Portland Cement Concrete Airfield Pavements, Sawable Type
COE CRD-C 572	(1974) Corps of Engineers Specifications for Polyvinylchloride Waterstop
COE CRD-C 94	(1995) Surface Retarders

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having a "FIO " designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Concrete Mixture Proportions; GA

The results of concrete trial mixture design studies along with a statement giving the maximum nominal coarse aggregate size and the proportions of ingredients that will be used in the manufacture of each strength or class of concrete, at least 14 days prior to commencing concrete placing operations. Aggregate weights shall be based on the saturated surface dry condition. The statement shall be accompanied by test results from an approved independent commercial testing laboratory, showing that mixture design studies have been

made with materials proposed for the project and that the proportions selected will produce concrete of the qualities indicated. No substitutions shall be made in the materials used in the mixture design studies without additional tests to show that the quality of the concrete is satisfactory.

Non-shrink grout material specification; GA

The non-shrink grout material specification shall include following information:

Product and manufacturer’s name, contact telephone number and address, product description, primary applications, features and benefits, packing, shelf life, technical information such as compressive strength values in 1 day, 3 days, 7 days and 28 days, surface preparation, mixing, placement and curing instructions, specifications and compliances, and product limitations.

SD-08 Statements

Flatness Measurement Tool Specifications; GA

Field Flatness Measurement Reports for each Concrete Pad Top Surface Supporting Equipment Circuit Breaker; GA

SD-09 Reports

Testing and Inspection for Contractor Quality Control; GA

Certified copies of laboratory test reports, including mill tests and all other test data, for Portland cement, blended cement, pozzolan, ground granulated blast furnace slag, silica fume, aggregate, admixtures, and curing compound proposed for use on this project.

SD-13 Certificates

Qualifications; FIO

Written documentation for Contractor Quality Control personnel.

1.4 QUALIFICATIONS

Contractor Quality Control personnel assigned to concrete construction shall be American Concrete Institute (ACI) Certified workmen in one of the following grades or shall have written evidence of having completed similar qualification programs:

Concrete Field Testing Technician, Grade I
Concrete Laboratory Testing Technician, Grade I or II
Concrete Construction Inspector, Level II

Concrete Transportation Construction Inspector or Reinforced Concrete Special Inspector, Jointly certified by American Concrete Institute (ACI), Building Official and Code Administrators International (BOCA), International Conference of Building Officials (ICBO), and Southern Building Code Congress International (SBCCI).

The foreman or lead journeyman of the flatwork finishing crew shall have similar qualification for ACI Concrete Flatwork Technician/Finisher or equal, with written documentation.

1.5 GENERAL REQUIREMENTS

1.5.1 TOLERANCES

Except as otherwise specified herein, tolerances for concrete batching, mixture properties, and construction as well as definition of terms and application practices shall be in accordance with ACI 117/117R. Level and grade tolerance measurements of slabs shall be made as soon as possible after finishing; when forms or shoring are used, the measurements shall be made prior to removal.

1.5.1.1 Flatness requirements for each concrete pad supporting Circuit Breaker equipment.

Top concrete surface flatness tolerance of each concrete pad supporting Circuit Breaker equipment is the top concrete elevation as indicated on drawing plus 3/16″ minus 0″. At any position and in any direction of top concrete surface of each concrete pad supporting Circuit Breaker equipment, any irregularities shall not be greater than 3/16″ in height. The Government will not approve any report if its flatness tolerance measured after construction does not meet the above flatness requirements.

1.5.2 Strength Requirements and w/c Ratio

1.5.2.1 Strength Requirements

All concrete shall be normal weight concrete of 145 pcf. Use of lightweight concrete is not permitted for this project. Specified compressive strength (f'c) shall be as follows:

COMPRESSIVE STRENGTH AND STRUCTURE OR PORTION OF STRUCTURE

4000 psi at 28 days for concrete pads supporting Circuit Breakers and other electrical equipment

3000 psi at 28 days for other foundations including all concrete pedestals

Concrete made with high-early strength cement shall have a 7-day strength equal to the specified 28-day strength for concrete made with Type I or II Portland cement. Compressive strength shall be determined in accordance with ASTM C 39/C 39M.

a. Evaluation of Concrete Compressive Strength. Compressive strength specimens (6 by 12 inch cylinders) shall be fabricated by the Contractor and laboratory cured in accordance with ASTM C 31/C 31M and tested in accordance with ASTM C 39/C 39M. The strength of the concrete will be considered satisfactory so long as the average of all sets of three consecutive test results equals or exceeds the specified compressive strength f'c and no individual test result falls below the specified strength f'c by more than 500 psi. A "test" is defined as the average of two companion cylinders, or if only one cylinder is tested, the results of the single cylinder test. Additional analysis or testing, including taking cores and/or load tests may

be required at the Contractor's expense when the strength of the concrete in the structure is considered potentially deficient.

b. Investigation of Low-Strength Compressive Test Results. When any strength test of standard-cured test cylinders falls below the specified strength requirement by more than 500 psi or if tests of field-cured cylinders indicate deficiencies in protection and curing, steps shall be taken to assure that the load-carrying capacity of the structure is not jeopardized. When the strength of concrete in place is considered potentially deficient, cores shall be obtained and tested in accordance with ASTM C 42/C 42M. At least three representative cores shall be taken from each member or area of concrete in place that is considered potentially deficient. The location of cores will be determined by the Contracting Officer to least impair the strength of the structure. Concrete in the area represented by the core testing will be considered adequate if the average strength of the cores is equal to at least 85 percent of the specified strength requirement and if no single core is less than 75 percent of the specified strength requirement. Non-destructive tests (tests other than test cylinders or cores) shall not be used as a basis for acceptance or rejection. The Contractor shall perform the coring and repair the holes. Cores will be tested by the Government.

c. Load Tests. If the core tests are inconclusive or impractical to obtain or if structural analysis does not confirm the safety of the structure, load tests may be directed by the Contracting Officer in accordance with the requirements of ACI 318/318R. Concrete work evaluated by structural analysis or by results of a load test as being understrength shall be corrected in a manner satisfactory to the Contracting Officer. All investigations, testing, load tests, and correction of deficiencies shall be performed by and at the expense of the Contractor and must be approved by the Contracting Officer, except that if all concrete is found to be in compliance with the drawings and specifications, the cost of investigations, testing, and load tests will be at the expense of the Government.

1.5.3 Air Entrainment

All normal weight concrete shall be air entrained to contain between 4 and 7 percent total air, except that when the nominal maximum size coarse aggregate is 3/4 inch or smaller it shall be between 4.5 and 7.5 percent. Concrete with specified compressive strength over 5000 psi may have 1.0 percent less air than specified above. Specified air content shall be attained at point of placement into the forms. Air content for normal weight concrete shall be determined in accordance with ASTM C 231.

1.5.4 Slump

Slump of the concrete, as delivered to the point of placement into the forms, shall be within the following limits. Slump shall be determined in accordance with ASTM C 143/C 143M.

Slump Structural Element	Minimum	Maximum
Foundation walls, substructure walls, footings, slabs	3 in.	5 in.

When use of a plasticizing admixture conforming to ASTM C 1017/C 1017M or when a Type F or G high range water reducing admixture conforming to ASTM C 494/C 494M is permitted to increase the slump of concrete, concrete shall have a slump of 2 to 4 inches before the admixture is added and a maximum slump of 8 inches at the point of delivery after the admixture is added.

1.5.5 Concrete Temperature

The temperature of the concrete as delivered shall not exceed 90 degrees F. When the ambient temperature during placing is 40 degrees F or less, or is expected to be at any time within 6 hours after placing, the temperature of the concrete as delivered shall be between 55 and 75 degrees F.

1.5.6 Size of Coarse Aggregate

The largest feasible nominal maximum size aggregate (NMSA) specified in paragraph 2.2 AGGREGATES shall be used in each placement. However, nominal maximum size of aggregate shall not exceed any of the following: three-fourths of the minimum cover for reinforcing bars, three-fourths of the minimum clear spacing between reinforcing bars, one-fifth of the narrowest dimension between sides of forms, or one-third of the thickness of slabs or toppings.

1.6 MIXTURE PROPORTIONS

Concrete shall be composed of Portland cement, other cementitious and pozzolanic materials as specified, aggregates, water and admixtures as specified.

1.6.1 Proportioning Studies for Normal Weight Concrete

Trial design batches, mixture proportioning studies, and testing requirements for various classes and types of concrete specified shall be the responsibility of the Contractor. Except as specified for flexural strength concrete, mixture proportions shall be based 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 shall be representative of those proposed for use in the project and shall be accompanied by the manufacturer's or producer's test reports indicating compliance with these specifications. Trial mixtures having proportions, consistencies, and air content suitable for the work shall be made based on methodology described in ACI 211.1, using at least three different water-cement ratios for each type of mixture, which will produce a range of strength encompassing those required for each class and type of concrete required on the project. The maximum water-cement ratios required in subparagraph Water-Cement Ratio will be the equivalent water-cement ratio as determined by conversion from the weight ratio of water to cement plus pozzolan, silica fume, and ground granulated blast furnace slag (GGBF slag) by the weight equivalency method as described in ACI 211.1. In the case where silica fume or GGBF slag is used, the weight of the silica fume and GGBF slag shall be included in the equations in ACI 211.1 for the term P, which is used to denote the weight of pozzolan. If pozzolan is used in the concrete mixture, the minimum pozzolan content shall be 15 percent by weight of the total cementitious material, and the maximum shall be 35 percent. Laboratory trial mixtures shall be designed for maximum permitted slump and air content. Separate sets of trial mixture studies shall be made for each combination of cementitious materials and each combination of

admixtures proposed for use. No combination of either shall be used until proven by such studies, except that, if approved in writing and otherwise permitted by these specifications, an accelerator or a retarder may be used without separate trial mixture study. Separate trial mixture studies shall also be made for concrete for any conveying or placing method proposed which requires special properties and for concrete to be placed in unusually difficult placing locations. The temperature of concrete in each trial batch shall be reported. For each water-cement ratio, at least three test cylinders for each test age shall be made and cured in accordance with ASTM C 192/C 192M. They shall be tested at 7 and 28 days in accordance with ASTM C 39/C 39M. From these test results, a curve shall be plotted showing the relationship between water-cement ratio and strength for each set of trial mix studies. In addition, a curve shall be plotted showing the relationship between 7 day and 28 day strengths. Each mixture shall be designed to promote easy and suitable concrete placement, consolidation and finishing, and to prevent segregation and excessive bleeding.

1.6.2 Average Compressive Strength Required for Mixtures

The mixture proportions selected during mixture design studies shall produce a required average compressive strength (f'cr) exceeding the specified compressive strength (f'c) by the amount indicated below. This required average compressive strength, f'cr, will not be a required acceptance criteria during concrete production. However, whenever the daily average compressive strength at 28 days drops below f'cr during concrete production, or daily average 7-day strength drops below a strength correlated with the 28-day f'cr, the mixture shall be adjusted, as approved, to bring the daily average back up to f'cr. During production, the required f'cr shall be adjusted, as appropriate, based on the standard deviation being attained on the job.

1.6.2.1 Computations from Test Records

Where a concrete production facility has test records, a standard deviation shall be established in accordance with the applicable provisions of ACI 214.3R. Test records from which a standard deviation is calculated shall represent materials, quality control procedures, and conditions similar to those expected; shall represent concrete produced to meet a specified strength or strengths (f'c) within 1,000 psi of that specified for proposed work; and shall consist of at least 30 consecutive tests. A strength test shall be the average of the strengths of two cylinders made from the same sample of concrete and tested at 28 days. Required average compressive strength f'cr used as the basis for selection of concrete proportions shall be the larger of the equations that follow using the standard deviation as determined above:

$f'cr = f'c + 1.34S$ where units are in psi

$f'cr = f'c + 2.33S - 500$ where units are in psi

Where S = standard deviation

Where a concrete production facility does not have test records meeting the requirements above but does have a record based on 15 to 29 consecutive tests, a standard deviation shall be established as the product of the calculated standard deviation and a modification factor from the following table:

NUMBER OF TESTS	MODIFICATION FACTOR FOR STANDARD DEVIATION
15	1.16
20	1.08
25	1.03
30 or more	1.00

1.6.2.2 Computations without Previous Test Records

When a concrete production facility does not have sufficient field strength test records for calculation of the standard deviation, the required average strength f'cr shall be determined as follows:

a. If the specified compressive strength f'c is less than 3,000 psi, f'cr = f'c + 1000 psi

b. If the specified compressive strength f'c is 3,000 to 5,000 psi, f'cr = f'c + 1,200 psi

c. If the specified compressive strength f'c is over 5,000 psi, f'cr = f'c + 1,400 psi

1.7 STORAGE OF MATERIALS

Cement and other cementitious materials shall be stored in weather-tight buildings, bins, or silos which will exclude moisture and contaminants and keep each material completely separated. Aggregate stockpiles shall be arranged and used in a manner to avoid excessive segregation and to prevent contamination with other materials or with other sizes of aggregates. Aggregate shall not be stored directly on ground unless a sacrificial layer is left undisturbed. Reinforcing bars and accessories shall be stored above the ground on platforms, skids or other supports. Other materials shall be stored in such a manner as to avoid contamination and deterioration. Admixtures which have been in storage at the project site for longer than 6 months or which have been subjected to freezing shall not be used unless retested and proven to meet the specified requirements. Materials shall be capable of being accurately identified after bundles or containers are opened.

1.8 GOVERNMENT ASSURANCE INSPECTION AND TESTING

Day-to day inspection and testing shall be the responsibility of the Contractor Quality Control (CQC) staff. However, representatives of the Contracting Officer can and will inspect construction as considered appropriate and will monitor operations of the Contractor's CQC staff. Government inspection or testing will not relieve the Contractor of any of his CQC responsibilities.

1.8.1 Materials

The Government will sample and test aggregates, cementitious materials, other materials, and concrete to determine compliance with the specifications as considered appropriate. The Contractor shall provide facilities and labor as may be necessary for procurement of representative test samples. Samples of aggregates will be obtained at the point of batching in accordance with ASTM

D 75. Other materials will be sampled from storage at the jobsite or from other locations as considered appropriate. Samples may be placed in storage for later testing when appropriate.

1.8.2 Fresh Concrete

Fresh concrete will be sampled as delivered in accordance with ASTM C 172 and tested in accordance with these specifications, as considered necessary.

1.8.3 Hardened Concrete

Tests on hardened concrete will be performed by the Government when such tests are considered necessary.

1.8.4 Inspection

Concrete operations may be tested and inspected by the Government as the project progresses. Failure to detect defective work or material will not prevent rejection later when a defect is discovered nor will it obligate the Government for final acceptance.

PART 2 PRODUCTS

2.1 CEMENTITIOUS MATERIALS

Cementitious Materials shall be Portland cement, Portland-pozzolan cement, Portland blast-furnace slag cement or Portland cement in combination with pozzolan and shall conform to appropriate specifications listed below. Use of cementitious materials in concrete which will have surfaces exposed in the completed structure shall be restricted so there is no change in color, source, or type of cementitious material.

2.1.1 Portland Cement

ASTM C 150, Type I low alkali with a maximum 15 percent amount of tricalcium aluminate, or Type II low alkali including false set requirements or Type V. White Portland cement shall meet the above requirements except that it may be Type I, Type II or Type III low alkali. White Type III shall be used only in specific areas of the structure, when approved in writing.

2.1.2 High-Early-Strength Portland Cement

ASTM C 150, Type III with tricalcium aluminate limited to 5 percent, low alkali. Type III cement shall be used only in isolated instances and only when approved in writing.

2.2 AGGREGATES

Aggregates shall conform to the following.

2.2.1 Fine Aggregate

Fine aggregate shall conform to the quality and gradation requirements of ASTM C 33.

2.2.2 Coarse Aggregate

For equipment pads, footings excluding 14 inch square pedestals and others: Coarse aggregate shall conform to ASTM C 33 with Class Designation 5M and Size Number 57 or 67.

For 14 inch square pedestals only: Coarse aggregate shall conform to ASTM C 33 with Class Designation 5M and Size Number 67. Using Size Number 57 is not recommended due to tight space and congestion caused by anchor bolts, steel templates and rebars.

2.3 CHEMICAL ADMIXTURES

Chemical admixtures, when required or permitted, shall conform to the appropriate specification listed. Admixtures shall be furnished in liquid form and of suitable concentration for easy, accurate control of dispensing.

2.3.1 Air-Entraining Admixture

Air-entraining admixtures shall comply with ASTM C 260 and shall consistently entrain the air content in the specified ranges under field conditions.

2.3.2 Accelerating Admixture

ASTM C 494/C 494M, Type C or E, except that calcium chloride or admixtures containing calcium chloride shall not be used.

2.3.3 Water-Reducing or Retarding Admixture

ASTM C 494/C 494M, Type A, B, or D, except that the 6-month and 1-year compressive and flexural strength tests are waived.

2.3.4 Expanding Admixture

Aluminum powder type expanding admixture conforming to ASTM C 937.

2.4 CURING MATERIALS

2.4.1 Impervious-Sheet

Impervious-sheet materials shall conform to ASTM C 171, type optional, except, that polyethylene sheet shall not be used.

2.4.2 Membrane-Forming Compound

Membrane-Forming curing compound shall conform to ASTM C 309, Type 1-D or 2, except that only a styrene acrylate or chlorinated rubber compound meeting Class B requirements shall be used for surfaces that are to be painted or are to receive bituminous roofing, or waterproofing, or floors that are to receive adhesive applications of resilient flooring. The curing compound selected shall be compatible with any subsequent paint, roofing, waterproofing, or flooring specified. Nonpigmented compound shall contain a fugitive dye, and shall have the reflective requirements in ASTM C 309 waived.

2.4.3 Burlap and Cotton Mat

Burlap and cotton mat used for curing shall conform to AASHTO M 182.

2.5 WATER

Water for mixing and curing shall be fresh, clean, potable, and free of injurious amounts of oil, acid, salt, or alkali, except that non-potable water may be used if it meets the requirements of COE CRD-C 400.

2.6 NONSHRINK GROUT

See paragraph 3.10.1

2.7 EMBEDDED ITEMS

Embedded items shall be of the size and type indicated or as needed for the application.

PART 3 EXECUTION

3.1 PREPARATION FOR PLACING

Before commencing concrete placement, the following shall be performed. Surfaces to receive concrete shall be clean and free from frost, ice, mud, and water. Forms shall be in place, cleaned, coated, and adequately supported, in accordance with SECTION 03100 STRUCTURAL CONCRETE FORMWORK. Reinforcing steel shall be in place, cleaned, tied, and adequately supported, in accordance with SECTION 03200 CONCRETE REINFORCEMENT AND ANCHOR BOLTS. Transporting and conveying equipment shall be in-place, ready for use, clean, and free of hardened concrete and foreign material. Equipment for consolidating concrete shall be at the placing site and in proper working order. Equipment and material for curing and for protecting concrete from weather or mechanical damage shall be at the placing site, in proper working condition and in sufficient amount for the entire placement. When hot, windy conditions during concreting appear probable, equipment and material shall be at the placing site to provide windbreaks, shading, fogging, or other action to prevent plastic shrinkage cracking or other damaging drying of the concrete.

3.1.1 Foundations

3.1.1.1 Concrete on Earth Foundations

Earth (subgrade, base, or subbase courses) surfaces upon which concrete is to be placed shall be clean, damp, and free from debris, frost, ice, and standing or running water. Prior to placement of concrete, the foundation shall be well drained and shall be satisfactorily graded and uniformly compacted.

3.1.1.2 Concrete on an Existing Cable Tunnel Roof

As-built drawings indicate that damp-proofing material was placed on the surfaces of the existing cable tunnel. If, during the excavation, damp-proofing material is discovered to cover the roof and walls of the existing cable tunnel where concrete to be placed, the contractor shall not remove or damage any existing damp-proofing material during the excavation, formwork,

rebar and concrete placement, formwork removal and soil backfill. For surface cleanness requirements, see above paragraph 3.1.1.1.

3.1.2 Embedded Items

Before placement of concrete, care shall be taken to determine that all embedded items are firmly and securely fastened in place as indicated on the drawings, or required. Welding shall not be performed on embedded metals within 1 foot of the surface of the concrete. Tack welding shall not be performed on or to embedded items.

3.2 CONCRETE PRODUCTION

3.2.1 Batching, Mixing, and Transporting Concrete

Concrete shall either be batched and mixed onsite or shall be furnished from a local existing ready-mixed concrete plant. Ready-mixed concrete shall be batched, mixed, and transported in accordance with ASTM C 94/C 94M, except as otherwise specified. Truck mixers, agitators, and nonagitating transporting units shall comply with NRMCA TMMB 100. Ready-mix plant equipment and facilities shall be certified in accordance with NRMCA QC 3. Approved batch tickets shall be furnished for each load of ready-mixed concrete. Site-mixed concrete shall conform to the following subparagraphs.

3.2.1.1 General

The batching, mixing and placing system shall have a capacity of at least 50 cubic yards per hour. The batching plant shall conform to the requirements of NRMCA CPMB 100 and as specified; however, rating plates attached to batch plant equipment are not required.

3.2.1.2 Batching Equipment

The batching controls shall be semiautomatic or automatic, as defined in NRMCA CPMB 100. A semiautomatic batching system shall be provided with interlocks such that the discharge device cannot be actuated until the indicated material is within the applicable tolerance. The batching system shall be equipped with accurate recorder or recorders that meet the requirements of NRMCA CPMB 100. The weight of water and admixtures shall be recorded if batched by weight. Separate bins or compartments shall be provided for each size group of aggregate and type of cementitious material, to prevent intermingling at any time. Aggregates shall be weighed either in separate weigh batchers with individual scales or, provided the smallest size is batched first, cumulatively in one weigh batcher on one scale. Aggregate shall not be weighed in the same batcher with cementitious material. If both Portland cement and other cementitious material are used, they may be batched cumulatively, provided that the Portland cement is batched first, except that silica fume shall always be batched separately. Water may be measured by weight or volume. Water shall not be weighed or measured cumulatively with another ingredient. Filling and discharging valves for the water metering or batching system shall be so interlocked that the discharge valve cannot be opened before the filling valve is fully closed. Piping for water and for admixtures shall be free from leaks and shall be properly valved to prevent backflow or siphoning. Admixtures shall be furnished as a liquid of suitable concentration for easy control of dispensing. An adjustable, accurate, mechanical device for measuring and dispensing each admixture shall be provided. Each admixture dispenser shall be interlocked with the batching

and discharging operation of the water so that each admixture is separately batched and individually discharged automatically in a manner to obtain uniform distribution throughout the water as it is added to the batch in the specified mixing period. When use of truck mixers makes this requirement impractical, the admixture dispensers shall be interlocked with the sand batchers. Different admixtures shall not be combined prior to introduction in water and shall not be allowed to intermingle until in contact with the cement. Admixture dispensers shall have suitable devices to detect and indicate flow during dispensing or have a means for visual observation. The plant shall be arranged so as to facilitate the inspection of all operations at all times. Suitable facilities shall be provided for obtaining representative samples of aggregates from each bin or compartment, and for sampling and calibrating the dispensing of cementitious material, water, and admixtures. Filling ports for cementitious materials bins or silos shall be clearly marked with a permanent sign stating the contents.

3.2.1.3 Scales

The weighing equipment shall conform to the applicable requirements of CPMB Concrete Plant Standard, and of NIST HB 44, except that the accuracy shall be plus or minus 0.2 percent of scale capacity. The Contractor shall provide standard test weights and any other auxiliary equipment required for checking the operating performance of each scale or other measuring devices. The tests shall be made at the specified frequency in the presence of a Government inspector. The weighing equipment shall be arranged so that the plant operator can conveniently observe all dials or indicators.

3.2.1.4 Batching Tolerances

a. Tolerances with Weighing Equipment

MATERIAL	PERCENT OF REQUIRED WEIGHT
Cementitious materials	0 to plus 2
Aggregate	plus or minus 2
Water	plus or minus 1
Chemical admixture	0 to plus 6

b. Tolerances with Volumetric Equipment

For volumetric batching equipment used for water and admixtures, the following tolerances shall apply to the required volume of material being batched:

MATERIAL	PERCENT OF REQUIRED MATERIAL
Water:	plus or minus 1 percent
Chemical admixtures:	0 to plus 6 percent

3.2.1.5 Moisture Control

The plant shall be capable of ready adjustment to compensate for the varying moisture content of the aggregates and to change the weights of the materials being batched.

3.2.1.6 Concrete Mixers

Mixers shall be stationary mixers or truck mixers. Mixers shall be capable of combining the materials into a uniform mixture and of discharging this mixture without segregation. The mixers shall not be charged in excess of the capacity recommended by the manufacturer. The mixers shall be operated at the drum or mixing blade speed designated by the manufacturer. The mixers shall be maintained in satisfactory operating condition, and the mixer drums shall be kept free of hardened concrete. Should any mixer at any time produce unsatisfactory results, its use shall be promptly discontinued until it is repaired.

3.2.1.7 Stationary Mixers

Concrete plant mixers shall be drum-type mixers of tilting, nontilting, horizontal-shaft, or vertical-shaft type, or shall be pug mill type and shall be provided with an acceptable device to lock the discharge mechanism until the required mixing time has elapsed. The mixing time and uniformity shall conform to all the requirements in ASTM C 94/C 94M applicable to central-mixed concrete.

3.2.1.8 Truck Mixers

Truck mixers, the mixing of concrete therein, and concrete uniformity shall conform to the requirements of ASTM C 94/C 94M. A truck mixer may be used either for complete mixing (transit-mixed) or to finish the partial mixing done in a stationary mixer (shrink-mixed). Each truck shall be equipped with two counters from which it is possible to determine the number of revolutions at mixing speed and the number of revolutions at agitating speed. Water shall not be added at the placing site unless specifically approved; and in no case shall it exceed the specified w/c. Any such water shall be injected at the base of the mixer, not at the discharge end.

3.3 TRANSPORTING CONCRETE TO PROJECT SITE

Concrete shall be transported to the placing site in truck mixers, or by approved pumping equipment.

3.4 CONVEYING CONCRETE ON SITE

Concrete shall be conveyed from mixer or transporting unit to forms as rapidly as possible and within the time interval specified by methods which will prevent segregation or loss of ingredients using following equipment. Conveying equipment shall be cleaned before each placement.

3.4.1 Buckets

The interior hopper slope shall be not less than 58 degrees from the horizontal, the minimum dimension of the clear gate opening shall be at least 5 times the nominal maximum-size aggregate, and the area of the gate opening shall not be less than 2 square feet. The maximum dimension of the gate opening shall not be greater than twice the minimum dimension. The bucket gates shall be essentially grout tight when closed and may be manually, pneumatically, or hydraulically operated except that buckets larger than 2 cubic yards shall not be manually operated. The design of the bucket shall provide means for positive regulation of the amount and rate of deposit of concrete in each dumping position.

3.4.2 Transfer Hoppers

Concrete may be charged into nonagitating hoppers for transfer to other conveying devices. Transfer hoppers shall be capable of receiving concrete directly from delivery vehicles and shall have conical-shaped discharge features. The transfer hopper shall be equipped with a hydraulically operated gate and with a means of external vibration to effect complete discharge. Concrete shall not be held in nonagitating transfer hoppers more than 30 minutes.

3.4.3 Trucks

Truck mixers operating at agitating speed or truck agitators used for transporting plant-mixed concrete shall conform to the requirements of ASTM C 94/C 94M. Nonagitating equipment shall be used only for transporting plant-mixed concrete over a smooth road and when the hauling time is less than 15 minutes. Bodies of nonagitating equipment shall be smooth, watertight, metal containers specifically designed to transport concrete, shaped with rounded corners to minimize segregation, and equipped with gates that will permit positive control of the discharge of the concrete.

3.4.4 Chutes

When concrete can be placed directly from a truck mixer, agitator, or nonagitating equipment, the chutes normally attached to this equipment by the manufacturer may be used. A discharge deflector shall be used when required by the Contracting Officer. Separate chutes and other similar equipment will not be permitted for conveying concrete.

3.4.5 Belt Conveyors

Belt conveyors shall be designed and operated to assure a uniform flow of concrete from mixer to final place of deposit without segregation of ingredients or loss of mortar and shall be provided with positive means, such as discharge baffle or hopper, for preventing segregation of the concrete at the transfer points and the point of placing. Belt conveyors shall be constructed such that the idler spacing shall not exceed 36 inches. The belt speed shall be a minimum of 300 feet per minute and a maximum of 750 feet per minute. If concrete is to be placed through installed horizontal or sloping reinforcing bars, the conveyor shall discharge concrete into a pipe or elephant truck that is long enough to extend through the reinforcing bars.

