



IFB No. DACW09-03-B-0002

U.S. ARMY CORPS  
OF ENGINEERS  
LOS ANGELES DISTRICT

---

# **NORCO BLUFFS (ZONE 2 PHASE 2) BUTTRESS FILL**

## **SANTA ANA RIVER MAINSTEM RIVERSIDE COUNTY, CA**

### **Construction Solicitation and Specifications**

8(a) Competitive

**NOVEMBER 2002**

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|   |   |  |                               |                        |
|---|---|--|-------------------------------|------------------------|
| <b>SOLICITATION, OFFER,<br/>AND AWARD</b><br><i>(Construction, Alteration, or Repair)</i> | 1. SOLICITATION NO.<br>DACW09-03-B-0002   | 2. TYPE OF SOLICITATION<br><input checked="" type="checkbox"/> SEALED BID (IFB)<br><input type="checkbox"/> NEGOTIATED (RFP) | 3. DATE ISSUED<br>14 Nov 2002 | PAGE OF PAGES<br>1 128 |
|   | <b>IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.</b> |  |                               |                        |

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

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

|   |                |                                   |
|---|----------------|-----------------------------------|
| 7. ISSUED BY<br>Contracting Division<br>P.O. Box 532711<br>Los Angeles, CA 90053-2325 | CODE<br>DACW09 | 8. ADDRESS OFFER TO<br>See Item 7 |
|---|----------------|-----------------------------------|

|                          |                             |   |
|--------------------------|-----------------------------|---|
| 9. FOR INFORMATION CALL: | A. NAME<br>Sharon R. Morrow | B. TELEPHONE NO. (Include area code) (NO COLLECT CALLS)<br>213/452-3248 |
|--------------------------|-----------------------------|---|

**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):*  
**NORCO BLUFFS (ZONE 2, PHASE 2) BUTTRESS FILL, SANTA ANA RIVER MAINSTEM, RIVERSIDE COUNTY, CA**

The scope of work includes earthwork continuation of Norco Bluffs (Zone 2), Streambank Stabilization Project, Compacted Buttress Fill from 100-year flood level (top of existing soil cement) to the top of the existing bluff.

The estimated cost range of the project is estimated at \$1,000,000 to \$5,000,000.

**For this procurement, the Small Business Administration (SBA) had determined that competition will be restricted to eligible 8(a) contractors serviced by the Santa Ana District Office of the SBA which have a NAICS code of 237990, Channel Construction, among their approved NAICS codes. Contractors who experience difficulty registering for the NAICS Code 237990 using the Pro-Net System should contact their servicing SBA Office for advice.**

Please note: This procurement may be delayed, cancelled, or revised at any time during the solicitation, evaluation, and/or final award process.

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

|  |                    |
|--|--------------------|
| 12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS?<br><i>(If "YES," indicate within how many calendar days after award in Item 12B.)</i> | 12B. CALENDAR DAYS |
| <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO  | 10                 |

13. ADDITIONAL SOLICITATION REQUIREMENTS:
- A. Sealed offers in original and     0     copies to perform the work required are due at the place specified in Item 8 by     1300     (hour) local time     17 Dec 2002     (date). If this is a sealed bid solicitation, offers will be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.
  - B. An offer guarantee  is,  is not required.
  - C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by 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.



SECTION 00010

BIDDING SCHEDULE

| <u>ITEM</u>   | <u>DESCRIPTION</u>                | <u>QUANTITY</u> | <u>UNIT</u>  | <u>UNIT PRICE</u> | <u>AMOUNT</u>   |
|---|-----------------------------------|-----------------|--------------|-------------------|-----------------|
| <b>SCHEDULE A: BASE BID ITEM NOS. 0001 - 0013</b>             |                                   |                 |              |                   |                 |
| <b>STA. 20+975 to 21+455, Corona to Temescal (Area 2)</b>     |                                   |                 |              |                   |                 |
| 0001  | CLEAR SITE AND REMOVE OBSTRUCTION | 1               | Job          | Lump Sum          | \$ _____        |
| 0002  | EXCAVATION, BLUFF                 | 22,800          | Cubic Meters | \$ _____          | \$ _____        |
| 0003  | COMPACTED FILL, BUTTRESS          | 55,000          | Cubic Meters | \$ _____          | \$ _____        |
| 0004  | SUB-DRAIN SYSTEM                  | 1               | Job          | Lump Sum          | \$ _____        |
| 0005  | TERRACE DRAIN AND V-DITCH         | 1               | Job          | Lump Sum          | \$ _____        |
| 0006  | HORSE TRAIL DRAIN                 | 1               | Job          | Lump Sum          | \$ _____        |
| 0007  | GROUTED STONE                     | 1               | Job          | Lump Sum          | \$ _____        |
| 0008  | SIDE DRAIN GUTTERS                | 10              | Metric Tons  | \$ _____          | \$ _____        |
| 0009  | GUARDRAIL                         | 23              | Meters       | \$ _____          | \$ _____        |
| 0010  | FENCING                           | 485             | Meters       | \$ _____          | \$ _____        |
| 0011  | ASPHALT CONCRETE PAVEMENT         | 4               | Metric Tons  | \$ _____          | \$ _____        |
| 0012  | RETAINING WALL                    | 1               | Job          | Lump Sum          | \$ _____        |
| 0013  | AREA 2 DRAIN                      | 1               | Job          | Lump Sum          | \$ _____        |
| <b>Total Estimated Amount Base Bid (0001-0013)</b>            |                                   |                 |              |                   | <b>\$ _____</b> |
| <b>OPTION ITEM NOS. 0014 - 0033</b>                           |                                   |                 |              |                   |                 |
| <b>STA. 21+550 to 21+650, Upstream from Temescal (Area 3)</b> |                                   |                 |              |                   |                 |
| 0014  | CLEAR SITE AND REMOVE OBSTRUCTION | 1               | Job          | Lump Sum          | \$ _____        |
| 0015  | EXCAVATION, BLUFF                 | 5,600           | Cubic Meters | \$ _____          | \$ _____        |
| 0016  | COMPACTED FILL, BUTTRESS          | 11,000          | Cubic Meters | \$ _____          | \$ _____        |
| 0017  | SUB-DRAIN SYSTEM                  | 1               | Job          | Lump Sum          | \$ _____        |
| 0018  | TERRACE DRAIN AND V-DITCH         | 1               | Job          | Lump Sum          | \$ _____        |
| 0019  | FENCING                           | 140             | Meters       | \$ _____          | \$ _____        |
| <b>STA. 20+140 to 20+450, Upstream of I-15 (Area 1)</b>       |                                   |                 |              |                   |                 |
| 0020  | CLEAR SITE AND REMOVE OBSTRUCTION | 1               | Job          | Lump Sum          | \$ _____        |
| 0021  | EXCAVATION, BLUFF                 | 20,800          | Cubic Meters | \$ _____          | \$ _____        |
| 0022  | EXCAVATION, PERMANENT ACCESS ROAD | 3,460           | Cubic Meters | \$ _____          | \$ _____        |
| 0023  | COMPACTED FILL, BUTTRESS          | 47,000          | Cubic Meters | \$ _____          | \$ _____        |
| 0024  | SUB-DRAIN SYSTEM                  | 1               | Job          | Lump Sum          | \$ _____        |
| 0025  | TERRACE DRAIN AND V-DITCH         | 1               | Job          | Lump Sum          | \$ _____        |
| 0026  | ASPHALT CONCRETE PAVEMENT         | 74              | Metric Tons  | \$ _____          | \$ _____        |
| 0027  | AGGREGATE BASE COURSE             | 235             | Metric Tons  | \$ _____          | \$ _____        |
| 0028  | SIDE DRAIN GUTTERS                | 78              | Metric Tons  | \$ _____          | \$ _____        |

SECTION 00010

BIDDING SCHEDULE

| <u>ITEM</u>   | <u>DESCRIPTION</u>     | <u>QUANTITY</u> | <u>UNIT</u> | <u>UNIT PRICE</u> | <u>AMOUNT</u> |
|---|------------------------|-----------------|-------------|-------------------|---------------|
| 0029  | GUARDRAIL              | 60              | Meters      | \$ _____          | \$ _____      |
| 0030  | FENCING                | 315             | Meters      | \$ _____          | \$ _____      |
| 0031  | GATE                   | 1               | Each        | \$ _____          | \$ _____      |
| 0032  | ACCESS ROAD DRAIN      | 1               | Job         | Lump Sum          | \$ _____      |
| 0033  | REMOVE REPLACE MANHOLE | 1               | Job         | Lump Sum          | \$ _____      |
| <b>Total Estimated Amount Option Items (0014-0033)</b>                |                        |                 |             |                   | \$ _____      |
| <b>Total Estimated Amount Base Bid and Option Items (0001 - 0033)</b> |                        |                 |             |                   | \$ _____      |

The bidder grants the Option Items listed in the price Schedule to the Government. These Option Items may be exercised at any time up to 180 calendar days after receipt of Notice to Proceed. Exercise of the Option Items occurs upon mailing of written notice to the Contractor. Exercise will be made by the Contracting Officer. The price for exercise of the Option Items includes all work and effort associated with the scope of that/those item(s). No additional time for contract completion will be allowed when an Option Item is exercised. The given completion time (250 CD after receipt of Notice to Proceed) was formulated to include time necessary to perform all Option Item work.

1. All extensions of the unit prices shown will be subject to verification by the Government. In case of variation between the unit price and the extension, the unit price will be considered to be the bid.
2. If a modification to a bid based on unit prices is submitted which provides for a lump sum adjustment to the total estimated amount, the application of the lump sum adjustment to each unit price in the Price Schedule must be stated. If it is not stated, the bidder agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the Price Schedule.
3. For the purpose of initial evaluation of bids, the following will be utilized in resolving arithmetic discrepancies found on the face of the Price Schedule as submitted by the bidder:
  - a. Obviously misplaced decimal points will be corrected;
  - b. In case of discrepancy between the unit price and the extended price, the unit price will govern;
  - c. Apparent errors in extensions of unit prices will be corrected;
  - d. Apparent errors in addition of lump sum and extended prices will be corrected.
4. For the purpose of bid evaluation, the Government will proceed on the assumption that the bidder intends the bid to be evaluated on the basis of unit prices the totals arrived at by the resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.
5. The lump sum "LS" line items in the Price Schedule are not "Estimated Quantity" line items and are not subject to the "Variation in Estimated Quantity" contract clause.
6. The Contract Clause 52.232-27, "Prompt Payment for Construction Contracts" requires that the name and address of the contractor official, to whom payment is to be sent, be the same as that in the contract or in a proper Notice of Assignment.
7. Principal Contracting Officer. The Contracting Officer who signs this contract will be the Principal Contracting Officer for this contract. However, any Contracting Officer assigned to the Los Angeles District, contracting within his authority, may take formal action on this contract when the Principal Contracting Officer is unavailable and the action needs to be taken.
8. Amounts and prices shall be indicated in either words or figures, NOT BOTH.
9. Payment of Electronic Funds Transfer (EFT) is the mandatory method of payment. The Contractor's attention is directed to Contract Clause NO. 52.232-33 "Mandatory Information for Electronic Funds Transfer" located in Section 00800.
10. The bidder shall distribute his indirect costs (overhead, profit, bond, etc.) over all items in the Price Schedule. The Government will review all submitted Price Schedules for any unbalancing of the items. Any submitted Price Schedule determined to be unbalanced may be considered non-responsive and cause the bidder to be ineligible for contract award.
11. The bidder shall furnish all plant, labor, material, equipment, etc., necessary to perform all work in strict accordance with the terms and conditions set forth in the contract in include all attachments thereto.
12. Some quantities are ESTIMATED, the bidders prices MUST BE FIRM.
13. Bidder is cautioned to check his Price Schedule carefully prior to submission. If the Price Schedule contains unit prices, they should be round off to the second decimal point only NOT EXTENDED FURTHER.
14. Contractor is required to fill in Cage code (Reference Section 00600, entitled "Required Central Contractor Registration" Mar 1998) and DUNS Number (Reference Section 00600, entitled, "Data Universal Numbering System (DUNS) Number" Jun1999) in Block No. 15 on Standard Form 1442, Name and Address Block (Cage Code under Code and DUNS No. under Facility Code respectively).

CERTIFICATE OF CORPORATE PRINCIPAL

1) IF THE OFFEROR IS A JOINT VENTURE, COMPLETE THE FOLLOWING:

\_\_\_\_\_  
(Company Name) (Signature) (Title)

\_\_\_\_\_  
(Company Name) (Signature) (Title)

\_\_\_\_\_  
(Company Name) (Signature) (Title)

2) IF THE OFFEROR IS PARTNERSHIP, LIST FULL NAME OF ALL PARTNERS:

\_\_\_\_\_  
(Company Name) (Signature) (Title)

\_\_\_\_\_  
(Company Name) (Signature) (Title)

\_\_\_\_\_  
(Company Name) (Signature) (Title)

3) IF THE OFFEROR IS A CORPORATION, THE FOLLOWING CERTIFICATION SHOULD BE COMPLETED:

CERTIFICATION AS TO CORPORATE PRINCIPAL

I, \_\_\_\_\_, certify that I am the Secretary of the corporation named as principal in the within contract; that \_\_\_\_\_, who signed the said contract on behalf of the principal, was the \_\_\_\_\_ of the corporation; that I know his signature and that his signature is genuine; and that said contract was duly signed, sealed and attested for in behalf of said corporation by authority of its governing body.

\_\_\_\_\_  
CORPORATE PRINCIPAL

CORPORATE SEAL

\_\_\_\_\_  
SECRETARY

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

52.0000-4010 INQUIRIES

Perspective bidders/offerors should submit inquiries related to this solicitation by writing or calling the following (collect calls will not be accepted:

(1) For inquiries of a contractual nature (solicitation requirements, interpretation of contractual language) call:

Sharon Morrow

(213) 452-3248

For bid results only, call (213) 452-3248.

(2) All technical questions on the specification or drawings will be submitted in writing to:

Address:

Shawn Murphy

U.S. Army Corps of Engineers

Los Angeles Division

911 Wilshire Blvd.

Room 13024

Los Angeles, CA 90017

(213) 452-3688

(3) Please include the solicitation number, project title and location of project with your questions. Written inquiries must be received by this office not later than 14 calendar days prior to bid opening date/date set for receipt of offers.

(4) Oral explanations or instructions are not binding. Any information given to a bidder/offeror which impacts the bid/offer will be given in the form of a written amendment to the solicitation.

52.0000-4023 SAFETY REQUIREMENTS

The bidder's attention is directed to the latest version of U.S Army Corps of Engineers Safety and Health Manual, EM 385-1-1, which will be strictly enforced. This publication may be obtained from the US Army Engineer District, Los Angeles, ATTN: Safety Office, P.O. Box 532711, Los Angeles, California 90053-2325.

52.0001-4004 BID RESULTS

The telephone number for bid results after the opening is Area Code (213) 452-3235.

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 provision)

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)

52.0214-4001 DIRECTIONS FOR SUBMITTING BIDS (APR 2002)

- (a) Envelopes containing bids, bid guarantees, etc., must be sealed, marked and addressed as follows:

MARK ENVELOPES:

DACW09-03-B-0002  
Bid under IFB No. [DACW09-03-B-0002](#)  
[17 December 2002 at 1:00 p.m.](#)  
Bid Opening Date: [17 December 2002](#)

ADDRESS ENVELOPES as follows:

US ARMY ENGINEER DISTRICT, LOS ANGELES  
ATTN: CONTRACTING DIVISION  
C/O: [Sharon R. Morrow](#)  
P.O. Box 532711  
Los Angeles, California 90053-2325

- (b) Telegraphic Modifications to Bids should be addressed to:

U.S. Army Engineer District, Los Angeles  
Contracting Division,  
911 Wilshire Blvd.  
Los Angeles, California 90017

- (c) SPECIAL INSTRUCTIONS PERTAINING TO HAND-CARRIED BIDS:

Due to security precautions, all Corps of Engineers visitors/couriers are now required to check in at the Public Affairs Office (PAO), Suite 980, Wilshire Blvd, Los Angeles, CA. Bidders are no longer permitted to hand-carry their bids directly to Contracting Division without an authorized escort. **Bids may NOT be left unattended at the Public Affairs Office (PAO), Suite 980.**

Bidders who desire to hand-deliver their bids prior to the scheduled bid opening time/date must notify the Contracting Division to arrange for receipt of their bid by Contracting Division personnel. Normally the contact will be the Contract Specialist designated above. In the event the Contract Specialist cannot be reached, please call the main Contracting Division telephone number, 213-452-3231 or the following alternative telephone numbers -3233, -3245, -3234, or -3235, in order to request assistance.

**30 minutes prior to the scheduled bid opening time/date**, the Bid Opening Officer will be in the Public Affairs Office (PAO) Suite 980, to accept bids. After visitor in-processing, all bidders will subsequently be escorted to Bid Opening Room, where the bids will be publicly opened and read.

**In order to expedite visitor processing, bidders are encouraged to complete the information requested on the Notice of Visitor(s) Form (attached). The completed form can be faxed to the Contract Specialist at (213)452-4184 or 4187, prior to the date for receipt of bids. In addition, no more than 2 visitors per firm will be permitted within the building. No exceptions will be made. The offeror is responsible for compliance with the security requirements and shall ensure that any company representative, courier or delivery personnel are aware of these special procedures pertaining to hand carried bids.**

| <b>NOTICE OF VISITOR(S)</b>   |                                    |  |
|---|------------------------------------|--|
| <b>1. Date(s) of Visit (Inclusive)</b>  |                                    | <b>2. Arrival Time</b>   |
| <b>3. Name of Visitor(s) (Last, First)</b>  |                                    | <b>4. Agency/Company of Visitor</b>                                |
| <b>5. Name of Person Being Visited (Include Div, Br, Sec)</b><br>Sharon Morrow,<br>Contracting Division<br>Western Region Branch<br>CESPL-CT-W  | <b>6. Suite Number</b><br><br>1040 | <b>7. Telephone Number</b><br><br>(213) 452-3248                   |
| <b>8. Contact Person (if other than Person Being Visited)</b><br><br>Sharon Morrow<br>Lucia Carvajal  |                                    | <b>8. Telephone Number</b><br><br>(213) 452-3248<br>(213) 452-3240 |
| <b>10. Other Comments or Instructions</b>   |                                    |  |
| <ul style="list-style-type: none"> <li>- All visitors must report to the Public Affairs Office, Suite 980</li> <li>- Visitors must use the Visitor Tag provided.</li> <li>- Visitors must be escorted to Corps of Engineers floors</li> <li>- Parking validation is only available for Engineering Division, Construction-Operations, and Information Management field personnel.</li> <li>- Delivery personnel will be validated for 30 minutes only.</li> </ul> |                                    |  |

52.0214-4500 ARITHMETIC DISCREPANCIES EFARS 52.214-5000

(a) For the purpose of initial evaluation of bids, the following will be utilized in resolving arithmetic discrepancies found on the face

of the bidding schedule as submitted by bidders:

- (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 the 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)

52.0214-4583 TELEGRAPHIC BIDS/OFFERS ARE NOT ACCEPTABLE

Any telegram to modify or withdraw a bid/offer sent to this office must be physically delivered to the office designated for receipt of bid/offer by the date and time set for bid opening/receipt of proposals. No one from this office will be dispatched to the local telegraph office to pick up any telegram for any reason.

52.0214-4584 FACSIMILE BIDS/OFFERS

Facsimile bids/offers, modifications thereto, or cancellations of bids/offers will not be accepted.

52.0214-4599 EVALUATION FOR AWARD

The Government contemplates award of one contract to the responsive, responsible bidder who submits the low bid for the total of all the items in the Bidding Schedule.

52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a firm fixed price contract resulting from this solicitation.

(End of clause)

## 52.217-5 EVALUATION OF OPTIONS (July 1990)

Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

(End of provision)

## 52.219-18 NOTIFICATION OF COMPETITION LIMITED TO ELIGIBLE 8(A) CONCERNS (JUN 1999)

(a) Offers are solicited only from small business concerns expressly certified by the Small Business Administration (SBA) for participation in the SBA's 8(a) Program and which meet the following criteria at the time of submission of offer—The SBA has determined that, for this procurement, competition will be restricted to eligible 8(a) contractors serviced by the Santa Ana District Office of the SBA with a NAICS code 237990, Channel Construction, among their approved NAICS Codes.

(1) The Offeror is in conformance with the 8(a) support limitation set forth in its approved business plan; and

(2) The Offeror is in conformance with the Business Activity Targets set forth in its approved business plan or any remedial action directed by the SBA.

(b) By submission of its offer, the Offeror represents that it meets all of the criteria set forth in paragraph (a) of this clause.

(c) Any award resulting from this solicitation will be made to the Small Business Administration, which will subcontract performance to the successful 8(a) offeror selected through the evaluation criteria set forth in this solicitation.

(d)(1) Agreement. A small business concern submitting an offer in its own name agrees to furnish, in performing the contract, only end items manufactured or produced by small business concerns in the United States. The term "United States" includes its territories and possessions, the Commonwealth of Puerto Rico, the Trust Territory of the Pacific Islands, and the District of Columbia. If this procurement is processed under simplified acquisition procedures and the total amount of this contract does not exceed \$25,000, a small business concern may furnish the product of any domestic firm. This paragraph does not apply in connection with construction or service contracts.

(2) The Contractor (to be determined) will notify the U.S. Army Corps of Engineers, Los Angeles Division, Contracting Officer in writing immediately upon entering an agreement (either oral or written) to transfer all or part of its stock or other ownership interest to any other party.

(End of clause)

## 52.225-12 NOTICE OF BUY AMERICAN ACT REQUIREMENT-- CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (MAY 2002)

(a) Definitions. Construction material, designated country construction material, domestic construction material, foreign construction material, and NAFTA country construction material, as used in this provision, are defined in the clause of this solicitation entitled "Buy American Act--Construction Materials under Trade Agreements" (Federal Acquisition Regulation (FAR) clause 52.225-11).

(b) Requests for determination of inapplicability. An offeror requesting a determination regarding the inapplicability of the Buy American 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 FAR clause 52.225-11 in the request. If an offeror has not requested a determination regarding the inapplicability of the Buy American Act or Balance of Payments Program 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 materials, by adding to the offered price the appropriate percentage of the cost of such foreign construction material, as specified in paragraph (b)(4)(i) of FAR clause 52.225-11.

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

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

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

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

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

(ii) May be accepted if revised during negotiations.