3.4.6 Concrete Pumps

Concrete may be conveyed by positive displacement pump when approved. The pumping equipment shall be piston or squeeze pressure type; pneumatic placing equipment shall not be used. The pipeline shall be rigid steel pipe or heavy-duty flexible hose. The inside diameter of the pipe shall be at least 3 times the nominal maximum-size coarse aggregate in the concrete mixture to be pumped but not less than 4 inches. Aluminum pipe shall not be used.

3.5 PLACING CONCRETE

Mixed concrete shall be discharged within 1-1/2 hours or before the mixer drum has revolved 300 revolutions, whichever comes first after the introduction of the mixing water to the cement and aggregates. When the

concrete temperature exceeds 85 degrees F, the time shall be reduced to 45 minutes. Concrete shall be placed within 15 minutes after it has been discharged from the transporting unit. Concrete shall be handled from mixer or transporting unit to forms in a continuous manner until the approved unit of operation is completed. Adequate scaffolding, ramps and walkways shall be provided so that personnel and equipment are not supported by in-place reinforcement. Placing will not be permitted when the sun, heat, wind, or limitations of facilities furnished by the Contractor prevent proper consolidation, finishing and curing. Sufficient placing capacity shall be provided so that concrete can be kept free of cold joints.

3.5.1 Depositing Concrete

Concrete shall be deposited as close as possible to its final position in the forms, and there shall be no vertical drop greater than 5 feet except where suitable equipment is provided to prevent segregation and where specifically authorized. Depositing of the concrete shall be so regulated that it will be effectively consolidated in horizontal layers not more than 12 inches thick, except that all slabs shall be placed in a single layer. Concrete to receive other construction shall be screeded to the proper level. Concrete shall be deposited continuously in one layer or in layers so that fresh concrete is deposited on in-place concrete that is still plastic. Fresh concrete shall not be deposited on concrete that has hardened sufficiently to cause formation of seams or planes of weakness within the section. Concrete that has surface dried, partially hardened, or contains foreign material shall not be used. When temporary spreaders are used in the forms, the spreaders shall be removed as their service becomes unnecessary. Concrete shall not be placed in slabs over columns and walls until concrete in columns and walls has been in-place at least two hours or until the concrete begins to lose its plasticity. Concrete for beams, girders, brackets, column capitals, haunches, and drop panels shall be placed at the same time as concrete for adjoining slabs.

3.5.2 Consolidation

Immediately after placing, each layer of concrete shall be consolidated by internal vibrators, except for slabs 4 inches thick or less. The vibrators shall at all times be adequate in effectiveness and number to properly consolidate the concrete; a spare vibrator shall be kept at the jobsite during all concrete placing operations. The vibrators shall have a frequency of not less than 10,000 vibrations per minute, an amplitude of at least 0.025 inch, and the head diameter shall be appropriate for the structural member and the concrete mixture being placed. Vibrators shall be inserted vertically at uniform spacing over the area of placement. The distance between insertions shall be approximately 1-1/2 times the radius of action of the vibrator so that the area being vibrated will overlap the adjacent just-vibrated area by a reasonable amount. The vibrator shall penetrate rapidly to the bottom of the layer and at least 6 inches into the preceding layer if there is such. Vibrator shall be held stationary until the concrete is consolidated and then vertically withdrawn slowly while operating. Form vibrators shall not be used unless specifically approved and unless forms are constructed to withstand their use. Vibrators shall not be used to move concrete within the forms. Slabs 4 inches and less in thickness shall be consolidated by properly designed vibrating screeds or other approved technique. Excessive vibration of lightweight concrete resulting in segregation or flotation of coarse aggregate shall be prevented. Frequency

and amplitude of vibrators shall be determined in accordance with COE CRD-C 521. Grate tampers ("jitterbugs") shall not be used.

3.5.3 Cold Weather Requirements

Special protection measures, approved by the Contracting Officer, shall be used if freezing temperatures are anticipated before the expiration of the specified curing period. The ambient temperature of the air where concrete is to be placed and the temperature of surfaces to receive concrete shall be not less than 40 degrees F. The temperature of the concrete when placed shall be not less than 50 degrees F nor more than 75 degrees F. Heating of the mixing water or aggregates will be required to regulate the concrete placing temperature. Materials entering the mixer shall be free from ice, snow, or frozen lumps. Salt, chemicals or other materials shall not be incorporated in the concrete to prevent freezing. Upon written approval, an accelerating admixture conforming to ASTM C 494/C 494M, Type C or E may be used, provided it contains no calcium chloride. Calcium chloride shall not be used.

3.5.4 Hot Weather Requirements

When the ambient temperature during concrete placing is expected to exceed 85 degrees F, the concrete shall be placed and finished with procedures previously submitted and as specified herein. The concrete temperature at time of delivery to the forms shall not exceed the temperature shown in the table below when measured in accordance with ASTM C 1064/C 1064M. Cooling of the mixing water or aggregates or placing concrete in the cooler part of the day may be required to obtain an adequate placing temperature. A retarder may be used, as approved, to facilitate placing and finishing. Steel forms and reinforcements shall be cooled as approved prior to concrete placement when steel temperatures are greater than 120 degrees F. Conveying and placing equipment shall be cooled if necessary to maintain proper concrete-placing temperature.

Maximum Allowable Concrete Placing Temperature

Relative Humidity, Percent, During Time of Concrete Placement	Maximum Allowable Concrete Temperature Degrees
Greater than 60	90 F
40-60	85 F
Less than 40	80 F

3.5.5 Prevention of Plastic Shrinkage Cracking

During hot weather with low humidity, and particularly with appreciable wind, as well as interior placements when space heaters produce low humidity, the Contractor shall be alert to the tendency for plastic shrinkage cracks to develop and shall institute measures to prevent this. Particular care shall be taken if plastic shrinkage cracking is potentially imminent and especially if it has developed during a previous placement. Periods of high potential for plastic shrinkage cracking can be anticipated by use of Fig. 2.1.5 of ACI 305R. In addition the concrete placement shall be further protected by erecting shades and windbreaks and by applying fog sprays of water, sprinkling, ponding or wet covering. Plastic shrinkage cracks that occur shall be filled by injection of epoxy resin as directed, after the concrete

hardens. Plastic shrinkage cracks shall never be troweled over or filled with slurry.

3.5.6 Placing Concrete in Congested Areas

Special care shall be used to ensure complete filling of the forms, elimination of all voids, and complete consolidation of the concrete when placing concrete in areas congested with reinforcing bars, embedded items, waterstops and other tight spacing. An appropriate concrete mixture shall be used, and the nominal maximum size of aggregate (NMSA) shall meet the specified criteria when evaluated for the congested area. Vibrators with heads of a size appropriate for the clearances available shall be used, and the consolidation operation shall be closely supervised to ensure complete and thorough consolidation at all points. Where necessary, splices of reinforcing bars shall be alternated to reduce congestion. Where two mats of closely spaced reinforcing are required, the bars in each mat shall be placed in matching alignment to reduce congestion. Reinforcing bars may be temporarily crowded to one side during concrete placement provided they are returned to exact required location before concrete placement and consolidation are completed.

3.6 JOINTS

Joints shall be located and constructed as indicated or approved. Joints not indicated on the drawings shall be located and constructed to minimize the impact on the strength of the structure. In general, such joints shall be located near the middle of the spans of supported slabs, beams, and girders unless a beam intersects a girder at this point, in which case the joint in the girder shall be offset a distance equal to twice the width of the beam. Joints in walls and columns shall be at the underside of floors, slabs, beams, or girders and at the tops of footings or floor slabs, unless otherwise approved. Joints shall be perpendicular to the main reinforcement. All reinforcement shall be continued across joints; except that reinforcement or other fixed metal items shall not be continuous through expansion joints, or through construction or contraction joints in slabs on grade. Reinforcement shall be 2 inches clear from each joint. Except where otherwise indicated, construction joints between interior slabs on grade and vertical surfaces shall consist of 30 pound asphalt-saturated felt, extending for the full depth of the slab. The perimeters of the slabs shall be free of fins, rough edges, spalling, or other unsightly appearance. Reservoir for sealant for construction and contraction joints in slabs shall be formed to the dimensions shown on the drawings by removing snap-out joint-forming inserts, by sawing sawable inserts, or by sawing to widen the top portion of sawed joints. Joints to be sealed shall be cleaned and sealed in accordance with procedures submitted for approval.

3.6.1 Construction Joints

For concrete other than slabs on grade, construction joints shall be located so that the unit of operation does not exceed 5 feet. Concrete shall be placed continuously so that each unit is monolithic in construction. Fresh concrete shall not be placed against adjacent hardened concrete until it is at least 24 hours old. Construction joints shall be located as indicated or approved. Where concrete work is interrupted by weather, end of work shift or other similar type of delay, location and type of construction joint shall be subject to approval of the Contracting Officer. Unless otherwise indicated and except for slabs on grade, reinforcing steel shall extend

through construction joints. Construction joints in slabs on grade shall be keyed or doweled as shown. Concrete columns, walls, or piers shall be in place at least 2 hours, or until the concrete begins to lose its plasticity, before placing concrete for beams, girders, or slabs thereon. In walls having door or window openings, lifts shall terminate at the top and bottom of the opening. Other lifts shall terminate at such levels as to conform to structural requirements or architectural details. Where horizontal construction joints in walls or columns are required, a strip of 1 inch square-edge lumber, beveled and oiled to facilitate removal, shall be tacked to the inside of the forms at the construction joint. Concrete shall be placed to a point 1 inch above the underside of the strip. The strip shall be removed 1 hour after the concrete has been placed, and any irregularities in the joint line shall be leveled off with a wood float, and all laitance shall be removed. Prior to placing additional concrete, horizontal construction joints shall be prepared as specified above.

3.6.2 Dowels and Tie Bars

Dowels and tie bars shall be installed at the locations shown on the drawings and to the details shown, using materials and procedures specified in Section 03200 CONCRETE REINFORCEMENT AND ANCHOR BOLTS, and herein. Conventional smooth "paving" dowels shall be installed in slabs using approved methods to hold the dowel in place during concreting within a maximum alignment tolerance of 1/8 inch in 12 inches. "Structural" type deformed bar dowels, or tie bars, shall be installed to meet the specified tolerances. Care shall be taken during placing adjacent to and around dowels and tie bars to ensure there is no displacement of the dowel or tie bar and that the concrete completely embeds the dowel or tie bar and is thoroughly consolidated.

3.7 FINISHING FORMED SURFACES

Forms, form materials, and form construction are specified in SECTION 03100 STRUCTURAL CONCRETE FORMWORK. Finishing of formed surfaces shall be as specified herein. Unless another type of architectural or special finish is specified, surfaces shall be left with the texture imparted by the forms except that defective surfaces shall be repaired. Unless painting of surfaces is required, uniform color of the concrete shall be maintained by use of only one mixture without changes in materials or proportions for any structure or portion of structure that requires a Class A or B finish. Except for major defects, as defined hereinafter, surface defects shall be repaired as specified herein within 24 hours after forms are removed. Repairs of the so-called "plaster-type" will not be permitted in any location. Tolerances of formed surfaces shall conform to the requirements of ACI 117/117R. These tolerances apply to the finished concrete surface, not to the forms themselves; forms shall be set true to line and grade. Form tie holes requiring repair and other defects whose depth is at least as great as their surface diameter shall be repaired as specified in paragraph 3.8.1 Damp-Pack Mortar Repair. Defects whose surface diameter is greater than their depth shall be repaired as specified in paragraph 3.8.2 Repair of Major Defects. Repairs shall be finished flush with adjacent surfaces and with the same surface texture. The cement used for all repairs shall be a blend of job cement with white cement proportioned so that the final color after curing and aging will be the same as the adjacent concrete. Concrete with excessive honeycomb, or other defects which affect the strength of the member, will be rejected. Repairs shall be demonstrated to be acceptable and free from cracks or loose or drummy areas at the completion of the contract

and, for Class A and B Finishes, shall be inconspicuous. Repairs not meeting these requirements will be rejected and shall be replaced.

3.7.1 Class A Finish and Class B Finish

NOT USED

3.7.2 Class C and Class D Finish

Class C and D finish are required where indicated on the Structural General Note Sheet or as specified in SECTION 03100 STRUCTURAL CONCRETE FORMWORK, holes left by removal of form ties shall be reamed and filled. Honeycomb and other defects more than 1/2 inch deep or more than 2 inches in diameter shall be repaired. Defects more than 2 inches in diameter shall be cut back to sound concrete, but in all cases at least 1 inch deep.

3.8 REPAIRS

3.8.1 Damp-Pack Mortar Repair

Form tie holes requiring repair and other defects whose depth is at least as great as their surface diameter but not over 4 inches shall be repaired by the damp-pack mortar method. Form tie holes shall be reamed and other similar defects shall be cut out to sound concrete. The void shall then be thoroughly cleaned, thoroughly wetted, brush-coated with a thin coat of neat cement grout and filled with mortar. Mortar shall be a stiff mix of 1 part Portland cement to 2 parts fine aggregate passing the No. 16 mesh sieve, and minimum amount of water. Only sufficient water shall be used to produce a mortar which, when used, will stick together on being molded into a ball by a slight pressure of the hands and will not exude water but will leave the hands damp. Mortar shall be mixed and allowed to stand for 30 to 45 minutes before use with remixing performed immediately prior to use. Mortar shall be thoroughly tamped in place in thin layers using a hammer and hardwood block. Holes passing entirely through walls shall be completely filled from the inside face by forcing mortar through to the outside face. All holes shall be packed full. Damp-pack repairs shall be moist cured for at least 48 hours.

3.8.2 Repair of Major Defects

Major defects will be considered to be those more than 1/2 inch deep or, for Class A and B finishes, more than 1/2 inch in diameter and, for Class C and D finishes, more than 2 inches in diameter. Also included are any defects of any kind whose depth is over 4 inches or whose surface diameter is greater than their depth. Major defects shall be repaired as specified below.

3.8.2.1 Surface Application of Mortar Repair

Defective concrete shall be removed, and removal shall extend into completely sound concrete. Approved equipment and procedures which will not cause cracking or micro-cracking of the sound concrete shall be used. If reinforcement is encountered, concrete shall be removed so as to expose the reinforcement for at least 2 inches on all sides. All such defective areas greater than 12 square inches shall be outlined by saw cuts at least 1 inch deep. Defective areas less than 12 square inches shall be outlined by a 1 inch deep cut with a core drill in lieu of sawing. All saw cuts shall be straight lines in a rectangular pattern in line with the formwork panels.

After concrete removal, the surface shall be thoroughly cleaned by high pressure washing to remove all loose material. Surfaces shall be kept continually saturated for the first 12 of the 24 hours immediately before placing mortar and shall be damp but not wet at the time of commencing mortar placement. The Contractor, at his option, may use either hand-placed mortar or mortar placed with a mortar gun. If hand-placed mortar is used, the edges of the cut shall be perpendicular to the surface of the concrete. The prepared area shall be brush-coated with a thin coat of neat cement grout. The repair shall then be made using a stiff mortar, preshrunk by allowing the mixed mortar to stand for 30 to 45 minutes and then remixed, thoroughly tamped into place in thin layers. If hand-placed mortar is used, the Contractor shall test each repair area for drumminess by firm tapping with a hammer and shall inspect for cracks, both in the presence of the Contracting Officer's representative, immediately before completion of the contract, and shall replace any showing drumminess or cracking. If mortar placed with a mortar gun is used, the gun shall be a small compressed air-operated gun to which the mortar is slowly hand fed and which applies the mortar to the surface as a high-pressure stream, as approved. Repairs made using shotcrete equipment will not be accepted. The mortar used shall be the same mortar as specified for damp-pack mortar repair. If gun-placed mortar is used, the edges of the cut shall be beveled toward the center at a slope of 1:1. All surface applied mortar repairs shall be continuously moist cured for at least 7 days. Moist curing shall consist of several layers of saturated burlap applied to the surface immediately after placement is complete and covered with polyethylene sheeting, all held closely in place by a sheet of plywood or similar material rigidly braced against it. Burlap shall be kept continually wet.

3.9 CURING AND PROTECTION

3.9.1 General

Concrete shall be cured by an approved method for the period of time given below:

Concrete with Type III cement	3 days
All other concrete	7 days

Immediately after placement, concrete shall be protected from premature drying, extremes in temperatures, rapid temperature change, mechanical injury and damage from rain and flowing water for the duration of the curing period. Air and forms in contact with concrete shall be maintained at a temperature above 50 degrees F for the first 3 days and at a temperature above 32 degrees F for the remainder of the specified curing period. Exhaust fumes from combustion heating units shall be vented to the outside of the enclosure, and heaters and ducts shall be placed and directed so as not to cause areas of overheating and drying of concrete surfaces or to create fire hazards. Materials and equipment needed for adequate curing and protection shall be available and at the site prior to placing concrete. No fire or excessive heat, including welding, shall be permitted near or in direct contact with the concrete at any time. Except as otherwise permitted by paragraph 2.4.2 Membrane-Forming Compounds, moist curing shall be provided for any areas to receive floor hardener, any paint or other applied coating, or to which other concrete is to be bonded. Concrete containing silica fume shall be initially cured by fog misting during finishing, followed immediately by continuous moist curing. Except for plastic coated burlap, impervious sheeting alone shall not be used for curing.

3.9.2 Moist Curing

Concrete to be moist-cured shall be maintained continuously wet for the entire curing period, commencing immediately after finishing. If water or curing materials used stain or discolor concrete surfaces which are to be permanently exposed, the concrete surfaces shall be cleaned as approved. When wooden forms are left in place during curing, they shall be kept wet at all times. If steel forms are used in hot weather, nonsupporting vertical forms shall be broken loose from the concrete soon after the concrete hardens and curing water continually applied in this void. If the forms are removed before the end of the curing period, curing shall be carried out as on unformed surfaces, using suitable materials. Surfaces shall be cured by ponding, by continuous sprinkling, by continuously saturated burlap or cotton mats, or by continuously saturated plastic coated burlap. Burlap and mats shall be clean and free from any contamination and shall be completely saturated before being placed on the concrete. The Contractor shall have an approved work system to ensure that moist curing is continuous 24 hours per day.

3.9.6 Cold Weather Curing and Protection

When the daily ambient low temperature is less than 32 degrees F the temperature of the concrete shall be maintained above 40 degrees F for the first seven days after placing. During the period of protection removal, the air temperature adjacent to the concrete surfaces shall be controlled so that concrete near the surface will not be subjected to a temperature differential of more than 25 degrees F as determined by suitable temperature measuring devices furnished by the Contractor, as required, and installed adjacent to the concrete surface and 2 inches inside the surface of the concrete. The installation of the thermometers shall be made by the Contractor as directed.

3.10 SETTING BASE PLATES AND BEARING PLATES

After being properly positioned, column base plates, bearing plates for beams and similar structural members, and machinery and equipment base plates shall be set to the proper line and elevation with damp-pack bedding mortar, except where nonshrink grout is indicated. The thickness of the mortar or grout is shown on the drawings. Concrete and metal surfaces in contact with grout shall be clean and free of oil and grease, and concrete surfaces in contact with grout shall be damp and free of laitance when grout is placed. It is recommended to use level hex nut for each anchor bolt, 4 total per pedestal, to adjust each column base plate position to the required elevation and level. Use only nonshrink grout for grouting each column base plate.

3.10.1 Nonshrink Grout

Nonshrink grout shall be a ready-mixed material requiring only addition of water and it shall be a commercial formulation suitable for the proposed application. The use of metallic iron in the grout is not acceptable. Nonshrink grout shall conform to the current ASTM C 1107, Grade A, B or C. Non-shrink grout shall attain a minimum compressive strength of 3,000 psi in 1 day, 5,000 psi in 3 days, 6,000 psi in 7 days and 7,000 psi in 28 days after placing in temperature ranges between 38 ^{0}F to 100 ^{0}F at the construction site. It is necessary to form around each steel plate before placing non-shrink grout. Place non-shrink grout continuously until it is in full contact with the each steel plate. Avoid any segregation, bleeding, reduction of

strength and entrapment of air under each steel plate. Remove formwork only when the non-shrink grout has reached a minimum 5,000 psi compressive strength and it has been cured for at least 3 days at the construction site.

3.10.1.1 Mixing and Placing of Nonshrink Grout

Mixing, placing and curing shall be in conformance with the material manufacturer's instructions and as specified therein. Ingredients shall be thoroughly dry-mixed before adding water. After adding water, the batch shall be mixed for 3 minutes. Batches shall be of size to allow continuous placement of freshly mixed grout. Grout not used within 30 minutes after mixing shall be discarded. The space between the top of the concrete or machinery-bearing surface and the plate shall be filled solid with the grout. Forms shall be of wood or other equally suitable material for completely retaining the grout on all sides and on top and shall be removed after the grout has reach the minimum required curing time and strength. The placed grout shall be carefully worked by rodding or other means to eliminate voids; however, overworking and breakdown of the initial set shall be avoided. Grout shall not be re-tempered or subjected to vibration from any source. Where clearances are unusually small, placement shall be under pressure with a grout pump. Temperature of the grout and of surfaces receiving the grout shall be maintained within the manufacturer specified grouting work range and grouting operation time frame.

3.11 TESTING AND INSPECTION FOR CONTRACTOR QUALITY CONTROL

The Contractor shall perform the inspection and tests described below and, based upon the results of these inspections and tests, shall take the action required and shall submit specified reports. When, in the opinion of the Contracting Officer, the concreting operation is out of control, concrete placement shall cease and the operation shall be corrected. The laboratory performing the tests shall be onsite and shall conform with ASTM C 1077. Materials may be subjected to check testing by the Government from samples obtained at the manufacturer, at transfer points, or at the project site. The Government will inspect the laboratory, equipment, and test procedures for conformance with ASTM C 1077 prior to start of concreting operations.

3.11.1 Grading and Corrective Action

3.11.1.1 Fine Aggregate

At least once during each shift when the concrete plant is operating, there shall be one sieve analysis and fineness modulus determination in accordance with ASTM C 136 and COE CRD-C 104 for the fine aggregate or for each fine aggregate if it is batched in more than one size or classification. The location at which samples are taken may be selected by the Contractor as the most advantageous for control. However, the Contractor is responsible for delivering fine aggregate to the mixer within specification limits. When the amount passing on any sieve is outside the specification limits, the fine aggregate shall be immediately re-sampled and retested. If there is another failure on any sieve, the fact shall immediately reported to the Contracting Officer, concreting shall be stopped, and immediate steps taken to correct the grading.

3.11.1.2 Coarse Aggregate

At least once during each shift in which the concrete plant is operating, there shall be a sieve analysis in accordance with ASTM C 136 for each size of coarse aggregate. The location at which samples are taken may be selected by the Contractor as the most advantageous for production control. However, the Contractor shall be responsible for delivering the aggregate to the mixer within specification limits. A test record of samples of aggregate taken at the same locations shall show the results of the current test as well as the average results of the five most recent tests including the current test. The Contractor may adopt limits for control coarser than the specification limits for samples taken other than as delivered to the mixer to allow for degradation during handling. When the amount passing any sieve is outside the specification limits, the coarse aggregate shall be immediately re-sampled and retested. If the second sample fails on any sieve, that fact shall be reported to the Contracting Officer. Where two consecutive averages of 5 tests are outside specification limits, the operation shall be considered out of control and shall be reported to the Contracting Officer. Concreting shall be stopped and immediate steps shall be taken to correct the grading.

3.11.2 Quality of Aggregates

Thirty days prior to the start of concrete placement, the Contractor shall perform all tests for aggregate quality required by ASTM C 33. In addition, after the start of concrete placement, the Contractor shall perform tests for aggregate quality at least every three months, and when the source of aggregate or aggregate quality changes. Samples tested after the start of concrete placement shall be taken immediately prior to entering the concrete mixer.

3.11.3 Scales, Batching and Recording

The accuracy of the scales shall be checked by test weights prior to start of concrete operations and at least once every three months. Such tests shall also be made as directed whenever there are variations in properties of the fresh concrete that could result from batching errors. Once a week the accuracy of each batching and recording device shall be checked during a weighing operation by noting and recording the required weight, recorded weight, and the actual weight batched. At the same time, the Contractor shall test and ensure that the devices for dispensing admixtures are operating properly and accurately. When either the weighing accuracy or batching accuracy does not comply with specification requirements, the plant shall not be operated until necessary adjustments or repairs have been made. Discrepancies in recording accuracies shall be corrected immediately.

3.11.4 Batch-Plant Control

The measurement of concrete materials including cementitious materials, each size of aggregate, water, and admixtures shall be continuously controlled. The aggregate weights and amount of added water shall be adjusted as necessary to compensate for free moisture in the aggregates. The amount of air-entraining agent shall be adjusted to control air content within specified limits. A report shall be prepared indicating type and source of cement used, type and source of pozzolan or slag used, amount and source of admixtures used, aggregate source, the required aggregate and water weights per cubic yard, amount of water as free moisture in each size of aggregate, and the batch aggregate and water weights per cubic yard for each class of concrete batched during each day's plant operation.

3.11.5 Concrete Mixture

a. Air Content Testing. Air content tests shall be made when test specimens are fabricated. In addition, at least two tests for air content shall be made on randomly selected batches of each separate concrete mixture produced during each 8-hour period of concrete production. Additional tests shall be made when excessive variation in workability is reported by the placing foreman or Government inspector. Tests shall be made in accordance with ASTM C 231 for normal weight concrete and ASTM C 173 for lightweight concrete. Test results shall be plotted on control charts which shall at all times be readily available to the Government and shall be submitted weekly. Copies of the current control charts shall be kept in the field by testing crews and results plotted as tests are made. When a single test result reaches either the upper or lower action limit, a second test shall immediately be made. The results of the two tests shall be averaged and this average used as the air content of the batch to plot on both the air content and the control chart for range, and for determining need for any remedial action. The result of each test, or average as noted in the previous sentence, shall be plotted on a separate control chart for each mixture on which an "average line" is set at the midpoint of the specified air content range from paragraph Air Entrainment. An upper warning limit and a lower warning limit line shall be set 1.0 percentage point above and below the average line, respectively. An upper action limit and a lower action limit line shall be set 1.5 percentage points above and below the average line, respectively. The range between each two consecutive tests shall be plotted on a secondary control chart for range where an upper warning limit is set at 2.0 percentage points and an upper action limit is set at 3.0 percentage points. Samples for air content may be taken at the mixer, however, the Contractor is responsible for delivering the concrete to the placement site at the stipulated air content. If the Contractor's materials or transportation methods cause air content loss between the mixer and the placement, correlation samples shall be taken at the placement site as required by the Contracting Officer, and the air content at the mixer controlled as directed.

b. Air Content Corrective Action. Whenever points on the control chart for percent air reach either warning limit, an adjustment shall immediately be made in the amount of air-entraining admixture batched. As soon as practical after each adjustment, another test shall be made to verify the result of the adjustment. Whenever a point on the secondary control chart for range reaches the warning limit, the admixture dispenser shall be recalibrated to ensure that it is operating accurately and with good reproducibility. Whenever a point on either control chart reaches an action limit line, the air content shall be considered out of control and the concreting operation shall immediately be halted until the air content is under control. Additional air content tests shall be made when concreting is restarted.

c. Slump Testing. In addition to slump tests which shall be made when test specimens are fabricated, at least four slump tests shall be made on randomly selected batches in accordance with ASTM C 143/C 143M for each separate concrete mixture produced during each 8-hour or less period of concrete production each day. Also, additional tests shall be made when excessive variation in workability is reported by the placing foreman or Government inspector. Test results shall be plotted on control charts which shall at all times be readily available to the Government and shall be

submitted weekly. Copies of the current control charts shall be kept in the field by testing crews and results plotted as tests are made. When a single slump test reaches or goes beyond either the upper or lower action limit, a second test shall immediately be made. The results of the two tests shall be averaged and this average used as the slump of the batch to plot on both the control charts for slump and the chart for range, and for determining need for any remedial action. Limits shall be set on separate control charts for slump for each type of mixture. The upper warning limit shall be set at 1/2 inch below the maximum allowable slump specified in paragraph 1.5.4 Slump for each type of concrete and an upper action limit line and lower action limit line shall be set at the maximum and minimum allowable slumps, respectively, as specified in the same paragraph. The range between each consecutive slump test for each type of mixture shall be plotted on a single control chart for range on which an upper action limit is set at 2 inches. Samples for slump shall be taken at the mixer. However, the Contractor is responsible for delivering the concrete to the placement site at the stipulated slump. If the Contractor's materials or transportation methods cause slump loss between the mixer and the placement, correlation samples shall be taken at the placement site as required by the Contracting Officer, and the slump at the mixer controlled as directed.

d. Slump Corrective Action. Whenever points on the control charts for slump reach the upper warning limit, an adjustment shall immediately be made in the batch weights of water and fine aggregate. The adjustments are to be made so that the total water content does not exceed that amount allowed by the maximum w/c ratio specified, based on aggregates which are in a saturated surface dry condition. When a single slump reaches the upper or lower action limit, no further concrete shall be delivered to the placing site until proper adjustments have been made. Immediately after each adjustment, another test shall be made to verify the correctness of the adjustment. Whenever two consecutive individual slump tests, made during a period when there was no adjustment of batch weights, produce a point on the control chart for range at or above the upper action limit, the concreting operation shall immediately be halted, and the Contractor shall take appropriate steps to bring the slump under control. Additional slump tests shall be made as directed.

e. Temperature. The temperature of the concrete shall be measured when compressive strength specimens are fabricated. Measurement shall be in accordance with ASTM C 1064/C 1064M. The temperature shall be reported along with the compressive strength data.

f. Strength Specimens. At least one set of test specimens (4 cylinders) shall be made, for compressive strength as appropriate, on each different concrete mixture placed during the day for each 500 cubic yards or portion thereof of that concrete mixture placed each day. Additional sets of test specimens shall be made, as directed by the Contracting Officer, when the mixture proportions are changed or when low strengths have been detected. A truly random (not haphazard) sampling plan shall be developed by the Contractor and approved by the Contracting Officer prior to the start of construction. The plan shall assure that sampling is done in a completely random and unbiased manner. A set of test specimens for concrete with a 28-day specified strength per paragraph 1.5.2.1 Strength Requirements shall consist of four specimens, two to be tested at 7 days and two at 28 days. Test specimens shall be molded and cured in accordance with ASTM C 31/C 31M and tested in accordance with ASTM C 39/C 39M for test cylinders and ASTM C 78 for test beams. Results of all strength tests shall

be reported immediately to the Contracting Officer. Quality control charts shall be kept for individual strength "tests", ("test" as defined in paragraph 1.5.2.1 Strength Requirements) moving average of last 3 "tests" for strength, and moving average for range for the last 3 "tests" for each mixture. The charts shall be similar to those found in ACI 214.3R.

3.11.6 Inspection Before Placing

Foundations, construction joints, forms, and embedded items shall be inspected by the Contractor in sufficient time prior to each concrete placement in order to certify to the Contracting Officer that they are ready to receive concrete. The results of each inspection shall be reported in writing.

3.11.7 Placing

The placing foreman shall supervise placing operations, shall determine that the correct quality of concrete or grout is placed in each location as specified and as directed by the Contracting Officer, and shall be responsible for measuring and recording concrete temperatures and ambient temperature hourly during placing operations, weather conditions, time of placement, volume placed, and method of placement. The placing foreman shall not permit batching and placing to begin until it has been verified that an adequate number of vibrators in working order and with competent operators are available. Placing shall not be continued if any pile of concrete is inadequately consolidated. If any batch of concrete fails to meet the temperature requirements, immediate steps shall be taken to improve temperature controls.

3.11.8 Vibrators

The frequency and amplitude of each vibrator shall be determined in accordance with COE CRD-C 521 prior to initial use and at least once a month when concrete is being placed. Additional tests shall be made as directed when a vibrator does not appear to be adequately consolidating the concrete. The frequency shall be determined while the vibrator is operating in concrete with the tachometer being held against the upper end of the vibrator head while almost submerged and just before the vibrator is withdrawn from the concrete. The amplitude shall be determined with the head vibrating in air. Two measurements shall be taken, one near the tip and another near the upper end of the vibrator head, and these results averaged. The make, model, type, and size of the vibrator and frequency and amplitude results shall be reported in writing. Any vibrator not meeting the requirements of paragraph 3.5.2 Consolidation, shall be immediately removed from service and repaired or replaced.

3.11.9 Curing Inspection

a. Moist Curing Inspections. At least once each shift, and not less than twice per day on both work and non-work days, an inspection shall be made of all areas subject to moist curing. The surface moisture condition shall be noted and recorded.

b. Moist Curing Corrective Action. When a daily inspection report lists an area of inadequate curing, immediate corrective action shall be taken, and the required curing period for those areas shall be extended by 1 day.

c. Membrane Curing Inspection. No curing compound shall be applied until the Contractor has verified that the compound is properly mixed and ready for spraying. At the end of each operation, the Contractor shall estimate the quantity of compound used by measurement of the container and the area of concrete surface covered, shall compute the rate of coverage in square feet per gallon, and shall note whether or not coverage is uniform.

d. Membrane Curing Corrective Action. When the coverage rate of the curing compound is less than that specified or when the coverage is not uniform, the entire surface shall be sprayed again.

e. Sheet Curing Inspection. At least once each shift and once per day on non-work days, an inspection shall be made of all areas being cured using impervious sheets. The condition of the covering and the tightness of the laps and tapes shall be noted and recorded.

f. Sheet Curing Corrective Action. When a daily inspection report lists any tears, holes, or laps or joints that are not completely closed, the tears and holes shall promptly be repaired or the sheets replaced, the joints closed, and the required curing period for those areas shall be extended by 1 day.

3.11.10 Cold-Weather Protection

At least once each shift and once per day on non-work days, an inspection shall be made of all areas subject to cold-weather protection. Any deficiencies shall be noted, corrected, and reported.

3.11.11 Mixer Uniformity

a. Stationary Mixers. Prior to the start of concrete placing and once every 6 months when concrete is being placed, or once for every 75,000 cubic yards of concrete placed, whichever results in the shortest time interval, uniformity of concrete mixing shall be determined in accordance with ASTM C 94/C 94M.

b. Truck Mixers. Prior to the start of concrete placing and at least once every 6 months when concrete is being placed, uniformity of concrete mixing shall be determined in accordance with ASTM C 94/C 94M. The truck mixers shall be selected randomly for testing. When satisfactory performance is found in one truck mixer, the performance of mixers of substantially the same design and condition of the blades may be regarded as satisfactory.

c. Mixer Uniformity Corrective Action. When a mixer fails to meet mixer uniformity requirements, either the mixing time shall be increased, batching sequence changed, batch size reduced, or adjustments shall be made to the mixer until compliance is achieved.

3.11.12 Reports

All results of tests or inspections conducted shall be reported informally as they are completed and in writing daily. A weekly report shall be prepared for the updating of control charts covering the entire period from the start of the construction season through the current week. During periods of cold-weather protection, reports of pertinent temperatures shall be made daily. These requirements do not relieve the Contractor of the obligation to report

certain failures immediately as required in preceding paragraphs. Such reports of failures and the action taken shall be confirmed in writing in the routine reports. The Contracting Officer has the right to examine all contractor quality control records.

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SECTION 05055

HSWY0205055

METALWORK FABRICATION, MACHINE WORK AND MISCELLANEOUS PROVISIONS

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 REFERENCES
1.3 SUBMITTALS
1.4 DETAIL DRAWINGS
1.5 QUALIFICATIONS OF WELDERS AND WELDING OPERATORS

PART 2 PRODUCTS

2.1 MATERIALS
2.2 FABRICATION
2.3 TESTS, INSPECTIONS AND VERIFICATIONS

PART 3 EXECUTION

3.1 INSTALLATION

SECTION 05055

METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS

PART 1 GENERAL

1.1 GENERAL INFORMATION

This section covers metalwork fabrication and inspection. The requirements of this section are in addition to other specification sections.

1.2 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 123	(1990) Zinc (Hot-Dip Galvanized) Coatings On Iron and Steel Products
ASTM A 325	(2002) Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A 490	(2002) Heat-Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength
ASTM A 514/A 514M	(2000) High-Yield-Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding
ASTM A 780	(2001) Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
ASTM E 165	(2000) Liquid Penetrant Examination Inspection Method
ASTM E 709	(2001) Magnetic Particle Examination

ASME INTERNATIONAL (ASME)

ASME B4.1	(2001) Preferred Limits and Fits for Cylindrical Parts

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1	(2000) Structural Welding Code – Steel

AMERICAN INSTITUTE OF STEEL CONSTRUCTION

9TH Edition Manual of Steel Construction Allowable Stress Design

(2000) Code of Standard Practice for Steel Buildings and Bridges

INTERNATIONAL CODE COUNCIL

(2000) International Building Code

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having a "FIO " designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Detail Drawings; GA,

Detail drawings for metalwork and machine work including steel framing plans, elevations, framing connections, diagonal brace connections and anchorage details shall be submitted and approved prior to fabrication.

Materials Orders; FIO

Copies of purchase orders, mill orders, shop orders and work orders for materials shall be submitted prior to the use of the materials in the work.

Materials List; FIO

Materials list for fabricated items shall be submitted at the time of submittal of detail drawings.

Shipping Bill; FIO

Shipping bill shall be submitted with the delivery of finished pieces to the site.

SD-06 Test Reports

Tests, Inspections, and Verifications; FIO

Certified test reports for materials shall be submitted with all materials delivered to the site.

SD-09 CERTIFICATES

Qualification Of Welders And Welding Operators; FIO

Certifications for welders and welding operators shall be submitted prior to commencing fabrication.

1.4 DETAIL DRAWINGS

Detail drawings for metalwork and machine work shall include catalog cuts, templates, fabrication and assembly details and type, grade and class of material as appropriate. Elements of fabricated items omitted or unclear on contract drawings shall be detailed by the fabricator on the detail drawings.

1.5 QUALIFICATION OF WELDERS AND WELDING OPERATORS

The Contractor shall certify that the qualification of welders, welding operators and tack welders who will perform structural steel welding have been qualified for the particular type of work to be done in accordance with the requirements of AWS D1.1, Section 5 prior to commencing fabrication. The certificate shall list the qualified welders by name and shall specify the code and procedures under which qualified and the date of qualification. Prior qualification will be accepted if welders have performed satisfactory work under the code for which qualified within the preceding three months. The Contractor shall require welders to repeat the qualifying tests when their work indicates a reasonable doubt as to proficiency. Those passing the re-qualification tests will be re-certified. Those not passing will be disqualified until passing. All expenses in connection with qualification and re-qualification shall be borne by the Contractor.

PART 2 PRODUCTS

2.1 MATERIALS

See SECTION 05120 STRUCTURAL STEEL.

2.1.1 Materials Orders

The Contractor shall furnish three (3) copies of purchase orders, mill orders, shop orders and work orders for all materials orders and items used in the work. Where mill tests are required purchase orders shall contain the test site address and the name of the testing agency.

2.1.2 Materials List

The Contractor shall furnish a materials list of the materials to be used in the fabrication of each item.

2.1.3 Shipping Bill

The Contractor shall furnish a shipping bill or memorandum of each shipment of finished pieces or members to the project site giving the designation mark and weight of each item, the number of items, the total weight, and the car initial and number if shipped by rail in carload lots. Duplicate copies of shipping bills shall be mailed promptly to

Attn. David Lee or Scott Reese
U.S. Army Corps of Engineers
Hartwell Power plant
6961 Anderson Hwy
Hartwell, GA 30643

Tel. No. 706-856-0363

2.2 FABRICATION

2.2.1 Structural Fabrication

Fabrication shall be in accordance with AISC “SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS”, “CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES” and “SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS”.

Material must be straight before being laid off or worked. If straightening is necessary it shall be done by methods that will not impair the metal. Sharp kinks or bends shall be cause for rejection of the material. Material with welds will not be accepted except where welding is definitely specified, indicated or otherwise approved. Bends shall be made by approved dies, press brakes or bending rolls. Where heating is required, precautions shall be taken to avoid overheating the metal and it shall be allowed to cool in a manner that will not impair the original properties of the metal. Proposed flame cutting of material other than structural steel shall be subject to approval and shall be indicated on detail drawings. Shearing shall be accurate and all portions of the work shall be neatly finished. Corners shall be square and true unless otherwise shown. Re-entrant cuts shall be filleted to a minimum radius of 3/4 inch unless otherwise approved. Finished members shall be free of twists, bends and open joints. Bolts, nuts and screws shall be tight.

2.2.1.1 Dimensional Tolerances for Structural Work

Dimensions shall be measured by an approved calibrated steel tape of approximately the same temperature as the material being measured. The overall dimensions of an assembled structural unit shall be within the tolerances indicated on the drawings or as specified in the particular section of these specifications for the item of work. Where tolerances are not specified in other sections of these specifications or shown, an allowable variation of 1/32 inch is permissible in the overall length of component members with both ends milled and component members without milled ends shall not deviate from the dimensions shown by not more than 1/16 inch for members 30 feet or less in length and by more than 1/8 inch for members over 30 feet in length.

2.2.1.2 Structural Steel Fabrication

Structural steel may be cut by mechanically guided or hand-guided torches, provided an accurate profile with a surface that is smooth and free from cracks and notches is obtained. Surfaces and edges to be welded shall be prepared in accordance with AWS D1.1, Subsection 3.2. Where structural steel is not to be welded, chipping or grinding will not be required except as necessary to remove slag and sharp edges of mechanically guided or hand-guided cuts not exposed to view. Hand-guided cuts which are to be exposed or visible shall be chipped, ground or machined to sound metal.

2.2.2 Welding

2.2.2.1 Welding of Structural Steel

a. Welding Procedures for Structural Steel - Welding procedures for structural steel shall be pre-qualified as described in AWS D1.1, Subsection 5.1 or shall be qualified by tests as prescribed in AWS D1.1, Section 5. Properly documented evidence of compliance with all requirements of these

specifications for previous qualification tests shall establish a welding procedure as pre-qualified. For welding procedures qualified by tests, the test welding and specimen testing must be witnessed and the test report document signed by the Contracting Officer. Approval of any welding procedure will not relieve the Contractor of the responsibility for producing a finished structure meeting all requirements of these specifications. The Contractor will be directed or authorized to make any changes in previously approved welding procedures that are deemed necessary or desirable by the Contractor Officer. The Contractor shall submit a complete schedule of welding procedures for each steel structure to be welded. The schedule shall conform to the requirements specified in the provisions AWS D1.1, Sections 2, 3, 4, 7 and 9 and applicable provisions of Section 10. The schedule shall provide detailed procedure specifications and tables or diagrams showing the procedures to be used for each required joint. Welding procedures must include filler metal, preheat, interpass temperature and stress-relief heat treatment requirements. Each welding procedure shall be clearly identified as being pre-qualified or required to be qualified by tests. Welding procedures must show types and locations of welds designated or in the specifications to receive nondestructive examination.

b. Welding Process - Welding of structural steel shall be by an electric arc welding process using a method which excludes the atmosphere from the molten metal and shall conform to the applicable provisions of AWS D1.1, Sections 1 thru 7, 9, 10 and 11. Welding shall be such as to minimize residual stresses, distortion and shrinkage.

c. Welding Technique

(1) Filler Metal - The electrode, electrode-flux combination and grade of weld metal shall conform to the appropriate AWS specification for the base metal and welding process being used or shall be as shown where a specific choice of AWS specification allowables is required. The AWS designation of the electrodes to be used shall be included in the schedule of welding procedures. Only low hydrogen electrodes shall be used for manual shielded metal-arc welding regardless of the thickness of the steel. A controlled temperature storage oven shall be used at the job site as prescribed by AWS D1.1, Subsection 4.5 to maintain low moisture of low hydrogen electrodes.

(2) Preheat and Interpass Temperature - Preheating shall be performed as required by AWS D1.1, Subsection 4.2 and 4.3 or as otherwise specified except that the temperature of the base metal shall be at least 70 degrees F. The weldments to be preheated shall be slowly and uniformly heated by approved means to the prescribed temperature, held at that temperature until the welding is completed and then permitted to cool slowly in still air.

(3) Stress-Relief Heat Treatment - Where stress relief heat treatment is specified or shown, it shall be in accordance with the requirements of AWS D1.1, Subsection 4.4 unless otherwise authorized or directed.

d. Workmanship - Workmanship for welding shall be in accordance with AWS D1.1, Section 3 and other applicable requirements of these specifications.

(1) Preparation of Base Metal - Prior to welding the Contractor

shall inspect surfaces to be welded to assure compliance with AWS D1.1, Subsection 3.2.

(2) Temporary Welds - Temporary welds required for fabrication and erection shall be made under the controlled conditions prescribed for permanent work. Temporary welds shall be made using low-hydrogen welding electrodes and by welders qualified for permanent work as specified in these specifications. Preheating for temporary welds shall be as required by AWS D1.1 for permanent welds except that the minimum temperature shall be 120 degrees F in any case. In making temporary welds arcs shall not be struck in other than weld locations. Each temporary weld shall be removed and ground flush with adjacent surfaces after serving its purpose.

(3) Tack Welds - Tacks welds that are to be incorporated into the permanent work shall be subject to the same quality requirements as the permanent welds and shall be cleaned and thoroughly fused with permanent welds. Preheating shall be performed as specified above for temporary welds. Multiple-pass tack welds shall have cascaded ends. Defective tack welds shall be removed before permanent welding.

2.2.3 Bolted Connections

2.2.3.1 Bolted Structural Steel Connections

Bolts, nuts and washers shall be of the type specified or indicated. All nuts shall be equipped with washers except for high strength bolts. Beveled washers shall be used where bearing faces have a slope of more than 1:20 with respect to a plane normal to the bolt axis. Where the use of high strength bolts is specified or indicated the materials, workmanship and installation shall conform to the applicable provisions of ASTM A 325 or ASTM A 490.

a. Bolt Holes - Bolt holes shall be accurately located, smooth, perpendicular to the member and cylindrical.

(1) Holes for regular bolts shall be drilled or subdrilled and reamed in the shop and shall not be more than 1/16 inch larger than the diameter of the bolt.

(2) Holes for fitted bolts shall be match-reamed or drilled in the shop. Burrs resulting from reaming shall be removed. The threads of bolts shall be entirely outside of the holes. The body diameter of bolts shall have tolerances as recommended by ASME B4.1for the class of fit specified. Fitted bolts shall be fitted in reamed holes by selective assembly to provide an LN-2 fit.

(3) Holes for high strength bolts shall have diameters of not more than 1/16 inch larger than bolt diameters. If the thickness of the material is not greater than the diameter of the bolts the holes may be punched. If the thickness of the material is greater than the diameter of the bolts the holes may be drilled full size or subpunched or subdrilled at least 1/8 inch smaller than the diameter of the bolts and then reamed to full size. Poor matching of holes will be cause for rejection. Drifting occurring during assembly shall not distort the metal or enlarge the holes. Reaming to a larger diameter of the next standard size bolt will be allowed for slight mismatching.

2.2.3.2 Installation And Tightening Of Bolts

All installation and tightening of high strength bolts ASTM A 325 shall be in accordance with AISC 1994 edition of “Specification For Structural Joints Using ASTM A 325 Or A 490 Bolts”. There are two types of bolting connections. One is A 325SC as shown on the drawings that represents the slip-critical connection and the other is A 325n as shown on the drawings that represents the snug tight connection.

a. A 325SC, slip-critical connections as shown on the drawings, shall be used for all brace frames and collectors as shown on the drawings. All A 325SC bolts shall be fully tensioned. All faying surfaces shall be prepared as required for class A or better slip-critical joints.

b. A 325n, snug tight connections as shown on the drawings, requires that all A 325n bolts shall be tightened to the snug tight condition. The snug tight condition is defined as the tightness that exists when all plies are in firm contact. This may usually be attained by a few impacts of an impact wrench or the full effort of a man using an ordinary spud wrench.

2.2.4 Metal Finish Coating

All exterior metal fabrications shall be zinc coasted, hot-dip galvanized in accordance with ASTM A 123.

2.2.4.1 Zinc Coatings

Zinc Coatings - Zinc coatings shall be applied in a manner and of a thickness and quality conforming to ASTM A 123. Where zinc coatings are destroyed by cutting, welding or other causes the affected areas shall be regalvanized. Coatings 2 ounces or heavier shall be regalvanized with a suitable low-melting zinc base alloy similar to the recommendations of the American Hot-Dip Galvanizers Association to the thickness and quality specified for the original zinc coating. Coatings less than 2 ounces shall be repaired in accordance with ASTM A 780.

2.2.5 Shop Assembly

Each structural unit furnished shall be assembled in the shop to determine the correctness of the fabrication and matching of the component parts unless otherwise specified. Tolerances shall not exceed those shown. Each unit assembled shall be closely checked to ensure that all necessary clearances have been provided and that binding does not occur in any moving part. Assembly in the shop shall be in the same position as final installation in the field unless otherwise specified. Assembly and disassembly work shall be performed in the presence of the Government Quality Assurance Representative (GQAR) or the design structural engineer from Hydroelectric Design Center of the U.S. Army Corps of Engineers unless waived in writing by the Government. Errors or defects disclosed shall be immediately remedied by the Contractor without cost to the Government. Before disassembly for shipment each piece of a machinery or structural unit shall be match-marked to facilitate erection in the field. The location of match-marks shall be indicated by circling with a ring of white paint after the shop finish coat has been applied or as otherwise directed.

2.3 TESTS, INSPECTIONS AND VERIFICATIONS

The Contractor shall have required material tests and analyses performed and certified by an approved laboratory to demonstrate that materials are in conformity with the specifications. These tests and analyses shall be performed and certified at the Contractor's expense. Tests, inspections, and verifications shall conform to the requirements of the particular sections of these specifications for the respective items of work unless otherwise specified or authorized. Tests shall be conducted in the presence of the Contracting Officer if so required. The Contractor shall furnish specimens and samples for additional independent tests and analyses upon request by the Contracting Officer. Specimens and samples shall be properly labeled and prepared for shipment.

2.3.1 Nondestructive Testing

When doubt exists as to the soundness of any material part such part may be subjected to any form of nondestructive testing determined by the Contracting Officer. This may include ultrasonic, magnaflux, dye penetrant, x-ray, gamma ray or any other test that will thoroughly investigate the part in question. The cost of such investigation will be borne by the Government. Any defects will be cause for rejection and rejected parts shall be replaced and retested at the Contractor's expense.

2.3.3 Inspection of Structural Steel Welding

The Contractor shall maintain an approved inspection system and perform required inspections in accordance with Contract Clause CONTRACTOR INSPECTION SYSTEM. Welding shall be subject to inspection to determine conformance with the requirements of AWS D1.1, the approved welding procedures and provisions stated in other sections of these specifications. Nondestructive examination of designated welds will be required. Supplemental examination of any joint or coupon cut from any location in any joint may be required.

2.3.3.1 Visual Examination

Visual examinations shall be performed for all completed welds. All visual examination of completed welds shall be cleaned and carefully examined for insufficient throat or leg sizes, cracks, undercutting, overlap, excessive convexity or reinforcement and other surface defects to ensure compliance with the requirements of AWS D1.1, Section 3 and Section 9, Part D.

2.3.3.2 Nondestructive Examination

The nondestructive examination of shop and field welds shall be performed as designated or described in the sections of these specifications covering the particular items of work.

a. Testing Agency - The nondestructive examination of welds and the evaluation of examination tests as to the acceptability of the welds shall be performed by a testing agency adequately equipped and competent to perform such services or by the Contractor using suitable equipment and qualified personnel. In either case written approval of the examination procedures is required and the examination tests shall be made in the presence of the Contracting Officer. The evaluation of examination tests shall be subject to the approval and all records shall become the property of the Government.

b. Examination Procedures - Examination procedures shall conform to the

following requirements.

(1) Ultrasonic Testing - Making, evaluating and reporting ultrasonic testing of welds shall conform to the requirements of AWS D1.1, Section 6, Part C. The ultrasonic equipment shall be capable of making a permanent record of the test indications. A record shall be made of each weld tested.

(2) Radiographic Testing - Making, evaluating and reporting radiographic testing of welds shall conform to the requirements of AWS D1.1, Section 6, Part B.

(3) Magnetic Particle Inspection - Magnetic particle inspection of welds shall conform to the applicable provisions of ASTM E 709.

(4) Dye Penetrant Inspection - Dye penetrant inspection of welds shall conform to the applicable provisions of ASTM E 165.

c. Acceptability of Welds - Welds shall be unacceptable if shown to have defects prohibited by AWS D1.1, Subsection 9.25 or possess any degree of incomplete fusion, inadequate penetration or undercutting.

(1) Welds to be Subject to Nondestructive Examination

(2) Ten percent of the total length of the full penetration weldings shall be inspected by ultrasonic testing,

(3) Ten percent of the total length of the fillet weldings shall be inspected by magnetic particle testing or liquid penetrant testing.

2.3.3.3 Test Coupons

The Government reserves the right to require the Contractor to remove coupons from completed work when doubt as to soundness cannot be resolved by nondestructive examination. Should tests of any two coupons cut from the work of any welder show strengths less than that specified for the base metal it will be considered evidence of negligence or incompetence and such welder shall be removed from the work. When coupons are removed from any part of a structure the members cut shall be repaired in a neat manner with joints of the proper type to develop the full strength of the members. Repaired joints shall be peened as approved or directed to relieve residual stress. The expense for removing and testing coupons, repairing cut members and the nondestructive examination of repairs shall be borne by the Government or the Contractor in accordance with the Contract Clauses INSPECTION AND ACCEPTANCE.

2.3.3.4 Supplemental Examination

When the soundness of any weld is suspected of being deficient due to faulty welding or stresses that might occur during shipment or erection the Government reserves the right to perform nondestructive supplemental examinations before final acceptance. The cost of such inspection will be borne by the Government only when the suspect weld is not found to be defective. Defective welds will be tested and repaired at Contractor expense.

2.3.4 Structural Steel Welding Repairs

Defective welds in the structural steel welding repairs shall be repaired in accordance with AWS D1.1, Subsection 3.7. Defective weld metal shall be removed to sound metal by use of air carbon-arc or oxygen gouging. Oxygen gouging shall not be used on ASTM A 514/A 514M steel. The surfaces shall be thoroughly cleaned before welding. Welds that have been repaired shall be retested by the same methods used in the original inspection. Except for the repair of members cut to remove test coupons and found to have acceptable welds costs of repairs and retesting shall be borne by the Contractor.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Preparation

All parts to be installed shall be thoroughly cleaned. Packing compounds, rust, dirt, grit and other foreign matter shall be removed. Holes and grooves for lubrication shall be cleaned. Enclosed chambers or passages shall be examined to make sure that they are free from damaging materials. Where units or items are shipped as assemblies they will be inspected prior to installation. Disassembly, cleaning and lubrication will not be required except where necessary to place the assembly in a clean and properly lubricated condition. Pipe wrenches, cold chisels or other tools likely to cause damage to the surfaces of rods, nuts or other parts shall not be used for assembling and tightening parts. Bolts and screws shall be tightened firmly and uniformly but care shall be taken not to overstress the threads. When a half nut is used for locking a full nut the half nut shall be placed first and followed by the full nut. Threads of all bolts except high strength bolts, nuts and screws shall be lubricated with an approved lubricant before assembly. Threads of corrosion-resisting steel bolts and nuts shall be coated with an approved anti-galling compound. Driving and drifting bolts or keys will not be permitted.

3.1.2 Alignment and Setting

Each machinery or structural unit shall be accurately aligned by the use of steel shims or other approved methods so that no binding in any moving parts or distortion of any member occurs before it is fastened in place. The alignment of all parts with respect to each other shall be true within the respective tolerances required. Machines shall be set true to the elevations shown.

3.1.3 Blocking and Wedges

All blocking and wedges used during installation for the support of parts to be grouted in foundations shall be removed before final grouting unless otherwise directed. Blocking and wedges left in the foundations with approval shall be of steel or iron.

3.1.4 Non-shrink Cement Grout for Column Base Plates

See SECTION 03300 CAST-IN-PLACE STRUCTURAL CONCRETE.

3.1.4 Workmanship

Workmanship shall be of the highest grade and in accordance with the best modern practices, to conform with International Building Code 2000 (IBC2000) and the specifications for the item of work being furnished.