(End of provision)

#### 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 of the bid price or \$3,000,000, 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)

#### 52.228-4506 INDIVIDUAL SURETIES IN SUPPORT OF BID BONDS

Bidder/offerors utilizing individual sureties in support of a bid bond shall include a Standard Form (SF) 28 (Affidavit of Individual Surety), accompanied by a pledge of acceptable assets from each person acting as an individual surety, and include these with the SF 24 (Bid Bond), and the bid itself (see clause titled "Pledges of Assets," FAR 52.228-11).

Pledges of acceptable assets shall be in the form of (1) evidence of an escrow account and/or (2) a recorded lien on real estate. If this is an RFP, failure to provide required documentation described herein may cause the offeror to be deemed "unacceptable".

#### 52.228-4507 BID GUARANTEE FORM AND AMOUNT

When bids/proposals exceed \$100,000, the offeror shall furnish a separated bid guarantee in accordance with the solicitation provision titled "Bid Guarantee", FAR 52.228-1. In accordance with FAR 28.101-2 the bid guarantee amount shall be a least 20 percent of the "bid price" but shall not exceed \$3 million. When the penal sum is expressed as a percentage, a maximum dollar limitation may be stated. If there are option line items on the Pricing Schedule (Schedule B), the term "bid price" is hereby defined as the total bid not to include any amount for line items designated as "options". In bids/proposals that contain "additives", the "bid price" is defined as the total of all bid items including additive line items. FAR 28.106-1 states that a Standard Form (SF) 24 shall be used for the bid bond. In accordance with FAR 28.202(a)(1), corporate sureties utilized must appear on the list contained in the Department of Treasury Circular 570 titled "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and Acceptable Reinsuring Companies."

#### 52.232-38 SUBMISSION OF ELECTRONIC FUNDS TRANSFER INFORMATION WITH OFFER (MAY 1999)

The offeror shall provide, with its offer, the following information that is required to make payment by electronic funds transfer (EFT) under any contract that results from this solicitation. This submission satisfies the requirement to provide EFT information under paragraphs (b)(1) and (j) of the clause at 52.232-34, Payment by Electronic Funds Transfer--Other than Central Contractor Registration.

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

- (2) The offeror's name and remittance address, as stated in the offer.
- (3) The signature (manual or electronic, as appropriate), title, and telephone number of the offeror's official authorized to provide this information.
- (4) The name, address, and 9-digit Routing Transit Number of the offeror's financial agent.
- (5) The offeror's account number and the type of account (checking, savings, or lockbox).
- (6) If applicable, the Fedwire Transfer System telegraphic abbreviation of the offeror's financial agent.
- (7) If applicable, the offeror shall also provide the name, address, telegraphic abbreviation, and 9-digit Routing Transit Number of the correspondent financial institution receiving the wire transfer payment if the offeror's financial agent is not directly on-line to the Fedwire and, therefore, not the receiver of the wire transfer payment.

(End of provision)

52.233-2 SERVICE OF PROTEST (AUG 1996)

- (iv) 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: Lucia Carvajal, Contracting Office, c.o Sharon R. Morrow, P.O. Box 532711, Los Angeles, CA 90053-2325.

(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)

- (v) 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.
- (vi) An organized site visit has been scheduled for 20 November 2002 10:00 a.m. at the Norco Bluffs.
- (vii) Participants will meet at March Air Reserve Base (ARB), CA

Site visit point of contact:

Name: Larry Romero  
Address: 5023 4th Street  
Buuilding 2640  
March AFB, CA 92518  
Telephone: (909) 655-2101

(End of provision)

**Section 00600 - Representations & Certifications**

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**Section 00600 - Representations & Certifications**

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

(a) The offeror certifies that --

(iv) 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 --

(a) 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 provision \_\_\_\_\_ (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.

(v) 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)

52.204-3 TAXPAYER IDENTIFICATION (OCT 1998)

(a) Definitions.

“Common parent,” as used in this provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

“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.

(b) All offerors must submit the information required in paragraphs (d) through (f) of this provision to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325(d), reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M, and implementing regulations issued by the IRS. If the resulting contract is subject to the payment reporting requirements described in Federal Acquisition Regulation (FAR) 4.904, the failure or refusal by the offeror to furnish the information may result in a 31 percent reduction of payments otherwise due under the contract.

(c) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 U.S.C. 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(d) 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.

(e) 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 \_\_\_\_\_

(f) Common parent.

Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this provision.

Name and TIN of common parent:

Name \_\_\_\_\_

TIN \_\_\_\_\_

(End of provision)

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](mailto:globalinfo@mail.dnb.com).

(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) and Alternate 1 (April 2002)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 237990, Channel Construction.

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

(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) 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; 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) 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.

(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 Island, 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.

(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.

52.219-22 SMALL DISADVANTAGED BUSINESS STATUS (OCT 1999) AND ALTERNATE 1 (OCT 1998)

(a) General. This provision is used to assess an offeror's small disadvantaged business status for the purpose of obtaining a benefit on this solicitation. Status as a small business and status as a small disadvantaged business for general statistical purposes is covered by the provision at FAR 52.219-1, Small Business Program Representation.

(b) Representations.

(1) General. The offeror represents, as part of its offer, that it is a small business under the size standard applicable to this acquisition; and either--

\_\_\_ (i) It has received certification by the Small Business Administration as a small disadvantaged business concern consistent with 13 CFR 124, Subpart B; and

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

(B) Where the concern is owned by one or more disadvantaged 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

(C) It is identified, on the date of this representation, as a certified small disadvantaged business concern in the database maintained by the Small Business Administration(PROONet); or

\_\_\_ (ii) It has submitted a completed application to the Small Business Administration or a Private Certifier to be certified as a small disadvantaged business concern in accordance with 13 CFR 124, Subpart B, and a decision on that application is pending, and that no material change in disadvantaged ownership and control has occurred since its application was submitted.

(2)\_\_\_ For Joint Ventures. The offeror represents, as part of its offer, that it is a joint venture that complies with the requirements at 13 CFR 124.1002(f) and that the representation in paragraph (b)(1) of this provision is accurate for the small disadvantaged business concern that is participating in the joint venture. [The offeror shall enter the name of the small disadvantaged business concern that is participating in the joint venture: \_\_\_\_\_.]

(c) Penalties and Remedies. Anyone who misrepresents any aspects of the disadvantaged status of a concern for the purposes of securing a contract or subcontract shall:

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

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

(3) Be ineligible for participation in programs conducted under the authority of the Small Business Act.

(3) *Address.* The offeror represents that its address ( ) is, ( ) is not a region for which a small disadvantaged business procurement mechanism is authorized and its address has not changed since its certification as a small disadvantaged business concern or submission of its application for certification. The list of authorized small disadvantaged business procurement mechanisms and regions is posted at <http://www.arnet.gov/References/sdbadjustments.htm>. The offeror shall use the list in effect on the date of this solicitation. "Address," as used in this provision, means the address of the offeror as listed on the Small Business Administration or Private Certifier in accordance with 13 CFR part 124, subpart B. For joint ventures, "address" refers to the address of the small disadvantaged business concern that is participating in the joint venture.

(End of provision)

#### 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)

#### 52.222-22 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FEB 1999) and Alternate 1 (Oct 1998)

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)

52.223-13 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)

252.204-7001 COMMERCIAL AND GOVERNMENT ENTITY (CAGE) CODE REPORTING (AUG 1999)

(a) The offeror is requested to enter its CAGE code on its offer in the block with its name and address. The CAGE code entered must be for that name and address. Enter "CAGE" before the number.

(b) If the offeror does not have a CAGE code, it may ask the Contracting Officer to request one from the Defense Logistics Information Service (DLIS). The Contracting Officer will--

(1) Ask the Contractor to complete section B of a DD Form 2051, Request for Assignment of a Commercial and Government Entity (CAGE) Code;

(2) Complete section A and forward the form to DLIS; and

(3) Notify the Contractor of its assigned CAGE code.

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

(End of provision)

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)

252.209-7001 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 indebtedness 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 disclose 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)

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### Section 00700 - Contract Clauses

#### 52.202-1 DEFINITIONS (DEC 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) Commercial item means--
- (1) Any item, other than real property, that is of a type customarily used by the general public or by non-governmental entities for purposes other than governmental purposes, and that--
    - (i) Has been sold, leased, or licensed to the general public; or
    - (ii) Has been offered for sale, lease, or license to the general public;
  - (2) Any item that evolved from an item described in paragraph (c)(1) of this clause through advances in technology or performance and that is not yet available in the commercial marketplace, but will be available in the commercial marketplace in time to satisfy the delivery requirements under a Government solicitation;
  - (3) Any item that would satisfy a criterion expressed in paragraphs (c)(1) or (c)(2) of this clause, but for--
    - (i) Modifications of a type customarily available in the commercial marketplace; or
    - (ii) Minor modifications of a type not customarily available in the commercial marketplace made to meet Federal Government requirements. "Minor" modifications means modifications that do not significantly alter the nongovernmental function or essential physical characteristics of an item or component, or change the purpose of a process. Factors to be considered in determining whether a modification is minor include the value and size of the modification and the comparative value and size of the final product. Dollar values and percentages may be used as guideposts, but are not conclusive evidence that a modification is minor;
  - (4) Any combination of items meeting the requirements of paragraphs (c)(1), (2), (3), or (5) of this clause that are of a type customarily combined and sold in combination to the general public;
  - (5) Installation services, maintenance services, repair services, training services, and other services if--
    - (i) Such services are procured for support of an item referred to in paragraph (c)(1), (2), (3), or (4) of this definition, regardless of whether such services are provided by the same source or at the same time as the item; and
    - (ii) The source of such services provides similar services contemporaneously to the general public under terms and conditions similar to those offered to the Federal Government;
  - (6) Services of a type offered and sold competitively in substantial quantities in the commercial marketplace based on established catalog or market prices for specific tasks performed under standard commercial terms and conditions. This does not include services that are sold based on hourly rates without an established catalog or market price for a specific service performed. For purposes of these services--
    - (i) Catalog price means a price included in a catalog, price list, schedule, or other form that is regularly maintained by the manufacturer or vendor, is either published or otherwise available for inspection by customers, and states

prices at which sales are currently, or were last, made to a significant number of buyers constituting the general public; and

(ii) Market prices means current prices that are established in the course of ordinary trade between buyers and sellers free to bargain and that can be substantiated through competition or from sources independent of the offerors.

(7) Any item, combination of items, or service referred to in subparagraphs (c)(1) through (c)(6), notwithstanding the fact that the item, combination of items, or service is transferred between or among separate divisions, subsidiaries, or affiliates of a Contractor; or

(8) A nondevelopmental item, if the procuring agency determines the item was developed exclusively at private expense and sold in substantial quantities, on a competitive basis, to multiple State and local Governments.

(d) 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).

(e) 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.

(f) 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.

(g) "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.

(h) 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)

#### 52.203-7 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)

#### 52.204-1 APPROVAL OF CONTRACT (DEC 1989)

This contract is subject to the written approval of \_\_\_\_\_ and shall not be binding until so approved.

(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 debar 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)

52.214-26 Audit and Records--Sealed Bidding. (OCT 1997)

(a) As used in this clause, records includes books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or in any other form.

(b) Cost or pricing data. If the Contractor has been required to submit cost or pricing data in connection with the pricing of any modification to this contract, the Contracting Officer, or an authorized representative of the Contracting Officer, in order to evaluate the accuracy, completeness, and currency of the cost or pricing data, shall have the right to examine and audit all of the Contractor's records, including computations and projections, related to--

(1) The proposal for the modification;

(2) The discussions conducted on the proposal(s), including those related to negotiating;

(3) Pricing of the modification; or

(4) Performance of the modification.

(c) Comptroller General. In the case of pricing any modification, the Comptroller General of the United States, or an authorized representative, shall have the same rights as specified in paragraph (b) of this clause.

(d) Availability. The Contractor shall make available at its office at all reasonable times the materials described in reproduction, until 3 years after final payment under this contract, or for any other period specified in Subpart 4.7 of the Federal Acquisition Regulation (FAR). FAR Subpart 4.7, Contractor Records Retention, in effect on the date of this contract, is incorporated by reference in its entirety and made a part of this contract.

(1) If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement.

(2) Records pertaining to appeals under the Disputes clause or to litigation or the settlement of claims arising under or relating to the performance of this contract shall be made available until disposition of such appeals, litigation, or claims.

(e) The Contractor shall insert a clause containing all the provisions of this clause, including this paragraph (e), in all subcontracts expected to exceed the threshold in FAR 15.403-4(a)(1) for submission of cost or pricing data.

(End of clause)

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)

#### 52.215-19 NOTIFICATION OF OWNERSHIP CHANGES (OCT 1997)

- (a) The Contractor shall make the following notifications in writing:
- (1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.
  - (2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.
- (b) The Contractor shall--
- (1) Maintain current, accurate, and complete inventory records of assets and their costs;
  - (2) Provide the ACO or designated representative ready access to the records upon request;
  - (3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and
  - (4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.

The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(k).

(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)

#### 52.219-14 LIMITATIONS ON SUBCONTRACTING (DEC 1996)

(a) This clause does not apply to the unrestricted portion of a partial set-aside.

(b) By submission of an offer and execution of a contract, the Offeror/Contractor agrees that in performance of the contract in the case of a contract for--

(1) Services (except construction). At least 50 percent of the cost of contract performance incurred for personnel shall be expended for employees of the concern.

(2) Supplies (other than procurement from a nonmanufacturer of such supplies). The concern shall perform work for at least 50 percent of the cost of manufacturing the supplies, not including the cost of materials.

(3) General construction. The concern will perform at least 15 percent of the cost of the contract, not including the cost of materials, with its own employees.

(4) Construction by special trade contractors. The concern will perform at least 25 percent of the cost of the contract, not including the cost of materials, with its own employees.

#### 52.219-25 SMALL DISADVANTAGED BUSINESS PARTICIPATION PROGRAM—DISADVANTAGED STATUS AND REPORTING (OCT 1999)

(a) Disadvantaged status for joint venture partners, team members, and subcontractors. This clause addresses disadvantaged status for joint venture partners, teaming arrangement members, and subcontractors and is applicable if this contract contains small disadvantaged business (SDB) participation targets. The Contractor shall obtain representations of small disadvantaged status from joint venture partners, teaming arrangement members, and subcontractors through use of a provision substantially the same as paragraph (b)(1)(i) of the provision at FAR 52.219-22, Small Disadvantaged Business Status. The Contractor shall confirm that a joint venture partner, team member, or subcontractor representing itself as a small disadvantaged business concern, is identified as a certified small disadvantaged business in the database maintained by the Small Business Administration (PRO-Net) or by contacting the SBA's Office of Small Disadvantaged Business Certification and Eligibility.

(b) Reporting requirement. If this contract contains SDB participation targets, the Contractor shall report on the participation of SDB concerns at contract completion, or as otherwise provided in this contract. Reporting may be on Optional Form 312, Small Disadvantaged Business Participation Report, or in the Contractor's own format

providing the same information. This report is required for each contract containing SDB participation targets. If this contract contains an individual Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan, reports may be submitted with the final Subcontracting Report for Individual Contracts (Standard Form 294) at the completion of the contract.

(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.

(iv) 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)

## 52.222-26 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)

(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)

#### 52.222-36 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)

(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)

52.223-3 HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA (JAN 1997)

(a) "Hazardous material", as used in this clause, includes any material defined as hazardous under the latest version of Federal Standard No. 313 (including revisions adopted during the term of the contract).

(b) The offeror must list any hazardous material, as defined in paragraph (a) of this clause, to be delivered under this contract. The hazardous material shall be properly identified and include any applicable identification number, such as National Stock Number or Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.

| Material<br>(If none,<br>insert "None") | Identification No. |
|---|--------------------|
| _____                                   | _____              |
| _____                                   | _____              |
| _____                                   | _____              |

- (c) This list must be updated during performance of the contract whenever the Contractor determines that any other material to be delivered under this contract is hazardous.
- (d) The apparently successful offeror agrees to submit, for each item as required prior to award, a Material Safety Data Sheet, meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous material identified in paragraph (b) of this clause. Data shall be submitted in accordance with Federal Standard No. 313, whether or not the apparently successful offeror is the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet prior to award may result in the apparently successful offeror being considered nonresponsible and ineligible for award.
- (e) If, after award, there is a change in the composition of the item(s) or a revision to Federal Standard No. 313, which renders incomplete or inaccurate the data submitted under paragraph (d) of this clause, the Contractor shall promptly notify the Contracting Officer and resubmit the data.
- (f) Neither the requirements of this clause nor any act or failure to act by the Government shall relieve the Contractor of any responsibility or liability for the safety of Government, Contractor, or subcontractor personnel or property.
- (g) Nothing contained in this clause shall relieve the Contractor from complying with applicable Federal, State, and local laws, codes, ordinances, and regulations (including the obtaining of licenses and permits) in connection with hazardous material.
- (h) The Government's rights in data furnished under this contract with respect to hazardous material are as follows:
- (1) To use, duplicate and disclose any data to which this clause is applicable. The purposes of this right are to--
    - (i) Apprise personnel of the hazards to which they may be exposed in using, handling, packaging, transporting, or disposing of hazardous materials;
    - (ii) Obtain medical treatment for those affected by the material; and
    - (iii) Have others use, duplicate, and disclose the data for the Government for these purposes.
  - (2) To use, duplicate, and disclose data furnished under this clause, in accordance with subparagraph (h)(1) of this clause, in precedence over any other clause of this contract providing for rights in data.
  - (3) The Government is not precluded from using similar or identical data acquired from other sources.
- (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 determine 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) through (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)

52.225-11 BUY AMERICAN ACT--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (JUL 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 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.

Designated country means any of the following countries: Aruba, Austria, Bangladesh, Belgium, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Canada, Cape Verde, Central African Republic, Chad, Comoros, Denmark.

Djibouti, Equatorial Guinea, Finland, France, Gambia, Germany, Greece, Guinea, Guinea-Bissau, Haiti, Hong Kong, Ireland, Israel, Italy, Japan.

Kiribati, Korea, Republic of, Lesotho, Liechtenstein, Luxembourg, Malawi, Maldives, Mali, Mozambique, Nepal, Netherlands, Niger, Norway, Portugal, Rwanda.

Sao Tome and Principe, Sierra Leone, Singapore, Somalia, Spain, Sweden, Switzerland, Tanzania U.R., Togo, Tuvalu, Uganda, United Kingdom, Vanuatu, Western Samoa, Yemen.

Designated country construction material means a construction material that--

- (1) Is wholly the growth, product, or manufacture of a designated country; or
- (2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a designated country into a new and different construction material distinct from the materials from which it was transformed.

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.

North American Free Trade Agreement country means Canada or Mexico.

North American Free Trade Agreement country construction material means a construction material that--

- (1) Is wholly the growth, product, or manufacture of a North American Free Trade Agreement (NAFTA) country; or
- (2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a NAFTA country into a new and different construction material distinct from the materials from which it was transformed.

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) Construction materials. (1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) and the Balance of Payments Program by providing a preference for domestic construction material. In addition, the Contracting Officer has determined that the Trade Agreements Act and the North American Free Trade Agreement (NAFTA) apply to this acquisition. Therefore, the Buy American Act restrictions are waived for designated country and NAFTA country construction materials.

- (2) The Contractor shall use only domestic, designated country, or NAFTA country construction material in performing this contract, except as provided in paragraphs (b)(3) and (b)(4) of this clause.
- (3) The requirement in paragraph (b)(2) of this clause does not apply to the construction materials or components listed by the Government as follows: (Contracting Officer to list applicable excepted materials or indicate "none")
- (4) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(3) 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 restrictions 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)(4) 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)(4)(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.... |                 |          |                     |

\1\ 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)

#### 52.227-4 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)

#### 52.228-11 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)

52.229-3 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 (MAY 1997)

(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) Payments to subcontractors and suppliers have been made from previous payments received under the contract, 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 Disputes Act 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)

#### 52.343-33 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 dispute 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)

(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.

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

(End of clause)

#### 52.236-15 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)

#### 52.242-13 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)

#### 52.246-12 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)

#### 52.246-21 WARRANTY OF CONSTRUCTION (MAR 1994)

- (a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (i) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.
- (b) This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

(c) The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Government-owned or controlled real or personal property, when that damage is the result of--

(1) The Contractor's failure to conform to contract requirements; or

(2) Any defect of equipment, material, workmanship, or design furnished.

(d) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.

(e) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

(f) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(g) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall--

(1) Obtain all warranties that would be given in normal commercial practice;

(2) Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and

(3) Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

(h) In the event the Contractor's warranty under paragraph (b) of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

(i) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.

(j) This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

(End of clause)

### 52.248-3 VALUE ENGINEERING--CONSTRUCTION (FEB 2000)

(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 will 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 will 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.

If the VECP is not accepted, the Contracting Officer will 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.

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) 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 is the sole determiner of the amount of collateral savings.

(h) 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.

(i) 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.)

(End of clause)

#### 52.249-2 TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (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 the Contracting Officer fail to agree on the whole amount to be paid because of the termination of work, the Contracting Officer shall pay the Contractor the amounts determined by the Contracting Officer as follows, but without duplication of any amounts agreed on under paragraph (f) of this clause:

(1) The contract price for completed supplies or services accepted by the Government (or sold or acquired under subparagraph (b)(9) of this clause) not previously paid for, adjusted for any saving of freight and other charges.

(2) The total of--

(i) The costs incurred in the performance of the work terminated, including initial costs and preparatory expense allocable thereto, but excluding any costs attributable to supplies or services paid or to be paid under subparagraph (f)(1) of this clause;

(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)(2)(i) of this clause; and

(iii) A sum, as profit on subdivision (g)(2)(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.

(3) 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)

#### 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

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

[Insert one or more Internet addresses]

(End of clause)

#### 52.252-4 ALTERATIONS IN CONTRACT (APR 1984)

Portions of this contract are altered as follows:

(End of clause)

#### 52.252-6 AUTHORIZED DEVIATIONS IN CLAUSES (APR 1984)

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

(vi) The use in this solicitation or contract of any \_\_\_\_\_ (48 CFR \_\_\_\_\_) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

#### 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.

(vii) 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)

## 252.203-7002 DISPLAY OF DOD HOTLINE POSTER (DEC 1991)

(a) The Contractor shall display prominently in common work areas within business segments performing work under Department of Defense (DoD) contracts, DoD Hotline Posters prepared by the DoD Office of the Inspector General.

(b) DoD Hotline Posters may be obtained from the DoD Inspector General, ATTN: Defense Hotline, 400 Army Navy Drive, Washington, DC 22202-2884.

(viii) The Contractor need not comply with paragraph (a) of this clause if it has established a mechanism, such as a hotline, by which employees may report suspected instances of improper conduct, and instructions that encourage employees to make such reports.

(End of clause)

## 252.204-7000 DISCLOSURE OF INFORMATION (DEC 1991)

(a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless--

(1) The Contracting Officer has given prior written approval; or

(2) The information is otherwise in the public domain before the date of release.

(b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

(c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

(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)

252.219-7009 SECTION 8(A) DIRECT AWARD (MAR 2002)

(a) This contract is issued as a direct award between the contracting office and the 8(a) Contractor pursuant to the Partnership Agreement dated February 1, 2002, between the Small Business Administration (SBA) and the Department of Defense. Accordingly, the SBA, even if not identified in Section A of this contract, is the prime contractor and retains responsibility for 8(a) certification, for 8(a) eligibility determinations and related issues, and for providing counseling and assistance to the 8(a) Contractor under the 8(a) Program. The cognizant SBA district office is:

Santa Ana District Office  
200 W. Santa Ana Blvd.  
Suite 700  
Santa Ana, CA 92701

(b) The contracting office is responsible for administering the contract and for taking any action on behalf of the Government under the terms and conditions of the contract; provided that the contracting office shall give advance notice to the SBA before it issues a final notice terminating performance, either in whole or in part, under the contract. The contracting office also shall coordinate with the SBA prior to processing any novation agreement. The contracting office may assign contract administration functions to a contract administration office.

(c) The Contractor agrees that--

(1) It will notify the Contracting Officer, simultaneous with its notification to the SBA (as required by SBA's 8(a) regulations at 13 CFR 124.308), when the owner or owners upon whom 8(a) eligibility is based plan to relinquish ownership or control of the concern. Consistent with Section 407 of Pub. L. 100-656, transfer of ownership or control shall result in termination of the contract for convenience, unless the SBA waives the requirement for termination prior to the actual relinquishing of ownership and control; and

(2) It will not subcontract the performance of any of the requirements of this contract without the prior written approval of the SBA and the Contracting Officer.

(End of Clause)

## 252.223-7004 DRUG-FREE WORK FORCE (SEP 1988)

## (a) Definitions.

(1) "Employee in a sensitive position," as used in this clause, means an employee who has been granted access to classified information; or employees in other positions that the Contractor determines involve national security; health or safety, or functions other than the foregoing requiring a high degree of trust and confidence.

(2) "Illegal drugs," as used in this clause, means controlled substances included in Schedules I and II, as defined by section 802(6) of title 21 of the United States Code, the possession of which is unlawful under chapter 13 of that Title. The term "illegal drugs" does not mean the use of a controlled substance pursuant to a valid prescription or other uses authorized by law.

(b) The Contractor agrees to institute and maintain a program for achieving the objective of a drug-free work force. While this clause defines criteria for such a program, contractors are encouraged to implement alternative approaches comparable to the criteria in paragraph (c) that are designed to achieve the objectives of this clause.

(c) Contractor programs shall include the following, or appropriate alternatives:

(1) Employee assistance programs emphasizing high level direction, education, counseling, rehabilitation, and coordination with available community resources;

(2) Supervisory training to assist in identifying and addressing illegal drug use by Contractor employees;

(3) Provision for self-referrals as well as supervisory referrals to treatment with maximum respect for individual confidentiality consistent with safety and security issues;

(4) Provision for identifying illegal drug users, including testing on a controlled and carefully monitored basis. Employee drug testing programs shall be established taking account of the following:

(i) The Contractor shall establish a program that provides for testing for the use of illegal drugs by employees in sensitive positions. The extent of and criteria for such testing shall be determined by the Contractor based on considerations that include the nature of the work being performed under the contract, the employee's duties, and efficient use of Contractor resources, and the risks to health, safety, or national security that could result from the failure of an employee adequately to discharge his or her position.

(ii) In addition, the Contractor may establish a program for employee drug testing--

(A) When there is a reasonable suspicion that an employee uses illegal drugs; or

(B) When an employees has been involved in an accident or unsafe practice;

(C) As part of or as a follow-up to counseling or rehabilitation for illegal drug use;

(D) As part of a voluntary employee drug testing program.

(iii) The Contractor may establish a program to test applicants for employment for illegal drug use.

(iv) For the purpose of administering this clause, testing for illegal drugs may be limited to those substances for which testing is prescribed by section 2.1 of subpart B of the "Mandatory Guidelines for Federal Workplace Drug Testing Programs" (53 FR 11980 (April 11, 1988), issued by the Department of Health and Human Services.

(d) Contractors shall adopt appropriate personnel procedures to deal with employees who are found to be using drugs illegally. Contractors shall not allow any employee to remain on duty or perform in a sensitive position who is found to use illegal drugs until such times as the Contractor, in accordance with procedures established by the Contractor, determines that the employee may perform in such a position.

(e) The provisions of this clause pertaining to drug testing program shall not apply to the extent that are inconsistent with state or local law, or with an existing collective bargaining agreement; provided that with respect to the latter, the Contractor agrees those issues that are in conflict will be a subject of negotiation at the next collective bargaining session.

(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)

## 252.227-7000 Non-estoppel. (OCT 1966)

The Government reserves the right at any time to contest the enforceability, validity, scope of, or the title to any patent or patent application herein licensed without waiving or forfeiting any right under this contract.

(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)

## 252.227-7023 DRAWINGS AND OTHER DATA TO BECOME PROPERTY OF GOVERNMENT. (MAR 1979)

All designs, drawings, specifications, notes and other works developed in the performance of this contract shall become the sole property of the Government and may be used on any other design or construction without additional compensation to the Contractor. The Government shall be considered the "person for whom the work was prepared" for the purpose of authorship in any copyrightable work under 17 U.S.C. 201(b). With respect thereto, the Contractor agrees not to assert or authorize others to assert any rights nor establish any claim under the design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish all retained works on the request of the Contracting Officer. Unless otherwise provided in this contract, the Contractor shall have the right to retain copies of all works beyond such period.

(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.

252.236-7008 CONTRACT PRICES - BIDDING SCHEDULES. (DEC 1991)

(a) The Government's payment for the items listed in the Bidding Schedule shall constitute full compensation to the Contractor for --

(1) Furnishing all plant, labor, equipment, appliances, and materials; and

(2) Performing all operations required to complete the work in conformity with the drawings and specifications.

(b) The Contractor shall include in the prices for the items listed in the Bidding Schedule all costs for work in the specifications, whether or not specifically listed in the Bidding Schedule.

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)

252.243-7001 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.

252.247-7024 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)



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**Section 00800 - Special Contract Requirements**

52.0001-4001 CONTRACT ADMINISTRATION DATA

The Contract Administration Office for this contract subsequent to award is:

Department of the Army  
Los Angeles District, Corps of Engineers  
P.O. Box 532711  
Los Angeles, California 90053-2325

ATTN: **Sharon R. Morrow**

Telephone No: **(213) 452-3248**

Payment will be made by:

USACE Finance Center  
ATTN: CEFC-AO-P  
5270 Integrity Drive  
Millington, TN 38054-5005

Submit Invoices to:

**See Block 26 of Standard Form 1442, "Solicitation, Offer and Award," which will be computed at time of contract award.**

(end of clause)

52.0028-4001 REQUIRED INSURANCE

Insurance is required as follows:

- a. Either Workman's Compensation or Employer's Liability Insurance with a minimum limit of \$100,000.00.
- b. General Liability. The Contracting Officer shall require bodily injury liability insurance coverage written on the comprehensive form or policy of at least \$500,000.00 per occurrence.
- c. Automobile Liability Insurance for Bodily Injury and Property Damage with minimum limits of \$200,000.00 for injury or death of any one person; \$500,000.00 for each accident or occurrence of bodily injury liability; and \$20,000.00 for each accident or occurrence for property liability.
- d. In every case the insurance coverage shall amount to at least the limits stated above. However, where the Financial Responsibility Compulsory Insurance Law of the State in which the installation is located requires higher limits, the Automobile Liability Insurance Policy should provide coverage of at least those limits.

Prior to the commencement of work hereunder, the Contractor shall furnish to the Contracting Office 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 until 10 days after written notice thereof to the Contracting Officer.

The Contractor agrees to insert the substance of this clause, including this paragraph, in all subcontracts

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

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than 250 calendar days after receipt of notice to proceed. The contractor grants the Option Items listed in the price Schedule to the Government. These Option Items may be exercised at any time up to 180 calendar days after receipt of Notice to Proceed. Exercise of the Option Items occurs upon mailing of written notice to the Contractor. Exercise will be made by the Contracting Officer. The price for exercise of the Option Items includes all work and effort associated with the scope of that/those item(s). No additional time for contract completion will be allowed when an Option Item is exercised. The given completion time (250 CD after receipt of Notice to Proceed) was formulated to include time necessary to perform all Option Item work. 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 \$839 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)

#### 52.211-18 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.

52.222-23 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 |
|---|---|
| 19.7%   | 6.9%  |

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 **Norco, CA, Riverside County.**

(End of provision)

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)

52.0231-4001 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE (MAR 1995)  
EFARS 52-231-5000

(a) Allowable costs 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 VII. Working conditions shall be considered to be average for determining equipment rates using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retrospective pricing, the schedule in effect at the time the work was performed shall apply.

(b) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36 substantiated by certified copies of paid invoices. Rates for equipment rented from an organization under common control, lease-purchase or sale-leaseback arrangements will be determined using the schedule except that rental costs leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees are allowable. Costs for major repairs and overhaul are unallowable.

(c) When actual equipment costs are proposed and the total amount of the pricing action is over \$25,000, cost or pricing data shall be submitted on Standard Form 1411, "Contract Pricing Proposal Cover Sheet." By submitting cost or pricing data, the contractor grants to the contracting officer or an authorizing representative the right to examine those books, records, documents and other supporting data that will permit evaluation of the proposed equipment costs. After price

agreement the contractor shall certify that the equipment costs of pricing data submitted are accurate, complete and current.

(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 \_\_\_\_\_. 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)

52.232-4001 CONTINUING CONTRACTS (ALTERNATE) (MAR 1995) EFARS 52-232-5002

(a) Funds are not available at the inception of this contract to cover the entire contract price. The sum of \$150,000 has been reserved for this contract and is available for payment 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. The liability of the United States for payment beyond the funds reserved for this contract is contingent on the reservation of additional funds.

(b) Failure to make payment in excess of the amount currently reserved, or that may be reserved from time to time, shall not be considered a breach of this contract, and shall not entitle the contractor to a price adjustment under the terms of this contract except as specifically provided in paragraphs (e) and (h) below.

(c) 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.

(d) 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 of additional funds which will be needed to meet payments due or to become due under this 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.

(e) No payments will be made after exhaustion of funds except to the extent that additional funds are reserved for the contract. If and when sufficient additional funds are reserved, the contractor shall be

entitled to simple interest on any payment that the contracting officer determines was actually earned under the terms of this 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.

(f) 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 a "Suspension of Work" or similar clause or in any other manner under this contract.

(g) 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.

(h) 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 at no cost to the Government, except that, to the extent that additional funds to make payment therefore are allocated to this contract, it may be treated as a termination for the convenience of the Government.

(i) 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 this 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.

(j) The term "Reservation" means monies that have been set aside and made available for payments under this contract.

(End of clause)

#### 52.236-4 PHYSICAL DATA (APR 1984)

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

(a) The indications of physical conditions on the drawings and in the specifications are the result of site investigations by surveys.

(b) Weather conditions: The Contractor shall satisfy himself as to the hazards likely to arise from weather conditions.

(c) Transportation facilities: The Contractor shall make his own investigation of the conditions of existing public and private roads and clearances, restrictions, bridge load limits and other limitations affecting transportation and ingress and egress at the job site. The unavailability of transportation facilities or limitations thereof shall not become a basis for claims against the Government or extensions of time for completion of the work.

(End of clause)

#### 52.236-16 QUANTITY SURVEYS (APR 1984)

(a) Quantity surveys shall be conducted, and the data derived from these surveys shall be used in computing the quantities of work performed and the actual construction completed and in place.

(b) The Government shall conduct the original and final surveys and make the computations based on them. The Contractor shall conduct the surveys for any periods for which progress payments are requested and shall make the computations based on these surveys. All surveys conducted by the Contractor shall be conducted under the direction of a representative of the Contracting Officer, unless the Contracting Officer waives this requirement in a specific instance.

(c) Promptly upon completing a survey, the Contractor shall furnish the originals of all field notes and all other records relating to the survey or to the layout of the work to the Contracting Officer, who shall use them as necessary to determine the amount of progress payments. The Contractor shall retain copies of all such material furnished to the Contracting Officer.

(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)

52.236-5000 PLANT AND MATERIAL REMOVAL AFTER CONTRACT TERMINATION (MAR 1995)--EFARS

Should this contract be terminated as provided in clause 52.232-5001 because of the failure of Congress to provide additional funds for its completion, the contractor may be permitted to remove plant and material on which payments for preparatory work have been made, subject to an equitable deduction from the amounts due the contractor to reimburse the United States for the unabsorbed value of such plant and material.

(End of clause)

52.249-5000 Basis for settlement of proposals.

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

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

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

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

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

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

(End of Clause)

252.236-7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (AUG 2000)

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

(b) The Contractor shall--

- (1) Check all drawings furnished immediately upon receipt;
- (2) Compare all drawings and verify the figures before laying out the work;
- (3) Promptly notify the Contracting Officer of any discrepancies;
- (4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and
- (5) Reproduce and print contract drawings and specifications as needed.

(c) In general--

- (1) Large-scale drawings shall govern small-scale drawings; and
- (2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

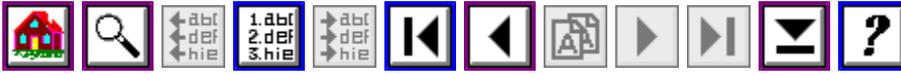
(d) Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details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

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

| Title | File | Drawing No. |
|-------|------|-------------|
|-------|------|-------------|

See attached specifications and 39 drawings.

(End of clause)



## General Decision Number CA020036

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General Decision Number CA020036  
 Superseded General Decision No. CA010036

State: **California**

Construction Type:

BUILDING

DREDGING

**HEAVY** HIGHWAY

County(ies):

**RIVERSIDE**

BUILDING CONSTRUCTION PROJECTS; DREDGING PROJECTS (does not include hopper dredge work); **HEAVY** CONSTRUCTION PROJECTS (does not include water well drilling); HIGHWAY CONSTRUCTION PROJECTS

| Modification Number | Publication Date |
|---------------------|------------------|
| 0                   | 03/01/2002       |
| 1                   | 03/08/2002       |
| 2                   | 03/22/2002       |
| 3                   | 03/29/2002       |
| 4                   | 05/10/2002       |
| 5                   | 05/17/2002       |
| 6                   | 05/24/2002       |
| 7                   | 06/07/2002       |
| 8                   | 06/21/2002       |
| 9                   | 07/05/2002       |
| 10                  | 07/19/2002       |
| 11                  | 08/02/2002       |
| 12                  | 08/09/2002       |
| 13                  | 08/23/2002       |
| 14                  | 09/06/2002       |
| 15                  | 09/20/2002       |
| 16                  | 10/04/2002       |
| 17                  | 10/25/2002       |
| 18                  | 11/08/2002       |

COUNTY(ies):

**RIVERSIDE**

ASBE0005B 08/05/2002

|   | Rates | Fringes |
|---|-------|---------|
| Includes the application of all insulating materials, protective coverings, coatings, and finishings to all types of mechanical systems |       |         |
| INSULATOR/ASBESTOS WORKER   | 33.06 | 8.11    |

ASBE0005D 12/17/2001

|  | Rates | Fringes |
|--|-------|---------|
| Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, wheather they contain asbestos or not: |       |         |
| HAZARDOUS MATERIAL HANDLER   | 16.00 | 2.30    |

|   |            |                |         |
|---|------------|----------------|---------|
| BOIL0092F   | 10/01/2002 |                |         |
|   |            | Rates          | Fringes |
| BOILERMAKER   |            | 31.96          | 13.30   |
| -----   |            |                |         |
| BRCA0004U   | 05/01/2002 |                |         |
|   |            | Rates          | Fringes |
| BRICKLAYER; MARBLE MASON  |            | 28.22          | 6.20    |
| -----   |            |                |         |
| BRCA0018G   | 06/01/2002 |                |         |
|   |            | Rates          | Fringes |
| TILE LAYERS   |            | 26.50          | 7.45    |
| TILE FINISHERS  |            | 16.65          | 2.91    |
| MARBLE FINISHER   |            | 19.90          | 3.56    |
| -----   |            |                |         |
| BRCA0018K   | 12/01/2000 |                |         |
|   |            | Rates          | Fringes |
| TERRAZZO WORKER   |            | 26.78          | 5.34    |
| TERRAZZO FINISHER   |            | 20.53          | 5.34    |
| -----   |            |                |         |
| CARP0002B   | 07/01/2001 |                |         |
|   |            | Rates          | Fringes |
| DIVERS:   |            |                |         |
| Diver, wet  |            | 486.08 per day | 5.61    |
| Diver, stand-by   |            | 243.04 per day | 5.61    |
| Diver tender  |            | 235.04 per day | 5.61    |
| -----   |            |                |         |
| CARP0002Q   | 07/01/2002 |                |         |
|   |            | Rates          | Fringes |
| Work on wood framed construction<br>of single family residences,<br>apartments or condominiums<br>under 4 stories   |            |                |         |
| DRYWALL INSTALLERS  |            | 19.00          | 5.18    |
| DRYWALL STOCKER/SCRAPPER  |            | 10.00          | 4.68    |
| All other work  |            |                |         |
| DRYWALL INSTALLERS  |            | 29.00          | 6.68    |
| DRYWALL STOCKER/SCRAPPER  |            | 10.00          | 4.68    |
| -----   |            |                |         |
| CARP0003E   | 07/01/1998 |                |         |
|   |            | Rates          | Fringes |
| CARPENTERS:   |            |                |         |
| Work on wood frame, tilt up or concrete block construction<br>including but not limited to: shopping centers, stores, office<br>buildings, fast food establishments, also including curb, gutter<br>and sidewalks where the total cost of the project does not exceed<br>seven and one-half million (\$7,500,000.00) dollars. |            |                |         |
| CARPENTERS:   |            |                |         |
| Carpenter, cabinet installer,<br>insulation installer, floor<br>worker and acoustical<br>installer  |            | 22.75          | 6.28    |
| Shingler  |            | 22.88          | 6.28    |
| Roof loader of shingles   |            | 15.42          | 6.28    |
| Saw filer   |            | 22.83          | 6.28    |
| Table power saw operator  |            | 22.85          | 6.28    |
| Pneumatic nailer or power<br>stapler  |            | 23.00          | 6.28    |
| Fence builder   |            | 20.30          | 6.28    |
| Millwright  |            | 23.25          | 6.28    |
| Pile driver; Derrick barge;   |            |                |         |

|   |       |      |
|---|-------|------|
| Bridge or dock carpenter;<br>Cable splicer; <b>Heavy</b> framer;<br>Rockslinger | 22.88 | 6.28 |
| Head rockslinger  | 22.98 | 6.28 |
| Rock barge or scow  | 22.78 | 6.28 |
| Scaffold builder  | 17.00 | 6.28 |

All other work:

CARPENTERS:

|  |       |      |
|--|-------|------|
| Carpenter, cabinet installer,<br>insulation installer, floor<br>worker and acoustical<br>installer | 24.75 | 6.28 |
| Shingler   | 24.88 | 6.28 |
| Roof loader of shingles  | 17.42 | 6.28 |
| Saw filer  | 24.83 | 6.28 |
| Table power saw operator   | 24.85 | 6.28 |
| Pneumatic nailer or power<br>stapler   | 25.00 | 6.28 |
| Fence builder  | 22.30 | 6.28 |
| Millwright   | 25.25 | 6.28 |

|  |       |      |
|--|-------|------|
| Pile driver; Derrick barge;<br>Bridge or dock carpenter;<br>Cable splicer; <b>Heavy</b> framer;<br>Rockslinger | 24.88 | 6.28 |
| Head rockslinger   | 24.98 | 6.28 |
| Rock barge or scow   | 24.78 | 6.28 |
| Scaffold builder   | 19.00 | 6.28 |

FOOTNOTE:

Work of forming in the construction of open cut sewers or storm drains, on operations in which horizontal lagging is used in conjunction with steel H-Beams driven or placed in pre-drilled holes, for that portion of a lagged trench against which concrete is poured, namely, as a substitute for back forms (which work is performed by piledrivers): \$0.13 per hour additional.

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 CARP0003H 07/01/2001

|                             | Rates | Fringes |
|-----------------------------|-------|---------|
| MODULAR FURNITURE INSTALLER | 14.99 | 5.805   |
| LOW WALL MODULAR TECHNICIAN | 18.22 | 5.805   |
| FULL WALL TECHNICIAN        | 21.47 | 5.805   |

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 ELEC0011C 12/01/2001

|                                  | Rates | Fringes   |
|----------------------------------|-------|-----------|
| COMMUNICATIONS AND SYSTEMS WORK: |       |           |
| Installer                        | 22.13 | 3% + 4.40 |
| Technician                       | 23.93 | 3% + 4.40 |

SCOPE OF WORK:

Installation, testing, service and maintenance of systems utilizing the transmission and/or transference of voice, sound, vision and digital for commercial, educational, security and entertainment purposes for the following: TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call systems, radio page, school intercom and sound, burglar alarms, fire alarm (see last paragraph below) and low voltage master clock systems in commercial buildings.

Communication Systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems; inclusion or exclusion of terminations and testings of

conductors determined by their function; excluding all other data systems or multiple systems which include control function or power supply; excluding installation of raceway systems, conduit systems, line voltage work, and energy management systems. Does not cover work performed at China Lake Naval Ordnance Test Station.

Fire alarm work shall be performed at the current inside wireman total cost package.

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ELEC0440A 06/03/2002

|               | Rates | Fringes |
|---------------|-------|---------|
| ELECTRICIAN   | 28.28 | 3%+9.61 |
| CABLE SPLICER | 28.78 | 3%+9.61 |

ZONE PAY:

Zone A: Free travel zone for all contractors performing work in Zone A.

Zone B: Any work performed in Zone (B) shall add \$8.00 per hour to the current wage scale. Zone (B) shall be the area from the eastern perimeter of Zone (A) to a line which runs north and south beginning at Little Morongo Canyon (San Bernardino/**Riverside** County Line), Southeast along the Coachella Tunnels, Colorado River Aqueduct and Mecca Tunnels to Pinkham Wash the South to Box Canyon Road, then southwest along Box Canyon Road to Highway 195 west onto 195 south to Highway 86 to **Riverside**/Imperial County Line.