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SECTION 05120

HSWY0205120

STRUCTURAL STEEL

TABLE OF CONTENTS

PART 1 GENERAL

1.1 REFERENCES
1.2 GENERAL REQUIREMENTS
1.3 SUBMITTALS
1.4 STORAGE
1.5 WELDING INSPECTOR

PART 2 PRODUCTS

2.1 STRUCTURAL STEEL
2.2 STRUCTURAL TUBING
2.3 HIGH STRENGTH BOLTS, WASHERS AND NUTS
2.4 ANCHOR BOLTS, WASHERS AND NUTS

PART 3 EXECUTION

3.1 FABRICATION
3.2 ERECTION
3.3 WELDING

SECTION 05120

STRUCTURAL STEEL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC ASD Manual	(1989) Manual of Steel Construction Allowable Stress Design
AISC ASD/LRFD Vol II	(1992) Manual of Steel Construction Vol II: Connections
AISC Design Guide No. 10	(1989) Erection Bracing of Low-Rise Structural Steel Frames
AISC FCD	(1995a) Quality Certification Program
AISC LRFD Vol I	(1995) Manual of Steel Construction Load & Resistance Factor Design, Vol I: Structural Members, Specifications & Codes
AISC LRFD Vol II	(1995) Manual of Steel Construction Load & Resistance Factor Design, Vol II: Structural Members, Specifications & Codes
AISC Pub No. S303	(2000) Code of Standard Practice for Steel Buildings and Bridges

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 36/A 36M	(2000a) Carbon Structural Steel
ASTM A 53/A 53M	(2001) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A 325	(2000) Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A 325M	(2000) High-Strength Bolts for Structural Steel Joints (Metric)
ASTM A 500	(1999) Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A 563	(2000) Carbon and Alloy Steel Nuts
ASTM A 563M	(2000) Carbon and Alloy Steel Nuts (Metric)

ASTM F 1554-99	Standard Specifications for Anchor Bolts, Steel, 36, 55 and 105-ksi Yield Strength

AMERICAN WELDING SOCIETY (AWS)

AWS A2.4	(1998) Standard Symbols for Welding, Brazing and Nondestructive Examination
AWS D1.1	(2000) Structural Welding Code – Steel

THE SOCIETY FOR PROTECTIVE COATINGS (SSPC)

SSPC Paint 25	(1991) Red Iron Oxide, Zinc Oxide, Raw Linseed Oil and Alkyd Primer (Without Lead and Chromate Pigments)

1.2 GENERAL REQUIREMENTS

Structural steel fabrication and erection shall be performed by an organization experienced in structural steel work of equivalent magnitude. The Contractor shall be responsible for correctness of detailing, fabrication, and for the correct fitting of structural members. Connections, for any part of the structure not shown on the contract drawings, shall be considered simple shear connections and shall be designed and detailed in accordance with pertinent provisions of AISC ASD Manual and AISC LRFD Vol II. Substitution of sections or modification of connection details will not be accepted unless approved by the Contracting Officer. AISC ASD Manual and AISC ASD/LRFD Vol II shall govern the work. Welding shall be in accordance with AWS D1.1 and SECTION 05055 METALWORK FABRICATION, MACHINE WORK AND MISCELLANEOUS PROVISIONS. High-strength bolting shall be in accordance with AISC ASD Manual and AISC LRFD Vol I.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having a "FIO " designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Erection; GA

Prior to erection, erection plan of the structural steel framing describing all necessary temporary supports, including the sequence of installation and removal.

SD-04 Drawings

Structural Steel System; GA

Structural Connections; GA,

Shop and erection details including members (with their connections) not shown on the contract drawings shall be submitted for approval. Welds shall

be indicated by standard welding symbols in accordance with AWS A2.4. Also see Submittals in SECTION 05055 METALWORK FABRICATION, MACHINE WORK AND MISCELLANEOUS PROVISIONS.

SD-13 Certificates

Mill Test Reports; FIO

Certified copies of mill test reports for structural steel, structural bolts, nuts, washers and other related structural steel items, including attesting that the structural steel furnished contains no less than 25 percent recycled scrap steel and meets the requirements specified, prior to the installation.

Welder Qualifications; FIO

Certified copies of welder qualifications test records showing qualification in accordance with AWS D1.1.

Welding Inspector; FIO

Welding Inspector Qualifications.

Fabrication; FIO

A copy of the AISC certificate indicating that the fabrication plant meets the specified structural steelwork category.

1.4 STORAGE

Material shall be stored out of contact with the ground in such manner and location as will minimize deterioration.

1.5 WELDING INSPECTOR

Welding Inspector qualifications shall be in accordance with AWS D1.1

PART 2 PRODUCTS

2.1 STRUCTURAL STEEL

All steel shapes, plates and bars shall conform to ASTM A36 (F_Y = 36 ksi). Dual certified steel conforming to ASTM A36 (F_Y = 36 ksi) and A572 Grade 50 (F_Y = 50 ksi) is acceptable.

2.2 STRUCTURAL TUBING

Steel shaped tubing shall conform to ASTM A500 GRADE B (F_Y = 46 ksi).

2.3 HIGH STRENGTH BOLTS, WASHERS AND NUTS

High strength bolts shall conform to ASTM A 325, bolt type 3, bolt finish: Galvanized, ASTM F436 washer type and finish: 1; galvanized, ASTM A563 nut grade and finish: DH; galvanized and lubricated.

2.4 ANCHOR BOLTS, WASHER AND NUTS

Anchor bolts shall conform to ASTM F 1554-99 Grade 55, ASTM F436 washer type and finish: 1; galvanized. Use heavy hex nuts and finish of hop-dip zinc coated for exposed ends.

PART 3 EXECUTION

3.1 FABRICATION

Fabrication shall be in accordance with the applicable provisions of AISC ASD Manual. Fabrication and assembly shall be done in the shop to the greatest extent possible. The fabricating plant shall be certified under the AISC FCD for one of the Category Conventional Steel Building Structures (Sbd) or Complex Steel Building Structures (Cbd) or Simple Steel Bridges (Sbr) or Major Steel Bridges (cbr).

3.2 ERECTION

a. Erection of structural steel, except as indicated in item b. below, shall be in accordance with the applicable provisions of AISC ASD Manual AISC LRFD Vol I. Erection plan shall be reviewed, stamped and sealed by a professional civil or structural engineer licensed by the state of Georgia.

b. For low-rise structural steel buildings (60 feet tall or less and a maximum of 2 stories), the erection plan shall conform to AISC Pub No. S303 and the structure shall be erected in accordance with AISC Design Guide No. 10.

3.2.1 Structural Connections

Anchor bolts and other connections between the structural steel and foundations shall be provided and shall be properly located and built into connecting work. Field welding of structural connection is not permitted.

3.2.2 Base Plates and Bearing Plates

Column base plates for columns and bearing plates for beams, girders, and similar members shall be provided. Base plates and bearing plates shall be provided with full bearing after the supported members have been plumbed and properly positioned, but prior to placing superimposed loads. Separate setting plates under column base plates will not be permitted. The area under the plate shall be damp-packed solidly with bedding mortar, except where nonshrink grout is indicated on the drawings. Bedding mortar and nonshrink grout shall be as specified in SECTION 03300 CAST-IN-PLACE STRUCTURAL CONCRETE.

3.3 WELDING

Welding shall be in accordance with SECTION 05055 METALWORK FABRICATION, MACHINE WORK AND MISCELLANEOUS PROVISIONS.

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*2 SECTION 15995

HSWY0215995

MISCELLANEOUS HIRE

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

3.1 MACHINIST HIRE (OPTIONAL)
3.2 ELECTRICIAN HIRE
3.3 OTHER SKILLED CRAFTSMAN HIRE (OPTIONAL)
3.4 GENERAL LABORER HIRE (OPTIONAL)

SECTION 15995

MISCELLANEOUS HIRE

PART 1 GENERAL

1.1 GENERAL INFORMATION

As the condition of certain areas of the plant, switchyard and other items of equipment cannot be determined until site work and equipment removal begins, it is anticipated that work in addition to that specified in other sections may be required. This additional work will be directed in writing by the Contracting Officer to be accomplished under an item or items in this section. Where work is specified in other sections to be accomplished under these items, no work shall be accomplished until the item is inspected by the Government and specific directions are given in writing. The unit prices to be charged for labor for additional work shall not exceed the unit prices submitted in the Bidding Schedule, which shall include supervision, equipment, tools, labor, materials, transportation of items to and from site to work place, overhead, and incidental required for the work.

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

3.1 MACHINIST HIRE (OPTIONAL)

Furnish machinist and shop facilities to perform work on various equipment as directed by the Contracting Officer.

3.2 ELECTRICIAN HIRE

Furnish electrician to perform work on installation and repairs of various electrical machinery, equipment, and wiring as directed by the Contracting Officer.

3.3 OTHER SKILLED CRAFTSMAN HIRE (OPTIONAL)

Furnish other skilled craftsman, such as millwright, mechanic, to perform work on the various parts and types of equipment as directed.

3.4 GENERAL LABORER HIRE (OPTIONAL)

Furnish general laborer to perform miscellaneous work as directed by the Contracting Officer.

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SECTION 16050

HSWY0216050

MISCELLANEOUS ELECTRICAL EQUIPMENT AND WORK

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 REFERENCES
1.3 SUBMITTALS
1.4 GENERAL REQUIREMENTS
1.5 SWITCHYARD EQUIPMENT DELIVERY, STORAGE, AND HANDLING
1.6 TOOLS AND ACCESSORIES

PART 2 PRODUCTS

2.1 CURRENT TRANSFORMERS
2.2 POTENTIAL TRANSFORMERS
2.3 COUPLING CAPACITOR VOLTAGE TRANSFORMERS
2.4 LINE TUNERS
2.5 SURGE ARRESTERS
2.6 HIGH-VOLTAGE INSULATORS
2.7 CONDUIT
2.8 INSULATED WIRE AND CABLE
2.9 GROUNDING
2.10 OUTLET AND JUNCTION BOXES
2.11 SPECIAL BOXES AND ENCLOSURES
2.12 TERMINAL BLOCKS
2.13 NAMEPLATES AND ESCUTCHEONS
2.14 SWITCHYARD BUS
2.15 SPARE PARTS

PART 3 EXECUTION

3.1 REMOVAL OF EXISTING EQUIPMENT
3.2 INSTALLATION OF CURRENT TRANSFORMERS, POTENTIAL TRANSFORMERS, AND COUPLING CAPACITOR VOLTAGE TRANSFORMERS
3.3 INSTALLATION OF SURGE ARRESTERS
3.4 INSTALLATION OF GOVERNMENT FURNISHED 242 KV GAS CIRCUIT BREAKERS
3.5 BUS DIFFERENTIAL CT JUNCTION BOXES
3.6 CONDUIT SYSTEMS
3.7 SPECIAL BOXES AND ENCLOSURES INSTALLATION
3.8 WIRE AND CABLE INSTALLATION
3.9 FIELD ACCEPTANCE TESTS
3.10 SERVICES OF SKILLED CRAFTSMEN
3.11 GROUNDING
3.12 ELECTRICAL CONNECTIONS
3.13 PAINTING OF ELECTRICAL EQUIPMENT
3.14 SEQUENCE OF WORK IN SWITCHYARD
3.15 WORKMANSHIP

SECTION 16050

MISCELLANEOUS ELECTRICAL EQUIPMENT AND WORK

PART 1 GENERAL

1.1 GENERAL INFORMATION

*2

This section specifies the miscellaneous electrical equipment and work required for the replacement of, but not limited to, oil circuit breakers, instrument transformers, conduit, and power, control, and alarm wiring, line metering equipment. Equipment and work includes furnishing and installing a new double access gate, furnishing and installing a new access road, removing existing equipment, conduit, and wiring, furnishing and installing instrument transformers, surge arresters, conduit, wiring, and miscellaneous electrical accessories, and installing Government furnished gas circuit breakers as noted in these specifications.

1.2 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 NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI C2	(1999) National Electric Safety Code
ANSI C29.1	Electrical Power Insulators- Test Methods
ANSI C80.1	(1990) Rigid Steel Conduit-Zinc Coated

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 123	(1989a) Zinc (Hot-Dip Galvanized)Coatings on Iron and Steel Products
ASTM A 153	(1982; R 1987) Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM B 8	(1999) Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
ASTM D-4059	(2000) Standard Test Methods for Analysis of Polychlorinated Biphenyls in Insulating Liquids by Gas Chromatography

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)

IEEE Std 383	(1974; R 1992) Class 1E Electric Cables, Field Splices, and Connections for Nuclear Power Generating Stations
IEEE C57.13	(1993) Standard Requirements for Instrument Transformers
IEEE C62.11	(1999) Standard for Metal-Oxide Surge Arresters for AC Power Circuits (> 1kV)

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA C93.1	(1999) Requirements for Power-Line Carrier Coupling Capacitors and Coupling Capacitor Voltage Transformers (CCVT)
NEMA FB 1	(1993) Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies
NEMA LA 1	(1992) Surge Arresters
NEMA WC 57	(1998) Control Cables
NEMA WC 70	(2001) Nonshielded Power Cables rated 2000 Volts or Less for the Distribution of Electrical Energy
NEMA WC 74	(2000) 5-46 kV Shielded power cable for Use in the Transmission and Distribution of Electric Energy

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(1999) National Electric Code

UNDERWRITERS LABORATORIES (UL)

UL 44	(1999) Thermoset-Insulated Wires and Cables
UL 50	(1992) Enclosures for Electrical Equipment
UL 360	(1986) Liquid-Tight Flexible Steel Conduit
UL 514A	(1993) Metallic Outlet Boxes
UL 514B	(1993) Fittings for Conduit & Outlet Boxes

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330 and as shown below:

SD-01 Data

Electrical Equipment; GA

Data and catalog cuts of all equipment supplied by the Contractor as required to indicate complete compliance with the contract specifications. All cut sheets, manuals, data sheets, and catalogs shall be submitted in pdf, read-only, format in conjunction with a correctly filled out From 4025. All data and catalog cuts shall include the project name, and contract number. As a minimum, data and catalog information shall be submitted for the following:

a. Nameplates

b. Terminal Blocks

c. Wire and Cable

d. Conduit and all fittings

e. Specialty Boxes

f. Circuit Breakers

g. Terminal Cabinets

h. Distribution Panels and Related Equipment

i. CT’s, PT’s, and CCVT’s

j. Line Tuners

k. Insulators

l. Disconnect Switch Assemblies

m. Switchyard Bus Tubing and Fittings

n. Grounding Conductors and connection fittings, CAD-Weld Equipment

o. Steel, Fittings, and Hardware for Support Structures.

SD-04 Drawings

Connection Drawings; GA

The Contractor shall, within 60 calendar days after date of award, submit six (6) copies for approval of the Contracting Officer, connection drawings of all equipment to be furnished under this contract. Drawings shall clearly show wiring numbers and connections to other equipment.

CT’s, PT’s, CCVT’s, and Line Tuners; GA

The Contractor shall, within 60 calendar days after date of award, submit for approval of the Contracting Officer, six (6) copies, of shop drawings including assembly and detail drawings and wiring diagrams to demonstrate fully that all parts of the equipment will conform to the requirements and intent of this specification. The drawings shall include, as a minimum:

a. Dimensioned outline drawings, detailed drawings, and wiring diagrams as applicable for the instrument transformers and line tuners.

b. Complete mounting details, including drilling plan for mounting bolts for mounting the instrument transformers on the steel structures.

SD-06 Instructions

Circuit Breaker Installation Plan; GA

SD-07 Schedules

Spare Parts List; GA

Detailed Work Schedule; GA

SD-08 Statements

Deviations; GA

If the Contractor desires for any reason to deviate from the specified materials, he shall submit a statement of the exact nature of the deviation,

and shall submit complete specifications for the materials that he proposes to use in lieu of those specified.

SD-09 Reports

Instrument Transformer Factory Tests; FIO

Tests shall be performed by the manufacturer, and four copies of certified test reports, including test results, shall be furnished.

Wire and Cable Factory Tests, Inspections, and Verifications; GA

Certified copies of test reports including test results shall be submitted by the Contractor. Lot number and reel or coil number of wire and cable tested shall be indicated on the test reports.

Wire and Cable Test Record Form; GA

Wire and Cable Field Tests; GA

Certified copies of test reports including test results shall be submitted by the Contractor. No wire or cable shall be energized until authorized. Circuit number and location for cable tested shall be indicated on the test reports.

Wire and Cable Termination Drawings; GA

The Contractor shall submit complete wire and cable termination drawings indicating all terminal points for all wire and cable installed or modified under this contract.

Field Test Procedure; GA

Operational Field Tests; GA

The Contractor shall submit certified copies of the reports. Reports shall include summary of tests performed, a list of all tests and results of such tests. The report shall also include a complete listing of equipment status including changed relay settings, or control systems functional changes, non-functioning equipment or cables. Reports of all witness tests shall be signed by the witnessing representatives of the Contractor and the Contracting Officer.

Wire Markers; GA

A written certificate from the Manufacturer shall be furnished to indicate that the markers will not stain or discolor after 20 years service when subjected to an accelerated aging test while in contact with wire insulating materials. Identification on tags and markers shall be as shown on the drawings or as directed.

Insulator Production Tests; FIO

Tests shall be made at the place of manufacture and six (6) copies of certified test reports of insulator design tests shall be furnished within 14 days after completion of tests. Witnessing of factory tests will not be required.

SD-19 Operation and Maintenance Manuals

Mechanical, Electrical, and/or Electronic Equipment; GA

Complete operating and maintenance instructions and parts catalogs shall be furnished for all mechanical, electrical, and/or electronic equipment furnished under this contract. The contractor shall submit 2 weeks prior to delivery of equipment six originals of manufacturer's operation and maintenance manuals. This information shall be project specific and be suitable for inclusion in the project Operation and Maintenance Manuals. This manual shall use text and pictures to clearly indicate how required maintenance and test procedures are to be performed on all equipment supplied by the Contractor as per the manufacture's specifications.

1.4 GENERAL REQUIREMENTS

1.4.1 Materials, Equipment, and Installation

*2

New and unused materials and equipment shall be furnished and any defective material or equipment damaged in the course of transportation or installation shall be replaced or repaired using a repair method approved by the COR. The installation shall be in accordance with the National Electrical Code, NFPA 70, and the National Electrical Safety Code, ANSI C2, except where otherwise specifically shown or specified, in which case the drawings and specifications shall govern. Omission of details on the drawings or in the specifications shall not be construed as permitting deviations from Code requirements or correct operation of equipment. If the Contractor finds discrepancies or omissions within the contract, the COR shall be immediately notified so a prompt solution can be found. Temporary wire jumpers required for continuity of service will be provided for the switchyard buswork, miscellaneous equipment power, and protection and control circuits. These temporary jumpers are not indicated specifically in the drawings, and will be provided by the Contractor as required.

1.4.2 Standard Products

Material and equipment shall be the standard products of manufacturers regularly engaged in the manufacture of these products and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening.

1.4.3 Corrosion Prevention

All equipment shall be protected to prevent deterioration from corrosion. The general requirements are specified below; however, other corrosion-resisting treatments that are the equivalent of those specified may be used.

1.4.3.1 Fastenings and Fittings

Screws, bolts, nuts, pins, studs, springs, washers, and other miscellaneous fastening and fittings shall be of corrosion-resistant material or shall be treated in an approved manner to render them resistant to corrosion. All fastenings that are to be exposed directly to the weather shall be of corrosion-resisting material.

1.4.3.2 Corrosion-Resisting Materials

Corrosion-resisting steel, copper, brass, bronze, copper-nickel-copper alloys are acceptable corrosion-resisting materials.

1.4.3.3 Corrosion-Resisting Treatments

Treatments shall be in accordance with ASTM A 123 or ASTM A 153.

1.4.3.4 Finish

Final painting may be done in accordance with manufacturer's standard practice.

1.5 SWITCHYARD EQUIPMENT DELIVERY, STORAGE, AND HANDLING

The Contractor shall package for storage all switchyard equipment and related accessories. The Contractor shall then deliver the equipment for storage, once production tests are complete, and coordinate with the COR for equipment storage procedures and locations.

1.5.1 Identification

The switchyard equipment shall be packaged in such a manner that when received, they and their components can be easily identified by contract and item number. It shall not be necessary to remove packaging for identification prior to installation.

1.5.2 Packaging

All crates, boxes, packages, and containers shall be marked in a weather-resistant manner and shall include the shipper's sequential case numbers, and such case numbers shall identify the contents on a packing list to facilitate the Contracting Officer's immediate detection of any shortage or loss in transit. All packaging shall be suitable for outdoor storage without disintegration and loss of equipment protection. The packing list shall be firmly secured to the shipment for immediate availability to the Contracting Officer's representative. Components shall be factory assembled into assemblies of suitable shipping dimensions. Large three-pole disconnect switches which cannot be shipped as a unit shall be packaged as one complete single phase switch assembly per crate or box.

1.5.3 Security Against Damage

Crates or boxes shall be of adequate strength to withstand the handling and shipment. Paper cartons are not acceptable shipping containers, nor is any other type of container which may disintegrate during outside storage. All switchyard equipment and their components shall be secured to prevent damage. The Contractor shall be responsible for all damage incurred during shipping and handling.

The disconnect switch bases shall be securely fastened to the crate or box to prevent shifting of the assembly. The contact surfaces of the blade, contact fingers of the hinge, and contact end subassemblies shall be protected to prevent abrasion of the contact surfaces due to movement between the blade and contact fingers during handling and shipment from place of manufacture to final delivery point. Paper products are not a satisfactory protection of the contact surfaces. The crates or boxes containing the subassemblies shall be substantially constructed to permit stacking of the loaded crates or boxes one above the other. Switch accessories or parts of a size which can be placed in the crated or boxed subassemblies shall be securely fastened to the switch base, crate, or box to prevent breakage or loss.

1.6 TOOLS AND ACCESSORIES

The Contractor shall furnish one complete set of all special tools, wrenches, and other appurtenant equipment that may be necessary or convenient for assembling, aligning, or disassembling the switchyard equipment supplied by the Contractor.

PART 2 PRODUCTS

2.1 CURRENT TRANSFORMERS

2.1.1 Type and Rating

Current transformers shall be outdoor, oil-filled, double-ratio tapped-secondary types, rated 230 kV nominal system voltage, 1050 kV BIL, 60 Hertz, and 1500/3000:5 A. The current transformers shall conform to the requirements of IEEE C57.13. The metering accuracy class for each current transformer shall be 0.3 for each of standard burdens B-0.1 through B-1.8. The current transformers shall be suitable for continuous operation at the full-rated voltage and current at a frequency of 60 Hz. The current transformers shall be designed to withstand, without damage, the thermal and mechanical stresses resulting from short-circuit currents corresponding to ratings of the breakers in the circuits to which they are connected.

2.1.2 Terminals

Primary terminals shall be copper or high-conductivity copper alloy. Primary terminal pads shall be uniformly tinned and shall have flat pads with four holes. The dimensions of flat-pad terminals shall be such as to accommodate a standard four-hole flat pad power connector. Secondary transformer leads shall be terminated on short-circuiting type terminal blocks; minimum wire size for leads shall be No. 10 AWG stranded copper wire. The terminal blocks shall be enclosed in a weatherproof terminal box with a removable cover. The terminal box shall have not less than two, tapped, 1-inch or 1½ inch conduit hubs, each located on a different side of the terminal box or one similar conduit hub which can be rotated to allow conduit entrance from at least three directions. The conduit hubs shall not interfere with the removal cover or access to the terminal board.

2.1.3 Insulating Oil

Any oil required for the transformer and bushings shall be furnished by the Contractor. The oil shall be the manufacturer's standard or recommended type, except that polychlorinated biphenyls (PCB's) or any other liquid whose use is discouraged by the EPA will not be acceptable. The Contractor shall provide certified test reports before the time of field acceptance that the oil in each unit did not (during factory test) and will not (as delivered) contain a detectable amount of PCB's when tested in accordance with ASTM D-4059. Transformers shall have a valve for filling, draining, and sampling the oil. Oil filled bushings shall have oil level or bellows position indicator to insure proper level of oil.

2.1.4 Factory Tests

The current transformers shall be tested in accordance with IEEE C57.13 and as specified below. The Contractor shall assure that the equipment being furnished meets each of the test requirements. Certified copies of test reports shall be furnished.

2.1.4.1 Design Tests

All design tests listed in IEEE C57.13, paragraph 4.7.3 shall be performed as required.

2.1.4.2 Routine Tests

All routine tests listed in IEEE C57.13, paragraph 4.7.2 shall be performed as required.

2.1.4.3 Partial Discharge Tests

Transformers shall receive partial discharge tests and the partial discharge measurements, when taken at 120 percent of rated line to ground voltage, shall not exceed 10 picocoulombs. Readings shall be taken throughout the applied potential test, and there shall be no increase in the partial discharge levels as voltage is reduced. All partial discharge measurements and the test voltages shall be recorded in the test reports. The test results shall show no evidence of stray partial discharges at the test voltage.

2.1.4.4 Leak Tests

A completely assembled gas blanket type transformer shall withstand an oil or air pressure test at 14.5 psi for 1 hour without leakage. A completely assembled bellows type transformer shall withstand an oil expansion 110 percent of the expansion at 55° C ambient temperature for one hour without leakage. Allowances shall be made for changes in pressure due to changes in temperature while the test is in progress.

2.2 POTENTIAL TRANSFORMERS

2.2.1 Type and Rating

Potential transformers shall be outdoor, stand alone, oil-filled types, rated for use on 230 kV Grounded-Y systems connected line to neutral, 1050 kV BIL, 60 Hz. The potential transformers shall conform to the requirements of IEEE C57.13. Each potential transformer shall have one primary high-voltage neutral lead out of the case ungrounded. Each potential transformer shall be provided with two identical secondary windings, each with ratios with respect to the primary winding as required to provide 115 and 69 volts. The metering accuracy class for each potential transformer at 60 Hertz shall be 0.3 for each of standard burdens W, X, Y, Z, and ZZ. Thermal burden rating shall be 2500 VA at 30 degrees C ambient.

2.2.2 Cores and Coils

Potential transformers shall have provisions for lifting the core and coils, and shall be provided with suitable guides for guiding cores and coils as they are being removed or replaced.

2.2.3 Terminals

Primary and secondary terminals shall be copper or high-conductivity copper alloy. Primary terminal pads shall be uniformly tinned and shall have flat pads with four holes. The dimensions of flat-pad terminals shall be such as to accommodate a standard four-hole flat pad power connector. Secondary terminals shall be terminated on terminal blocks with No. 10 AWG stranded copper wire. The terminal blocks shall be enclosed in a weatherproof terminal box with a removable cover. The terminal box shall have not less than two, tapped, 1-inch or 1½ inch conduit hubs, each located on a different side of the terminal box or one similar conduit hub which can be rotated to allow conduit entrance from at least three directions. The conduit hubs shall not interfere with the removal cover or access to the terminal board.

2.2.4 Insulating Oil

Any oil required for the transformer and bushings shall be furnished by the Contractor. The oil shall be the manufacturer's standard or recommended type,

except that polychlorinated biphenyls (PCB's) or any other liquid whose use is discouraged by the EPA will not be acceptable. The Contractor shall provide certified test reports before the time of field acceptance that the oil in each unit did not (during factory test) and will not (as delivered) contain a detectable amount of PCB's when tested in accordance with ASTM D-4059. Transformers shall have a valve for filling, draining, and sampling the oil. Oil filled bushings shall have oil level or bellows position indicator to insure proper level of oil.

2.2.5 Housings and Tanks

All windings and internal insulating systems shall be contained in a hermetically sealed (airtight) enclosure capable of withstanding pressure variations developed under specified conditions of operation and ambient temperatures. All portions of the transformer, except gaskets, that may in any way be exposed to the atmosphere shall be composed of completely nonhygroscopic material, such as metal or glazed porcelain. Porcelain sections shall be jointed by glazed firing or bolted and gasketed metal flanges. All openings in the tank that employ gaskets shall be designed to prevent the accumulation of moisture around the gasketed joint. Transformers shall be provided with eyebolts, lugs, or similar lifting provisions.

2.2.5.1 Expansion Bellows or Diaphragm

Oil-filled transformers shall incorporate a non-corrosive metallic expansion bellows or diaphragm to allow oil thermal expansion or contraction. Breathers or other devices that allow contact between the insulating oil and the atmosphere are not allowed. The expansion bellows or diaphragm furnished shall be of a proven design that has operated successfully on electric power systems for at least five (5) years. The expansion features of the equipment shall also provide for explosive resistance or burst protection.

2.2.5.2 Gaskets

Gaskets shall not be affected by hot insulating oil, shall retain their resiliency during the life of the associated equipment, and shall be impervious to the effects of weather while maintaining oil and gas tightness. Gaskets made of such materials as cork-neoprene or nitrile are acceptable. Gaskets made of cork only or neoprene only are not allowed. Gaskets flanges shall have stops or grooves to prevent crushing of gaskets.

2.2.6 Mounting

Transformers shall be designed for base mounting and shall have integral bases or base box assemblies that are part of the PT equipment, constructed to prevent accumulation of moisture. The new PT assemblies shall be mounted and secured to the top of the existing mounting pedestals.

2.2.7 Cleaning and Painting

Base housing interior and all exterior metal parts that are not galvanized or of corrosion resistant metal shall be thoroughly cleaned and painted. Cleaning shall be by degreasing and abrasive blasting, or other equivalent means, to remove all grease, scale, corrosion, and foreign substances. All interior and exterior surfaces shall be given at least one priming coat and two finish coats of ANSI 70 gray paint. The primer shall be at least 0.04 mm thick.

2.2.8 Factory Tests

The potential transformers shall be tested in accordance with IEEE C57.13 and as specified below. The Contractor shall assure that the equipment being furnished meets each of the test requirements. Certified copies of test reports shall be furnished.

2.2.8.1 Design Tests

All design tests listed in IEEE C57.13, paragraph 4.7.3 shall be performed as required.

2.2.8.2 Routine Tests

All routine tests listed in IEEE C57.13, paragraph 4.7.2 shall be performed as required.

2.2.8.3 Partial Discharge Tests

Transformers shall receive partial discharge tests and the partial discharge measurements, when taken at 120 percent of rated line to ground voltage, shall not exceed 10 picocoulombs. Readings shall be taken throughout the applied potential test, and there shall be no increase in the partial discharge levels as voltage is reduced. All partial discharge measurements and the test voltages shall be recorded in the test reports. The test results shall show no evidence of stray partial discharges at the test voltage.

2.2.8.4 Leak Tests

A completely assembled gas blanket type transformer shall withstand an oil or air pressure test at 14.5 psi for 1 hour without leakage. A completely assembled bellows type transformer shall withstand an oil expansion 110 percent of the expansion at 55° C ambient temperature for one hour without leakage. Allowances shall be made for changes in pressure due to changes in temperature while the test is in progress.

2.3 COUPLING CAPACITOR VOLTAGE TRANSFORMERS

2.3.1 General

Outdoor type coupling capacitor voltage transformers (CCVT’s) suitable for base mounting and attachment shall be furnished and installed on phase B of transmission lines 3 and 4. The CCVT's shall be designed for use on a 230 kV, 3-phase, 3-wire, 60-Hertz, grounded neutral power system and shall conform to the requirements of NEMA C93.1. Each CCVT shall be single phase and shall be connected line-to-ground for operation at 138 kV rated primary voltage. Each CCVT shall be provided with two identical secondary windings, each with ratios with respect to the primary winding of 1200 and 2000 to 1 to provide 115 and 69 volts. The CCVT’s shall be used for carrier communications, metering, and relaying and shall be provided with carrier accessories mounted in the base, including a carrier grounding switch, protective gap, drain coil, and lead-in terminal. The metering accuracy class for each CCVT at 60 Hertz shall be 0.3 for each of standard burdens W, X, Y, Z, and ZZ. Thermal burden rating shall be 2500 VA. The CCVT’s shall be suitable for use with the existing line traps and with the new line tuners and carrier transmitter/receivers.

2.3.2 Components

Each CCVT shall be furnished complete with line and ground terminals, with secondary wiring to terminal blocks, and with all equipment necessary for proper operation. The line terminal shall be a NEMA 4-hole terminal pad, and the ground terminal shall be for #4/0 AWG bare stranded copper cable. Tapped

holes for conduit connections shall be provided on the CCVT base housing. The base housings and capacitors shall be ANSI No. 70 gray.

2.3.2.1 Capacitors

The capacitors shall be high-capacitance type, and each capacitor shall be so designed that flashover will occur before internal breakdown of the capacitor occurs.

Each individual capacitor unit shall consist of a wet-processed porcelain shell with fitted end castings designed to effectively seal the interior. The unit shall contain insulating fluid and shall be hermetically sealed, making the unit completely weatherproof. The proper number of capacitor units shall be stacked for operation on a 230 kV nominal phase-to-phase system connected 138 kV phase-to-neutral.

2.3.2.2 Base and Housing

Each CCVT shall be furnished with a weatherproof base and housing. The size and arrangement of the base shall be such as to provide liberal spacing and reasonable access to all equipment mounted therein. Screened ventilating openings shall be provided in the housing. A suitable access door, hinged at the side, shall be provided.

2.3.3 Factory Tests

The CCVT’s shall be tested in accordance with NEMA C93.1. All design tests listed in NEMA C93.1, paragraph 6.1.2 shall be performed as required, and all production tests listed in NEMA C93.1, paragraph 6.1.3 shall be performed as required. The Contractor shall assure that the equipment being furnished meets each of the test requirements. Certified copies of test reports shall be furnished.

2.4 LINE TUNERS

Line tuners shall be furnished and installed on phase B of transmission lines 3 and 4. The line tuners shall be suitable for use with the existing line traps and with the new CCVT’s and carrier transmitter/receivers.

2.4.1 Carrier Current Lead-In Cable

New carrier current lead-in cable for connections between the new CCVT’s and the new line tuners shall be furnished and installed and shall be of size and type as recommended by the line tuning equipment manufacturer.

2.5 SURGE ARRESTERS

2.5.1 General

The surge arresters shall be station class zinc-oxide valve type suitable for the protection of power transformers and associated equipment from overvoltage produced by lightning and switching operations, and shall be capable of withstanding multiple stroke currents, long duration lightning discharges and switching surges, and shall include all necessary accessories for satisfactory performance and operation. The surge arresters shall be of a type not subject to internal shipping damage, and shall have an established record of satisfactory test and service performance without unexplained failures. The surge arresters shall be Ohio Brass Dynavar Type VS, Asea Brown Boveri Type EXLIM or approved equal.

The surge arresters shall be designed for use on a 230 kV, three-phase, 60-Hz system with a nominal line-to-line voltage rating and characteristics as specified under 2.5.2 below. Each unit shall be provided with a “Hit Counter” designed to operate with this arrester. The arresters shall conform to the applicable provisions of ANSI C62.11 and NEMA Pub. No. LA 1.

2.5.2 Type and Rating

The outdoor station class zinc-oxide valve type surge arresters shall be single-pole type, rated:

Maximum Continuous Line to Ground Operating Voltage	Duty Cycle Rating	L-L Voltage	Type
140 kV RMS	172 kV RMS	230 kV	Outdoor

The arresters shall be suitable for operation under standard service conditions, shall be of rugged construction and shall be self-supporting.

The system conditions will be in accordance with the following:

a. 230 kV nominal system line-to-line voltage, 60-Hz, 3-Phase

b. Grounded neutral system with coefficient of grounding of 80 percent or less.

c. The switching surge insulation level of the equipment to be protected will be 1050 kV for 230 kV L-L.

2.5.3 Protective Characteristics

The maximum protective level of arresters, kV crest for 10 kA impulse current of a sufficiently short time-to-crest to produce an arrester voltage rising to crest in 0.5 microseconds:

441 kV for 230 kV L-L

Maximum discharge voltage across arrester with 8 x 20 microseconds discharge current wave, kV crest:

a. At 5,000 Amperes - 364 kV crest for 230 kV L-L
b. At 10,000 Amperes - 390 kV crest for 230 kV L-L
c. At 20,000 Amperes - 429 kV crest for 230 kV L-L

2.5.4 Construction

The entire arrester construction shall be such as to assure permanent and continuous performance free of the influence of moisture and weather conditions. The design of the arresters shall be such that a reasonably uniform potential drop will exist across each section of the arrester regardless of any distortion of the electrostatic field due to the presence of fog, water, snow, sleet, or ice on the arrester porcelain, or uneven drying of the surface of the porcelain. No chemical action shall take place, nor shall the surge arrester show deterioration, as a result of ordinary operation of the arrester. No maintenance, upkeep or attendance shall be necessary due to operation, other than routine inspection.

2.5.5 Arrester Unit

The arrester units shall be composed of a suitable wet process porcelain housing with metal end fittings enclosing the internal parts of the arrester assembly. The porcelain shall be of wet process, free from laminations, cavities or other flaws affecting their mechanical or dielectric strength and shall be well vitrified and nonporous. Seals shall be provided between the porcelain housing and metal end fittings and any materials used therefore shall maintain their effectiveness over long periods. The metal end fittings shall be attached to the housing with solder or cement as appropriate for the construction used. Each 230 kV L-L unit shall have a pressure relief diaphragm with a minimum rating of 65,000 symmetrical rms amperes.

2.5.6 Mounting

Each single-pole arrester assembly shall be provided with a suitable hot-dipped galvanized or other approved corrosion-resistant metal base for mounting the arrester on the existing steel structure foundation as shown on the contract drawings. Galvanized mounting bolts and washers shall be furnished by the Contractor for mounting the surge arresters. Each assembly shall be self-supporting and sufficiently rugged to withstand the effects of 100 mph winds. Arrester assemblies with bracing insulators will not be accepted.

2.5.7 Line Terminal Cap

Each single-pole arrester shall be equipped with a metal line terminal cap bolted to the top of the line end of the arrester unit. The line terminal cap shall have standard 4-hole pattern pad for a bolted connection to the line as shown on the contract drawings.

2.5.8 Grading Ring

When required for proper performance, each arrester shall be provided with a metal grading ring assembly. The ring and ring support shall be rugged and adequate design and construction to maintain the ring properly spaced under the wind loading of 100 mph.

2.5.9 Conductor Terminals

The arrester shall be provided with solderless clamp type terminals for line and ground conductors conforming to ANSI C62.1 unless otherwise specified. Terminals and bolts, nuts, washers and locking devices, which are part of the conductor terminals or are used for attaching terminals to equipment, shall be of hot dipped galvanized malleable iron or galvanized steel. The terminals shall have a minimum of four (4) clamping bolts. The clamp type terminals for ground conductors shall be suitable for connecting to 500 kcmil conductors.

2.5.10 Metal Parts

Exposed metal parts shall be corrosion-resistant metal or galvanized iron or steel. Iron and steel parts, including bolts, washers and locking devices, shall be given a protective zinc coating which shall be capable of meeting the tests specified in Section 6 of ANSI C29.1.

2.5.11 Nameplates

Each single-pole arrester shall be provided with a nameplate and, when the arrester is composed of a number of units, each unit shall also have an individual nameplate. The main nameplate shall be attached to the lower arrester unit or base and shall give the manufacturer’s name, name of the device, arrester classification, pressure relief rating in amperes, manufacturer’s catalog number, stacking order, line-to-ground voltage rating,

and maximum continuous operating voltage. Nameplates shall be of a corrosion-resistant metal and comply with Section 16050 para 2.13.

2.5.12 Assembly

In assembling the arrester units and for assembling a complete arrester, all bolts shall be provided with effective lock washer or other approved locking devices to maintain bolts and nuts in place. All parts shall be properly marked and identified for ease of assembly in the field, if required.

2.5.13 Factory Inspection and Tests

The surge arrester testing and spare parts to be furnished under these specifications shall be subject to inspection at the factory by the COR. The Contractor shall give a minimum of 30 days prior notice of such tests to facilitate the Government making travel arrangements. The Contractor shall provide the COR written testing procedures 30 days before such testing is to proceed. The tests shall include all tests required under the governing standards for this device to include a current leakage test.

2.5.14 Design Tests

The following design tests shall have been performed on surge arresters identical in design to the arresters to be furnished under these specifications to clearly demonstrate that the arresters will have the characteristics required and will perform in a manner to meet all requirements of these specifications. Three certified copies of the design test data shall be furnished as required in these specifications.

a. Voltage Withstand Tests

b. Equivalent Front-of-Wave Protective Level: The discharge voltage time characteristic for the arrester shall be developed by measuring the response of one or more valve discs. The discharge time voltage characteristic shall be obtained with the virtual front times at approximately 1,2, and 8 microseconds. A smooth curve shall be constructed through the test point of crest voltage and the corresponding time to crest of the voltage wave and shall be plotted on a linear voltage/log time paper. The “front-of-wave” protective level of the specimen is the voltage determined by the lines value at j0.5 microseconds. The discharge voltage shall be measured at 10 kA impulse currents.

c. Transmission Line Discharge Test

d. Discharge Voltage Characteristic Tests

e. Duty Cycle tests

f. Pressure Relief Test 65,000 Amperes, rms

g. Contamination tests

h. Current Leakage Test

2.5.15 Conformance Tests

Each surge arrester shall be subjected to conformance tests for station class valve type arresters in accordance with ANSI C62.11 as follows:

a. Discharge-Voltage Test

b. Internal-Ionization-Voltage Test

Any arrester unit which fails under the conformance tests shall be rejected. If more than 20 percent of the arrester units fail to meet the guaranteed characteristics, the entire lot will be rejected, and the Contractor shall be required to furnish units with elements manufactured in a different batch. Three certified copies of all conformance test data shall be furnished to the Contracting Officer. The cost of performing the conformance tests and furnishing test reports shall be the responsibility of the Contractor.

2.6 HIGH-VOLTAGE INSULATORS

2.6.1 General

High voltage bus support insulators shall be reused for support of the new switchyard bus installed under this contract. Each insulator shall be thoroughly cleaned with alcohol and inspected for damage. Any damage or questions shall be reported to the COR. Insulators removed to make room for new switchyard equipment shall be cleaned, inspected and protected in storage in the case one is needed to replace another in the switchyard.

Upon completion of the switchyard work, six (6) of the insulators that were removed shall be left in the care of the Government as spares.

2.7 CONDUIT

2.7.1 Rigid Steel

Rigid steel conduit shall conform to ANSI C80.1 and shall be zinc-coated both inside and outside by hot-dip galvanizing method.

2.7.2 Flexible Steel

Flexible conduit shall conform to UL 360, shall have a hot-dip galvanized steel core, copper ground wire and a waterproof extruded cover. PVC covering shall not be allowed.

2.7.3 Fittings

Fittings for rigid conduit shall be threaded and conform to UL 514B. Fittings for flexible conduit shall conform to UL 514B.

2.7.4 Expansion Fittings

Expansion fittings shall be weatherproof, with an internal bonding assembly and shall provide at least 4 inches of conduit movement.

2.7.5 Tunnel Penetrations and Core Drilling

The Contractor shall core drill as required for conduit penetrations into the cable tunnel. It is to be assumed that existing conduits are not reusable and are to be replaced. When core drilling for new conduits, existing conduit penetrations shall be drilled out and a new conduit installed. Space around the new conduit shall be sealed with a sealing compound to prevent moisture from entering the tunnel. The sealing compound shall be Por-crax HP or approved equal. A backing rod shall be installed at the bottom of the core drill to keep sealing compound from leaking into the tunnel. The interior of penetrations shall be sealed with a latex caulking compound. Existing conduits and penetrations that remain unused shall be capped/plugged on both the interior and exterior of the tunnel and sealed against leakage and abandoned.

2.8 INSULATED WIRE AND CABLE

2.8.1 General

All wire and cable used for power, lighting, control, metering, and relaying systems shall be provided by the Contractor and shall conform to the requirements specified herein. Characteristics, including conductor size, stranding, number of conductors, rated circuit voltage, cabling, and other requirements for each type of service, shall be as indicated on the drawings, or as specified under the detailed requirements of these specifications for the particular construction or use, unless otherwise stated.

2.8.2 Wire and Cable Schedule

Wire and cable shall be furnished in accordance with the requirements of the Conduit and Cable Schedules, and as indicated on the drawings. Estimated quantities listed in the Conduit and Cable Schedules are approximate for bidding purposes.

2.8.3 Governing Standards

Materials, construction and tests, unless otherwise specified, shall conform to the applicable requirements of NEMA WC 70 and NEMA WC 74.

2.8.4 Rated Circuit Voltages

Wire and cable for circuits operating at 600 volts and below shall have minimum rated circuit voltages in accordance with Section 3 of NEMA WC 70.

2.8.5 Conductors

2.8.5.1 Material

Conductors shall conform to all the applicable requirements of Section 2 of NEMA WC 70 or Section 2 of NEMA WC 74 as applicable, and shall be annealed copper. Copper conductors may be bare, or tin- or lead-alloy-coated, if required by the type of insulation used.

2.8.5.2 Minimum Wire Sizes

Minimum wire size shall be No. 12 AWG for power and lighting circuits; No. 10 AWG for current transformer secondary circuits; No. 14 AWG for potential transformer, relaying, and control circuits; and No. 16 AWG for annunciator circuits.

2.8.5.3 Stranding

Conductor stranding classes cited herein shall be as defined in Appendix G of NEMA WC 70 and Appendix H of NEMA WC 74, as applicable. Lighting conductors No. 10 AWG and smaller shall be solid or have Class B stranding as defined in Table 1 of ASTM B 8. Any conductors used between stationary and moving devices, such as hinged doors or panels, shall be Class H or K stranding. All other conductors shall have class B or C stranding, except that conductors shown on the drawings, or in the schedule, as No. 12 AWG may be 19 strands of No. 25 AWG, and conductors shown as No. 10 AWG may be 19 strands of No. 22 AWG.

2.8.6 Insulation

2.8.6.1 Insulation Voltage Rating and Insulation Level

The rated circuit voltage of the insulation shall be 600 volts for all circuits operating below 2,000 volts, with 100 percent insulation level. The rated circuit voltage of the insulation shall be 15,000 volts for all circuits operating above 2,000 volts, with 133 percent insulation level.

2.8.6.2 Insulation Material

Insulation shall be cross-linked-thermosetting-polyethylene (XLPE) type, or an ethylene-propylene-rubber (EPR) type meeting the requirements of Section 3 of NEMA WC 70, or Section 4 of NEMA WC 74, as applicable. Polyvinyl chloride (PVC) insulation will not be accepted.

2.8.6.3 Insulation Thickness

The insulation thickness for each conductor shall be based on its rated circuit voltage.

a. The insulation thickness for single-conductor cables and single conductors of multiple-conductor control cables used for control and related purposes rated below 2,000 volts shall be as required by Section 3 of NEMA WC 70.

b. The insulation thickness for single-conductor cables rated above 2,000 volts shall be as required by Section 4 of NEMA WC 74.

2.8.7 Shielding

Shielding, where specified for control cables rated below 2,000 volts, shall conform to the requirements of Part 4 of NEMA WC 57. Shielding shall be provided for all cables rated above 2,000 volts and shall comply with Sections 5 and 6 of NEMA WC 74.

2.8.8 Jackets

All cables shall have jackets meeting the requirements of Section 4.1 of NEMA WC 70, or Section 7.1 of NEMA WC 74, as applicable, and as specified herein. Individual conductors of multiple-conductor cables shall be required to have jackets only if they are necessary for the conductor to meet other specifications herein. Jackets of single-conductor cables and of individual conductors of multiple-conductor cables, except for shielded cables, shall be in direct contact and adhere or be vulcanized to the conductor insulation. Multiple-conductor cables and shielded single-conductor cables shall be provided with a common jacket, which shall be tightly and concentrically formed around the core. Repaired jacket defects found and corrected during manufacturing are permitted if the cable, including the jacket, afterward fully meets these specifications and the requirements of the applicable standards.

2.8.8.1 Jacket Material

The jacket shall be one of the materials listed below, in accordance with the applicable paragraphs of NEMA WC 70 and NEMA WC 74. Polyvinyl chloride compounds will not be permitted. Variations from the materials required below will be permitted only if approved for each specific use, upon submittal of sufficient data to prove that they exceed all specified requirements for the particular application.

a. Neoprene, heavy-duty black.

b. Chlorosulfonated polyethylene, heavy-duty.

c. Chlorinated polyethylene, cross-linked, heavy-duty.

2.8.8.2 Jacket Thickness

The minimum thickness of the jackets at any point shall be not less than 80 percent of the respective nominal thickness specified below:

a. Thickness of the jackets of the individual conductors of multiple-conductor cables shall be as required by Section 4.1 of NEMA WC 70, and shall be in addition to the conductor insulation thickness required by Section 3 of NEMA WC 70 for the insulation used. Thickness of the outer jackets or sheaths of the assembled multiple-conductor cables shall be as required by Section 4.1 of NEMA WC 70.

b. Single conductor cables, if nonshielded, shall have a jacket thickness as specified in Section 4.1 of NEMA WC 70. If shielded, the jacket thickness shall be in accordance with the requirements of Section 4.1 of NEMA WC 70, or Section 7.1 of NEMA WC 74, as applicable.

2.8.9 Identification

Only one color-code method shall be used for each cable construction type. Colored braids will not be permitted. Control cable color-coding shall be in accordance with Appendix E of NEMA WC 57. Power cable color-coding shall be black for Phase A, red for Phase B, blue for Phase C, white for grounded neutral, and green for an insulated grounding conductor, if included.

2.8.10 Cabling

Individual conductors of multiple-conductor cables shall be assembled with flame and moisture-resistant fillers, binders, and a lay conforming to Part 5 of NEMA WC 57, or Section 5 of NEMA WC 70, as applicable, except that flat twin cables will not be permitted. Fillers shall be used in the interstices of multiple-conductor round cables with a common covering where necessary to give the completed cable a substantially circular cross section. Fillers shall be of a non-hygroscopic material, compatible with the cable insulation, jacket, and other components of the cable. The rubber filled or other approved type of binding tape shall consist of a material that is compatible with the other components of the cable and shall be lapped at least 10 percent of its width.

2.8.11 Dimensional Tolerance

The outside diameters of single-conductor cables and of multiple-conductor cables shall not vary more than 5 percent and 10 percent, respectively, from the manufacturer's published catalog data.

2.8.12 Inspection and Tests

Inspection and tests of wire and cable furnished under these specifications shall be made by and at the plant of the manufacturer, and shall be witnessed by the GQAR, unless waived in writing. The Government may perform further tests before or after installation. Testing in general shall comply with Part 6 of NEMA WC 57, Section 6 of NEMA WC 70, or Section 9 of NEMA WC 74, as applicable. Specific tests required for particular materials, components, and completed cables shall be as specified in the sections of the above standards applicable to those materials, components, and cable types. Tests shall also be performed in accordance with the additional requirements specified below.

2.8.12.1 High-Voltage Test Source

Where applicable standards allow a choice, high-voltage tests for cables to be used exclusively on dc circuits shall be made with dc test voltages. Cables to be used exclusively on ac circuits shall be tested with ac test voltages. If both ac and dc will be present, on either the same or separate conductors of the cable, ac test voltages shall be used.

2.8.12.2 Flame Tests

All multiple-conductor and single-conductor cable assemblies shall pass the IEEE Standard 383 flame tests, paragraph 2.5, using the ribbon gas burner. Single-conductor cables and individual conductors of multiple-conductor cables shall pass the flame tests of Part 3 of NEMA WC 57, Section 6 of NEMA WC 70, or Section 7.1 of NEMA WC 74, as applicable. If such tests, however, have previously been made on identical cables, these tests need not be repeated. Instead, certified reports of the original qualifying tests shall be submitted.

2.8.12.3 Independent Tests

The Government may at any time make visual inspections, continuity or resistance checks, insulation resistance readings, power factor tests, or dc high-potential tests at field test values. A cable's failure to pass these tests and inspections, or failure to produce readings consistent with acceptable values for the application, will be grounds for rejection of the cable.

2.8.13 Packaging and Marking

The cables shall be furnished one length to a reel or coil. Each length, and the outside of each reel or coil, shall be plainly marked or tagged to indicate the cable length, voltage rating, conductor size, and manufacturer's lot number and reel number. Cables for exclusively dc applications shall be identified as such. Reels shall remain the property of the Contractor.

2.8.14 SPECIAL WIRE AND CABLE

2.8.14.1 Control Panel Shop Wiring

Wiring for factory assembled control panels or assemblies of electrical components for miscellaneous equipment shall conform to NEMA WC 57, and NEMA WC 70, as applicable. All wire shall be single conductor stranded copper in accordance with Part 2 of NEMA WC 57. Insulation shall be rated for 600 volts with thickness in accordance with Section 3 of NEMA WC 70. Conductors shall be Class B or Class C stranding, except hinge wire shall be Class D or Class K stranding. Conductor size shall be No. 14 AWG minimum. The completed installation shall conform to all requirements of the National Electrical Code.

2.8.14.2 Switchboard Wire

Wiring provided in the existing switchboard shall be single conductor #14 AWG, 600-volt, Type SIS, or approved equal meeting the requirements of UL 44. Stranding shall be Class B or Class C.

2.9 GROUNDING

2.9.1 Grounding Conductors

Ground connections shall be exothermic or compression type. Solder type connectors shall not be permitted. Exothermic connections and taps shall be

made by molded powdered metal weld similar and equal to "Cadweld" electrical connection. Compression type connections shall be made with connectors and full cycle hydraulic tools similar and equal to those used in Burndy "Hyground" system. Approved corrosion inhibiting joint compound shall be applied to all compression type connections. Ground conductors shall be bare unless routed along with the phase conductors in a motor feeder circuit. The ground conductors shall be soft, or medium hard drawn Class A or Class B stranded copper cables. The minimum conductor size for all conductors installed for new equipment or for replacing a bad ground shall be 4/0 AWG bare copper conductor.

2.9.2 Below Grade Connections

All embedded or buried ground connections and taps in or below equipment mounting pads shall be made by a molded powdered metal weld similar and approved equal to Cadweld Electrical Connection.

2.9.3 Existing Ground Grid Connections

All existing grounding conductors that tie surface equipment to the embedded ground grid shall be excavated such that an inspection by the GQAR can take place. Existing ground grid connections identified as a faulty connection shall be excavated to verify cause of connection failure or condition of connection. All bad ground connections identified either by testing or visually, shall be replaced with a new ground conductor and appropriate connections and a written report documenting all grounding work shall be presented to the GQAR. Connections that are questionable shall be replaced as per this specification section. All replaced or questionable ground grid connections shall be inspected by the GQAR. Two continuous new grounding conductors shall be installed from each new gas circuit breaker to the existing ground grid and shall be exothermically welded to the ground grid conductor. Any ground connections or conductors on ground grid damaged during construction shall be repaired immediately by the Contractor, at the expense of the contractor, and the final acceptance of the repair will be subject to approval by the Contracting Officer. Grounding of all new equipment shall be done using a continuous ground conductor, if existing ground leads are not of sufficient length, a new ground lead shall be installed from the ground grid to the new equipment.

2.10 OUTLET AND JUNCTION BOXES

2.10.1 Sheet Metal

Sheet metal boxes and covers shall be NEMA 3R enclosures and conform to UL 514A.

2.10.2 Cast Boxes

Cast boxes and covers shall conform to NEMA FB 1. All cast boxes shall be supplied with integral cast hubs or with factory-brazed hubs. All hubs shall be factory threaded.

2.11 SPECIAL BOXES AND ENCLOSURES

2.11.1 General

Special boxes shall be NEMA 4 enclosures, or as indicated in this specification or as required. Boxes of 170 cubic inches interior volume or less are considered as conduit outlet boxes. All boxes, enclosures and cabinets having an interior volume in excess of 170 cubic inches will be considered to be special boxes insofar as compliance with these specifications

is concerned. Conduit entrance locations shall be as detailed on the drawings or as required. Brackets for mounting of internal equipment shall be supplied where shown. Shop drawings submitted for special cast and sheet metal boxes and enclosures shall indicate the volume and sheet of the contract drawings on which the individual boxes are shown.

2.11.2 Steel Cabinets and Boxes

Steel cabinets, junction, splice and pull boxes, and other steel boxes and enclosures and their doors and trim shall conform to Underwriter's Laboratories, Inc. Standard UL 50 for Cabinets and Boxes except as noted below. Sheet steel used in cabinets, special boxes or enclosures, shall be not lighter than No. 14 U.S. Standard gage and cover fastening screws shall be placed not more than twelve inches apart along the perimeter of a box. All special steel boxes, cabinets, doors, and covers shall be made of galvanized sheet steel or shall be hot-dip galvanized after fabrication. Junction and pull boxes shall be furnished with covers of the same gage metal as the box. Hubs shall be provided where required by the type of enclosure. T & B "Bullet Hub" or Myers "Scru-tite" fittings are acceptable. Concentric ring knockouts will not be allowed for conduit entrances. Drilling in the field, of cabinets and boxes to be embedded will be permitted only when approved. Galvanizing damaged during fabrication or field installation or drilling shall be repaired with a method satisfactory to the Contracting Officer. Where standard NEMA type enclosures are not indicated on the drawings, control cabinets and other surface mounted enclosures shall be NEMA Type 12 as modified herein. Holes will be permitted in NEMA Type 12 enclosures for mounting provisions and for cover mounted devices. Doors, handles, trim, panels, and gutters shall be furnished as specified or shown.