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ELEC1245C 06/01/2002

|  | Rates | Fringes   |
|--|-------|-----------|
| LINE CONSTRUCTION:<br>Lineman; Cable splicer   | 33.16 | 4.5%+7.08 |
| Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), and overhead and underground distribution line equipment) | 28.19 | 4.5%+6.80 |
| Groundman  | 21.56 | 4.5%+6.80 |
| Powderman  | 31.51 | 4.5%+6.84 |

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ELEV0018A 09/15/2001

|                   | Rates  | Fringes |
|-------------------|--------|---------|
| ELEVATOR MECHANIC | 33.695 | 7.455   |

FOOTNOTE:

Vacation Pay: 8% with 5 or more years of service, 6% for 6 months to 5 years service. Paid Holidays: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Friday after, and Christmas Day.

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ENGI0012C 07/01/2002

|                            | Rates | Fringes |
|----------------------------|-------|---------|
| POWER EQUIPMENT OPERATORS: |       |         |
| GROUP 1                    | 27.85 | 11.85   |
| GROUP 2                    | 28.63 | 11.85   |
| GROUP 3                    | 28.92 | 11.85   |
| GROUP 4                    | 30.21 | 11.85   |
| GROUP 5                    | 30.43 | 11.85   |
| GROUP 6                    | 30.54 | 11.85   |
| GROUP 7                    | 30.66 | 11.85   |
| GROUP 8                    | 30.83 | 11.85   |

|   |       |       |
|---|-------|-------|
| GROUP 9                                   | 30.93 | 11.85 |
| GROUP 10                                  | 30.96 | 11.85 |
| GROUP 11                                  | 31.04 | 11.85 |
| GROUP 12                                  | 31.16 | 11.85 |
| GROUP 13                                  | 31.33 | 11.85 |
| GROUP 14                                  | 31.43 | 11.85 |
| GROUP 15                                  | 31.54 | 11.85 |
| GROUP 16                                  | 31.66 | 11.85 |
| GROUP 17                                  | 31.83 | 11.85 |
| GROUP 18                                  | 31.93 | 11.85 |
| GROUP 19                                  | 32.04 | 11.85 |
| GROUP 20                                  | 32.16 | 11.85 |
| GROUP 21                                  | 32.33 | 11.85 |
| CRANES, PILEDRIVING & HOISTING EQUIPMENT: |       |       |
| GROUP 1                                   | 29.00 | 11.85 |
| GROUP 2                                   | 29.78 | 11.85 |
| GROUP 3                                   | 30.07 | 11.85 |
| GROUP 4                                   | 30.21 | 11.85 |
| GROUP 5                                   | 30.43 | 11.35 |
| GROUP 6                                   | 30.54 | 11.85 |
| GROUP 7                                   | 30.66 | 11.35 |
| GROUP 8                                   | 30.83 | 11.85 |
| GROUP 9                                   | 31.00 | 11.85 |
| GROUP 10                                  | 32.00 | 11.85 |
| GROUP 11                                  | 33.00 | 11.85 |
| GROUP 12                                  | 34.00 | 11.85 |
| GROUP 13                                  | 35.00 | 11.80 |
| TUNNEL WORK:                              |       |       |
| GROUP 1                                   | 30.28 | 11.85 |
| GROUP 2                                   | 30.57 | 11.85 |
| GROUP 3                                   | 30.71 | 11.85 |
| GROUP 4                                   | 30.93 | 11.85 |
| GROUP 5                                   | 31.04 | 11.85 |
| GROUP 6                                   | 31.16 | 11.85 |
| GROUP 7                                   | 31.46 | 11.85 |

FOOTNOTES: Workers required to suit up and work in a hazardous material environment: \$1.00 per hour additional.

Combination mixer and compressor operator on gunite work shall be classified as a concrete mobile mixer operator.

#### POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Bargeman; Brakeman; Compressor operator; Ditch Witch, with seat or similar type equipment; Elevator operator-inside; Engineer Oiler; Forklift operator (includes loed, lull or similar types under 5 tons; Generator operator; Generator, pump or compressor plant operator; Pump operator; Signalman; Switchman

GROUP 2: Asphalt-rubber plant operator (nurse tank operator); Concrete mixer operator-skip type; Conveyor operator; Fireman; Forklift operator (includes loed, lull or similar types over 5 tons; Hydrostatic pump operator; oiler crusher (asphalt or concrete plant); Petromat laydown machine; PJU side dum jack; Screening and conveyor machine operator (or similar types); Skiploader (wheel type up to 3/4 yd. without attachment); Tar pot fireman; Temporary heating plant operator; Trenching machine oiler

GROUP 3: Asphalt-rubber blend operator; Bobcat or similar type (side steer); Equipment greaser (rack); Ford Ferguson (with dragtype attachments); Helicopter radioman (ground); Stationary pipe wrapping and cleaning machine operator

GROUP 4: Asphalt plant fireman; Backhoe operator (mini-max or similar type); Boring machine operator; Boxman or mixerman

(asphalt or concrete); Chip spreading machine operator; Concrete cleaning decontamination machine operator; Concrete Pump Operator (small portable); Drilling machine operator, small auger types (Texoma super economatic or similar types - Hughes 100 or 200 or similar types - drilling depth of 30' maximum); Equipment greaser (grease truck); Guard rail post driver operator; Highline cableway signalman; Horizontal Directional Drilling Machine; Hydra-hammer-aero stomper; Micro Tunneling (above ground tunnel); Power concrete curing machine operator; Power concrete saw operator; Power-driven jumbo form setter operator; Power sweeper operator; Roller operator (compacting); Screed operator (asphalt or concrete); Trenching machine operator (up to 6 ft.); Vacuum or much truck

GROUP 5: Articulating material hauler; Asphalt plant engineer; Batch plant operator; Bit sharpener; Concrete joint machine operator (canal and similar type); Concrete planer operator; Dandy digger; Deck engine operator; Derrickman (oilfield type); Drilling machine operator, bucket or auger types (Calweld 100 bucket or similar types - Watson 1000 auger or similar types - Texoma 330, 500 or 600 auger or similar types - drilling depth of 45' maximum); Drilling machine operator (including water wells); Hydrographic seeder machine operator (straw, pulp or seed), Jackson track maintainer, or similar type; Kalamazoo Switch tamper, or similar type; Machine tool operator; Maginnis internal full slab vibrator, Mechanical berm, curb or gutter (concrete or asphalt); Mechanical finisher operator (concrete, Clary-Johnson-Bidwell or similar); Micro tunnel system (below ground); Pavement breaker operator (truck mounted); Road oil mixing machine operator; Roller operator (asphalt or finish), rubber-tired earth moving equipment (single engine, up to and including 25 yds. struck); Self-propelled tar pipelining machine operator; Skiploader operator (crawler and wheel type, over 3/4 yd. and up to and including 1-1/2 yds.); Slip form pump operator (power driven hydraulic lifting device for concrete forms); Tractor operator-bulldozer, tamper-scraper (single engine, up to 100 h.p. flywheel and similar types, up to and including D-5 and similar types); Tugger hoist operator (1 drum); Ultra high pressure waterjet cutting tool system operator; Vacuum blasting machine operator

GROUP 6: Asphalt or concrete spreading operator (tamping or finishing); Asphalt paving machine operator (Barber Greene or similar type); Asphalt-rubber distribution operator; Backhoe operator (up to and including 3/4 yd.), small ford, Case or similar; Cast-in-place pipe laying machine operator; Combination mixer and compressor operator (gunite work); Compactor operator (self-propelled); Concrete mixer operator (paving); Crushing plant operator; Drill Doctor; Drilling machine operator, Bucket or auger types (Calweld 150 bucket or similar types - Watson 1500, 2000 2500 auger or similar types - Texoma 700, 800 auger or similar types - drilling depth of 60' maximum); Elevating grader operator; Grade checker; Gradall operator; Grouting machine operator; Heavy-duty repairman; **Heavy** equipment robotics operator; Kalamazoo balliste regulator or similar type; Kolman belt loader and similar type; Le Tourneau blob compactor or similar type; Loader operator (Athey, Euclid, Sierra and similar types); Ozzie padder or similar types; P.C. slot saw; Pneumatic concrete placing machine operator (Hackley-Presswell or similar type); Pumpcrete gun operator; Rotary drill operator (excluding caisson type); Rubber-tired earth-moving equipment operator (single engine, caterpillar, Euclid, Athey Wagon and similar

types with any and all attachments over 25 yds. up to and including 50 cu. yds. struck); Rubber-tired earth-moving equipment operator (multiple engine up to and including 25 yds. struck); Rubber-tired scraper operator (self-loading paddle wheel type-John Deere, 1040 and similar single unit); Self-propelled curb and gutter machine operator; Shuttle buggy; Skiploader operator (crawler and wheel type over 1-1/2 yds. up to and including 6-1/2 yds.); Soil remediation plant operator; Surface heaters and planer operator; Tractor compressor drill combination operator; Tractor operator (any type larger than D-5 - 100 flywheel h.p. and over, or similar-bulldozer, tamper, scraper and push tractor single engine); Tractor operator (boom attachments), Traveling pipe wrapping, cleaning and bending machine operator; Trenching machine operator (over 6 ft. depth capacity, manufacturer's rating); Ultra high pressure waterjet cutting tool system mechanic; Water pull (compaction) operator

GROUP 7: Drilling machine operator, Bucket or auger types (Calweld 200 B bucket or similar types-Watson 3000 or 5000 auger or similar types-Texoma 900 auger or similar types-drilling depth of 105' maximum); Dual drum mixer, dynamic compactor LDC350 (or similar types); Monorail locomotive operator (diesel, gas or electric); Motor patrol-blade operator (single engine); Multiple engine tractor operator (Euclid and similar type-except Quad 9 cat.); Rubber-tired earth-moving equipment operator (single engine, over 50 yds. struck); Pneumatic pipe ramming tool and similar types; Prestressed wrapping machine operator; Rubber-tired earth-moving equipment operator (single engine, over 50 yds. struck); Rubber tired earth moving equipment operator (multiple engine, Euclid, caterpillar and similar over 25 yds. and up to 50 yds. struck), Tower crane repairman; Tractor loader operator (crawler and wheel type over 6-1/2 yds.); Woods mixer operator (and similar Pugmill equipment)

GROUP 8: Auto grader operator; Automatic slip form operator; Drilling machine operator, bucket or auger types (Calweld, auger 200 **CA** or similar types - Watson, auger 6000 or similar types - Hughes Super Duty, auger 200 or similar types - drilling depth of 175' maximum); Hoe ram or similar with compressor; Mass excavator operator less than 750 cu. yards; Mechanical finishing machine operator; Mobile form traveler operator; Motor patrol operator (multi-engine); Pipe mobile machine operator; Rubber-tired earth-moving equipment operator (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck); Rubber-tired self-loading scraper operator (paddle-wheel-auger type self-loading - two (2) or more units)

GROUP 9: Rubber-tired earth-moving equipment operator operating equipment with push-pull system (single engine, up to and including 25 yds. struck)

GROUP 10: Canal liner operator; Canal trimmer operator; Remote-control earth-moving equipment operator (operating a second piece of equipment: \$1.00 per hour additional); Wheel excavator operator (over 750 cu. yds.)

GROUP 11: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine-up to and including 25 yds. struck)

GROUP 12: Rubber-tired earth-moving equipment operator,

operating equipment with push-pull system (single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 13: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 50 cu. yds. struck); Tandem tractor operator (operating crawler type tractors in tandem - Quad 9 and similar type)

GROUP 14: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, up to and including 25 yds. struck)

GROUP 15: Rotex concrete belt operator (or similar types); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - multiple engine, up to and including 25 yds. struck)

GROUP 16: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 17: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

GROUP 18: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, up to and including 25 yds. struck)

GROUP 19: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck); Rubber-tired earth-moving equipment operator, operating with the tandem push-pull system (multiple engine, up to and including 25 yds. struck)

GROUP 20: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, over 50 yds. struck); Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 21: Concrete pump operator-truck mounted; Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

#### CRANES, PILEDRIVING AND HOISTING EQUIPMENT CLASSIFICATIONS

GROUP 1: Engineer oiler; Fork lift operator (includes loed, lull or similar types)

GROUP 2: Truck crane oiler

GROUP 3: A-frame or winch truck operator; Ross carrier operator (jobsite)

GROUP 4: Bridge-type unloader and turntable operator; Helicopter hoist operator

GROUP 5: Hydraulic boom truck; Stinger crane (Austin-Western or similar type); Tugger hoist operator (1 drum)

GROUP 6: Bridge crane operator; Cretor crane operator; Hoist operator (Chicago boom and similar type); Lift mobile operator; Lift slab machine operator (Vagtborg and similar types); Material hoist and/or manlift operator; Polar gantry crane operator; Self Climbing scaffold (or similar type); Shovel, backhoe, dragline, clamshell operator (over 3/4 yd. and up to 5 cu. yds. mrc); Tugger hoist operator

GROUP 7: Pedestal crane operator; Shovel, backhoe, dragline, clamshell operator (over 5 cu. yds. mrc); Tower crane repair; Tugger hoist operator (3 drum)

GROUP 8: Crane operator (up to and including 25 ton capacity); Crawler transporter operator; Derrick barge operator (up to and including 25 ton capacity); Hoist operator, stiff legs, Guy derrick or similar type (up to and including 25 ton capacity); Shovel, backhoe, dragline, clamshell operator (over 7 cu. yds., M.R.C.)

GROUP 9: Crane operator (over 25 tons and up to and including 50 tons mrc); Derrick barge operator (over 25 tons up to and including 50 tons mrc); Highline cableway operator; Hoist operator, stiff legs, Guy derrick or similar type (over 25 tons up to and including 50 tons mrc); K-crane operator; Polar crane operator; Self erecting tower crane operator maximum lifting capacity ten tons

GROUP 10: Crane operator (over 50 tons and up to and including 100 tons mrc); Derrick barge operator (over 50 tons up to and including 100 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 50 tons up to and including 100 tons mrc), Mobile tower crane operator (over 50 tons, up to and including 100 tons M.R.C.); Tower crane operator and tower gantry

GROUP 11: Crane operator (over 100 tons and up to and including 200 tons mrc); Derrick barge operator (over 100 tons up to and including 200 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 100 tons up to and including 200 tons mrc); Mobile tower crane operator (over 100 tons up to and including 200 tons mrc)

GROUP 12: Crane operator (over 200 tons up to and including 300 tons mrc); Derrick barge operator (over 200 tons up to and including 300 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 200 tons, up to and including 300 tons mrc); Mobile tower crane operator (over 200 tons, up to and including 300 tons mrc)

GROUP 13: Crane operator (over 300 tons); Derrick barge operator (over 300 tons); Helicopter pilot; Hoist operator, stiff legs, Guy derrick or similar type (over 300 tons); Mobile tower crane operator (over 300 tons)

#### TUNNEL CLASSIFICATIONS

GROUP 1: Skiploader (wheel type up to 3/4 yd. without attachment)

GROUP 2: Power-driven jumbo form setter operator

GROUP 3: Dinkey locomotive or motorperson (up to and including 10 tons)

GROUP 4: Bit sharpener; Equipment greaser (grease truck); Slip form pump operator (power-driven hydraulic lifting device for concrete forms); Tugger hoist operator (1 drum); Tunnel locomotive operator (over 10 and up to and including 30 tons)

GROUP 5: Backhoe operator (up to and including 3/4 yd.); Small Ford, Case or similar; Drill doctor; Grouting machine operator; Heading shield operator; Heavy-duty repairperson; Loader operator (Athey, Euclid, Sierra and similar types); Mucking machine operator (1/4 yd., rubber-tired, rail or track type); Pneumatic concrete placing machine operator (Hackley-Presswell or similar type); Pneumatic heading shield (tunnel); Pumpcrete gun operator; Tractor compressor drill combination operator; Tugger hoist operator (2 drum); Tunnel locomotive operator (over 30 tons)  
 GROUP 6: **Heavy** Duty Repairman  
 GROUP 7: Tunnel mole boring machine operator

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 ENGI0012D 08/01/2002

|  | Rates | Fringes |
|--|-------|---------|
| POWER EQUIPMENT OPERATORS:             |       |         |
| DREDGING:                              |       |         |
| Leverman                               | 34.65 | 11.85   |
| Dredge dozer                           | 31.18 | 11.85   |
| Deckmate                               | 31.07 | 11.85   |
| Winch operator (stern winch on dredge) | 30.52 | 11.85   |
| Fireman; deckhand and bargeman         | 29.98 | 11.85   |
| Barge mate                             | 30.59 | 11.85   |

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 IRON0002E 07/01/2002

|  | Rates | Fringes |
|--|-------|---------|
| IRONWORKERS:   |       |         |
| Fence erector  | 25.97 | 16.29   |
| Ornamental, reinforcing and structural   | 26.86 | 16.29   |
| FOOTNOTE: Work at Chocolate Mountains Naval Reserve-Niland additional \$3.00 per hour. |       |         |

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 LABO0001B 07/01/2002

|              | Rates | Fringes |
|--------------|-------|---------|
| BRICK TENDER | 21.10 | 9.57    |

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 LABO0002H 07/01/2002

|                  | Rates | Fringes |
|------------------|-------|---------|
| LABORERS:        |       |         |
| GROUP 1          | 20.10 | 9.98    |
| GROUP 2          | 20.65 | 9.98    |
| GROUP 3          | 21.20 | 9.98    |
| GROUP 4          | 22.75 | 9.98    |
| GROUP 5          | 23.10 | 9.98    |
| TUNNEL LABORERS: |       |         |
| GROUP 1          | 23.01 | 9.98    |
| GROUP 2          | 23.33 | 9.98    |
| GROUP 3          | 23.79 | 9.98    |
| GROUP 4          | 24.48 | 9.98    |
| GUNITE LABORERS: |       |         |
| GROUP 1          | 22.84 | 12.73   |
| GROUP 2          | 21.89 | 12.73   |
| GROUP 3          | 18.35 | 12.73   |

FOOTNOTE: GUNITE PREMIUM PAY:

Workers working from a Bosn'n's Chair or suspended from a rope or cable shall receive 40 cents per hour above the foregoing applicable classification rates.

Workers doing gunite and/or shotcrete work in a tunnel shall

receive 35 cents per hour above the foregoing applicable classification rates, paid on a portal-to-portal basis.

Any work performed on, in or above any smoke stack, silo, storage elevator or similar type of structure, when such structure is in excess of 75'-0" above base level and which work must be performed in whole or in part more than 75'-0" above base level, that work performed above the 75'-0" level shall be compensated for at 35 cents per hour above the applicable classification wage rate.

#### LABORER CLASSIFICATIONS

GROUP 1: Cleaning and handling of panel forms; Concrete screeding for rough strike-off; Concrete, water curing; Demolition laborer, the cleaning of brick if performed by a worker performing any other phase of demolition work, and the cleaning of lumber; Fire watcher, limber, brush loader, piler and debris handler; Flag person; Gas, oil and/or water pipeline laborer; Laborer, asphalt-rubber material loader; Laborer, general or construction; Laborer, general clean-up; Laborer, landscaping; Laborer, jetting; Laborer, temporary water and air lines; Material hose operator (walls, slabs, floors and decks); Plugging, filling of shee bolt holes; Dry packing of concrete; Railroad maintenance, repair track person and road beds; Streetcar and railroad construction track laborers; Rigging and signaling; Scaler; Slip form raiser; Tar and mortar; Tool crib or tool house laborer; Traffic control by any method; Window cleaner; Wire mesh pulling - all concrete pouring operations

GROUP 2: Asphalt shoveler; Cement dumper (on 1 yd. or larger mixer and handling bulk cement); Cesspool digger and installer; Chucktender; Chute handler, pouring concrete, the handling of the chute from readymix trucks, such as walls, slabs, decks, floors, foundation, footings, curbs, gutters and sidewalks; Concrete curer, impervious membrane and form oiler; Cutting torch operator (demolition); Fine grader, highways and street paving, airport, runways and similar type **heavy** construction; Gas, oil and/or water pipeline wrapper - pot tender and form person; Guinea chaser; Headerboard person - asphalt; Laborer, packing rod steel and pans; Membrane vapor barrier installer; Power broom sweeper (small); Riprap stonepaver, placing stone or wet sacked concrete; Roto scraper and tiller; Sandblaster (pot tender); Septic tank digger and installer(lead); Tank scaler and cleaner; Tree climber, faller, chain saw operator, Pittsburgh chipper and similar type brush shredder; Underground laborer, including caisson bellower

GROUP 3: Buggymobile person; Concrete cutting torch; Concrete pile cutter; Driller, jackhammer, 2-1/2 ft. drill steel or longer; Dri-pak-it machine; Gas, oil and/or water pipeline wrapper, 6-in. pipe and over, by any method, inside and out; High scaler (including drilling of same); Hydro seeder and similar type; Impact wrench multi-plate; Kettle person, pot person and workers applying asphalt, lay-kold, creosote, lime caustic and similar type materials ("applying" means applying, dipping, brushing or handling of such materials for pipe wrapping and waterproofing); Operator of pneumatic, gas, electric tools, vibrating machine, pavement breaker, air blasting, come-alongs, and similar mechanical tools not separately classified herein; Pipelayer's backup person, coating, grouting, making of joints, sealing, caulking, diapering and including rubber gasket joints, pointing and any and all other services; Rock slinger; Rotary scarifier or multiple head concrete chipping scarifier; Steel headerboard and guideline setter; Tamper, Barko, Wacker and

similar type; Trenching machine, hand-propelled  
 GROUP 4: Asphalt raker, lute person, ironer, asphalt dump person, and asphalt spreader boxes (all types); Concrete core cutter (walls, floors or ceilings), grinder or sander; Concrete saw person, cutting walls or flat work, scoring old or new concrete; Cribber, shorer, lagging, sheeting and trench bracing, hand-guided lagging hammer; Head rock slinger; Laborer, asphalt-rubber distributor boot person; Laser beam in connection with laborers' work; Oversize concrete vibrator operator, 70 lbs. and over; Pipelayer performing all services in the laying and installation of pipe from the point of receiving pipe in the ditch until completion of operation, including any and all forms of tubular material, whether pipe, metallic or non-metallic, conduit and any other stationary type of tubular device used for the conveying of any substance or element, whether water, sewage, solid gas, air, or other product whatsoever and without regard to the nature of material from which the tubular material is fabricated; No-joint pipe and stripping of same; Prefabricated manhole installer; Sandblaster (nozzle person), water blasting, Porta Shot-Blast

GROUP 5: Blaster powder, all work of loading holes, placing and blasting of all powder and explosives of whatever type, regardless of method used for such loading and placing; Driller: All power drills, excluding jackhammer, whether core, diamond, wagon, track, multiple unit, and any and all other types of mechanical drills without regard to the form of motive power; Toxic waste removal

#### TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Batch plant laborer; Bull gang mucker, track person; Changehouse person; Concrete crew, including rodder and spreader; Dump person; Dump person (outside); Swamper (brake person and switch person on tunnel work); Tunnel materials handling person

GROUP 2: Chucktender, cabletender; Loading and unloading agitator cars; Nipper; Pot tender, using mastic or other materials (for example, but not by way of limitation, shotcrete, etc.); Vibrator person, jack hammer, pneumatic tools (except driller)

GROUP 3: Blaster, driller, powder person; Chemical grout jet person; Cherry picker person; Grout gun person; Grout mixer person; Grout pump person; Jackleg miner; Jumbo person; Kemper and other pneumatic concrete placer operator; Miner, tunnel (hand or machine); Nozzle person; Operating of troweling and/or grouting machines; Powder person (primer house); Primer person; Sandblaster; Shotcrete person; Steel form raiser and setter; Timber person, retimber person, wood or steel; Tunnel Concrete finisher

GROUP 4: Diamond driller; Sandblaster; Shaft and raise work

#### GUNITE LABORER CLASSIFICATIONS

GROUP 1: Nozzle person and rod person

GROUP 2: Gun person

GROUP 3: Rebound person

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 LABO0783I 08/07/2002

|                          | Rates | Fringes |
|--------------------------|-------|---------|
| PLASTERER TENDER         | 23.00 | 10.17   |
| PLASTER CLEAN-UP LABORER | 20.45 | 10.17   |

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\* LABO0882B 01/01/2002

|                          | Rates | Fringes |
|--------------------------|-------|---------|
| ASBESTOS REMOVAL LABORER | 20.97 | 7.65    |

SCOPE OF WORK: Includes site mobilization, initial site cleanup, site preparation, removal of asbestos-containing material and toxic waste, encapsulation, enclosure and disposal of asbestos-containing materials and toxic waste by hand or with equipment or machinery; scaffolding, fabrication of temporary wooden barriers and assembly of decontamination stations.