2.11.3 Doors, Covers, Cabinet Trim and Hardware

Each door shall be equipped with flush or semi-concealed hinges and, if the height exceeds 36 inches, with a vault type handle and a three point catch. NEMA Type 12 enclosures shall have hinged covers and shall be modified to have door handles equipped with three point catches in lieu of retained fasteners. Except for panelboard cabinets, double doors or doors in pairs shall be provided wherever the width of a door opening exceeds 24 inches or the height of the opening exceeds 36 inches. Locks shall be provided for cabinets in which 125-Volt dc, 480-volt ac, or 15 kV equipment is exposed when the door is open. The locks shall be master keyed using interchangeable 6-pin tumbler mechanisms in removable cores as manufactured by the Best Universal Lock Co., Inc. or approved equal in order to best match existing equipment. Two control keys for the removal of the interchangeable cores of the master key system and two master keys for the locks of each cabinet shall be furnished. Identifying nameplates shall be provided on the front of the doors with designations as shown.

2.12 TERMINAL BLOCKS

Terminal blocks shall be rated for not less than 600-volts,30 amperes. The terminal blocks shall be of one piece molded construction with integral high barriers between poles, and integral disconnecting links to enable easy separation of each side of block without disturbing wiring, similar or equal to States type NT terminal blocks. Each terminal shall be not less than No. 10 in size with length and space for connecting two No. 10 conductors to each terminal. Terminal blocks for current transformer secondary leads shall be of the short-circuiting type. Terminal block materials and components shall not be damaged by moisture, gases, oil or other fluids, which may be present. White or other light colored marking strips shall be provided for wire numbers. Each connected terminal of each terminal block shall have the wire number placed on the marking strip with permanent marking fluid. Substantial

permanent marking strips shall be provided on all terminal blocks, suitable for engraving or other legible and permanent markings. The marking strips shall be engraved with the conductor designations used on the approved shop drawings, and filled with enamel, or other equally legible and permanent markings. Two spare blank marking strips shall be furnished with each terminal block, and at least 10 percent spare terminals shall be provided.

2.13 NAMEPLATES AND ESCUTCHEONS

Identifying nameplates are in addition to manufacturer's nameplates and shall be made of 1/6-inch thick laminated sheet plastic or of 1/32-inch thick anodized aluminum engraved to provide white letters on a black background. All nameplates shall be fastened to enclosures in proper positions with black finished round-head screws. Nameplates for cabinets shall be labeled as shown, or as furnished by the Government when the Contractor's data is submitted for approval. Designations may be changed when shop drawings are submitted for approval.

2.14 SWITCHYARD BUS

2.14.1 Material
*2

The existing switchyard bus tubing shall be replaced with new aluminum 3000-Ampere tubular bus conductors throughout. All bends in the bus tubing to be made by an approved method utilizing a tubing bending machine designed for the purpose, or with welded, mitered corners tested and certified to be corona-free. Welded, mitered corners found to have excessive corona generation will be repaired to the satisfaction of the COR, or replaced with machine-formed bends. All welded joints in the tubular buswork will be tested and certified to be corona-free. Conductor material shall be Schedule 40 Aluminum Pipe conductors, 40 percent conductivity, 0.50 Emissivity, wind = 2.0 ft/sec., ambient air temperature of 40º C. All bus tubing shall be 3000 rated at 3000 Ampere. The down-legs of the crow’s feet shall be a lesser rating, i.e. if the bus tubing is 5”, the crow’s feet will be 3”.

2.14.2 Bus Modifications

Furnish conductors and insulators in sizes and shapes as shown on the drawings. Install in each run of bus tubing, a single size 4/0 bare aluminum conductor for the purpose of Aeolian Vibration Dampening.

2.15 SPARE PARTS

All spare parts shall be of the same material, workmanship, and manufacture as the corresponding original parts, and they shall be interchangeable therewith. A detailed list of the spare parts along with itemized prices shall be submitted for approval. The following spare parts shall be furnished:

a. Three disconnect switch insulator units of each size and rating.

b. Three each of switchyard bus connection hardware/fittings of each type used.

c. One current transformer.

d. One potential transformer.

e. One coupling capacitor voltage transformer.

f. One line tuner.

g. Six (6) of the bus insulators removed during demolition shall be cleaned, tested along with the remaining insulators, and provided to the Government for storage as spares.

h. 30 feet of Aluminum Bus Tubing of each type/rating installed in the switchyard.

i. Six (6) complete assemblies of stationary and moving shoes, or tip assemblies, for main contacts of one pole of disconnect switch of each type and rating.

j. Three (3) complete assemblies of stationary and moving shoes, or tip assemblies, for one pole of one grounding switch.

k. One complete set of auxiliary contacts and springs for one 3-pole disconnect switch of each type and rating.

PART 3 EXECUTION

3.1 REMOVAL OF EXISTING EQUIPMENT

3.1.1 General

a. Furnish all labor, equipment, and materials to remove the existing oil circuit breakers including control cabinets and oil piping, spare circuit breaker bushings, transformer and line and unit bus disconnect switches, motor-operated disconnect switches, main bus CCVT, line CT's, line PT's, line tuners, all bus tubing and fittings and associated equipment as shown or specified. Replace OCB's with Government furnished gas circuit breakers. Replace the transformer and line disconnect switches with new equipment as shown. Relocate the six line potential transformers and re-install on each of three phases of the main and auxiliary buses as shown.
*2
b. The Contractor shall provide labor and equipment to drain the insulating oil from the existing OCB's before breaker removal, and is responsible for disposal of the oil. The Contractor shall provide an oil truck that can be maneuvered throughout the switchyard for the collection of oil. The existing circuit breakers must be drained of oil before the bushings can be removed. See SECTION ~~01350~~02120 TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS. Insulating oil quantities are as follows:

OCB 318	5175 gal.
OCB 328	5175 gal.
OCB 448	4425 gal.
OCB 348	7200 gal.
OCB 248	7200 gal.
OCB 218	7200 gal.
OCB 228	7200 gal.
OCB 118	7200 gal.
OCB 128	7200 gal.
OCB Oil Storage Tanks in the Powerhouse	Approx. 3000 gal.
Transformer Oil Storage Tanks in Powerhouse	Approx. 8000 gal.

*2
c. ~~The oil in the OCB's has already been tested for PCB material and none were identified. The Contractor shall contact the COR for documentation of test results.~~ The Contractor is responsible for testing all insulating oil from the OCB's for PCB material. After bushing removal the circuit breaker can be separated into three individual tanks weighing approximately 7,000

pounds each after removal of the control cabinet and other associated equipment. No disassembly of equipment being removed shall be allowed on Government property.
*2
d. The OCB bushings shall be considered to contain PCBs until the Contractor has the oil tested by a certified lab. If the OCB bushings tested contain PCB oil, the contractor ~~can~~ will transport and dispose of the entire bushing assembly as a PCB contaminated part. If the ~~contractor elects to~~ OCB bushing oil is tested and found to be PCB-free, the contractor may dispose of the bushings via selling the bushings to others whole or as usable parts~~, then the contractor must either test each bushing for PCBs or drain the oil from each bushing and flush the bushings in accordance with regulated PCB decontamination procedures, then dispose of the drained oil and the flushing agents~~. In either case the contractor shall track the disposal and provide documentation of proper disposal to the Government (Hartwell Project) of ~~the~~ all PCB-contaminated material to and through its final disposition.
*2
e. The Contractor shall provide labor and equipment to test all insulating oil in the existing main bus CCVT’s and CT’s for PCB’s and to drain and dispose of the insulating oil from the existing main bus CCVT and line CCVT's and CT's to be removed.

f. The existing line PT’s shall be relocated under the main and auxiliary buses as shown on the drawings. The existing steel pedestals shall be replaced with new galvanized steel supports similar in design to the existing supports. The height of the supports shall be adjusted such that a clean connection can be made to the bus above the new location. New concrete footings are required. Of the existing line PT’s, line four has two Square-D PT’s which shall be relocated to the auxiliary bus. Lines two and three have ABB PT’s and shall be relocated to the main bus with one PT going to phase B of the auxiliary bus.
*2
g. The Contractor shall provide labor and equipment to test all existing insulating oil in the oil storage tanks for PCB’s and remove and dispose of the existing oil in the storage tanks within the powerhouse. The Contractor shall provide an oil truck and coordinate with the project personnel to arrange for pumping the oil from the storage tanks. There are approximately eleven thousand (11,000) gallons of oil in the storage tanks.

h. The Contractor shall provide secondary containment for all work where the possibility of a spill exists. This applies to any of the insulating oils, solvents, or contaminating agents used.

3.1.2 Disposal

All equipment removed, including the oil circuit breakers, circuit breaker bushings, line and bus CCVT’s, line CT’s, disconnect switches, oil piping, fittings, valve pits, and switchyard bus tubing shall become the property of the Contractor and shall be disposed of by the Contractor. PCB material and PCB contaminated equipment shall be disposed of in accordance with SECTION 01350.

3.2 INSTALLATION OF CURRENT TRANSFORMERS, POTENTIAL TRANSFORMERS, AND COUPLING CAPACITOR VOLTAGE TRANSFORMERS

3.2.1 Current Transformers

The Contractor shall install new CT’s on each phase of each of the three transmission lines. The Contractor is responsible for installing mounting plates for bolting the equipment to the steel supports as required.

3.2.2 Potential Transformers

The Contractor shall install new PT's on each phase of transmission line 2 and on phases A and C of transmission lines 3 and 4. The Contractor is responsible for installing mounting plates for bolting the equipment to the steel supports as required.

3.2.3 Coupling Capacitor Voltage Transformers

The Contractor shall install new CCVT's and new line tuners on phase B of transmission lines 3 and 4. The Contractor is responsible for installing mounting plates for bolting the equipment to the steel supports as required.

3.3 INSTALLATION OF SURGE ARRESTERS

The Contractor shall install new surge arresters on each phase of each of the three transmission lines. The Contractor is responsible for installing mounting plates for bolting the equipment to the steel supports as required.

3.4 INSTALLATION OF GOVERNMENT FURNISHED 242 KV GAS CIRCUIT BREAKERS

3.4.1 General
*2
The Government furnished equipment will consist of twelve (12) SF6 gas circuit breakers rated 242 kV, 3,000 amperes, and 65,000 amperes short circuit, and related capacitors as indicated on the contract drawings. The circuit breaker manufacturer shall supply the gas and the services of an erection engineer to supervise and be responsible for the correct performance of this work. The Contractor shall ensure a manufacturer's erecting engineer is made available at key times during installation to provide guidance. The Contractor shall submit an installation plan for this equipment to the COR. The Contractor shall install the breakers and capacitors in accordance with the contract drawings and manufacturer's instructions. The work shall include inspecting all breaker components for shipping damage, installing the breakers, terminating and grounding the breakers, furnishing all equipment and labor to handle the gas including initial filling, and placing the breakers in an approved operating condition. Some temporary jumpering will be required to keep switchyard equipment operational and coordinated between scheduled work.

3.4.2 Tests

After assembly and installation the breakers shall be tested by the Contractor under supervision of the manufacturer's erecting engineer and witnessed by the COR, to verify accuracy and completeness of the installation. All testing shall be witnessed by the GQAR and his name and the date of test shall appear on all test documents. Testing shall include but not be limited to control and secondary wiring, timing tests by time-travel recorder, mechanical operation tests (consisting of at least five (5) close-open cycles), dielectric tests of the major insulation and gas and power factor tests. During the mechanical operation tests all control circuit functions shall be employed during the cycle of test, and the operation of all auxiliaries shall be checked throughout the test cycle.

3.5 BUS DIFFERENTIAL CT JUNCTION BOXES

The existing bus differential CT wiring junction box Y4 located in the control cable tunnel shall be replaced with a new NEMA 4X enclosure for the main bus differential circuit. A new NEMA 4X junction box with CT shorting blocks shall be furnished and installed in the cable tunnel for the auxiliary bus

differential circuit. The new enclosures shall be hinged type with lockable handle, 36″x36″x8″ minimum.

3.6 CONDUIT SYSTEMS

All leads from devices and accessories shall be run in conduit where indicated on the contract drawings and connected to terminal blocks. All conduit runs installed shall be terminated at devices or connection boxes and at the terminal cabinet in tapped holes having not less than 3-1/2 pipe threads, or in standard pipe-threaded couplings or nipples integral with or welded to the device or cabinet. Similar pipe-threaded connections shall be provided on the terminal cabinet for attaching incoming conduit. Other conduit connections shall be made with cast metal boxes and outlet fittings having threaded outlets and gasketed covers. No running threads on conduit will be permitted. Conduit, fittings and accessories shall be installed in accordance with details shown and as specified herein. All conduit shall be rigid galvanized steel except where specifically indicated on the drawings. Care should be exercised when burying conduit in the switchyard to avoid damaging the ground grid. Any damaged portion of the ground grid should be repaired, to the satisfaction of the Contracting Officer, by the Contractor at his own expense.

a. All conduit bends shall have a radius of not less than ten times the conduit's inside diameter.

b. No threadless fittings or running-thread couplings shall be used on conduit runs.

c. Metal conduits shall be cut only with a tool approved for the purpose. Roller type pipe cutters shall not be used on conduits. All cuts shall be square and the conduit opening shall not be constricted. After cutting and threading, conduit ends shall be reamed to remove rough edges and burrs and the entire conduit shall be thoroughly cleaned to remove all cuttings, dirt, and oil from its interior. Threads shall be clean cut. Threaded joints in metal conduit and terminations in cast boxes shall have the threads coated with an approved joint compound, and shall be screwed tight to make the joint watertight and to provide electrical continuity of a given conduit system. Suitable watertight conduit hubs and bushings shall be provided where conduit terminates within a box, terminal cabinet or accessory that has no threaded hub or fitting to receive threaded conduit.

d. All conduit shall be installed in such a manner as to insure against trouble from the collection of trapped condensation and all runs shall be arranged to avoid traps wherever possible.

e. Pull boxes shall be furnished NEMA 4 and installed, complete with water-tight covers, in conduit runs as required by the NEC and good practice in the trade, regardless of whether the boxes are specified on the drawings.

f. Conduit shall be installed with a minimum of bending and cutting. Conduits not dimensioned as to location shall be installed approximately where shown with limited adjustment to avoid interference with other work. Conduit shall be rigidly attached with approved supports and anchors to the surface over which it is run. The maximum spacing of supports for the exposed conduit shall be 8 feet. Supports for exposed conduit on concrete surfaces shall be fastened securely to the concrete with approved anchors. Wooden, fibrous, or similar plugs inserted into the concrete will not be accepted.

g. The entire metallic conduit system installed by the Contractor shall be electrically continuous and thoroughly grounded. No welding or brazing of the grounding conductor to the conduit will be allowed. All grounding connections to the conduit shall be made by means of grounding bushings or by

an approved pressure type connector. Care shall be taken by the Contractor that the ground grid is not damaged during construction. Any damage shall be immediately repaired at the Contractors expense.

h. Conduit Identification

All conduits, new or existing and used again, shall be clearly identified with the conduit designation by metallic embossed markers. Markers shall be securely fastened to the conduits junction or pull box, where conduits enter or leave cable trays, and as required at other points of access. Each individual conduit ID marker shall follow existing project nomenclature (markers indicate identifiers at both ends.).

3.7 SPECIAL BOXES AND ENCLOSURES INSTALLATION

All boxes and cabinets shall be straight and true with horizontal or vertical structural lines. The final installation shall not be out of plumb more than 1/4-inch over the full length nor be deformed more than 1/16-inch per linear foot nor more than a total of 1/4-inch in any surface. Embedded metal boxes and cabinets shall be set flush with the concrete surface and blocked or shored inside as necessary to hold deflections to a minimum during the pour. Exposed cabinets on concrete surfaces shall be fastened with anchors near each corner. All boxes and cabinets shall be cleaned of concrete and grout after the forms are removed and boxes with gasketed covers shall be closed immediately. The gaskets shall be treated with graphite or other approved paste at the time the cover is fastened to the box.

3.8 WIRE AND CABLE INSTALLATION

For the purposes of this contract, the term "internal wiring" shall be used to designate the Contractor's factory installed wiring furnished with the Government furnished equipment, and the term "external wiring" shall be used to designate field installed wiring. Conduit and cable schedules for the field installed wiring are shown on the contract drawings. Although estimated cable lengths are shown on the cable schedule, the Contractor shall be responsible for determining the actual cable length required to make an installation of all new cables without splices.

3.8.1 External Wiring

All external wire and cable shall conform to paragraph INSULATED WIRE AND CABLE of these specifications. All wire and cable shall be installed in accordance with National Electrical Code requirements. All necessary materials, tools and equipment required for proper handling and installation of wire and cable in conduits, cable trays, and elsewhere shall be furnished. Except for spares, each wire and cable shall be connected to the associated equipment at both ends, and new cable shall be continuous and without splices between the equipment termination points. Wire and cable shall be pulled in a manner that will preclude damage to the conductor, insulation or jacket. Any cable damaged during installation shall be removed and replaced. Installation of wire and cable shall include installation of all supporting devices and all terminations required to complete the circuits as required.

Wire and cable shall not be pulled into conduit runs until the conduit has been checked and determined to be clean and dry by pulling a clean, dry, tight-fitting rag through each run. Only approved lubricants may be used to facilitate pulling of conductors.
*2

Existing wires and cables in the cable tunnel's cable trays will be temporarily placed to one side, allowing the installation of the new cables without requiring the partial removal of cables during each phase of work. As each phase of work becomes substantially complete, the existing cables for that section or bay will be removed as a group, complete from source to final termination.

3.8.2 Terminations

All cable and wire connections shall be made at terminal blocks. All wires will be terminated using approved ring-type connectors for current circuits, or approved spade type connectors for voltage circuits. Terminations shall be compatible with the terminal blocks provided with Government furnished equipment and with contractor provided terminal blocks. The shield and shield insulating jacket of shielded signal cables and conductors, if applicable, shall be maintained to a point as close to the terminals as possible. The shield insulating jacket shall not be stripped from the shield except where necessary to make the ground connection. All signal cable shields shall be grounded at one end only.

3.8.3 Identification

a. All single conductors and multiple-conductor cables shall be clearly identified with the cable designation by round metallic embossed markers securely fastened at 50 foot intervals with wire-ties. Markers shall be provided at each termination, junction or pull box, where cables enter or leave cable trays, and as required at other points of access.

b. Wires and individual conductors of control and power cables shall be identified with non-metallic, tube-type, heat-shrink markers at each termination. Tube-type markers shall be suitable for contact with rubber or neoprene or plastic. Tubing shall be sized to fit the wire being marked and shall have black marking on a white background. Installed markers shall be uniform in position on the wire and legends shall be visible when wires are terminated on terminal blocks or equipment. Each individual conductor ID marker shall follow existing project nomenclature (wire markers indicate termination identifiers at both ends).

3.8.4 Tests

After installation, but just prior to terminal connection, each conductor shall be tested as follows:

a. A 1000-volt "Megger" test shall be performed with all other conductors in each cable or conduit grounded. The final insulation resistance of each conductor shall not be less than one megohm.

b. A continuity test of each conductor from terminal to terminal shall be performed.

c. Suitable records shall be kept of all tests, indicating the "Megger" readings, high voltage tests, continuity test, and conductor identification markings. A duplicate record of all tests shall be furnished the Contracting Officer. Prior to testing, the test record form shall be submitted for approval.

d. Any length of wire or cable failing the above tests shall be removed and replaced.

e. The Contractor shall furnish all instruments and personnel for these tests.

f. Tests shall be witnessed by the Contracting Officer, and the test form shall provide room for the Contracting Officer's signature. Test reports shall be submitted in accordance with SECTION 01330 SUBMITTALS.

3.9 FIELD ACCEPTANCE TESTS

All tests required herein shall be witnessed by the COR unless waived in writing, and no equipment shall be shipped until it has been approved for shipment by the COR. The Contractor shall notify the Government sufficiently in advance of the date of the tests so that arrangements can be made for the COR to be present at the tests. The costs of performing all tests shall be borne by the Contractor and shall be included in the prices bid for the items of equipment. Prior to energizing any equipment supplied under this contract, the Contractor shall have performed and documented all manufacturer's standard equipment checkouts. The Contractor shall submit his final system checkout procedure to the Government, and it shall be approved prior to final checkout and energizing of the new unit connected system. Contractor shall supply all equipment and manpower required to implement the approved testing plan. As a minimum, the following operational tests shall be performed by the Contractor as part of the field acceptance tests:

a. Gas circuit breaker control and annunciation tests for new breakers.

b. Operational test of all new breaker isolating disconnect switches and line grounding switches.

c. Check resistance of all new equipment grounds in switchyard.

d. Check key interlocks between all breakers and their respective isolating disconnect switches and between line breaker disconnect switches and line grounding switches. Reference Drawing E-65.

e. Manual synchronizing tests on all switchyard breakers.

f. Operational test on main and auxiliary bus differential circuits.

g. Line protection tests to confirm relay operation and resulting breaker trip for each line breaker.

h. Transformer protection tests to confirm relay operation and resulting breaker trip for each transformer breaker.

i. Test each line carrier transmit and receive circuit.

j. Check each line current and potential circuit for accurate line metering readout, phasing of connections, and proper levels.

k. The Contractor shall conduct Hipot tests for disconnect switches and buswork and bus fittings.

l. The Contractor shall conduct Doble tests on all equipment that require this test.
*2

m. Additional tests as required to certify proper phase rotation, tap settings, relay settings and signal levels for all affected devices and circuits. Determining the proper type, amount, timing, and execution of field acceptance testing is the Contractor's responsibility. Damage or delays that

result from incomplete or improper tests, when such tests could have prevented the damage or delay, will be borne solely by the Contractor, with no additional payment or extension of time allowed. The government reserves the right to require additional tests verifying compliance with the contract requirements at any time during the execution of this contract.

3.10 SERVICES OF SKILLED CRAFTSMEN

It is anticipated that during the removal of equipment an indeterminate amount of work will be required to maintain proper control and operation of the powerhouse. The Contractor shall provide the services of one or more journeyman electrician as required to perform work as directed not otherwise included in these specifications.

3.11 GROUNDING

All structural equipment and all electrical equipment shall be grounded. Leads to the switchyard ground system shall be provided near equipment locations and shall be installed as required to connect to the equipment with approved connectors. Ground leads shall be continuous from the point of attachment to the ground grid and rigidly supported. Grounding includes exposed ground cables, supports, and connections to exposed equipment. Ground connections shall be made complete to all equipment whether or not specifically shown or detailed on the drawings. Where required to make conduits and other metallic runs electrically continuous, approved copper jumpers or bonding shall be provided.

3.11.1 Ground Conductors

Ground conductors shall be bare, soft annealed copper installed as continuous pieces of cable. Ground conductors shall be Class A stranded. Exposed ground cable runs shall be supported to follow conduit, equipment, or concrete contours. Support clamps or clips shall be of corrosion resistant metal and existing equipment bolts or screws shall be used where possible for fastening. Drilling of equipment housings or frames will be permitted only when approved. Concrete anchors shall be used for wall fastening,

3.11.2 Hartwell Switchyard Grounding System

a. The switchyard grounding system shall be repaired and extended to include equipment installed under this contract and to existing equipment and structures as shown or detailed on the drawings. Where required to make conduits and other metallic runs electrically continuous, approved copper jumpers or bonding shall be provided.

b. The ground grid is buried approximately eighteen inches (18”) deep throughout the switchyard. The Contractor shall excavate and repair all ground connections indicated. In addition, the Contractor shall excavate all ground connections between surface mounted equipment and the grid throughout the switchyard and perimeter fencing. The Contracting Officer’s Representative shall inspect each ground connection and if deemed necessary the Contractor shall repair or replace the ground connections. Repaired ground connections shall be made using continuous new conductors and Cadweld style connections to the grid conductor, and appropriate connections to non-embedded equipment.

c. All exposed connections and taps shall be made with approved bolted or compression connectors unless otherwise shown on the drawings. Solder-type connectors will not be permitted. Connections and taps embedded or buried shall be made by a molded powdered metal weld similar and approved equal to

the Cadweld Electrical Connection, Erico Products, Inc., Cleveland, Ohio 44139. Welded connections shall be made only by journeymen who have proven their ability. Welds shall be made in accordance with the manufacturer's recommendations. Surfaces to be welded shall be thoroughly cleaned and dry. Oxidation, especially on galvanized surfaces, shall be removed. The welding mold shall be cleaned of dirt and slag from previous welds. The quality of the finished weld shall be such that it is free from pits and voids. Each welded connection shall be inspected by the COR. The switchyard grounding repair work can follow the work as each portion of the switchyard is taken out of service.

d. The Contractor shall coordinate with the COR for a copy of the switchyard grounding connection tests.

3.12 ELECTRICAL CONNECTIONS
*2

All electrical connections shall be made with approved terminal lugs. The Contractor is responsible for providing enough labor to complete all wiring terminations and connections. The Government's onsite personnel may elect to perform some of the wiring connections on a case-by-case basis, but this reservation does not relieve the Contractor from providing all labor, even if the Government does not choose to complete any connections.

3.12.1 Preparation for Operation

All switchyard equipment shall be inspected by the Contractor, and adequate time shall be allowed for inspection by the Contracting Officer before starting. All grease and protective coatings shall be removed and surfaces cleaned and dried. All surfaces, ventilating openings and other parts shall be clean and free from obstructions. Contact surfaces shall be cleaned in an approved manner. All lubrication shall be checked and necessary lubricants as recommended by the manufacturer shall be applied. When equipment is completely installed, the Government shall be notified.

3.13 PAINTING OF ELECTRICAL EQUIPMENT

Interior and exterior steel surfaces of equipment enclosures shall be thoroughly cleaned and then, if not galvanized, shall receive a rust-inhibitive phosphatizing or equivalent treatment prior to painting. Interior surfaces shall receive not less than one coat of paint in accordance with the manufacturer's standard practice. Exterior surfaces shall be primed, filled where necessary, and given not less than two coats of quick air-drying lacquer or synthetic enamel with semigloss finish, ANSI 70 gray in color.

3.14 SEQUENCE OF WORK IN SWITCHYARD
*2

The demolition and removal of existing equipment and installation of new equipment in the switchyard will require substantial coordination between the Hartwell Powerplant, Construction Division, and the construction Contractor. Work must be performed in and around energized (230,000 Volts) equipment and sequencing of work shall be performed to minimize outage times that will affect generation capacity from the Powerplant and energy transmission capacity between two interconnecting power utilities (Duke Power Company and Georgia Power Company). The following work phases are intended to establish approximate work order, outage durations and liquidated damages for each phase. The exact sequence of work, need for temporary control and power connections, temporary relocation of equipment, and other miscellaneous details are not indicated, but must be provided by the Contractor. Additional payment or extension of time under this contract will not be made due to the

Contractor's inability to properly coordinate all aspects of work under this contract.

*2

Phase 1. Line 3. Replace the components for Line 3, including replacement of breaker 348 and replacement of MOD 337 with breaker 338. Work will be done between Disconnect 347 and the Auxiliary Bus. Replace Main Control Board (MCB) control panels for Line 3 both front and back. Allotted time is ~~90~~ 114 days. If the Contractor fails to complete this work in the allotted time and line 4 goes out of service for any reason, liquidated damages will be assessed at the rate of $9,594.20 per day.

*2

Phase 2. Line 4. Replace the components for Line 4, including replacement of breaker 448 and replacement of MOD 437 with breaker 438. Work will be done between Disconnect 447 and the Auxiliary Bus. Replace MCB control panels for Line 4 both front and back. Allotted time is ~~90~~ 114 days. If the contractor fails to complete this work in the allotted time, and line 3 goes out of service for any reason, liquidated damages will be assessed at the rate of $9,594.20 per day.

*2

Phase 3. Transformer Bay 3. Replace the components for Transformer Bay 3 and replace breakers 328 and 318. Work between Disconnects 317 and 327. Replace MCB control panels for Transformer 3 both front and back. Allotted time is ~~60~~ 76 days. ~~LDs apply for Unit 5~~Liquidated damages will be assessed at at the rate of $5,233.20 per day for failure to complete the work in the allotted time.

*2

Phase 4. Transformer Bay 2. Replace the components for Transformer Bay 2 and replace breakers 228 and 218. Work between Disconnects 217 and 227. Replace MCB control panels for Transformer 2 both front and back. Allotted time is ~~60~~ 76 days. Liquidated Damages will be assessed at the rate of $8,489.41 per day for failure to complete the work in the allotted time.