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LABO1184A 07/01/2002

|                      | Rates | Fringes |
|----------------------|-------|---------|
| LABORERS - STRIPING: |       |         |
| GROUP 1              | 20.65 | 8.42    |
| GROUP 2              | 21.50 | 8.42    |
| GROUP 3              | 23.82 | 8.42    |
| GROUP 4              | 26.02 | 8.42    |

LABORERS - STRIPING CLASSIFICATIONS

GROUP 1: Protective coating, pavement sealing, including repair and filling of cracks by any method on any surface in parking lots, game courts and playgrounds; carstops; operation of all related machinery and equipment; equipment repair technician

GROUP 2: Traffic surface abrasive blaster; pot tender - removal of all traffic lines and markings by any method (sandblasting, waterblasting, grinding, etc.) and preparation of surface for coatings. Traffic control person: controlling and directing traffic through both conventional and moving lane closures; operation of all related machinery and equipment

GROUP 3: Traffic delineating device applicator: Layout and application of pavement markers, delineating signs, rumble and traffic bars, adhesives, guide markers, other traffic delineating devices including traffic control. This category includes all traffic related surface preparation (sandblasting, waterblasting, grinding) as part of the application process. Traffic protective delineating system installer: removes, relocates, installs, permanently affixed roadside and parking delineation barricades, fencing, cable anchor, guard rail, reference signs, monument markers; operation of all related machinery and equipment; power broom sweeper

GROUP 4: Striper: layout and application of traffic stripes and markings; hot thermo plastic; tape traffic stripes and markings, including traffic control; operation of all related machinery and equipment

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LABO1184E 07/01/2002

|                  | Rates | Fringes |
|------------------|-------|---------|
| SLURRY SEAL WORK |       |         |
| LABORERS:        |       |         |
| Group 1          | 21.66 | 8.42    |
| Group 2          | 22.86 | 8.42    |
| Group 3          | 24.72 | 8.42    |
| Group 4          | 26.32 | 8.42    |

GROUP 1 - Traffic Control Person & Serviceman; including work of installing and protecting utility covers, traffic delineating devices, posting of no parking and notifications for public convenience, surface cleaning by any method, repair and filing of cracks by any means, and other work not directly connected with the application of slurry seal.

GROUP 2 - Squeegeeman (finish); Traffic control person.

GROUP 3 - Applicator operator (line driver); Power broom sweeper operator; Operation of all related machinery and equipment; Shuttleman

GROUP 4 - Mix operator

| -----  |       |         |
|--|-------|---------|
| PAIN0036A 07/01/2002   |       |         |
|  | Rates | Fringes |
| Work on service stations and<br>and car washes; Small new<br>commercial work (defined<br>as construction up to and<br>including 3 stories in<br>height, such as small<br>shopping centers, small<br>stores, small office<br>buildings and small food<br>establishments); Small<br>new industrial work<br>(defined as light metal<br>buildings, small warehouses,<br>small storage facilities and<br>tilt-up buildings); Repaint<br>work (defined as repaint of<br>breweries, commercial<br>recreational facilities,<br>hotels which operate<br>commercial establishments<br>as part of hotel service,<br>and sports facilities);<br>Tenant improvement work<br>(defined as tenant<br>improvement work not<br>included in conjunction with<br>the construction of the<br>building, and all repainting<br>of tenant improvement projects |       |         |
| PAINTER (including lead abatement)   | 21.75 | 5.89    |
| All other work:  |       |         |
| PAINTER  | 25.02 | 5.89    |
| -----  |       |         |
| PAIN0036H 10/01/2002   |       |         |
|  | Rates | Fringes |
| DRYWALL FINISHERS  | 26.33 | 8.48    |
| -----  |       |         |
| PAIN0036R 06/01/2002   |       |         |
|  | Rates | Fringes |
| GLAZIERS   | 29.20 | 8.45    |
| FOOTNOTE: Additional \$1.25 per hour for work in a condo,<br>from the third (3rd) floor and up<br>Additional \$1.25 per hour for work on the outside<br>of the building from a swing state or any suspended contrivance,<br>from the ground up   |       |         |
| -----  |       |         |
| * PAIN1247B 03/01/2002   |       |         |
|  | Rates | Fringes |
| SOFT FLOOR LAYER   | 25.95 | 6.25    |
| -----  |       |         |
| PLAS0200I 08/07/2002   |       |         |
|  | Rates | Fringes |
| PLASTERERS   | 26.77 | 6.76    |
| -----  |       |         |
| PLAS0500B 07/01/2002   |       |         |
|  | Rates | Fringes |
| CEMENT MASON   | 23.05 | 11.56   |

|  |       |         |
|--|-------|---------|
| -----  |       |         |
| PLUM0016A 07/01/2002   |       |         |
|  | Rates | Fringes |
| Work on strip malls, light commercial, tenant improvement and remodel work:  |       |         |
| PLUMBER & PIPEFITTER   | 23.03 | 8.24    |
| Work on new additions and remodeling of bars, restaurant, stores and commercial buildings not to exceed 5,000 sq. ft. of floor space   |       |         |
| PLUMBER & PIPEFITTER   | 28.92 | 9.44    |
| All other work:  |       |         |
| PLUMBER & PIPEFITTER   | 29.81 | 10.01   |
| Landscape and irrigation work:   |       |         |
| PLUMBER & PIPEFITTER   | 23.27 | 9.56    |
| Sewer and storm drain work:  |       |         |
| PLUMBER & PIPEFITTER   | 20.25 | 9.75    |
| -----  |       |         |
| PLUM0345A 07/01/2002   |       |         |
|  | Rates | Fringes |
| LANDSCAPE & IRRIGATION FITTER  | 23.27 | 9.56    |
| -----  |       |         |
| ROOF0036B 09/01/2001   |       |         |
|  | Rates | Fringes |
| ROOFER   | 24.77 | 5.40    |
| Duties limited to the following: Roof removal of any type of roofing or roofing material; or spudding, or sweeping; and/or clean-up; and/or preload in, or in preparing the roof for application of roofing, damp and/or waterproofing materials                         |       |         |
| PREPARER   | 16.24 | 1.00    |
| FOOTNOTE: Pitch premium: Work on which employees are exposed to pitch fumes or required to handle pitch, pitch base or pitch impregnated products, or any material containing coal tar pitch, the entire roofing crew shall receive \$1.75 per hour "pitch premium" pay. |       |         |
| -----  |       |         |
| SFCA0669B 04/01/2002   |       |         |
|  | Rates | Fringes |
| SPRINKLER FITTER (FIRE)  | 28.75 | 6.05    |
| -----  |       |         |
| SHEE0102G 07/01/2002   |       |         |
|  | Rates | Fringes |
| INDUSTRIAL   |       |         |
| Work on all air pollution control systems, noise abatement panels, blow pipe, air-veyor systems, dust collecting, baghouses, heating, air conditioning, and ventilating (other than creature comfort) and all other industrial work, including metal insulated ceilings  |       |         |

|                   |       |       |
|-------------------|-------|-------|
| SHEETMETAL WORKER | 26.07 | 15.00 |
|-------------------|-------|-------|

-----  
 SHEE0102H 08/01/2002

|       |         |
|-------|---------|
| Rates | Fringes |
|-------|---------|

COMMERCIAL:

Work on all commercial HVAC for creature comfort and computer clean rooms, architectural metals, metal roofing and lagging, over insulation

|                    |       |       |
|--------------------|-------|-------|
| SHEET METAL WORKER | 28.79 | 11.97 |
|--------------------|-------|-------|

-----  
 TEAM0011E 07/01/2002

|       |         |
|-------|---------|
| Rates | Fringes |
|-------|---------|

TRUCK DRIVERS:

|          |       |       |
|----------|-------|-------|
| GROUP 1  | 21.84 | 12.84 |
| GROUP 2  | 21.99 | 12.84 |
| GROUP 3  | 22.12 | 12.84 |
| GROUP 4  | 22.31 | 12.84 |
| GROUP 5  | 22.25 | 12.84 |
| GROUP 6  | 22.37 | 12.84 |
| GROUP 7  | 22.62 | 12.84 |
| GROUP 8  | 22.87 | 12.84 |
| GROUP 9  | 23.02 | 12.84 |
| GROUP 10 | 23.37 | 12.84 |
| GROUP 11 | 23.87 | 12.84 |

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Truck driver

GROUP 2: Driver of vehicle or combination of vehicles - 2

axles; Traffic control pilot car excluding moving **heavy** equipment permit load; Truc

GROUP 3: Driver of vehicle or combination of vehicles - 3

axles; Boot person; Cement mason distribution truck; Fuel truck driver; Water truck - 2 axle; Dump truck, less than 16 yds. water level; Erosion control driver

GROUP 4: Driver of transit mix truck, under 3 yds.; Dumpcrete truck, less than 6-1/2 yds. water level

GROUP 5: Water truck, 3 or more axles; Truck greaser and tire person (\$0.50 additional for tire person); Pipeline and utility working truck driver, including winch truck and plastic fusion, limited to pipeline and utility work; Slurry truck driver

GROUP 6: Transit mix truck, 3 yds. or more; Dumpcrete truck, 6-1/2 yds. water level and over; Vehicle or combination of vehicles - 4 or more axle; Oil spreader truck; Dump truck, 16 yds. to 25 yds. water level

GROUP 7: A Frame, Swedish crane or similar; Forklift driver; Ross carrier driver

GROUP 8: Dump truck, 25 yds. to 49 yds. water level; Truck repair person; Water pull - single engine; Welder

GROUP 9: Truck repair person/welder; Low bed driver, 9 axles or over

GROUP 10: Dump truck - 50 yds. or more water level; Water pull - single engine with attachment

GROUP 11: Water pull - twin engine; Water pull - twin engine with attachments; Winch truck driver - \$1.25 additional when operating winch or similar special attachments

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 WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.  
 =====

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)(ii)).

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 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



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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01090

SOURCES FOR REFERENCE PUBLICATIONS

PART 1 GENERAL

1.1 REFERENCES

1.2 ORDERING INFORMATION

-- End of Section Table of Contents --

## SECTION 01090

## 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.

## ACI INTERNATIONAL (ACI)

P.O. Box 9094  
Farmington Hills, MI 48333-9094  
Ph: 248-848-3700  
Fax: 248-848-3701  
Internet: <http://www.aci-int.org>  
AOK 6/00

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

100 Barr Harbor Drive  
West Conshohocken, PA 19428-2959  
Ph: 610-832-9585  
Fax: 610-832-9555  
Internet: [www.astm.org](http://www.astm.org)  
AOK 6/00

NOTE: The annual ASTM Book of Standards (66 Vol) is available for \$3500.00. Prices of individual standards vary.

## CODE OF FEDERAL REGULATIONS (CFR)

Order from:  
Government Printing Office  
Washington, DC 20402  
Ph: 202-512-1800  
Fax: 202-275-7703  
Internet: <http://www.pls.com:8001/his/cfr.html>

## CORPS OF ENGINEERS (COE)

Order 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: 601-634-2571  
Fax: 601-634-2506  
NOTE: COE Handbook for Concrete and Cement (Documents w/prefix  
CRD-C) (1949-present; 2 Vol) free to Government offices; \$10.00  
plus \$8.00 per yr for 4 qtrly supplements to others). Individual  
documents, single copies free. Order from address above.

## ENGINEERING MANUALS (EM)

USACE Publications Depot  
Attn: CEIM-SP-D  
2803 52nd Avenue  
Hyattsville, MD 20781-1102  
Ph: 301-394-0081

## FEDERAL SPECIFICATIONS (FS)

Order from:  
General Services Administration  
Federal Supply Service Bureau  
470 L'Enfant Plaza, S.W.  
Washington, DC 20407  
Ph: 202-619-8925  
Fax: 202-619-8978  
Internet: <http://pub.fss.gsa.gov/>

-- End of Section --

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## DIVISION 01 - GENERAL REQUIREMENTS

## SECTION 01200

## GENERAL REQUIREMENTS

## PART 1 GENERAL

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  - 1.3.2 Construction Signs
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## SECTION 01200

## GENERAL REQUIREMENTS

## PART 1 GENERAL

## 1.1 APPLICABLE PUBLICATIONS

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)

|        |           |  |
|--------|-----------|--|
| CFR 29 | Part 1926 | Safety and Health Regulations for Construction |
| CFR 33 | Part 80   | Colregs Demarcation Lines                      |
| CFR 33 | Part 156  | Oil and Hazardous Material Transfer Operations |

## CORPS OF ENGINEERS (COE)

|         |  |
|---------|--|
| 385-1-1 | (1996) Safety and Health Requirements Manual |
|---------|--|

## U.S. Department of Commerce, (DOC)

|          |  |
|----------|--|
| DOC PS 1 | (1983) Construction and Industrial Plywood |
|----------|--|

## Federal Specifications (FS)

|                   |   |
|-------------------|---|
| FS FF-B-575Ref Id | (Rev C) Bolts, Hexagon and Square   |
| FS FF-N-105       | (Rev B; Int Am 4) Nails, Brads, Staples and Spikes: Wire, Cut and Wrought                       |
| FS FF-N-836       | (Rev D; Am 2) Nut: Square, Hexagon, Cap, Slotted, Castle, Knurled, Welding and Single Ball Seat |
| FS MM-L-751       | (Rev H) Lumber; Softwood  |
| FS TT-E-529       | (Rev D) Enamel, Alkyd, Semi-Gloss   |
| FS TT-P-25        | (Rev E; Am 2) Primer Coating, Exterior (Undercoat for Wood, Ready-Mixed, White and Tints)       |

## 1.2 SUBMITTALS

Government approval is required for all submittals with a "G" designation. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Site-specific Safety and Health Plan; G

Activity Hazards Safety Analysis; G

SD-05 Design Data

Site Plan; G RE

Access and Haul Roads; G RE

## 1.3 PROJECT FACILITIES

### 1.3.1 Site Plan

The Contractor shall prepare a site plan, for the Contracting Officer's approval, indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

### 1.3.2 Construction Signs

The signs shall be erected as soon as possible and within 15 days after commencement of work under this contract.

- a. Five Project Signs at locations designated by the Contracting Officer.
- b. Warning Signs facing approaching traffic on all roads crossing under overhead power transmission lines and at the bases of the power transmission line towers.
- c. Six hard hat signs at locations designated by the Contracting Officer.

### 1.3.3 Bulletin Board at the Contractor's Office

A weatherproof bulletin board, approximately 920 mm wide (36 inches) and 760 mm (30 inches) with hinged glass door shall be provided adjacent to or mounted on the Contractor's project office. If adjacent to the office, the bulletin board shall be securely mounted on no less than 2 posts. Bulletin

board and post shall be painted or have other approved factory finish. The bulletin board shall be easily accessible at all times and shall contain wage rates, equal opportunity notice, and such other required items to be posted.

#### 1.3.4 Sanitary Facilities

The Contractor shall provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer.

#### 1.3.5 Employee Parking

Contractor employees shall park privately owned vehicles in an area approved by the Contracting Officer. This area will be within reasonable walking distance of the construction site.

#### 1.3.6 Construction Water

The Contractor shall be responsible for obtaining water for construction purposes at no additional cost to the Government. Construction water shall be fresh, clean, potable, and free from any injurious amounts of oil, acid, salt, or alkali.

### 1.4 CONSTRUCTIONS SIGNS

#### 1.4.1 Materials

Lumber shall conform to FS MM-L-751, and shall be seasoned Douglas Fir, S4S, Grade D or better except that posts, braces and spacers shall be construction Grade (WCLB).

Plywood shall conform to NIST PS 1, grade A-C, Group 1, exterior type.

Bolts, Nuts and Nails. Bolts shall conform to FS FF-B-575, nuts shall conform to FS FF-N-836, and nails shall conform to FS FF-N-105.

Paints and Oils. Paints shall conform to FS TT-P-25 for primer and TT-E-529 for finish paint and lettering.

Text

#### 1.4.2 Construction

Project and hard hat signs shall be constructed as detailed in Figures 1, 2, and 3. Decals and safety signs will be furnished by the Contracting Officer.

Warning Signs shall be constructed of plywood not less than 12 mm (1/2 inch) thick and shall be securely bolted to the supports with the bottom of the sign face 900 mm (3 feet) above the ground. The sign face shall be 600 x 1200 mm (2 x 4 feet), all letters shall be 100 mm (4 inches) in height, and the wording shall be: "WARNING: OVERHEAD TRANSMISSION LINES."

Painting. All exposed surfaces and edges of plywood shall be given one

coat of linseed oil and be wiped prior to applying primer. All exposed surfaces of signs and supports shall be given one coat of primer and 2 finish coats of white paint. Except as otherwise indicated, lettering on all signs shall be black and sized as indicated.Text

#### 1.5 CONTRACTING OFFICER'S FACILITY

The Contractor shall provide a facility for the Contracting Officer's Representative in accordance with the following description. The Contractor shall submit the floor plan for Contracting Officer's approval prior to supplying the facility.

##### 1.5.1 Trailer

The Contractor shall provide a 3.6 m x 18.3 m (12 ft. x 60 ft.) trailer within the Contractor's staging area as directed by the Contracting Officer. All utilities (including electrical, water, sewage and telephone) shall be connected, installed and maintained for the trailer. Water and sanitary facilities shall be located within the trailer. The trailer is to be provided with two(2) unisex restrooms. Septic tank may be substituted should connection to local sewer line not be available. An adequate supply of cooled bottled drinking water shall be furnished and maintained. Janitorial service for the trailer shall be provided three (3) times per week (Monday, Wednesday and Friday). The trailer is to be provided with a 24 hour monitored security system, including exterior door sensors, motion detectors and a control key pad. All windows are to be provided with security bars or grates.

##### 1.5.2 Furniture and Equipment

The following furniture and equipment shall be provided and maintained:

- a. 3 ea Telephone lines and service
- b. 3 ea Telephone
- c. 3 ea Desk, 1 m by 1.6 m
- d. 3 ea Wheeled desk chairs, with arm rests
- e. 3 ea File cabinets, minimum 4 drawer, legal, lockable
- f. 3 ea Book case, minimum 3 shelves
- g. 2 ea Wheeled secretarial chairs
- h. 1 ea Standard bulletin board for interior of office
- i. 1 ea Liquid chalkboard
- j. 1 ea Standard copy machine
- k. 1 ea FAX machine
- l. 1 ea Under counter refrigerator
- m. 1 ea Microwave oven

##### 1.5.3 Parking

Open parking space for 6 vehicles shall be located conveniently to the office. The combined parking and building area shall be enclosed with a woven wire fence approximately 3.05 m (10 feet) high, with a 3.05 m (10 feet) wide lockable gate accessible from a road or street, and barbed or razor wire be placed on top of the fence and gate. The fenced area shall

be sufficient size to permit ease in the parking of vehicles. Automatic Security lighting is to be provided around the office trailer and parking area. The security lighting shall come on just before dusk and shut off at first morning light. Materials for the facilities need not be new, provided they are adequate for the intended use. The cost for sewer, water, power, and telephone usage will be the responsibility of the Contractor except that the Contractor will be reimbursed for any long distance telephone charges not related to the project.

#### 1.5.4 Occupancy

The Project Engineer's Office shall be available for occupancy within 10 days of the Notice to Proceed and not be removed prior to the completion date of the contract.

#### 1.6 MAINTENANCE AND DISPOSAL OF PROJECT FACILITIES

The Contractor shall maintain the project facilities in good condition throughout the life of the project. Upon completion of the work under this contract, the facilities covered under this section shall remain the property of the Contractor and shall be removed from the site at his expense.

#### 1.7 PROTECTION AND MAINTENANCE OF TRAFFIC

##### 1.7.1 Traffic Maintenance

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations at no additional cost to the Government.

##### 1.7.2 Access and Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Access and haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control (reference section 01354 ENVIRONMENTAL PROTECTION, paragraph PROTECTION OF AIR RESOURCES) shall be adequate to ensure safe operation at

all times. Location, grade, width, and alignment of access and haul roads shall be subject to approval by the Contracting Officer. Lighting shall be adequate to assure full and clear visibility for full width of access and haul roads and work areas during any night work operations. Access and haul roads shall not damage permanent structures. Upon completion of the work, access and haul roads designated by the Contracting Officer shall be removed.

Plans shall be submitted to the Contracting Officer for approval for all proposed access and haul roads, whether within or outside the limits of the construction area, at least 15 calendar days prior to construction of such roads. The plans shall indicate width of road, direction of traffic, road markings, type of guardrail, curves, grades, runouts, and other information in sufficient detail for studying safety of the proposed roads. Haul roads shall be proposed so that use of existing residential streets and roads are minimized.

#### 1.7.3 Public and Private Access Roads

When it is necessary for heavy equipment to operate on or to cross project roads or arterial roads, flaggers, signs, lights and/or other necessary safeguards shall be furnished to safely control and direct the flow of traffic. When it is necessary to operate on existing roads outside the construction area, all necessary permits shall be obtained from the appropriate private or public authority. Work shall be conducted in such manner so as to obstruct and inconvenience traffic on existing roads outside the construction limits as little as possible. Spillage of earth, dusty materials, and mud on project roads or other roads will not be permitted. If spillage cannot be prevented, the spillage shall be immediately removed and such areas shall be kept clear throughout the workday. At the conclusion of each workday, such traveled areas shall be cleared of spillage, dusty materials, and mud.

#### 1.7.4 Maintenance of Roads

All access and haul roads, within the construction area, including the borrow areas, shall be maintained to provide vehicular access for the Government's vehicles and the contractor's vehicles and equipment. Road maintenance shall include rock/mud slides, washouts, and any incident which would restrict vehicular/equipment access. Prior to any alterations of any road alignment, the contractor shall receive an approval from the Contracting Officer. Road maintenance and alterations shall be performed by the contractor at no additional cost to the Government.

#### 1.7.5 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.8 SCRAP MATERIAL

Materials indicated to be removed and not indicated to be salvaged, stored or reinstalled are designated as scrap and shall become the property of the Contractor and be removed from the site of work. The Contractor by signing this contract hereby acknowledges that he made due allowance for value, if any, of such scrap in the contract price.

1.9 PROTECTION OF EXISTING WORK

Before beginning any cutting or removal work, the Contractor shall carefully survey the existing work and examine the drawings and specifications to determine the extent of the work. The Contractor shall take all necessary precautions to insure against damage to existing work to remain in place, to be reused, or to remain the property of the Government, and any damage to such work shall be repaired or replaced as approved by the Contracting Officer at no additional cost to the Government. The Contractor shall carefully coordinate the work of this section with all other work and construct and maintain shoring, bracing and supports, as required. The Contractor shall insure that structural elements are not overloaded and 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 any part of this Contract.

1.10 POINTS OF CONTACT

1.10.1 Company or Agency Contacts

The following is a list of points of contact:

| Company or Agency  | Contact       | Telephone     |
|--|---------------|---------------|
| EMERGENCY  |               | 911           |
| U.S.Army Corps of Engineers                                    | Dan Moore     | (909)655-2101 |
|  | Joe Flynn     | (909)655-2101 |
| Riverside County Flood Control and Water Conservation District | Steve Thomas  | (909)955-1299 |
| City of Norco,<br>Public Works Director                        | Joseph Schenk | (909)270-5627 |
| Animal Control   |               | (909)737-8972 |
| Riverside County Sheriff                                       | Non-emergency | (909)955-2444 |
| San Bernadino County Police Dispatch                           | Non-emergency | (909)383-5311 |
| California Highway Patrol Dispatch                             | Non-emergency | (909)889-1862 |

Fire Department

Non-emergency

(909)270-5995

## 1.10.2 List of Contractor Contacts

Prior to the start of work, the Contractor shall provide the Contracting Officer with names, addresses and 24-hour phone numbers of the Contractor's project engineer, superintendent and foreman.

## 1.11 PUBLIC UTILITIES, NOTICES, AND RESTRICTIONS

## 1.11.1 General

The approximate location of all pipe lines, power and communication lines, and other utilities known to exist within the limits of such work are indicated on the drawings. The sizes, locations, and names of owners of such utilities are given from available information, but their accuracy is not guaranteed. Except as otherwise indicated on the drawings, all existing utilities shall be left in place and the Contractor shall conduct his operations in such a manner that the utilities will be protected from damage at all times, or arrangements shall be made by the Contractor for their relocation at the Contractor's own expense. The Contractor shall be responsible for any damage to utilities known to exist and shall reimburse the owner for such damage caused by his operations.

## 1.11.2 Relocation or Removal

Utilities shown on the drawings and not designated for removal or relocation will be left in place and be subject to the CONTRACT CLAUSE: PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. The Contractor may make arrangements with the owner for the temporary relocation and restoration of utilities not designated to be relocated, or for additional work in excess of the work needed to relocate utilities designated for relocation at no additional cost to the Government.

## 1.11.3 Utilities Not Shown

If the Contractor encounters, within the construction limits of the entire project, utilities not shown on the drawings and not visible as of the date of this contract and if such utilities will interfere with construction operations, he shall immediately notify the Contracting Officer in writing to enable a determination by the Contracting Officer as to the necessity for removal or relocation. If such utilities are left in place, removed or relocated, as directed by the Contracting Officer, The Contractor shall be entitled to an equitable adjustment for any additional work or delay.

## 1.11.4 Coordination

The Contractor shall cooperate and coordinate with all Contractors and personnel working concurrently in the project vicinity. The Contractor shall consult and cooperate with the owner of utilities that are to be relocated or removed by others to establish a mutual performance schedule and to enable coordination of such work with the construction work. These consultations shall be held as soon as possible after award of the contract

or sufficiently in advance of anticipated interference with construction operations to provide required time for removal or relocation of affected utilities.

#### 1.11.5 Notices

##### 1.11.5.1 Utilities To Be Relocated or Protected.

Unless otherwise specified, the Contractor shall notify the Contracting Officer, in writing, thirty (30) calendar days prior to starting work on any utility to be protected. On each protection, notification shall include dates on which the contractor plans excavation, and construction work, as applicable. The Contractor shall also notify the following representatives of utility owners not less than fourteen (14) days, unless otherwise specified, prior to start of work in the vicinity of their respective utilities. Note that the City of Norco is also the contact for sewer facilities.

Southern California Gas Company  
1981 W. Lugonia  
Redlands, CA 92374-9723  
Devery Jennings (909)335-7772

Pacific Bell  
3939 East Coronado, Second Floor  
Anaheim, CA 92807  
Shelly Blasingham (714)237-7126

Southern California Edison Company  
1351 E. Francis  
Ontario, CA 91761  
Val Rosales (909)930-8483

Charter Communications  
6680 View Park Court  
Riverside, CA 92503  
Stewart King (909)688-9012

City of Norco Water Department  
2870 Clark Avenue  
Norco, CA 91760  
(909)735-3900  
Bill Thompson, Pager (909)448-5550

##### 1.11.5.2 Staking of Utilities

In addition to notification of representatives of utility owners, the Contractor shall notify the City of Norco Public Works Director, Joe Schenk at (909) 270-5627 and Underground Service Alert (USA) at 1-800-422-4133, between the hours of 7:00 a.m. and 4:30 p.m. at least two full working days prior to any excavation within any street right-of-way or any work in the vicinity of known underground utilities, to have underground utilities field located and staked.

## 1.11.5.3 Existing Bench Marks and Right of Way Markers.

The Contractor shall notify the Contracting Officer, in writing, seven (7) days in advance of the time he proposes to remove any bench mark or right-of-way marker.

## 1.11.5.4 Traffic Routing

The Contractor shall notify the Contracting Officer, the City of Norco Public Works Department, and the Riverside County Flood Control and Water Conservation District at least 7 days in advance of the time that work will be started in areas requiring the rerouting of traffic, traffic lane striping, and removal of street signs. The foregoing shall apply to progressive modifications of traffic routings within an area in which work is in progress. A permit is required. The City of Norco shall be notified by contacting the Public Works Director, Joe Schenk, telephone number (909) 270-5627.

## 1.11.5.5 Street Closure

City of Norco Public Works Department, Riverside County Sheriff, Highway Patrol, Fire Department, Riverside County Flood Control and water Conservation District, and all affected property owners, shall be notified by the Contractor whenever a street is to be closed to traffic. Approval is required prior to closing. If closing is to be of a long duration, a single notification to each department 7 days in advance of closing will be sufficient. A single notification shall then be made at the time the street is again opened to traffic. If the closing is to be of short duration or if different sections of the street are to be closed at different times, notification shall be made on a day-to-day basis.

Should temporary road closures be necessary, the Contractor shall clearly mark and identify alternative routes and detours. Proper signage, flagman, and strict adherence to driving safety procedures shall be implemented and utilized by the Contractor, with special attention being given in multi-use zones.

## 1.11.5.6 Spill Reporting

The Contractor shall notify the Contracting Officer immediately after all spills, regardless of quantity, including all personnel exposures. The Contractor shall submit a written notification not later than 7 calendar days after the initial notification. The written notification shall include the following:

- a. Item spilled, leaked or released in an unauthorized manner (Identification, Quantity and Manifest Number)
- b. Whether the amount spilled, leaked or released in an unauthorized manner is EPA reportable and, if reported, a copy of the report.
- c. Exact location of the spill, leak or unauthorized release.

- d. Nature of exposure to personnel.
- e. Containment procedures initiated.
- f. Anticipated cleanup and disposal procedures.
- g. Disposal location of spill, leak or unauthorized release residue.

#### 1.11.5.7 Existing Bench Marks and R/W Markers

The Contractor shall notify the Contracting Officer, in writing, 7 days in advance of the time he proposes to remove any bench mark or right-of-way marker.

#### 1.11.6 Restrictions

Reference specifications section 01354, ENVIRONMENTAL PROTECTION.

a. Representatives of Other Agencies  
Personnel representing owners and agencies may be present for various portions of the work. However, the Contractor will be responsible only to the Contracting Officer.

b. Working Hours. The Contractor shall restrict all construction activities to the following schedule:

Monday through Friday between 7 a.m. and 6 p.m.

Employee access to the job site will be allowed 30 minutes prior to starting time unless otherwise approved by the Contracting Officer. No work will be permitted on Saturdays, Sundays or Federal Holidays.

c. The borrow area shown on the drawings may be used for additional materials required for the project fills after utilization of the required excavations. Borrow shall not exceed the depth of 4.5 meters and shall halt when sufficient material for construction purposes has taken place. The grading plan for borrow shall be approved by the Contracting officer prior to commencing borrow operations.

#### 1.12 PERMITS

Reference is made to the clause of the contract entitled: PERMITS AND RESPONSIBILITIES, which obligate the Contractor to obtain all required licenses and permits.

##### 1.12.1 Oversize Loads

Oversize loads, over 8'6" wide, may require a Caltrans permit for hauling on State highways. P.O.C. Caltrans, Transportation Permits, P.O. Box 231, 247 W. Third Street, San Bernardino, CA, (909) 383-4637.

##### 1.12.2 Air Quality

Contractor shall have a current, valid Air Quality permit for all equipment that require an Air Quality permit.

#### 1.13 PUBLIC SAFETY

Attention is invited to the CONTRACT CLAUSE: PERMITS AND RESPONSIBILITIES.

The Contractor shall provide temporary fencing, barricades, and/or guards, as required, to provide protection in the interest of public safety.

Whenever the Contractor's operations create a condition hazardous to the public, he shall furnish at his own expense and without cost to the Government, such flag men and guards as are necessary to give adequate warning to the public of any dangerous conditions to be encountered and he shall furnish, erect, or maintain such fences, barricades, lights, signs and other devices as are necessary to prevent accidents and avoid damage or injury to the public. Flag men and guards, while on duty and assigned to give warning and safety devices shall conform to applicable city, county, and state requirements. Should the Contractor appear to be neglectful or negligent in furnishing adequate warning and protection measures, the Contracting Officer may direct attention to the existence of a hazard and the necessary warning and protective measures shall be furnished and installed by the Contractor without additional cost to the Government. Should the Contracting Officer point out the inadequacy of warning and protective measures, such action of the Contracting Officer shall not relieve the Contractor from any responsibility for public safety or abrogate his obligation to furnish and pay for those devices. The installation of any general illumination shall not relieve the Contractor of his responsibility for furnishing and maintaining any protective facility.

##### 1.13.1 General

The Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, (see CONTRACT CLAUSES: SECTION 00700, ACCIDENT PREVENTION) and the Occupational Safety and Health Act (OSHA) Standards for Construction (Title 29, Code of Federal Regulations Parts 1910 and 1926 as revised from time to time) and Cal/OSHA Title 8 Regulations are applicable to this contract. In case of conflict, the most stringent requirement of the standards is applicable. Pursuant to EM 385-1-1, the Contractor shall submit a Site-specific Safety and Health Plan

##### 1.13.2 Activity Hazard Analysis

Based on the construction schedule, the Contractor shall submit an Activity Hazards Safety Analysis of each major phase or work prior to entering that phase of activity. The analysis shall include major or high risk hazards, as well as commonly recurring deficiencies that might possibly be encountered for that operation, and shall identify proposed methods and techniques of accomplishing each phase in a safe manner. The Prime Contractor's superintendent shall take active participation in the Activity Hazard Analysis, including the subcontractor's work. Prior to start of actual work a meeting shall be held with the Prime Contractor, Government, and affected subcontractor to review the Activity Hazard Analysis. In

addition, job site meetings shall be held to train exhaustively foreman and workers on details of this analysis.

#### 1.14 CONTRACTOR SAFETY PERSONNEL REQUIREMENT

Full-time, on-site, safety coverage by Contractors shall be required at all times during this contract.

This contract is considered high hazard and the following conditions and safety requirements are to be followed during the entire duration of this contract.

The Contractor shall employ at the project site to cover all hours of work at least one Safety and Occupational Health Professional to manage the overall Safety program and to manage the Contractor's accident prevention program. Duties which are not germane to the safety program, such as quality control or project engineering shall not be assigned to the Safety and Health staff. The Safety Professional shall report to and work directly for the Contractor's on-site top manager, higher level official, or corporate safety office. The Safety and Health staff shall have the authority to take immediate steps to correct unsafe or unhealthful conditions. The presence of a Safety and Health person shall not abrogate safety responsibilities of other personnel.

##### 1.14.1 Qualifications for Safety and Health Professional(s)

- a. Shall have a degree in engineering or safety in at least a four year program from an accredited school and in addition, shall have been engaged in safety and occupational health for at least two (2) years, no time being credited to these two (2) years unless at least fifty (50) percent of the time each year was devoted to safety and occupational health; or
- b. Shall have a legal registration as a Professional Engineer, Certified Safety Professional, or a Certified Safety Manager, and, in addition, shall have been engaged in safety and occupational health for at least one (1) year, 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 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 aid work is not creditable experience.

The following shall be furnished to the Contracting Officer for acceptability prior to the pre-construction conference:

- a. The name and qualifications of nominated safety persons (in resume format).
- b. A functional description of duties.
- c. A copy of a letter from an authorized official of the Contractor which describes the duties and authority of the safety professional, including delegating sufficient authority to stop work to immediately correct the unsafe or unhealthful conditions.

#### 1.15 OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) STANDARDS

The OCCUPATIONAL SAFETY and HEALTH ACT (OSHA) STANDARDS for CONSTRUCTION (Title 29, Code of Federal Regulations Part 1926 as revised from time to time) and the Corps of Engineers General Safety and Health Requirements Manual, EM 385-1-1, are both applicable to this contract. The most stringent requirement of the two standards will be applicable. Pursuant to EM 385-1-1, the Contractor shall submit a Site Safety Health Plan.

#### 1.16 REPAIR OF STREETS, ACCESS ROADS, AND WORK AREAS

The Contractor shall restore streets and access roads (used for haul routes and mobilizing equipment) and work areas to original condition upon completion of the work. Contractor shall restore to local city standards.

#### 1.17 INSPECTION

Reference is made to the clause of the contract entitled: INSPECTION OF CONSTRUCTION. In addition, the Contractor will be required:

- a. To furnish, on the request of the Contracting Officer or any inspector, the use of such laborers and material forming a part of the ordinary and usual equipment and crew of the plant as may be reasonably necessary in inspecting and supervising the work.
- b. To furnish, on the request of the Contracting Officer or any inspector, suitable transportation from all points designated by the Contracting Officer to and from the various pieces of plant, and to and from the work areas. Should the Contractor refuse, neglect, or delay compliance with these requirements, the specific facilities may be furnished and maintained by the Contracting Officer, and the cost thereof will be deducted from any amounts due or to become due the Contractor.
- c. To allow authorized representatives of the California Regional Water Quality Control Board and the South Coast Air Quality Management District to: enter upon the Contractor's premises where a regulated

facility or activity is located or conducted, or where records are kept; have access to and copy, at reasonable times, any records that must be kept per agency requirements; inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated by these agencies; and sample or monitor at reasonable times any substances or parameters at any location for the purpose of assuring compliance with agency regulations.

#### 1.18 AS-BUILT DRAWINGS

The Contractor shall furnish three (3) full size sets of as-built prints, as well as an electronic file of excavated material of borrow area (xyz and file delineating area of excavation), for use in preparation of as-built drawings by the Government. The as-built prints shall be a record of the construction as installed and completed by the Contractor. They shall include all the information shown on the contract set of drawings and a record of all deviations, modifications, or changes from those drawings, however minor, which were incorporated in the work, all additional work not appearing on the contract drawings, and all changes which are made after final inspection of the contract work. In the event that the Contractor accomplishes additional work which changes the as-built conditions of the project after submission of the as-built drawings, the Contractor shall furnish revised and/or additional drawing as required to depict as-built conditions. The requirements for these additional drawings will be the same as for the as-built drawings included in the original submission. The prints shall show the following information, but not be limited thereto:

- (a) Correct grade and alignment of buttress fill structure if any changes were made from contract plans.
- (b) Correct elevations if changes were made in site grading or placement of materials in the buttress fill structure.
- (c) Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, details of permanent shoring to be left in place (materials properties, dimensions, top and bottom elevations, installation method, and other pertinent details), details of backdrain (locations, elevations, slopes, perforation details), etc.
- (d) The topography and grades of all roads and drainage installed or affected as part of the project construction.
- (e) All changes or modifications which result from the final inspection.

Submittal to Contracting Officer for review and approval. Not later than 2 weeks after acceptance of the project by the Government, the Contractor shall deliver to the Contracting Officer three (3) full size sets of prints marked up to depict as-built conditions. If upon review, the drawings are found to contain errors and/or omissions, they shall be returned to the

Contractor for correction. The Contractor shall complete the corrections and return the drawings to the Contracting Officer within ten (10) calendar days.

#### 1.19 NOTICE OF PARTNERSHIP

The Government intends to encourage the foundation of a cohesive partnership with the Contractor and its subcontractors. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient contract performance and intended to achieve completion within budget, on schedule, and in accordance with plans and specifications; and to develop a single cooperative management team focused on the success of the project. This partnership would be bilateral in makeup, and participation will be totally voluntary. An integral aspect of partnering is the resolution of disputes in a timely, professional, and non-adversarial manner through the use of issue clarification and problem solving. Alternate Dispute Resolution (ADR) methodologies will be encouraged in place of more formal dispute resolution procedures. ADR will assist in promoting and maintaining an amicable working relationship to preserve the partnership. ADR is a voluntary, non-binding procedure available for use by the parties to this contract to resolve any dispute that may arise during performance. To implement this partnership initiative, it is anticipated that within 45 days of Notice to Proceed the Contractor's on-site project manager and Government's resident engineer would attend a two day partnership development seminar/team building workshop together with the Contractor's key on-site staff and key Government personnel. Any cost associated with effectuating this partnership will be agreed to by both parties and will be shared equally with no change in contract price. Follow-up workshop of 1 to 2 days duration would be held periodically throughout the duration of the contract as agreed to by the Contractor and Government.

#### 1.20 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

This provision specifies the procedure for 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:

- a. 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 anticipation for the project location during any given month.
- b. The unusually severe weather must actually cause delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

The following schedule of monthly anticipated adverse severe weather days is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly

weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

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

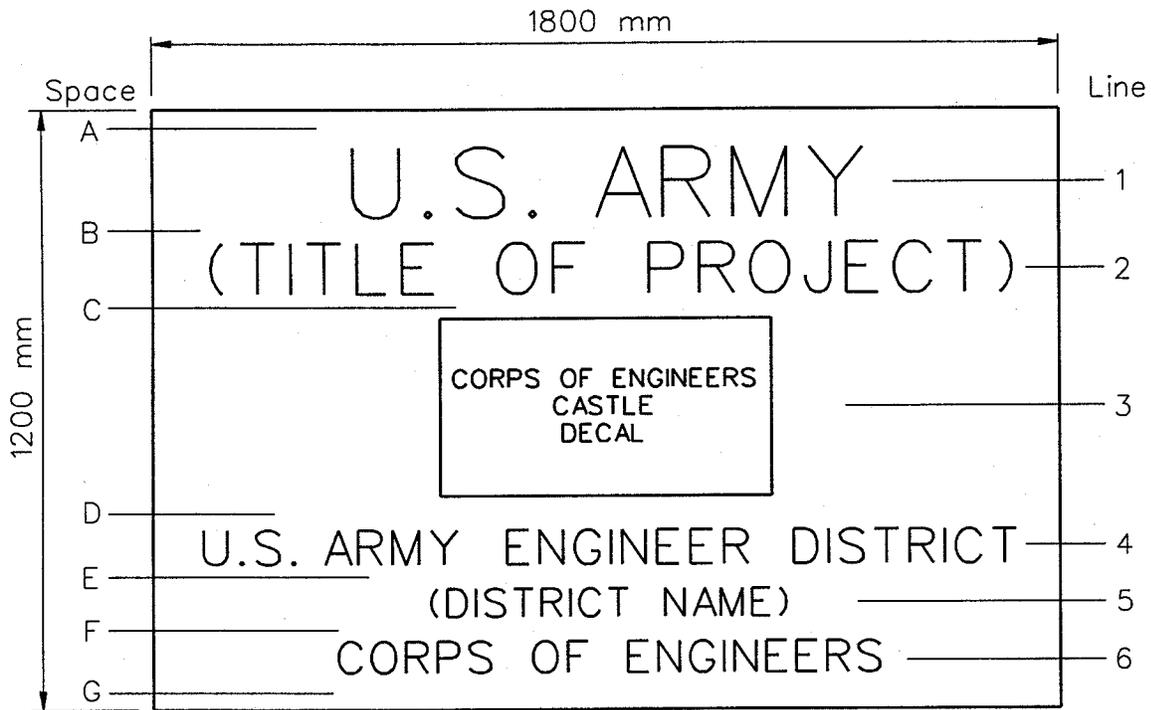
| JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 3   | 3   | 3   | 1   | 2   | 3   | 8   | 7   | 5   | 3   | 1   | 2   |

Upon acknowledgement of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day. The number of actual adverse weather days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the numbers of actual adverse weather delay days exceeds the number of days anticipated in subparagraph 17.2, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the Contract Clause entitled: DEFAULT (FIXED PRICE CONSTRUCTION).