*2

Phase 5. Line 2. Replace the components for Line 2, including replacement of breaker 248 and replacement of MOD 237 with breaker 238. Work will be done between Disconnect 247 and the Auxiliary Bus. Replace MCB control panels for Line 2 both front and back. Allotted time is ~~60~~ 76 days. Liquidated Damages will be assessed at the rate of $9,594.20 per day for failure to complete the work in the allotted time.

*2

Phase 6. Transformer Bay 1. Replace the components for Transformer Bay 1 and replace breakers 128 and 118. Work between disconnects 117 and 127. Replace MCB control panels for Transformer 1 both front and back. Allotted time is ~~60~~ 76 days. Liquidated Damages will be assessed at the rate of $9,768.64 per day for failure to complete the work in the allotted time.

*2

Phase 7. Auxiliary Bus. Remove the Auxiliary Bus and bus side disconnects. Replace bus and associated disconnects. Replace bus and refurbish insulators. Allotted time is ~~45~~ 57 days. If the Contractor fails to complete this work in the allotted time and the main bus goes out of service for any reason, liquidated damages will be assessed at the rate of $9,768.64 per day.

A complete successful operational test of the auxiliary side of the switchyard shall be performed before proceeding.

*2

Phase 8. Main Bus. Remove the Main Bus and bus side disconnects. Replace bus and associated disconnects. Replace bus and refurbish insulators. Allotted time is ~~45~~ 57 days. If the Contractor fails to complete this work in the allotted time and the auxiliary bus goes out of service for any reason, liquidated damages will be assessed at the rate of $9,768.64 per day.

Summary:

Isolating the entire auxiliary or main bus at one time and operating on the other bus, allows the Contractor sufficient time to complete work in each area without being constrained by the limited time a line may be taken out of service. In Phase 1, the Contractor will be able to focus efforts on a smaller area of the switchyard and complete work in those areas in a timely manner. A minimum of three (3) weeks prior to work performed the Contractor shall submit to the COR a detailed work schedule in a spreadsheet format detailing the work to be performed and in what section of the switchyard. Also in Phase 1, a specific transformer or line may be skipped if necessary and completed at a later date. Changes to the contractor's original work schedule shall be submitted for approval.

3.15 WORKMANSHIP

All work performed by the Contractor to include, but not limited to, boxes, cabinets, conduit, wiring, support structures, concrete footings, Government Furnished Equipment, Contractor Furnished Equipment, shall be straight and true with horizontal or vertical structural lines. The final installation shall not be out of plumb more than 1/4 –inch over the full length nor be deformed more than 1/16-inch per linear foot nor more than a total of ¼-inch in any surface. Embedded metal boxes and cabinets shall be set flush with the concrete surface and blocked or shored inside as necessary to hold deflections to a minimum during the pour. Exposed cabinets on concrete surfaces shall be fastened with anchors near each corner. All boxes and cabinets shall be cleaned of concrete and grout after the forms are removed and boxes with gasketed covers shall be closed immediately. The gaskets shall be treated with graphite or other approved paste at the time the cover is fastened to the box. During any work requiring drilling or penetrations, contractor shall insure that the area below where the penetration shall occur will be protected from falling concrete cores falling onto existing piping, cable trays, equipment, etc., or damage by the tool. The penetration shall not remain open to permit rain, ground water or other contamination to enter. Seal as soon as possible or provide suitable covering as required.

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SECTION 16264

HSWY0216264

MAIN CONTROL SWITCHBOARD PANELS

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 REFERENCES
1.3 SUBMITTALS

PART 2 PRODUCTS

2.1 GENERAL
2.2 SWITCHBOARD PANELS
2.3 WIRING, WIRE MARKERS, AND TERMINATIONS
2.4 RELAYS
2.5 POWER-LINE CARRIER COMMUNICATIONS EQUIPMENT
2.6 ANNUNCIATORS
2.7 NOT USED
2.8 ANALOG INDICATING METERS
2.9 NOT USED
2.10 CONTROL AND INSTRUMENT SWITCHES
2.11 INDICATING LAMP ASSEMBLIES
2.12 TEST BLOCKS
2.13 TERMINAL BLOCKS
2.14 MIMIC BUSES AND EQUIPMENT SYMBOLS
2.15 NAMEPLATES
2.16 SPARE PARTS

PART 3 EXECUTION

3.1 GENERAL
3.2 ARRANGEMENT
3.3 PAINTING
3.4 ASSEMBLY
3.5 WIRING AND TERMINATIONS
3.6 FACTORY TESTS
3.7 SHIPMENT
3.8 HANDLING
3.9 PANEL INSTALLATION

SECTION 16264

MAIN CONTROL SWITCHBOARD PANELS

PART 1 GENERAL

1.1 GENERAL INFORMATION

1.1.1 Summary
*2

This section specifies the electrical equipment and work required for the replacement of six duplex control switchboard panels located in the control room. Three panels (5, 3, and 2) are for transmission lines 2-4, and three panels (6, 4, and 1) are for transformers 1-3. Work includes removing and disposing of existing panels and wiring, removing existing equipment from the panels that will be reused on the new panels, removing miscellaneous equipment on other switchboard panels, furnish and install all required temporary wiring, and furnishing and installing new panels and wiring. Note that the existing switchboard panel wiring has asbestos; see SECTION 02080 for asbestos abatement work.

1.1.2 Design Requirements
*2

The switchboard panels shall be furnished complete with all devices required to accomplish the functions indicated on the contract drawings or described in these specifications, whether or not expressly specified or specifically shown on the drawings. The drawings indicate the general arrangement of equipment on the panels. The Contractor shall be responsible for the exact equipment layout, using the panel arrangement drawings for general locations. The Contractor's new panels shall match the existing switchboard material, fit, and finish. Complete, accurate schematic and connections diagrams will be prepared by the Contractor of both the existing wiring within the switchboard panels, and the final, as-built wiring. These diagrams shall include all wiring within the affected switchboard panels and all interconnecting wiring.

1.1.3 Sequencing
*2

The Contractor shall remove the existing switchboard panels and install the replacement panels during the respective line/transformer bay outages. All temporary relocations of individual relays and associated temporary wiring connections necessitated by the sequential nature of this work will be provided, even if not specifically indicated.

1.1.4 Government-Furnished Equipment

The following equipment shall be removed from the existing switchboard panels and reinstalled on the new panels:

5 protective relays
1 fiber optic interface (FCB)

1.2 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 NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI C39.1 (1981; R 1992) Requirements for Electrical Analog Indicating Instruments

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE®)

IEEE 100 (2000) The Authoritative Dictionary of IEEE Standards Terms Seventh Edition (ANSI/IEEE)

IEEE C37.21 (1985; R 1998) Standard for Control Switchboards

IEEE C37.90 (1989; R 1994) Standard for Relays and Relay Systems Associated with Electric Power Apparatus (ANSI/IEEE)

IEEE Std C37.90.1 (2002) Surge Withstand Capability (SWC) Tests for Relays and Relay Systems Associated with Electric Power Apparatus

THE INSTRUMENTATION, SYSTEMS, & AUTOMATION SOCIETY (ISA)

ISA 18.1 (1979; R 1992) Annunciator Sequences and Specifications

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA 250 (1997) Enclosures for Electrical Equipment (1000 Volts Maximum)

NEMA ICS 1 (2000) Industrial Control and Systems General Requirements

1.3 SUBMITTALS

Submittals required by this section of the specifications shall be for Government approval "GA" or for information only "FIO" and shall be submitted as stated below in accordance with SECTION 01330.

SD-01 Data

Catalog Data; GA

Catalog data for specific equipment, components, or materials intended for use in the work shall be submitted within 30 calendar days after date of award to indicate complete compliance with the contract specifications and to fully describe the system and equipment provided. All catalog data shall have marked upon it the project name and contract number and shall identify the specific items intended for the work, with irrelevant data marked out. Catalog data shall be submitted for the following items as a minimum:

a. Wire and Wire Markers

b. Relays

c. Power-Line Carrier Communications Equipment

d. Annunciators

e. Analog Indicating Meters

f. Control and Instrument Switches

g. Indicating Lamp Assemblies

h. Test Blocks

i. Terminal Blocks

j. Mimic Buses and Equipment Symbols

k. Nameplates.

SD-04 Drawings

Shop Drawings; GA

Shop drawings shall be submitted within 60 calendar days after date of award to indicate complete compliance with the contract specifications and to fully describe the system and equipment provided. All shop drawings shall include the project name and contract number and shall identify the specific items being used. The drawings shall cover the equipment installed by the Contractor and shall also cover integration of Contractor-installed equipment with the existing control system. The Government may use, duplicate, and disclose in any manner for any purposes whatsoever all drawings submitted under this section of the contract. Shop drawings shall be submitted for the following as a minimum:

a. Material List - The material list shall list each item furnished, including spare parts, by item number, device label, description, quantity, manufacturer, catalog number, specification section and paragraph number, and location.

b. Nameplate Schedule - The nameplate schedule shall show each proposed nameplate, its size, and location.

c. Equipment Layout Drawings - Equipment layout drawings shall include overall dimensions and detailed dimensions of the equipment and mounting details.

d. Schematic Diagrams - Schematic diagrams shall have all wires identified with wire numbers indicated on the contract drawings or wire numbers assigned by the Contractor as necessary. Device designations shall agree with the material list.

e. Connection Diagrams - Connection diagrams shall show complete point-to-point wiring between all device terminals, including terminal blocks. The diagrams shall also show external connections and connections between equipment sections. Device and wire designations shall agree with the material list and the schematic diagrams. The connection diagrams shall be made as seen by an observer of the actual equipment, and space shall be provided for the addition of devices where mounting space exists on the structure. A wireless type of connection diagram showing wire by an address system shall be used for internal connections; the diagrams shall show on each wire leaving a device terminal the wire number, destination device, and terminal number. A separate connection diagram shall be furnished for each panel.

SD-06 Instructions

Operation and Maintenance Manual; GA

Complete operating and maintenance instructions and parts catalogs shall be assembled in a manual and furnished for all equipment furnished under this section of the contract. The manual shall be submitted not later than 30 calendar days prior to equipment delivery. A title on the cover shall show

the project, equipment or system, and contract and bid item numbers. Each sheet in the manual shall be numbered and an index provided for ready reference to the data. Drawings shall be of a size that requires only left-to-right folding. All standard catalog cuts, manufacturer's descriptive literature, or other data shall either be original manufacturer sheets or reproduced copies of equal clarity and durability. Reduced size drawings shall be fully legible. Parts catalogs shall be suitable for ordering replacements. All data shall match the actual equipment furnished, and standard data shall have all irrelevant portions, such as descriptions of other models, optional equipment not included, etc., marked out. A cross-reference between items described in the manual and on drawings shall be provided to facilitate ease of use.

SD-07 Schedules

Spare Parts List; GA

SD-09 Reports

Factory Test Procedure; GA

A complete outline of the proposed method and procedure for all factory tests shall be submitted not later than 30 calendar days prior to the start of factory tests. This shall include a list of instruments and equipment to be used and a sample of the data sheets for recording the test data.

Factory Test Reports; GA

Reports of test methods or procedures followed, test results, and any corrective action required shall be recorded. Each report shall be identified, signed, and dated. Copies of test reports shall be submitted not later than 30 days after completion of the respective tests.

SD-14 Samples

Mimic Buses and Equipment Symbols; GA

Samples of mimic buses in all required colors, mimic disconnect switches, and mimic equipment symbols shall be submitted for approval.

Nameplates; GA

Samples of engraved nameplates shall be submitted for approval.

PART 2 PRODUCTS

2.1 GENERAL

New and unused materials and equipment shall be furnished, and any defective material or equipment damaged in the course of installation shall be replaced or repaired. Material and equipment shall be the standard products of manufacturers regularly engaged in the manufacture of these products and shall essentially duplicate items that have been in satisfactory use for at least two years prior to bid opening. Insofar as practicable, devices or equipment used for the same or similar service shall be of the same make and type and shall be interchangeable when of the same rating.

2.1.1 Workmanship

All work shall be performed and completed with workmanship of the highest quality throughout and shall be in accordance with the best modern standard

practice in the manufacture of high grade equipment of the type to be furnished.

2.2 SWITCHBOARD PANELS

2.2.1 General

The switchboard panels shall be furnished complete with relays, communications equipment, annunciators, meters, control switches, test blocks, internal wiring, and other devices as indicated in the specifications or on the drawings. The equipment shall include all auxiliary and accessory devices, such as fuses and resistors, required for proper operation, whether or not expressly specified or indicated on the drawings. Terminal blocks shall be furnished for all connections external to the switchboard panels, including the SCADA system. Adequate provisions shall be made to accommodate all external cables.

2.2.2 Switchboard Panel Construction

The new panels shall be interchangeable with the existing panels, complete with matching mounting details. The panels shall be dead-front type as defined in IEEE 100 and shall meet applicable requirements of IEEE C37.21. The new panels shall be constructed from specially selected smooth sheet steel not less than 1/8-inch thick, or No. 11 USS gauge, with angle or channel edges bent to 1/4-inch radius, seam-welded at the corners, and ground smooth. The panel shall be braced to form a rigid self-supporting dead-front type of structure after punching and mounting the devices. The exterior faces of the panels shall not be drilled or welded for attaching supports, resistors, or switchboard devices where such holes or fastenings will be visible from the face of the panel. Flat surfaces on the face of any panel shall not deviate more than 1/16-inch from a true plane. To prevent warping of panels, all heavy devices shall be adequately supported by means of rear-mounted brackets or straps. The panels shall match and shall present a neat appearance when assembled in the switchboard. Electrical clearances shall conform to applicable standards and shall be provided without cutting away the adjacent steel switchboard structure.

2.3 WIRING, WIRE MARKERS, AND TERMINATIONS

2.3.1 Wiring

Panel wiring shall be stranded copper switchboard wire with 600-volt flame-retardant insulation, Type SIS, subject to approval of the Contracting Officer. Insulation shall be a thermosetting compound; PVC is not acceptable. The minimum size of wiring shall be No. 16 AWG for annunciator circuits, No. 14 AWG for potential transformer, relaying, and control circuits, and No. 10 AWG for current transformer secondary circuits. Conductors shall be Class B or Class C stranding, except hinge wire shall be Class D or Class K stranding. Refer to SECTION 16050, paragraph 2.8 for additional requirements.

2.3.2 Wire Markers

All wires shall be identified with non-metallic sleeve or tube-type markers at each termination. Wire markers shall be heat-shrink type rated 90°C, hot stamped, and plastic coated after stamping, sized to fit the wire being marked; except that polyester tubing with fiberglass lining shall be used for markers for rubber or synthetic rubber insulation. The markers shall contain legible identifications made with a dark color on a light background and shall be durable and resistant to change due to age or contact with insulating materials. Identification on tags and markers shall be as shown on the drawings or as directed.

2.3.3 Terminations

Preinsulated confined-crimped ring-tongue terminals or indented ring-tongue terminals shall be used on all wires terminated on screw or stud terminals. Terminals shall be properly sized for the wire and color-coded for different size wire, for easy inspection. All screw terminals shall have toothed lock washers and all stud terminals shall have contact nuts and either locking nuts or lock washers.

2.4 RELAYS

2.4.1 Protective Relays

2.4.1.1 General

All protective relays shall be either solid-state or digital and shall be products of recognized, reputable manufacturers. Relays shall conform to the applicable requirements of IEEE C37.90, including the surge withstand capability requirements of IEEE Std C37.90.1-2002. Current input circuits shall be able to withstand 35 times the normal rating for one-half second, and potential input circuits shall be able to withstand voltages up to 10 percent in excess of normal voltage continuously without damage. The relays shall be free from errors due to normal variation in frequency, waveform, and power factor, and from ambient temperature effects between 5 degrees and 40 degrees C. The relays shall operate from the ungrounded 125 VDC (nominal) station battery, and no equipment supplied shall apply a ground to this power source. The relays shall be back-connected, semi-flush-mounted, switchboard type. All protective relays shall have integral operation indicators. Separate functions shall each have separate targets, and it shall be possible to operate separate contact outputs. Relays shall be complete with all operating auxiliaries required for proper operation. External auxiliary equipment furnished as a part of the relays shall be mounted in compact assemblies for back-of-panel mounting. The relays and auxiliaries shall be suitable for operation with the instrument transformer ratios and connections shown on the drawings.

2.4.1.2 Test Facilities

The protective relays shall have built-in test facilities arranged so that the relays can be tested in position or withdrawn from the fronts of the cases or chassis without opening current transformer secondary circuits or requiring the disconnection of wiring. If the relay does not have provisions for integral test facilities, external test blocks shall be provided in lieu of this requirement. However, all test blocks shall be labeled and shall fulfill the requirements of built-in test facilities. The test devices shall permit testing with either the normal instrument transformers or an external power source. A complete set of multi-pole test plugs and accessories is required for testing.

2.4.1.3 Contacts

Relay contacts shall be suitable for use on 125 VDC ungrounded circuits. Each relay shall be provided with at least one spare electrically independent closing contact. The relay contacts shall have silver tips and shall be non-bouncing.

2.4.1.4 Multifunction Relays

Multifunction line protection relays shall perform the functions of the existing relays that they are replacing and other functions as indicated on the drawings. Relays shall be user-programmable, digital relays and shall

include the following features:

a. User-programmable inputs and outputs

b. Display, keypad, and status indicators on the front panel

c. RS-232 communications port

d. RS-485 or Ethernet communications port

e. Modbus, DNP, UCA, or other Government-approved protocol

f. Self-testing

g. Event reporting/recording.

2.4.1.4.1 Primary Line Protection Relays

The primary line protection relays shall be fully compatible with the protective relays at the remote end of transmission lines 3 and 4 and with the power-line carrier communications equipment. The utility is planning to install Schweitzer Engineering Laboratories SEL-421 relays at the remote end. The relays shall be Schweitzer Engineering Laboratories SEL-421 relays or approved equal and shall include high-speed elements that provide tripping in less than one cycle.

2.4.1.4.2 Backup Line Protection Relay

The backup line protection relay furnished for line 3 shall perform the same functions as the Government-furnished relay for line 4. The relay shall be a Schweitzer Engineering Laboratories SEL-321 relay or approved equal.

2.4.1.5 Differential Relays

The bus and powerhouse line differential relays shall provide protection against incorrect operation due to CT saturation. The powerhouse line differential relays shall accommodate current transformers with different CT ratios.

2.4.1.6 Undervoltage Relays

The undervoltage relays shall be AC single-phase type with adjustable time and voltage settings.

2.4.2 Timing Relays

Timing relays shall be suitable for operation on 125 VDC circuits. They shall be dependable, durable, and of a type which is not dependent upon a liquid for the timing function. The relays shall be fast reset and shall have at least two independent time-delay operated contacts. Time delay operation shall be initiated when the relay coils are energized. The relay designated 2TQ shall have an adjustable range of 5-50 seconds. Relays shall be dial head type with dust-tight gasket and suitable for back-of-panel mounting.

2.4.3 Auxiliary Relays

Auxiliary relays shall be back-connected, semi-flush mounted or surface mounted for back-of-panel mounting, as indicated on the drawings. The cases of semi-flush relays shall be dust-tight, switchboard type. Back-of-panel mounted relays shall be provided with covers. Relays designated 86T, 86MB, and 86AB shall be hand-reset; all other relays shall be self-reset. Hand-reset relays shall be electrically tripped only and shall have heavy-duty

pistol grip handles. Relays shall be high-speed, multi-contact type, and spare contacts shall be supplied on all relays. Relays used in 125 VDC circuits shall operate reliably between 105 and 140 VDC and shall be capable of continuous operation at 140 VDC. Contacts shall be capable of carrying 10 amperes continuously. The single-contact inductive load interrupting capacity shall not be less than 1 ampere for 125 VDC. Relay coils shall be furnished with transient suppressing devices and shall be of a type to require a minimum continuous current. The relays shall be vibration-proof and shock-proof.

2.5 POWER-LINE CARRIER COMMUNICATIONS EQUIPMENT

The power-line carrier communications equipment shall be fully compatible with the communications equipment at the remote end of transmission lines 3 and 4 and with the primary line protection relays. The utility is planning to install RFL Electronics RFL 9785 communications equipment at the remote end. The transmitter/receiver for line 3 shall have an operating frequency range of 65 kHz to 156 kHz, and the one for line 4 shall have a range of 156 kHz to 392 kHz. Receive bandwidth shall be 500 Hz. The equipment shall operate from the ungrounded 125 VDC (nominal) station battery. The equipment shall be RFL Electronics RFL 9785 communications equipment or approved equal.

2.6 ANNUNCIATORS

2.6.1 General

Six integral logic annunciators (three with 20 alarm points and three with 12 alarm points) shall be provided as indicated on the drawings. All necessary equipment shall be provided whether or not specifically shown on the drawings so as to properly interface with existing equipment and provide a complete and functional annunciator system. All spare annunciator points shall be fully equipped for specified operation.

2.6.2 Assembly

Annunciators shall be housed in the manufacturer’s standard NEMA 1 enclosure, as defined by NEMA 250. The enclosure shall be suitable for panel flush mounting. The annunciators shall use microprocessor-based alarm modules arranged in a matrix fashion. There shall be one module for each window. The modules shall be removable from the front for the changing of lamps or the replacement of modules. Barrier type terminal rows shall be provided on the rear chassis for connection to field trouble contacts. Slotted binder head screw terminals shall be provided suitable for No. 14 AWG connections.

2.6.3 Annunciator Logic

The annunciators shall be designed such that the closure of a trouble contact shall simultaneously illuminate with a flashing light the appropriate annunciator window, regardless of the number of other points already illuminated, and operate contacts for audible alarming. At least two audible output contacts shall be supplied for each annunciator. The annunciator window shall not be automatically extinguished by any means, but shall change from flashing to steady light when the annunciator has been acknowledged from a remote control switch. The annunciator window shall remain lit until the trouble contact has opened and the annunciator has subsequently been reset. The operational sequence of the annunciators shall be designed to meet ISA 18.1, sequence M. It shall not be possible to inadvertently reset a new alarm by operation of the acknowledge switch or acknowledge a new alarm by operation of the reset switch. The test switch shall completely test the annunciator logic as well as the lamps by simulating trouble contact operation. It shall test all components including the trouble contact input circuits. The existing audible annunciator horns and bells shall not operate as a result of testing. The annunciator shall return to normal operation only after the

annunciator has been reset.

2.6.4 Annunciator Windows

Each annunciator window shall be illuminated individually from the rear by at least two lamps. Lamps shall require not more than 1.25 watts each. Annunciator windows shall be translucent white with a matte finish and black filled engraving. Window size shall be approximately 3 by 3 inches. The minimum character size shall be 7/32 inch. The windows shall be engraved as indicated on the drawings. All spares shall be left blank.

2.6.5 Electrical Requirements

The annunciators shall operate from the ungrounded 125 VDC (nominal) station battery. The battery voltage shall be applied directly across remote trouble contacts. The annunciators shall be designed so that a failure in any annunciator alarm module will not affect the operation of the other annunciator points. Annunciator input circuits shall be optically isolated. The annunciators shall meet the applicable requirements of IEEE Std C37.90.1-2002.

2.6.6 Environmental Requirements

The annunciator equipment shall provide continuous operation, meeting the specification requirements, over a temperature range of 0 to 40 degrees Celsius and with a relative humidity of 10 to 95 percent non-condensing.

2.7 NOT USED

2.8 ANALOG INDICATING METERS

All analog indicating meters shall comply with the applicable portions of ANSI C39.1. Meters shall be of the digital circular bar graph type, with both analog and digital indication. Meters shall be semi-flush, back-connected, direct-reading, approximately 4-1/2 inches square, with white dials, black markings, a 101 segment LED, and scale arcs of approximately 270 degrees. The cases shall be dust-tight, with a black finish, shadow-proof covers, and anti-glare glass. The accuracy of each instrument shall be within 1 percent of full scale. Each instrument shall be accurately calibrated and shall have a scale suitable for the application. The meters shall have appropriate connections for interfacing with SCADA, WaterView, EMS, etc. The meters shall be Weschler BG series meters or approved equal.

2.9 NOT USED

2.10 CONTROL AND INSTRUMENT SWITCHES

2.10.1 General

All control switches shall be of the rotary switchboard type with handles on the front and the operating contact mechanisms on the rear of the panels. Each switch shall be provided with ample contact stages to perform the functions indicated. Contacts shall be self-aligning and shall operate with a wiping action. A positive means of maintaining high pressure on closed contacts shall be provided. Compression springs or pivoted joints shall not be depended upon to carry current. The covers or plates on the switches shall be readily removable for inspection of contacts. All control switches shall be suitable for operation on 250 VDC circuits, be capable of satisfactorily withstanding a life test of at least 10,000 operations with rated current flowing in the switch contacts, and be capable of continuously carrying 20 amperes without exceeding a temperature rise of 30 degrees C. The single-break inductive load interrupting rating shall be not less than 1.5 amperes

for 125 VDC operation.

2.10.2 Escutcheons

Each control switch shall be provided with an escutcheon clearly marked to show each operating position. The switch identifications shall be engraved on the escutcheon plates. The escutcheon markings shall be subject to the approval of the Contracting Officer.

2.11 INDICATING LAMP ASSEMBLIES

Indicating lamp assemblies shall be LED type, suitable for 125 VDC circuits, with appropriate colored caps and integrally mounted resistors. Lamps shall be replaceable from the front of the panel, and any special tools required for lamp replacement shall be furnished.

2.12 TEST BLOCKS

Test blocks shall be provided on the switchboard panels where test facilities are required but are not provided by use of drawout type instruments. The test blocks shall be of the back-connected, semi-flush mounted, switchboard type with removable covers and dust-tight cases. Test blocks shall be rated not less than 250 volts, 10 amperes, and shall be capable of withstanding a dielectric test of 1500 volts, 60 Hz, for one minute. All test blocks shall be arranged to isolate completely the instruments from the instrument transformers and other external circuits, and means shall be provided for testing either from an external source of energy or from the instrument transformers by means of test plugs. The test blocks and plugs shall be arranged so that the current transformer secondary circuits cannot be open-circuited in any position while the test plugs or cover plugs are in place, being inserted, or being removed.

2.13 TERMINAL BLOCKS

Terminal blocks shall be rated for not less than 600 volts, 30 amperes. The terminal blocks shall be of one-piece molded construction with integral high barriers between poles, and integral disconnecting links to enable easy separation of each side of block without disturbing wiring, similar or equal to States type NT terminal blocks. Each terminal shall be not less than No. 10 in size with length and space for connecting two No. 10 conductors to each terminal. Terminal blocks for current transformer secondary leads shall be of the short-circuiting type. Terminal block materials and components shall not be damaged by moisture, gases, oil, or other fluids which may be present. White or other light-colored marking strips shall be provided for wire numbers. Each connected terminal of each terminal block shall have the wire number placed on the marking strip with permanent marking fluid. Substantial permanent marking strips shall be provided on all terminal blocks, suitable for engraving or other legible and permanent markings. The marking strips shall be engraved with the conductor designations used on the approved shop drawings, and filled with enamel, or other equally legible and permanent markings. Two spare blank marking strips shall be furnished with each terminal block, and at least 10 percent spare terminals shall be provided for each panel.

2.14 MIMIC BUSES AND EQUIPMENT SYMBOLS

Mimic buses and equipment symbols shall be provided on the switchboard panels as indicated on the drawings to provide single-line diagrams of the circuits. Mimic buses and symbols shall be made of anodized aluminum finished in colored lacquer and mounting bolts shall be concealed. The mimic buses and equipment symbols shall match the existing mimic buses on Generator 1-4 panels in material, size, location, and color as well as the mimic equipment symbols.

If a channel material is used, the ends shall be closed to simulate solid bar. Green shall be used for 230 kV, and white shall be used for ground connections. Mimic disconnect switches shall match the mimic buses in material, size, and color, and shall be easily operable to the open or closed position with positive maintenance in either position. Other mimic equipment symbols shall also match the mimic buses in material and color and shall be rectangular in shape and of appropriate size.

2.15 NAMEPLATES

Each item of equipment mounted on the switchboard panels shall be provided with an engraved nameplate. Nameplates shall be made of 1/16-inch thick laminated sheet plastic engraved to provide white letters on a black background. Nameplate lettering height shall be 3/16 inch. All nameplates shall be fastened to panels by black round headed screws.