PART 2 MATERIALS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END -- End of Section --



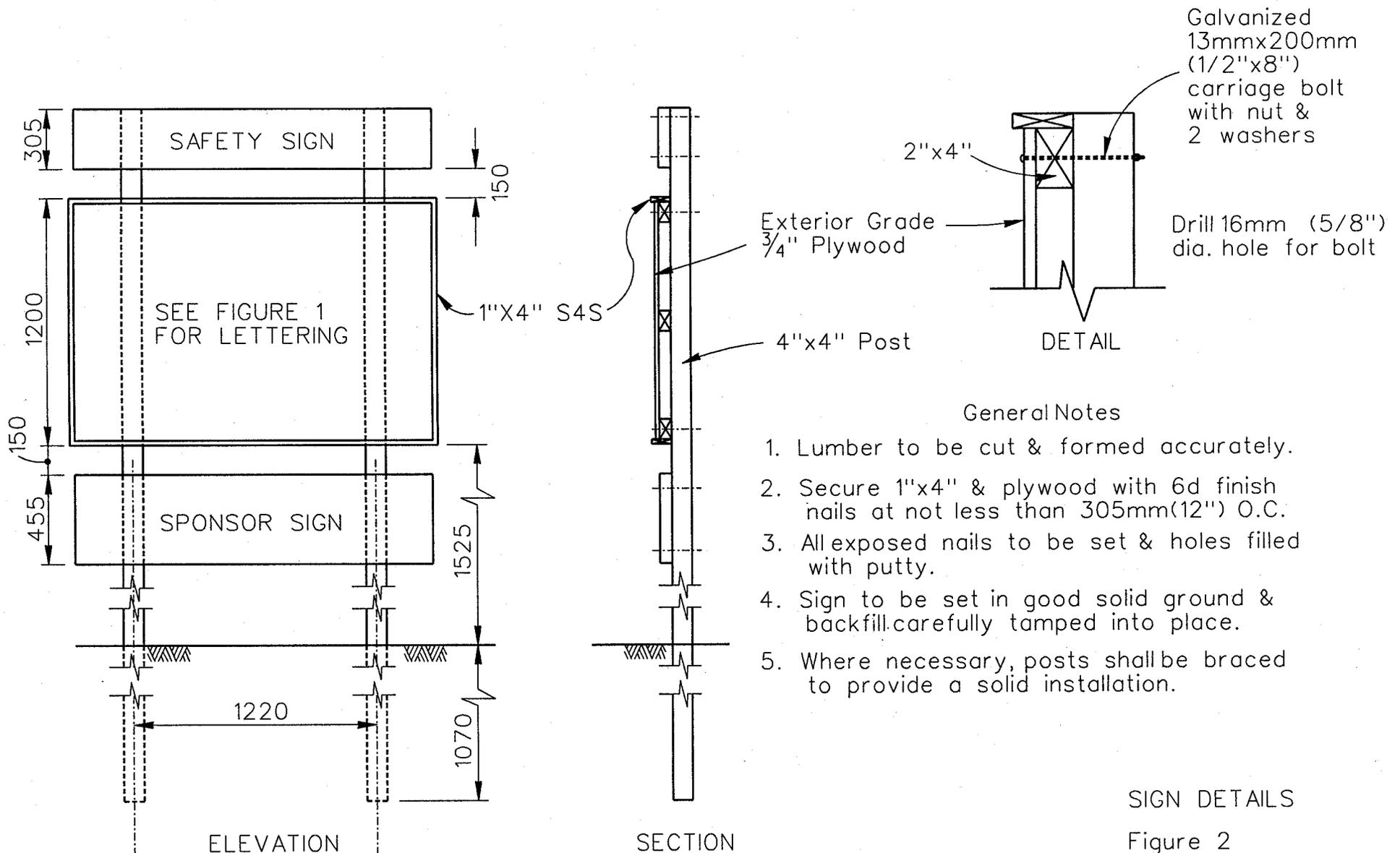
| Space | Height | Line | Description                          | Letter Height | Stroke |
|-------|--------|------|--------------------------------------|---------------|--------|
| A     | 75     | 1    | U.S. ARMY                            | 140           | 22     |
| B     | 50     | 2    | PROJECT NOMENCLATURE                 | 100           | 16     |
| C     | 50     | 3    | CORPS OF ENGINEERS CASTLE<br>(DECAL) | 345           |        |
| D     | 70     | 4    | U.S. ARMY ENGINEER DISTRICT          | 70            | 9      |
| E     | 50     | 5    | DISTRICT NAME                        | 60            | 6      |
| F     | 50     | 6    | CORPS OF ENGINEERS                   | 65            | 9      |
| G     | 75     |      |                                      |               |        |

Letter Color -- Black

PROJECT SIGN  
(Army-Civil Works)

Figure 1  
October 1996

All units are in millimeters.



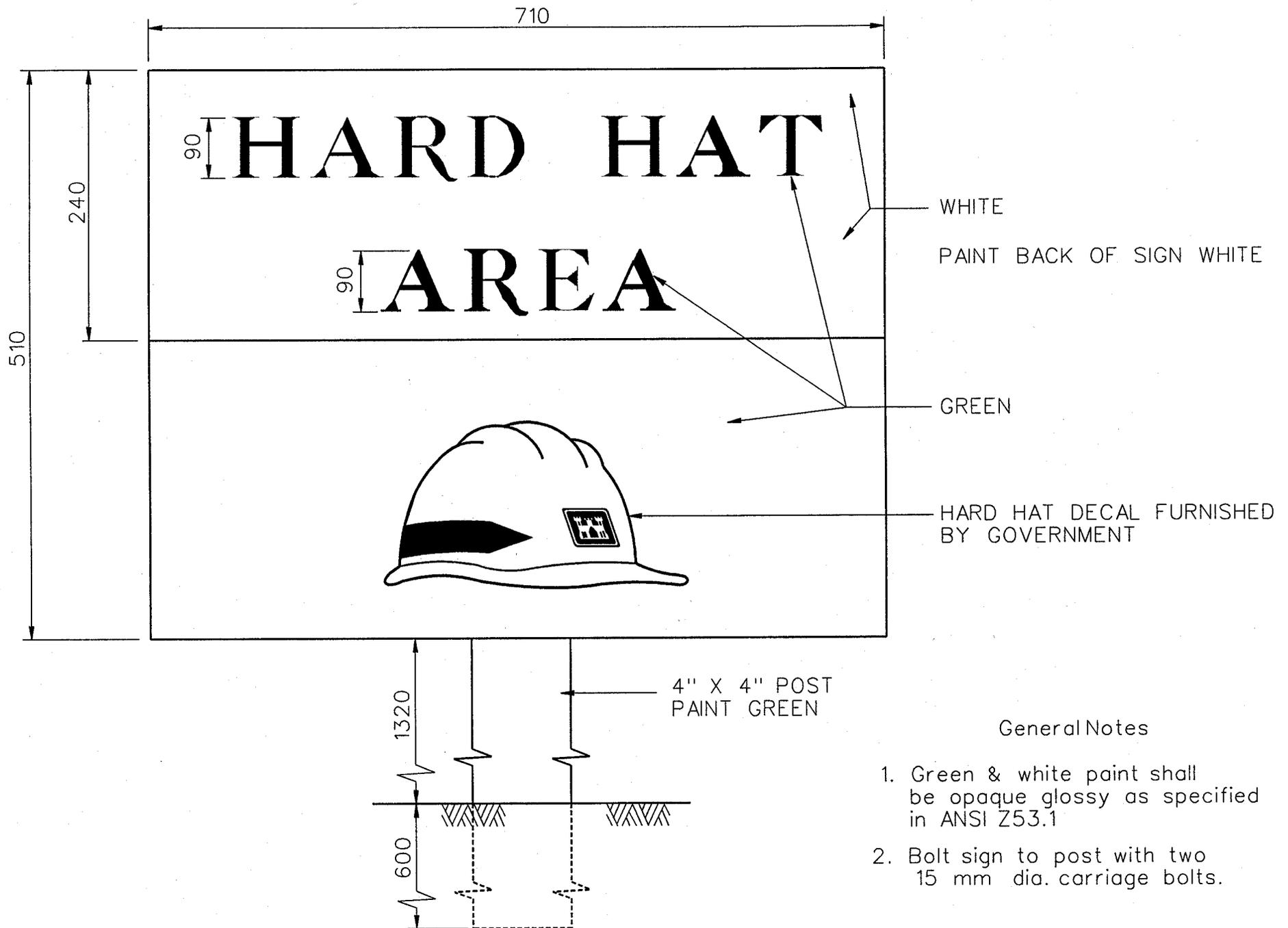
General Notes

1. Lumber to be cut & formed accurately.
2. Secure 1"x4" & plywood with 6d finish nails at not less than 305mm(12") O.C.
3. All exposed nails to be set & holes filled with putty.
4. Sign to be set in good solid ground & backfill carefully tamped into place.
5. Where necessary, posts shall be braced to provide a solid installation.

SIGN DETAILS

Figure 2  
October 1996

All units are in millimeters unless otherwise indicated.

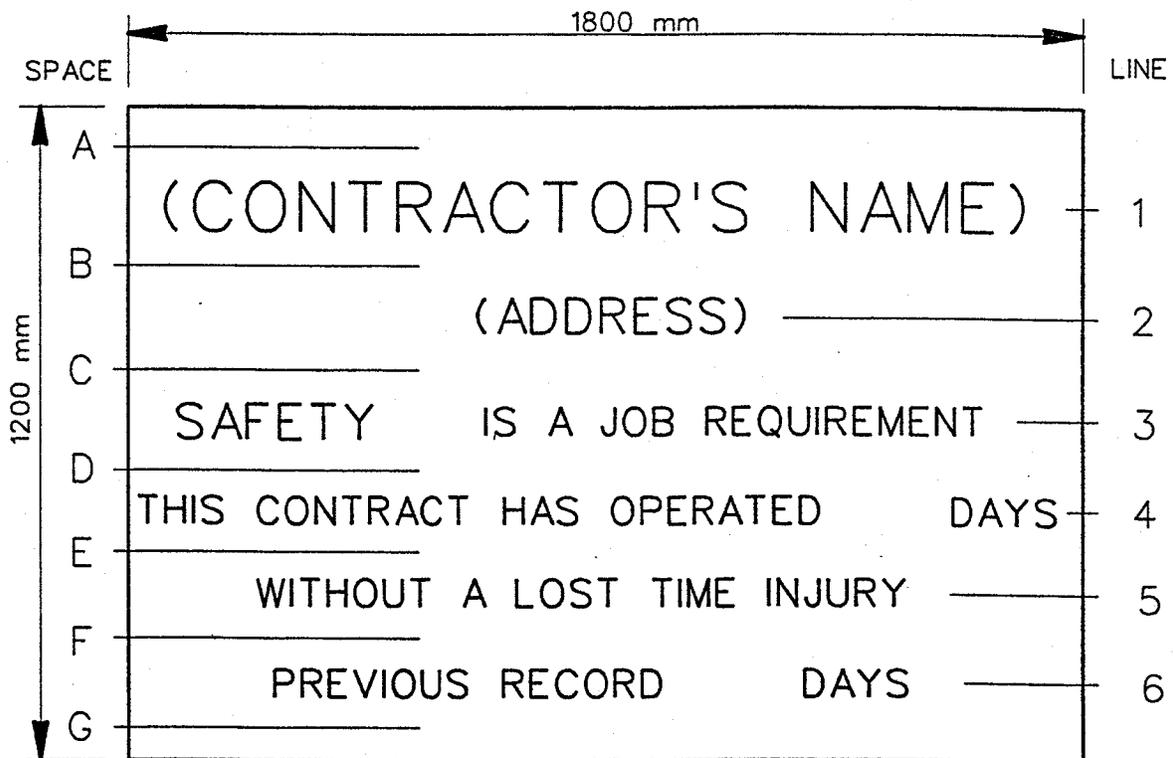


#### General Notes

1. Green & white paint shall be opaque glossy as specified in ANSI Z53.1
2. Bolt sign to post with two 15 mm dia. carriage bolts.

Figure 3  
October 1996

All units are in millimeters unless otherwise indicated.



| <u>SPACE</u> | <u>HEIGHT</u> | <u>LINE</u> | <u>DESCRIPTION</u>          | <u>LETTER HEIGHT</u> |
|--------------|---------------|-------------|-----------------------------|----------------------|
| A            | 125           |             |                             |                      |
| B            | 75            | 1           | CONTRATOR'S NAME            | 125                  |
| C            | 150           | 2           | ADDRESS                     | 75                   |
| D            | 75            | 3           | SAFETY IS A JOB REQUIREMENT | 115 & 75             |
| E            | 75            | 4           | ALL LETTERING               | 75                   |
| F            | 75            | 5           | ALL LETTERING               | 75                   |
| G            | 125           | 6           | ALL LETTERING               | 75                   |

**Notes**

Lettering shall be black No. 27038 standard 595.  
Sign shall be installed in the same manner  
as the Project Sign.

SAFETY SIGN  
STANDARD DETAIL

All units are in millimeters.

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PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section Table of Contents --

## SECTION 01270

## MEASUREMENT AND PAYMENT

## PART 1 GENERAL

## 1.1 SUBMITTALS

None

## 1.2 LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BIDDING SCHEDULE and described below. 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 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, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

## 1.2.1 Clear Site and Remove Obstruction

## 1.2.1.1 Payment

Payment will be made for costs associated with all work and operations necessary for clearing the site and removing obstructions in accordance with Section 02230 CLEARING AND GRUBBING.

## 1.2.1.2 Unit of Measure

Unit of measure: lump sum.

## 1.2.2 Subdrain System

## 1.2.2.1 Payment

Payment for Subdrain System will be made at the applicable contract price, which payment shall constitute full compensation for providing perforated PVC collector pipe, PVC drain pipe, drain material, filter fabric, two 12" CPVC pipes shown on drawings, in accordance with Section 02620 SUBDRAINAGE SYSTEM, complete.

## 1.2.2.2 Unit of Measure

Unit of measure: lump sum.

### 1.2.3 Terrace Drain and V-Ditch

#### 1.2.3.1 Payment

Payment will be made for costs associated with construction of shotcrete Terrace Drains and V-Ditches, which includes performing required excavating, forming, furnishing and placement of reinforcing steel and shotcrete, finishing and other operations incidental thereto, complete.

#### 1.2.3.2 Unit of Measure

Unit of measure: lump sum.

### 1.2.4 Access Road Drain

#### 1.2.4.1 Payment

Payment for Access Road Drain will be made at the applicable contract price, which payment shall constitute full compensation for the access road drains, including pipe, formwork, steel reinforcement, concrete (including portland cement), inlet box and outlet structure in accordance with Section 02630 STORM-DRAINAGE SYSTEM., complete. Also, payment for replacement of 12" PVC drain line to be located, removed, and re-used.

#### 1.2.4.2 Unit of Measure

Unit of measure: lump sum

### 1.2.5 Horsetrail Drain

#### 1.2.5.1 Payment

Payment for horsetrail Drain will be made at the applicable contract price, which payment shall constitute full compensation for the horsetrail drains, complete, including pipe, formwork, steel reinforcement, concrete (including portland cement), inlet and outlet boxes in accordance with Section 02630 STORM-DRAINAGE SYSTEM.

#### 1.2.5.2 Unit of Measure

Unit of measure: lump sum

### 1.2.6 Retaining Wall

#### 1.2.6.1 Payment

Payment for retaining wall shall be made at the applicable contract price, which payment shall constitute full compensation for earthwork, concrete (including Portland cement), steel reinforcement, form work, joints, complete. Payment shall not include excavation and compacted fill, for which other applicable payment items are provided.

## 1.2.6.2 Unit of Measure

Unit of measure: lump sum

## 1.2.7 Grouted Stone

## 1.2.7.1 Payment

Payment for Grouted Stone will be made at the applicable contract price, which constitute full compensation for obtaining and placing the grouted stone (grout and stone), acceptably placed within the lines and grades shown on drawings or directed by the Contracting Officer, complete.

## 1.2.7.2 Unit of Measure

Unit of measure: lump sum

## 1.3 UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items.

## 1.3.1 Excavation, Bluff

## 1.3.1.1 Payment

Payment will be made for costs associated with excavation and slope benching for the buttress shown on the plans in accordance to survey taken and, which includes performing required excavation and other operations incidental thereto, Contractor-furnished disposal area(s) and disposition of excess and unsuitable excavated materials.

No measurement of payment will be made for construction, maintenance, or obliteration of access and haul roads. No separate payment will be made for excavation and disposal of unsatisfactory soils. When such excavation is directed by the Contracting Officer, payment therefore will be included in the applicable contract price for the items of work under which the unsuitable soils are encountered. When there is no applicable contract item, an adjustment shall be made.

## 1.3.1.2 Measurement

The total quantity of excavated material for which payment will be made will be the theoretical quantity between the ground surface as determined by a survey shown on the drawings and the slope of the theoretical cross sections indicated. No allowance will be made for overexcavation or for the removal of any material outside the required slope lines unless

authorized.

#### 1.3.1.3 Unit of Measure

Unit of measure: cubic meter.

#### 1.3.2 Excavation, Permanent Access Road

##### 1.3.2.1 Payment

Payment will be made for costs associated with excavation for the buttress, which includes performing required excavation and other operations incidental thereto, Contractor-furnished disposal area(s) and disposition of excess and unsuitable excavated materials.

##### 1.3.2.2 Measurement

The total quantity of excavated material for which payment will be made will be the theoretical quantity between the ground surface as determined by a survey shown on the drawings and the slope of the theoretical cross sections indicated from previous contract (Norco Bluffs, Zone 2 Streambank Stabilization). Excavated material (85% of total excavated material) will be used for buttressing and will be paid according to 1.4.3 Compacted Fill, Buttress. No allowance will be made for overexcavation or for the removal of any material outside the required slope lines unless authorized.

##### 1.3.2.3 Unit of Measure

Unit of measure: cubic meter.

#### 1.3.3 Compacted fill, Buttress

##### 1.3.3.1 Payment

Payment for Compacted fill, buttress, will be made at the applicable contract price, which payment shall constitute full compensation for subgrade preparation, obtaining materials from approved borrow sites, including any required excavation and/or grading at the borrow site, hauling, placing, spreading, discing, shaping, grading, overbuilding and cutting back, and compacting the fill, and other operations incidental thereto, complete.

##### 1.3.3.2 Measurement

The total quantity of fill material for which payment will be made will be the theoretical quantity between the neat-line excavation limits and/or ground surface as determined by the survey shown on the drawings and the grade and slope of the theoretical cross sections indicated. No allowance will be made for filling any over excavation or fills for temporary access and haul roads for the Contractor's convenience.

##### 1.3.3.3 Unit of measure: cubic meter

#### 1.3.4 Fencing

#### 1.3.4.1 Payment

Payment for fencing will be made for costs associated with chain link fencing and other operations incidental thereto.

#### 1.3.4.2 Measurement

The total quantity of fencing for which payment will be made will be the nearest linear meter, horizontally along the centerline from end-to-end of the fence in place. Fencing on side drains structures, retaining walls, and temporary fencing will not be included in the measurement.

#### 1.3.4.3 Unit of Measure

Unit of measure: lineal meter

#### 1.3.5 Gate

##### 1.3.5.1 Payment

Payment for Gate will be made at the applicable contract price per each, which payment shall constitute full compensation for the gate, complete.

##### 1.3.5.2 Unit of Measure

Unit of measure: each.

#### 1.3.6 Aggregate Base Course

##### 1.3.6.1 Payment

Payment for Aggregate Base Course will be made at the applicable contract price which payment shall constitute full compensation for earthwork required for installation of aggregate base course, furnishing and placing the aggregate base course, complete including subgrade preparation. No payment will be made under this item for aggregate base course used for access roads for which separate payment is provided.

##### 1.3.6.2 Measurement

Aggregate Base Course will be measured for payment by the ton (metric) by weighing each truckload to the nearest 0.1 ton, and the final quantity will be rounded to the nearest whole ton. The Aggregate Base Course will be measured for payment by being weighed on approved scales before being placed in the work. Batch plant weights will not be accepted. Scales shall be of sufficient length to permit simultaneous weighing all axle loads and shall be inspected, tested and sealed as directed to assure accuracy with 0.5 percent throughout the range of the scales. The scales, located at the site of the work, shall be certified as the accuracy by an acceptable scales company representative prior to weighing any Aggregate Base Course. Scales will be checked and certified before Aggregate Base hauling and rechecked and recertified whenever a variance is suspected. The Contractor shall furnish the scales. If commercial scales are readily

available in close proximity 15 kilometers of site of work, the Contracting officer may approve the use of the scales. The Aggregate Base Course shall be weighed in the presence of the Government representative. The Contracting Officer may elect to accept certified weight certificates furnished by a public weighmaster in lieu of scale weights at the jobsite.

The quantity of aggregate Base Course placed outside of the lines and grades indicated on the drawings will be estimated and deducted from the payment quantity.

#### 1.3.6.3 Unit of Measure

Unit of measure: metric ton (1000 kg).

#### 1.3.7 Asphalt Concrete Pavement

##### 1.3.7.1 Payment

Payment for Asphalt Concrete Pavement will be made at the applicable contract price, which payment shall constitute full compensation for removal of existing asphalt concrete pavement and construction of the asphalt roads, complete, including tack coat, applicable earthwork and subgrade preparations, furnishing and placing aggregate base course, furnishing and placing CMP culvert pipes, installing pipe bollards, and appurtenances as shown on the drawings.

##### 1.3.7.2 Measurement

Asphalt Concrete Pavement will be measured for payment by the ton (metric) by weighing each truckload to the nearest 0.1 ton, and the final quantity of will be rounded to the nearest whole ton. The Asphalt Concrete Pavement will be measured for payment by being weighed on approved scales before being placed in the work. Batch plant weights will not be accepted. Scales shall be of sufficient length to permit simultaneous weighing all axle loads and shall be inspected, tested and sealed as directed to assure accuracy with 0.5 percent throughout the range of the scales. The scales, located at the site of the work, shall be certified as the accuracy by an acceptable scales company representative prior to weighing any Asphalt Concrete Pavement. Scale will be checked and certified before Asphalt Concrete Pavement hauling and rechecked and recertified whenever a variance is suspected. The Contractor shall furnish the scales. If commercial scales are readily available in close proximity 15 kilometers of site of work, the Contracting Officer may approve the use of the scales. The Asphalt Concrete Pavement shall be weighed in the presence of the Government representative. The Contracting Officer may elect to accept certified weight certificates furnished by a public weighmaster in lieu of scale weights at the jobsite.