2.16 SPARE PARTS

All accessories required for operation, maintenance, and testing of the equipment furnished under this section shall be provided. All spare parts shall be identical to and shall be interchangeable with the original parts furnished. A detailed list of the spare parts along with itemized prices shall be submitted for approval. The following accessories and spare parts are required as a minimum:

1 auxiliary relay of each type

4 annunciator alarm modules

1 analog indicating meter of each type

1 control switch of each type except Synchronizing Switches

6 Synchronizing Switches

4 indicating lamp assemblies of each type

2 terminal blocks of each type

6 fuses of each type

1 lot of test plugs

2 1-pint containers of matching paint for outside panel finish as required for paragraph PAINTING

7 sets of nuts and bolts to secure the panels to the switchboard as required for paragraph ASSEMBLY

7 sets of wire and cable fasteners as required for paragraph WIRING AND TERMINATIONS.

PART 3 EXECUTION

3.1 GENERAL

All work shall be in accordance with IEEE C37.21 unless specified otherwise herein.

3.2 ARRANGEMENT

A typical panel arrangement is shown on the drawings. The Contractor's arrangement of equipment to be mounted on the switchboard panels shall be submitted to the Contracting Officer for approval. Similar devices shall be wired alike. Arrangement of equipment shall be such that adequate space is provided for inspection and maintenance of wiring, terminals, and equipment.

3.3 PAINTING

All surfaces to be painted shall be cleaned after fabrication by sandblasting, pickling, and rinsing or by other means and shall receive a rust-inhibitive phosphating or other equivalent treatment in accordance with IEEE C37.21, paragraph 6.2.2. All outside surfaces shall then be primed and filled where necessary and shall be given not less than .003 inch of a semi-gloss quick air-drying lacquer or synthetic enamel. The color for the finish shall be ANSI Indoor Light Gray No. 61, with semi-gloss finish. Accessories and interior surfaces shall be finished in accordance with the manufacturer's standard practices.

3.4 ASSEMBLY

All devices furnished by the Contractor shall be mounted on the switchboard panels as shown on the Government-approved shop drawings for factory tests. The name or device number used on the schematic and wiring diagrams shall be marked on the rear of the panels near the corresponding device to permit ready identification. Markings shall not be obstructed by wires and shall be printed legibly with permanent marking fluid that will form a contrast with the panel finish. All major components shall be stenciled or stamped nearby with part number designations to correspond with parts lists supplied with the equipment. All hardware and material necessary for assembly shall be furnished. After factory tests, electronic devices shall be removed and provided separately, in original packaging as shipped by the manufacturer, to be field installed on the panels.

3.5 WIRING AND TERMINATIONS

Panel wiring leaving devices shall be without splices, formed into compact wire bundles, bound together with lacing or nonmetallic wire ties and supported in horizontal and vertical runs. Any wiring to be extended beyond the switchboard panels shall be terminated on terminal blocks mounted on the panels. Special attention shall be given to terminal wiring arrangements on the terminal blocks to permit individual conductors of each external cable to normally be terminated on adjacent terminal points. Additional panel wiring shall be provided as spare conductors, terminated and harnessed for future external connection of all spare points or switch contacts to remote circuits via connection to terminal blocks. The wiring bundles shall have both ends of each conductor labeled in accordance with paragraph 2.3.2. All strands of the wire shall be fully confined without trimming within the crimped wire terminal.

3.6 FACTORY TESTS

3.6.1 General

Each switchboard panel shall be given the manufacturer’s routine shop tests and other tests as required to demonstrate compliance with the specifications. The cost of performing all tests shall be borne by the Contractor. Factory testing shall not be initiated prior to Government approval of the Contractor’s test procedure. The Contractor shall notify the Contracting Officer at least 14 working days in advance of factory testing so that the tests may be witnessed by the Contracting Officer’s representative. Neither the presence nor the absence of a Government witness shall relieve the Contractor of the responsibility of meeting the requirements of the

specification. The Contractor shall compile a discrepancy list during testing. When all testing discrepancies are corrected, the Contractor will be notified of approval to ship the equipment.

3.6.2 Electrical Tests

All switchboard wiring shall be given a point-to-point check. Control and instrument switches shall be tested for contact operation. Protective relays shall be operated by hand to test the operation of all protective and alarm circuits. Annunciators shall be tested by simulating a trouble contact closure and checking for the specified operating sequence. Other equipment shall be given an operational test.

3.6.3 Dielectric Tests

All switchboard panels shall be subjected to standard dielectric tests in accordance with NEMA ICS 1. The test voltage shall be 1500 volts applied successively for one second between one terminal and ground of each isolated conductor. Tests shall be made between all ungrounded circuits and ground, between circuits of opposite polarity, and across contacts of all switches. Electronic equipment that would be damaged by the tests shall be disconnected before making the tests. Point-to-point checks shall be made after the electronic equipment is reconnected.

3.6.4 Mechanical Tests

All panels shall be completely assembled and shall be checked for alignment of devices, rigidity of structure, and adequacy of fastenings and supports.

3.7 SHIPPING

Equipment shall be shipped as completely assembled and wired as feasible so as to require a minimum of site installation work. Any device that cannot withstand the hazards of shipment when mounted in place on the panel shall be packed and shipped separately. These pieces shall be marked with the number of the panel and fully identified so they can be readily mounted and the wiring connected.

3.8 HANDLING

Each panel shall be properly match-marked to facilitate assembly and shall be provided with removable lifting devices for attachment of slings for shipping and installation. All finished painted surfaces and mounted hardware shall be suitably wrapped or otherwise protected from damage during shipment.

3.9 PANEL INSTALLATION

The Contractor shall remove the existing panels with equipment and wiring during the respective line/transformer bay outages. The new replacement panels shall be installed, with all equipment, including equipment previously removed for shipping and the Government furnished equipment (GFE), mounted and wired to terminal blocks. The Contractor shall install any mounting hardware required for mounting the GFE on the panels. Each device shall be inspected and tested after installation or reinstallation.

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SECTION 16367

HSWY0216367

OUTDOOR DISCONNECT SWITCHES, BUS AND INSULATORS

TABLE OF CONTENTS

PART 1 GENERAL

1.1 GENERAL INFORMATION
1.2 REFERENCES
1.3 SUBMITTALS
1.4 QUALIFICATIONS

PART 2 PRODUCTS

2.1 OUTDOOR DISCONNECT SWITCHES
2.2 OPERATING MECHANISMS
2.3 AUXILIARY SWITCHES
2.4 INSULATORS
2.5 BUS
2.6 SWITCH TOOLS AND ACCESSORIES
2.7 SPARE PARTS

PART 3 EXECUTION

3.1 FACTORY TESTS

SECTION 16367

OUTDOOR DISCONNECTS AND GROUNDING SWITCHES

PART 1 GENERAL

1.1 GENERAL INFORMATION

Twenty four 230 kV, 3000 ampere, three-phase group-operated disconnect switches with manual control apparatus, 230 kV bus connections and insulators shall be installed complete with accessories, in three transformer bays and three line bays of the Hartwell Powerhouse Switchyard. The three line bays also require one three-phase grounding switch per line, to be installed in conjunction with the standard disconnect switch installation. General Requirements, Contract Drawings, and Warranties shall be as described in SECTION 16050.

1.2 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 NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI B1.1	(1989) Unified Inch Screw Threads (UN and UNR Thread Form)
ANSI B1.20.1	(1983) Pipe Threads, General Purpose (Inch)
ANSI C29.1	(1988; R 1996) Electrical Power Insulators - Test Methods
ANSI C29.9	(1983; R 1996) Wet-Process Porcelain Insulators - Apparatus, Post Type
ANSI C37.30	(1992) Definitions and Requirements for High-Voltage Air Switches, Insulators, and Bus Supports
ANSI C37.32	(1996) High-Voltage Air switches, Bus Supports and Switch Accessories - Schedules of Preferred Ratings, Manufacturing Specifications, and Application Guide

AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)

ASTM A36	(1997a) Structural Steel
ASTM A123	(1997a) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A153	(1995) Zinc Coating (Hot-Dip) on Iron and Steel

Hardware

ASTM B98 (1993) Copper-Silicon Alloy Rod, Bar, and Shapes

ASTM B188 (1996) Seamless Copper Bus Pipe and Tube

ASTM B221 (1996) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)

IEEE C37.34 (1994) Standard Test Code for High-Voltage Air Switches

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation. Submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330.

SD-01 Data

Equipment; GA

Within 30 calendar days after date of receipt of notice of award, six (6) copies of manufacturer's data, drawings, catalog cuts, and wiring diagrams of all parts of the equipment. The information shall include, as a minimum, operating handles and locks, details of jaw and hinge contacts, bearings, operating rod guide bearings, methods of joining operating rod members, operating mechanisms, and mechanical interlocks. Data shall include details to demonstrate that all moving parts of hinge connection are adequately protected from the weather and that no springs are used in the current carrying path. As a minimum, submittals shall be provided for the following:

a. Disconnect Switch

b. Switch Operators

c. Switch Linkages and Connectors

d. Design of the Current-carrying path through the hinge mechanism of the switches

e. Switch Insulators

f. Tubular Bus

g. Bus Fittings and Connectors

h. Nameplates

SD-04 Drawings

Drawings of the Disconnect Switch, Grounding Switch, mounting hardware, Operators and Linkages; GA

Within 30 calendar days after date of receipt of notice of award, six (6) copies of outline drawings of all equipment to be furnished, together with weights, detail dimensions and complete mounting details. Drawings are primarily for design of the installation and shall be furnished with the following information:

a. Outline drawings showing:

(1) Mounting dimensions.

(2) Location and dimensional data of terminals.

(3) Dimensional data pertaining to the arc of travel of disconnect and grounding switch blades (clearances).

(4) Plan and elevation for travel of energized parts during operation so clearances to walls, ground, etc., may be verified.

(5) Open-gap (metal-to-metal) distance.

(6) Total net weight of each single pole assembly less operator.

(7) Net weight of operator.

b. Outline drawings of the switch arrangement for each pole showing installation dimensions, including the operating mechanism.

SD-06 Instructions

Operation and Maintenance Manuals; GA

Two weeks prior to delivery of disconnect switch six (6) copies of the manufacturer's standard operation and maintenance manuals for disconnect switches and switch operators.

Manuals shall contain the following information for the switch, operators, and any accessory equipment included therewith:

a. Complete instructions covering the operation, adjustment and maintenance of the equipment. Cuts or drawings shall be provided showing all points where adjustments may be made.

b. Drawings which identify all spare parts by either part number or item and drawing number.

c. Information and drawings on insulators provided with the switches.

SD-09 Reports

Factory Tests; FIO

Disconnect Switch Design Test Reports; FIO

Within 30 calendar days after date of receipt of notice of award,

six (6) certified copies of design test reports for tests specified. If the Contractor performs design tests on equipment furnished under this contract, he shall submit six (6) certified copies of design test reports within 30 days after approval of data package.

Disconnect Switch Production Test Reports; FIO

Within 14 days after completion of tests, six (6) certified copies production test reports for equipment specified. All test reports shall be signed by the Contractor and by the Contracting Officer.

Insulator Production Test Reports; FIO

Tests shall be made at the place of manufacture and six (6) copies of certified test reports shall be furnished within 14 days after completion of tests. Witnessing of factory tests will not be required.

1.4 QUALIFICATIONS

Each manufacturer shall have a minimum two (2) years experience with the production of equipment of the same type and rating. If the Contractor desires to deviate from the standards specified, he shall after award submit a statement of the exact nature of the deviation, and shall submit for the approval of the Contracting Officer complete specifications for the materials proposed for use.

PART 2 PRODUCTS

2.1 OUTDOOR DISCONNECT SWITCHES

2.1.1 General

The equipment to be furnished under this section of the specifications consists of group-operated disconnect switches for the 230 kV, 60-Hz, transformer and transmission line circuits. The disconnect switches shall be complete with terminal connectors, manual operating mechanisms and linkages, hardware, accessories, and necessary mounting devices, all as specified herein. The disconnect switches shall be 3-pole, outdoor, vertical break, three insulator type, group operated, as shown on the drawings. The operating linkage shall be Contractor-designed for the existing structure with the coordination of the switch manufacturer. The vertical motion of the switch blades shall be accomplished through the rotation about its vertical axis of one insulator stack per pole in each switch. The switches shall be designed for mounting on the existing structure, with the orientation shown on the contract drawings.

2.1.2 Operating Conditions

The switches when opening or closing shall operate satisfactorily in an 80 miles per hour wind or with 3/4 of an inch of radial ice on the hinge mechanism and on the contacts.

2.1.3 Support Structure

Switches shall be mounted on existing structures as shown on the

contract drawings, the line bays however will require one new support structure per bay as shown on the contract drawings. All bolts, studs, machine screws, nuts, and trapped holes shall be in accordance with ANSI B1.1. Threads for sizes 1/4-inch to 1-inch, inclusive, shall be NC or UNC series. The sizes and threads of all pipe fittings, shall be in accordance with ANSI B1.20.1. Manufacturers' standard threads and construction may be used on small items which, are integrally replaceable except that threads for external connection to these items shall meet the above requirements.

2.1.4 Construction

The tie between the hinge and jaw insulator stacks of the switches formed by the switch blade in the closed position shall be such that all stresses will be balanced. A positive tie in the form of a bridge shall be provided between the rotating and stationary insulator stacks at the hinge end. The switches shall open and close smoothly without appreciable jar or vibration. Each switch pole shall be designed so that the blades are toggled into both the open and closed positions. All current-carrying parts of the switches shall be made of nonferrous materials of high conductivity and shall contain not more than ten-percent zinc. Hinge pins shall be made of high-grade corrosion-resistant materials. Brazing will not be permitted. Bolted contact surfaces shall be silver plated. Points and sharp angles on blades, clips, and terminals shall be avoided or adequately shielded against corona discharge.

2.1.5 Hardware

Bolts, nuts washers and pins used in the assembly of nonferrous parts shall be silicon bronze conforming to ASTM B98, Alloy B, or nonmagnetic stainless steel. Other corrosion-resistant metals may be used, if approved by the Contracting Officer. Bolts and pins shall have a minimum tensile strength of 75,000 pounds per square inch.

2.1.6 Galvanizing

All galvanizing shall be performed in accordance with ASTM A123 or ASTM A153 as applicable and the zinc-iron alloy formed at the surface of the bare steel shall not exceed approximately 70 percent of the total zinc layer deposited.

2.1.7 Rating

The ratings of the switches shall be as indicated below and shall conform to the requirements of ANSI C29.9, C37.30, and C37.32.

a.	Rated Maximum Voltage, kV rms	230
b.	Basic Impulse Insulation Level, kV Crest BIL of the line equipment shall be all of equal value.	1050
c.	Continuous Current Rating, Amperes, rms	3000
d.	Momentary Asymmetrical Current Rating, kA, rms	120
e.	Insulator Stacks, Technical Ref. No., per ANSI C29	287

2.1.8 Bases

The bases of a switch shall be fabricated from structural steel conforming to the requirements of ASTM A36. Each single-pole switch element shall be assembled on an individual base. The bases shall be rigid and self supporting, without cross bracing between phases other than the steel supporting structure, as shown on the drawings. The bases shall be constructed so that the deflection under maximum operating force will not interfere with the successful operation of the switch when the bases are mounted rigidly at the points of support. Galvanized mounting bolts and beveled washers for mounting the switches on the steel structure shall be furnished by the Contractor.

2.1.9 Blades

Blades shall be of tubular construction designed to withstand operation under the weather and ice conditions specified in paragraph 2.1.2 and to provide maximum strength with minimum weight. They shall be sufficiently rigid to prevent whip or vibration and of a design that will minimize an accumulation of ice, sleet or other foreign matter. The blades shall automatically lock when in the closed position to prevent opening due to vibration or electromagnetic stresses. All blades on disconnects shall be counter-balanced to insure optimum ease of operation and smooth control.

2.1.10 Contacts

All main switch contacts shall be of the high-pressure type. In opening, contact pressure shall be released prior to angular motion of the blade, and in closing, pressure shall not be applied until after angular motion has ceased. Contacts shall be self-cleaning but shall be so designed that the wiping action will not cause scarring or abrasion of the contact surfaces. If contact surfaces are of silver, the silver shall be not less than 10 mils thick. Fixed guides shall be provided so that proper seating of contacts will be obtained when a blade is out of line one-inch or less in any direction.

2.1.11 Hinge Connections

The current-carrying path through the hinge mechanism of the switches shall be by means of a welded aluminum laminated conductor with no bolted or sliding pressure connections, threaded joints, or high-pressure contacts. The entire hinge mechanism of the switch shall be so designed and constructed that nesting of birds and insects is prevented or does not interfere with proper operation of the switch.

2.1.12 Terminals

Switch terminal pads shall be of high-strength aluminum alloy or high-copper alloy with silver-plated contact surfaces. Terminal connectors of high-copper alloy shall be provided at each end of each switch. The contact surfaces of the terminal connectors connecting to the terminal pads of the switches stall be silver-plated. The terminal pads shall be NEMA six hole type per ANSI C37.32 Figure 1 (c) able to accommodate NEMA two or four hole connections. Terminal loading shall meet the requirements of ANSI C37.32 Table 2 for the switch type and rating.

2.1.13 Switch Bearings

All bearings shall be ample in size to sustain the imposed loads and of a type to ensure continued ease of operation and long life. Bearings provided at the base of the rotating insulator column for each switch pole shall be of the ball or roller type and shall be adequately protected from the weather to prevent the entrance of dirt or moisture and resulting corrosion. All bearings shall maintain proper alignment, ensure ease of operations, and ensure against corrosion and seizing under conditions specified in paragraph OPERATING CONDITIONS. All gears shall be enclosed in weatherproof cases designed to retain the necessary lubrication to cover the gears. All main switches shall have bearings at the base of each rotating insulator stack and, if necessary, additional bearings at the top of the stack.

2.1.14 Switch Insulators

Each pole of each switch shall be provided with three stacks of insulator units complete with posts and hardware. Insulators shall be technical reference number as specified in paragraph "rating" above. Each insulator unit shall be insulators conforming to the requirements of ANSI C29.9 and to all requirements specified in paragraph INSULATORS. Suitable means shall be provided to adjust the vertical axis on all insulator stacks when assembled.

2.2 OPERATING MECHANISMS

2.2.1 Construction

The disconnect switches shall be provided with a manual operating mechanisms for group operation of the three blades. The operating mechanisms shall be for manually operating the switches from grade elevation and shall be complete with linkages, cranks, gears, bearings, interlocks, levers, a means of grounding per paragraph 2.2.2, and for mounting as shown on the drawings.

Installation of the switch and mechanism onto the existing steel structures shall be accomplished using existing bolt holes wherever possible. Drilling or cutting any galvanized members of the structure or parts of the switch base or operating mechanism shall be kept to a minimum. If any field drilling or cutting is required, all holes shall be cleaned and painted with a protective anti-corrosion paint to match the existing structures. Brackets, plates, channels, angles, bolts, nuts, and washers for mounting the mechanisms, bearings, and housings on the steel structures shall be furnished with the switches and shall be galvanized or made of corrosion-resistant material. The design of the operating mechanism shall provide smooth thoroughly controlled simultaneous movement of the switch blades throughout the entire cycle of operation. The entire design shall be such that cantilever or torsional stresses imposed upon any insulator column by the operation of the switch shall not exceed the safe limits of the column. Provisions shall be made for the individual adjustment at each pole to compensate for misalignments of the switch bases and operating shafts. After final adjustments, it shall be mechanically impossible for any blade to remain in the open or closed position when the mechanism has been operated at any speed. All hinge pins, cotter pins, piercing

setscrews, and lock washers shall be of corrosion-resistant metal. All holes in cranks and linkages having moving pins shall be drilled (not punched) to accurate fit. All fittings shall be attached to connecting rods or pipes with through-bolts or self-tapping set screws in addition to other means of attachment to insure that there will be no slipping of connections. Gears and bearings made of corrosion-resistant metal shall be covered with waterproof silicone-type grease at the time of factory assembly, or shall be completely immersed in a suitable lubricant. Gears and bearings of non-corrosion resistant metal shall be completely immersed in a suitable lubricant, or may be covered with a silicon-type grease, subject to approval of the Contracting Officer. The gears, bearings and lubricant shall be sealed in the case to produce a mechanism that does not require maintenance.

2.2.2 Grounding

Each operating mechanism shall be provided with a 24-inch flexible copper braid conductor, equal in current-carrying capacity to No. 4/0 AWG copper cable, for grounding the lower end of the operating shaft or operating lever.

2.2.3 Operator Bearings

A roller or ball bearing at the bottom and/or at the top of the shaft shall support the weight of the shaft. If over 20 feet in length, the shaft shall be provided with a guide or steady bearing so constructed that accumulations of foreign materials will not interfere with the operation and repeated operations will not affect the corrosion-resisting coating on the shaft and the stationary part of the bearing.

2.2.4 Shafts and Linkages

All interphase (phase-to-phase) and connecting operating shafts and linkages shall be continuous, with only the necessary fittings located at their extremities. The vertical operating shafts shall be of the torsional type with suitable pipe guides or bearings at intervals of not more than ten (10) feet. A mechanical device indicating the "OPEN" and "CLOSED" positions of the blades of the switch shall be provided at the lower end of the vertical operating shaft for indicating to the operator the position of the switch blades. The indicator shall be of metal and located where it will be readily visible from the ground. All vertical and horizontal operating shafts, and connecting pipe or shafting between phases shall be constructed of corrosion-resistant material. Provision shall be made for padlocking each mechanism in both the open and closed positions.

2.2.5 Interlocking

Interlocking shall be provided as specified below and shown on the contract drawings.

2.2.6 Manual Operators

The geared type manual operators shall drive a worm or bevel gear operated with a crank. The motion of the handle shall be clockwise to close and counterclockwise to open the switch. All gears and worms shall be lubricated and completely enclosed in gear cases. The non-detachable crank shall be not more than 15 inches nor less than 12 inches in length. A weather-tight shield shall be provided where the vertical shaft extends through the gear case. All gear operating mechanisms shall be enclosed in weather proof cases made of corrosion-resistant metal, or metal hot-dip galvanized in accordance with ASTM A153. All cases shall be designed to retain the necessary lubrication to cover the gears, shall be fitted with a drain hole and captive plug in the bottom, and shall be provided with pressure fittings if parts require periodic grease lubrication.

2.3 AUXILIARY SWITCHES

Two auxiliary switches (One normally open and one normally closed) shall be provided for functions as required. Contacts shall be rated 125 volts dc, and not less than 15 amperes continuous. All auxiliary switches shall be adjustable for timing with the switch blades and shall be complete with all connecting links and fittings. False indication through the auxiliary switch shall not be given if the switch blades fail to make a complete stroke. Terminal blocks shall be provided in the auxiliary switches enclosure for external wire connections. Auxiliary switches shall be directly connected to linkage and keyed to prevent slippage.

2.4 INSULATORS

2.4.1. Post Type

The equipment consists of post type insulators, and mounting bases required for bus support, conforming to the requirements of ANSI C29.9 and as shown on the drawings. Each post and base shall be so designed that the porcelain shells will not subjected to eccentric loading.

2.4.2 Porcelain and Glazing

The porcelain shells shall be clean, dense, homogeneous and nonporous, and shall be fired to a complete and uniform vitrification, free from internal stresses, cracks, blisters, laminations, voids, foreign matter, flaws, or other defects. The surfaces, except those roughened for cement grips, shall be smooth and shall be free from undue warping. The glaze shall be smooth, hard, dense, continuous, and brilliant. Surfaces of the porcelain shell subjected to mechanical stresses transmitted from the metal parts shall be sanded. The particles forming this sanded surface shall be of the size best adapted to the particular dimension and size of insulator and shall form a uniform single layer, smoothly distributed and firmly vitrified to the porcelain during the firing process. No excess or loose particles shall be present after firing. The sanded zones shall be of uniform width and accurately located so as to properly distribute the mechanical loading, and shall be completely covered by metal parts. The caps and bases of the insulators shall be free from cracks, shrinks, air holes, burrs, or rough edges.

2.4.3 Metal Parts

The metal parts shall be so designed as to transmit the mechanical stresses uniformly to the porcelain. The contours of the metal and porcelain parts shall be such as to eliminate areas or points of high dielectric flux concentration. All surfaces shall be smooth with no projecting points or irregularities that may cause corona.

2.5 BUS

Bus shall be a seamless tube conforming to ASTM B188, IPS Schedule 40, as shown on the drawings, and suitable for outdoor substation use. Bolted joints for bus, interconnections, and external connections to equipment shall be of the silver-to-silver, silver-to-tin, or aluminum alloy type to match switchyard bus materials. Bolted connections shall have a minimum of two bolts. Each nut on any bolted connection shall be secured with a Belleville washer or other locking means torqued in accordance with the manufacturer's recommendations.

2.6 SWITCH TOOLS AND ACCESSORIES

The Contractor shall furnish one complete set of all special tools, wrenches, and other appurtenant equipment that is necessary or convenient for assembling, aligning or disassembling the switches.

2.7 SPARE PARTS

2.7.1 Switch Spare Parts

All spare parts shall be of the same material, and manufacture as the original parts, and they shall be interchangeable therewith. The retail cost of each part listed as a spare part shall be provided. The following spare parts shall be furnished:

a. Three (3) complete assemblies of the stationary and the moving shoes, and tip assemblies, for the main contacts of one pole of the three-phase disconnect switch.

b. One (1) complete set of auxiliary contacts and springs for the disconnect switches.

c. Six (6) switch insulator units of each size and rating.

d. One (1) set of limit switches of each rating.

PART 3 EXECUTION

3.1 FACTORY TESTS

3.1.1 Routine Test

Each item of equipment shall be given the manufacturer's routine factory tests and other tests specified below. The factory test equipment and the test methods used shall conform to the applicable requirements of ANSI Standards, IEEE Standards, and NEMA Publications

and are subject to the approval of the Contracting Officer. All tests required will be witnessed by the Contracting Officer unless waived in writing, and no equipment shall be shipped until it has been approved for shipment by the Contracting Officer. The Contractor shall notify the Contracting Officer a minimum of 2 weeks in advance of the date of the tests so that arrangements can be made for the Contracting Officer's Representative to be present at the tests. The cost of performing all tests shall be borne by the Contractor.

3.1.2 Group-Operated Disconnect Switch Design Tests

The Contractor shall perform the design tests at each of the disconnect switches specified ratings unless design tests below have previously been made on switches of identical construction and of the same voltage, continuous current and momentary current ratings as those specified, in which case the Contractor may furnish certified copies of these design tests in lieu of making the tests. Tests made by the Contractor on the equipment to be furnished shall be made on one completely assembled pole of one disconnect switch. Switch insulators required for making the tests shall be furnished by the Contractor. If any switch fails to pass all of the specified tests, then all switches of the same rating shall be tested. Any switch which fails to pass all of the specified tests will be rejected. The following tests shall be performed in accordance with the applicable provisions of IEEE C37.34:

a. Dielectric tests including low frequency, dry-withstand, and impulse-withstand, temperature rise tests, and short time current tests.

b. Switching impulse test.

c. Ice test.

d. Radio influence test.

e. Corona test.

f. Hinge mechanism design tests demonstrating momentary and continuous current capacity as specified.

3.1.3 Group-Operated Switch Production Tests

All tests shall be witnessed by the Contracting Officer, unless waived in writing, and no equipment shall be shipped until it has been released for shipment by the Contracting Officer:

a. Each single-pole of the disconnect switch shall be assembled without insulators, inspected and given the manufacturer's routine production and operating tests. Tests shall be performed with the switch mounted in a position as shown on the drawings. Factory adjustment shall be so made that field changes will not be required on the switch beyond the point where interphase connections are attached to the rotating insulators.

b. All parts shall be properly marked and identified for ease of field assembly.

c. Dimensions in accordance with the applicable contract and manufacturer's drawings shall be verified.

3.1.4. Insulators

The following tests shall be made on insulators of each specified rating unless design tests below have previously been made on insulators of identical construction and ratings as those specified, in which case the Contractor may furnish certified copies of these design tests in lieu of making the tests. All tests shall be performed in accordance with ANSI C29.1 as specified below.

3.1.4.1 Design

The design tests for the post type insulators shall have been made in accordance with the requirements of ANSI C29.9.

3.1.4.2 Production

Post type insulators shall be given routine tests as specified in ANSI C29.9. Quality Conformance Tests described in ANSI C29.9 will be required for insulators furnished under the contract, unless waived in writing.

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