##### 1.3.7.3 Unit of Measure

Unit of measure: metric ton (1000 kg).

#### 1.3.8 Side Drain Gutters

## 1.3.8.1 Payment

Payment for shotcrete will be made at the applicable contract price, which payment shall constitute full compensation for furnishing the shotcrete ready for use in the work, complete. No payment will be made for shotcrete used for structures for which separate payment is provided.

## 1.3.8.2 Measurement

Text

## 1.3.8.3 Unit of Measure

Unit of measure: metric ton

## 1.3.9 Metal Beam Guardrail

## 1.3.9.1 Payment

Payment for guard rail will be made for costs associated with metal beam guard rail and other operations incidental at applicable contract price, which payment shall constitute full compensation for the guard rail.

## 1.3.9.2 Measurement

The total quantity of metal beam guard rail for which payment will be made will be the nearest linear meter, horizontally along the centerline from end-to-end of the guard rail in place. Guard rail on side drains structures, retaining walls, and temporary fencing will not be included in the measurement.

## 1.3.9.3 Unit of Measure

Unit of measure: lineal meter

## 1.3.10 Area 2 Drain

Payment for Area 2 Drain will be made at the applicable contract price, which payment shall constitute full compensation for the area 2 drain, including pipe, formwork, steel reinforcement, concrete (including portland cement), inlet and outlet boxes in accordance with Section 02630 STORM-DRAINAGE SYSTEM., complete.

## 1.3.10.1 Unit of Measure

Unit of measure: lump sum

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --

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## SECTION 01330

## SUBMITTAL PROCEDURES

## PART 1 GENERAL

## 1.1 SUBMITTAL IDENTIFICATION

Submittals required are identified by SD numbers and titles as follows:

## SD-02 Shop 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-03 Product Data

Submittals which provide calculations, descriptions, or documentation regarding the work.

## SD-04 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-05 Design Data

Submittals which provide calculations, descriptions, or documentation regarding the work.

## SD-06 Test Reports

Data which forms a part of an operation and maintenance manual.

Reports of inspections 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-07 Certificates

A document, required of the Contractor, or through the Contractor, from a supplier, installer, manufacturer, or other lower tier Contractor, the purpose of which is to confirm the quality or orderly progression of a portion of the work by documenting procedure, acceptability of methods or personnel, qualifications, or other verification of quality.

Statement signed an official authorized to certify on behalf of the manufactrer of a product, system or material, attesting that the product,

system or material meets specified requirements. The statement must be dated after the award of the contract, must state the Contractor's name and address, must name the project and location, and must list the specific requirements which are being certified.

#### SD-09 Manufacturer's Field Reports

Reports of inspections 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.

Documentation to record compliance with technical or administrative requirements.

### 1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

#### 1.2.1 Government Approved

Government approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

#### 1.2.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

### 1.3 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

### 1.4 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

### 1.5 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

### PART 2 PRODUCTS (Not used)

### PART 3 EXECUTION

#### 3.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those 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 as those 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 (CQC) System Manager and each item shall be stamped, signed, and dated by the CQC System Manager indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. 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 manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

#### 3.2 SUBMITTAL REGISTER

At the end of this section is a submittal register showing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. The Contractor shall maintain a submittal register for the project in accordance with Section 01312 RESIDENT MANAGEMENT SYSTEM (RMS).

#### 3.3 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 7 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

#### 3.4 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) attached to this section shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall 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.

### 3.5 SUBMITTAL PROCEDURE

Submittals shall be made as follows:

#### 3.5.1 Procedures

The Contractor shall complete ENG Form 4025, "Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificate of Compliance" with each set of shop drawings, certificates, equipment data of samples submitted. Blank Eng Form 4025 will be furnished by the Contracting Officer on request. Six Copies of each submittal will be required.

#### 3.5.2 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

### 3.6 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

### 3.7 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. 4 copies of the submittal will be retained by the Contracting Officer and 2 copies of the submittal will be returned to the Contractor.

### 3.8 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. 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; will not prevent the Contracting Officer from requiring

removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

### 3.9 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

|   |
|---|
| <p>CONTRACTOR</p> <p>(Firm Name)</p><br><p>_____ Approved</p><br><p>_____ Approved with corrections as noted on submittal data and/or attached sheets(s).</p><br><p>SIGNATURE: _____</p> <p>TITLE: _____</p> <p>DATE: _____</p> |
|---|

-- End of Section --

**SUBMITTAL REGISTER**

CONTRACT NO.  
DACW09-03-B-0002

| TITLE AND LOCATION                                 |   |  |   |  |  | CONTRACTOR                    |  |  |  |  |   |  |   |  |  |  |         |                                 |
|--|---|--|---|--|--|-------------------------------|--|--|--|--|---|--|---|--|--|--|---------|---------------------------------|
| NORCO BLUFFS (ZONE 2 PHASE 2) BUTTRESS FILL        |   |  |   |  |  | CONTRACTOR:<br>SCHEDULE DATES |  |  | CONTRACTOR<br>ACTION                               |  | APPROVING AUTHORITY   |  |   |  |  |  | REMARKS |                                 |
| A<br>C<br>T<br>I<br>V<br>I<br>T<br>Y<br><br>N<br>O | T<br>R<br>A<br>N<br>S<br>M<br>I<br>T<br>T<br>A<br>L<br><br>N<br>O | S<br>P<br>E<br>C<br>I<br>F<br>I<br>C<br><br>S<br>E<br>C<br>T | D<br>E<br>S<br>C<br>R<br>I<br>P<br>T<br>I<br>O<br>N | P<br>A<br>R<br>A<br>M<br>E<br>T<br>E<br>R<br>S | G<br>O<br>V<br>E<br>R<br>N<br>M<br>E<br>N<br>T<br><br>C<br>L<br>A<br>S<br>S<br>I<br>F<br>I<br>C<br>A<br>T<br>I<br>O<br>N | S<br>U<br>B<br>M<br>I<br>T    | A<br>P<br>P<br>R<br>O<br>V<br>A<br>L<br>N<br>E<br>E<br>D<br>E<br>D | M<br>A<br>T<br>E<br>R<br>I<br>A<br>L<br>N<br>E<br>E<br>D<br>E<br>D | A<br>C<br>T<br>I<br>O<br>N<br><br>C<br>O<br>D<br>E | D<br>A<br>T<br>E<br>O<br>F<br>A<br>C<br>T<br>I<br>O<br>N | D<br>A<br>T<br>E<br>F<br>R<br>O<br>M<br>C<br>O<br>N<br>T<br>R | D<br>A<br>T<br>E<br>F<br>W<br>D<br>T<br>O<br>O<br>T<br>H<br>E<br>R<br>R<br>E<br>V<br>I<br>E<br>W<br>E<br>R | D<br>A<br>T<br>E<br>F<br>R<br>O<br>M<br>O<br>T<br>H<br>E<br>R<br>R<br>E<br>V<br>I<br>E<br>W<br>E<br>R | A<br>C<br>T<br>I<br>O<br>N<br><br>C<br>O<br>D<br>E | D<br>A<br>T<br>E<br>O<br>F<br>A<br>C<br>T<br>I<br>O<br>N | D<br>A<br>T<br>E<br>F<br>R<br>O<br>M<br>A<br>P<br>P<br>R |         | R<br>E<br>M<br>A<br>R<br>K<br>S |
|  |   |  |   |  |  |                               |  |  |  |  |   |  |   |  |  |  | (a)     |                                 |
|  |   | 01200  | SD-07 Certificates                                  |  |  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | Site-specific Safety and Health Plan                | 1.13.1   | G  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | Activity Hazards Safety Analysis                    | 1.13.2   | G  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | SD-05 Design Data                                   |  |  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | Site Plan   | 1.3.1  | G RE   |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | Access and Haul Roads                               | 1.7.2  | G RE   |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   | 02300  | SD-04 Samples                                       |  |  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | excavation plan                                     | 3.4  | G RE   |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | methods proposed for transporting material          | 3.4  | G RE   |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | haul route plan                                     | 3.6  | G RE   |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | geotechnical investigation plan                     | 3.11.2   | G ED   |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | excavating the bluff                                | 3.5  | G RE   |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | SD-07 Certificates                                  |  |  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | Testing   | 3.15   |  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | SD-09 Manufacturer's Field Reports                  |  |  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | calibration curves                                  | 3.15   |  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   | 02380  | SD-03 Product Data                                  |  |  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | Bulk Specific Gravity                               | 3.4.2.1  |  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | Ready-Mixed Concrete Grout                          | 3.3.2.1  |  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | Batching and mixing equipment                       | 2.2.5  | G ED   |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | Conveying and Placing                               | 3.3.4  | G ED   |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | Curing Materials                                    | 2.2.3  |  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |
|  |   |  | SD-06 Test Reports                                  |  |  |                               |  |  |  |  |   |  |   |  |  |  |         |                                 |

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| TITLE AND LOCATION                                 |   |   |   |  |  | CONTRACTOR                    |  |  |  |  |  |  |  |  |  |   |         |     |
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| NORCO BLUFFS (ZONE 2 PHASE 2) BUTTRESS FILL        |   |   |   |  |  | CONTRACTOR:<br>SCHEDULE DATES |  |  | CONTRACTOR<br>ACTION                           |  | APPROVING AUTHORITY  |  |  |  |  |   | REMARKS |     |
| A<br>C<br>T<br>I<br>V<br>I<br>T<br>Y<br><br>N<br>O | T<br>R<br>A<br>N<br>S<br>M<br>I<br>T<br>T<br>A<br>L<br><br>N<br>O | S<br>P<br>E<br>C<br>I<br>F<br>I<br>C<br>A<br>T<br>I<br>O<br>N<br><br>N<br>O | D<br>E<br>S<br>C<br>R<br>I<br>P<br>T<br>I<br>O<br>N | P<br>A<br>R<br>A<br>M<br>E<br>T<br>E<br>R<br>S | C<br>L<br>A<br>S<br>S<br>I<br>F<br>I<br>C<br>A<br>T<br>I<br>O<br>N | S<br>U<br>B<br>M<br>I<br>T    | A<br>P<br>P<br>R<br>O<br>V<br>A<br>L<br>N<br>E<br>E<br>D<br>E<br>D | M<br>A<br>T<br>E<br>R<br>I<br>A<br>L<br>N<br>E<br>E<br>D<br>E<br>D | A<br>C<br>T<br>I<br>O<br>N<br>C<br>O<br>D<br>E | D<br>A<br>T<br>E<br>O<br>F<br>A<br>C<br>T<br>I<br>O<br>N | D<br>A<br>T<br>E<br>R<br>C<br>D<br>F<br>R<br>O<br>M<br>C<br>O<br>N<br>T<br>R | D<br>A<br>T<br>E<br>F<br>W<br>D<br>T<br>O<br>O<br>T<br>H<br>E<br>R<br>R<br>E<br>V<br>I<br>E<br>W<br>E<br>R | D<br>A<br>T<br>E<br>R<br>C<br>D<br>F<br>R<br>O<br>M<br>O<br>T<br>H<br>E<br>R<br>R<br>E<br>V<br>I<br>E<br>W<br>E<br>R | A<br>C<br>T<br>I<br>O<br>N<br>C<br>O<br>D<br>E | D<br>A<br>T<br>E<br>O<br>F<br>A<br>C<br>T<br>I<br>O<br>N | D<br>A<br>T<br>E<br>R<br>C<br>D<br>F<br>R<br>O<br>M<br>A<br>P<br>P<br>R |         |     |
|  |   |   |   |  |  |                               |  |  |  |  |  |  |  |  |  |   | (a)     | (b) |
|  |   | 02380   | Gradation Test                                      | 2.1.5.2  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | Evaluation Testing of Stone                         | 2.1.2  | G ED   |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | SD-07 Certificates                                  |  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | CONCRETE GROUT                                      | 2.2  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   | 02620   | SD-02 Shop Drawings                                 |  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | plan for placing the pipe                           | 3.1.1  | G ED   |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | SD-04 Samples                                       |  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | Filter Fabric                                       | 2.2  | G ED   |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | Pipe for Subdrains                                  | 2.1  | G ED   |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | SD-07 Certificates                                  |  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | Filter Fabric                                       | 2.2  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | Pipe for Subdrains                                  | 2.1  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   | 02630   | SD-03 Product Data                                  |  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | Placing Pipe  | 3.3  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | PIPE FOR STORM DRAINS                               | 2.1  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | SD-07 Certificates                                  |  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | Hydrostatic Test on Watertight Joints               | 2.4  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | Determination of Density                            | 3.6.5  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   | 02722   | SD-03 Product Data                                  |  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | Plant, Equipment, and Tools                         | 1.6  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | SD-06 Test Reports                                  |  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | Sampling and testing                                | 1.4  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | Field Density Tests                                 | 1.4.2.4  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   | 02741   | SD-03 Product Data                                  |  |  |                               |  |  |  |  |  |  |  |  |  |   |         |     |
|  |   |   | Mix Design  | 2.3  | G ED   |                               |  |  |  |  |  |  |  |  |  |   |         |     |

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| TITLE AND LOCATION                                 |   |   |  |   | CONTRACTOR  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|--|---|---|--|---|---|--|-----------------------|----------------------------|--|--|--|--|---|---|---|--|--|---|---------------------------------|-----|
| NORCO BLUFFS (ZONE 2 PHASE 2) BUTTRESS FILL        |   |   |  |   | CONTRACTOR: SCHEDULE DATES                          |  |                       | CONTRACTOR ACTION          |  |  | APPROVING AUTHORITY                            |  |   |   |   |  |  |   |                                 |     |
| A<br>C<br>T<br>I<br>V<br>I<br>T<br>Y<br><br>N<br>O | T<br>R<br>A<br>N<br>S<br>M<br>I<br>T<br>T<br>A<br>L<br><br>N<br>O | S<br>P<br>E<br>C<br>I<br>F<br>I<br>C<br>A<br>T<br>I<br>O<br>N<br><br>N<br>O | P<br>A<br>R<br>A<br>M<br>E<br>T<br>E<br>R<br>S<br><br>P<br>H | G<br>O<br>V<br>E<br>R<br>N<br>M<br>E<br>N<br>T<br><br>C<br>L<br>A<br>S<br>S<br>I<br>F<br>I<br>C<br>A<br>T<br>I<br>O<br>N<br><br>S<br>E<br>C<br>T<br>I<br>O<br>N | D<br>E<br>S<br>C<br>R<br>I<br>P<br>T<br>I<br>O<br>N | P<br>A<br>R<br>A<br>M<br>E<br>T<br>E<br>R<br>S | G<br>R<br>A<br>D<br>E | S<br>U<br>B<br>M<br>I<br>T | A<br>P<br>P<br>R<br>O<br>V<br>A<br>L<br>N<br>E<br>E<br>D<br>E<br>D | M<br>A<br>T<br>E<br>R<br>I<br>A<br>L<br>N<br>E<br>E<br>D<br>E<br>D | A<br>C<br>T<br>I<br>O<br>N<br>C<br>O<br>D<br>E | D<br>A<br>T<br>E<br>O<br>F<br>A<br>C<br>T<br>I<br>O<br>N | D<br>A<br>T<br>E<br>F<br>R<br>O<br>M<br>C<br>O<br>N<br>T<br>R | D<br>A<br>T<br>E<br>F<br>R<br>O<br>M<br>O<br>T<br>H<br>E<br>R<br>R<br>E<br>V<br>I<br>E<br>W<br>E<br>R | D<br>A<br>T<br>E<br>F<br>R<br>O<br>M<br>O<br>T<br>H<br>E<br>R<br>R<br>E<br>V<br>I<br>E<br>W<br>E<br>R | D<br>A<br>T<br>E<br>O<br>F<br>A<br>C<br>T<br>I<br>O<br>N | D<br>A<br>T<br>E<br>O<br>F<br>A<br>C<br>T<br>I<br>O<br>N | M<br>A<br>I<br>L<br>E<br>D<br>T<br>O<br>C<br>O<br>N<br>T<br>R | R<br>E<br>M<br>A<br>R<br>K<br>S |     |
|  |   |   |  |   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 | (a) |
|  |   | 02741   | Contractor Quality Control                                   | 3.8   | G RE  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | SD-06 Test Reports   |   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Aggregates   | 2.1   | G ED  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | QC Monitoring  | 3.8.2.8   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | SD-07 Certificates   |   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Asphalt Cement Binder  | 2.2   | G ED  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   | 02748   | SD-03 Product Data   |   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Waybills and Delivery Tickets                                | 1.3   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   | 02821   | SD-07 Certificates   |   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Chain Link Fence   | 2.1   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   | 03307   | SD-03 Product Data   |   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Water-Reducing or Retarding Admixture                        | 2.1.3.1   | G ED  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Curing Materials   | 2.1.7   | G ED  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Reinforcing Steel  | 2.1.5   | G ED  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Conveying and Placing Concrete                               | 3.2   | G ED  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Formwork   | 2.1.6   | G ED  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | SD-06 Test Reports   |   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Aggregates   | 2.1.2   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Concrete Mixture Proportions                                 | 1.3.3   | G ED  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | SD-07 Certificates   |   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Cementitious Materials                                       | 2.1.1   | G ED  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Aggregates   | 2.1.2   | G ED  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   | 03371   | SD-06 Test Reports   |   |   |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Mixture Proportions  | 1.4   | G ED  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |
|  |   |   | Aggregates   | 2.1.2   | G ED  |  |                       |                            |  |  |  |  |   |   |   |  |  |   |                                 |     |

**SUBMITTAL REGISTER**

CONTRACT NO.  
DACW09-03-B-0002

TITLE AND LOCATION

NORCO BLUFFS (ZONE 2 PHASE 2) BUTTRESS FILL

CONTRACTOR

| ACTIVITY NO | TRANSMITTAL NO | SPEC SECT | DESCRIPTION                 | PARAGRAPH | CLASSIFICATION | CONTRACTOR: SCHEDULE DATES |    |                    | CONTRACTOR ACTION |                | APPROVING AUTHORITY               |                            |                            |        | REMARKS |                |                        |
|-------------|----------------|-----------|-----------------------------|-----------|----------------|----------------------------|----|--------------------|-------------------|----------------|-----------------------------------|----------------------------|----------------------------|--------|---------|----------------|------------------------|
|             |                |           |                             |           |                | SUBMIT                     | BY | MATERIAL NEEDED BY | ACTION            | DATE OF ACTION | DATE FWD TO APPR AUTH/ FROM CONTR | DATE FWD TO OTHER REVIEWER | DATE RCD FROM OTH REVIEWER | ACTION |         | DATE OF ACTION | DATE RCD FRM APPR AUTH |
|             |                |           |                             |           |                |                            |    |                    |                   |                |                                   |                            |                            |        |         |                |                        |
| (a)         | (b)            | (c)       | (d)                         | (e)       | (f)            |                            |    |                    |                   |                |                                   |                            |                            |        |         |                |                        |
|             | 03371          |           | Preconstruction Test Panels | 1.7       |                |                            |    |                    |                   |                |                                   |                            |                            |        |         |                |                        |
|             |                |           | SD-07 Certificates          |           |                |                            |    |                    |                   |                |                                   |                            |                            |        |         |                |                        |
|             |                |           | Portland Cement             | 2.1.1.1   | G ED           |                            |    |                    |                   |                |                                   |                            |                            |        |         |                |                        |
|             |                |           | Pozzolans                   | 2.1.1.2   |                |                            |    |                    |                   |                |                                   |                            |                            |        |         |                |                        |
|             |                |           | Curing Materials            | 2.1.5     |                |                            |    |                    |                   |                |                                   |                            |                            |        |         |                |                        |
|             |                |           | Qualifications              | 1.6       | G RE           |                            |    |                    |                   |                |                                   |                            |                            |        |         |                |                        |

|   |      |                 |
|---|------|-----------------|
| <b>TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR<br/>MANUFACTURER'S CERTIFICATES OF COMPLIANCE</b><br><i>(Read instructions on the reverse side prior to initiating this form)</i> | 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:<br><input type="checkbox"/> THIS IS A NEW TRANSMITTAL<br><input type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL _____ |
|-----|-------|--------------|---|

|  |                            |  |
|--|----------------------------|--|
| SPECIFICATION SEC. NO. <i>(Cover only one section with each transmittal)</i> | PROJECT TITLE AND LOCATION | CHECK ONE: THIS TRANSMITTAL IS FOR <input type="checkbox"/> FIO <input type="checkbox"/> GOV'T. APPROVAL |
|--|----------------------------|--|

| ITEM NO. | DESCRIPTION OF ITEM SUBMITTED<br><i>(Type size, model number/etc.)</i> | MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO.<br><i>(See Instruction no. 8)</i> | NO. OF COPIES | CONTRACT REFERENCE DOCUMENT |                   | FOR CONTRACTOR USE CODE | VARIATION<br><i>(See Instruction No. 6)</i> | FOR CE USE CODE |
|----------|--|---|---------------|-----------------------------|-------------------|-------------------------|---|-----------------|
|          |  |   |               | SPEC. PARA. NO.             | DRAWING SHEET NO. |                         |   |                 |
| a.       |  | c.  | d.            | e.                          | f.                | g.                      | h.  | i.              |
|          |  |   |               |                             |                   |                         |   |                 |
|          |  |   |               |                             |                   |                         |   |                 |
|          |  |   |               |                             |                   |                         |   |                 |
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|          |  |   |               |                             |                   |                         |   |                 |
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|          |  |   |               |                             |                   |                         |   |                 |
|          |  |   |               |                             |                   |                         |   |                 |

|         |   |
|---------|---|
| 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 otherwise stated.<br><br><div style="text-align: right; border-top: 1px solid black; width: 100%;">NAME AND SIGNATURE OF CONTRACTOR</div> |
|---------|---|

**SECTION II - APPROVAL ACTION**

|   |  |      |
|---|--|------|
| ENCLOSURES RETURNED <i>(List by Item No.)</i> | NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY | DATE |
|---|--|------|

## INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.
4. Submittals requiring expeditious handling will be submitted on a separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

### THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

- |   |   |
|---|---|
| A -- Approved as submitted.   | E -- Disapproved (See attached).  |
| B -- Approved, except as noted on drawings.   | F -- Receipt acknowledged.  |
| C -- Approved, except as noted on drawings.<br>Refer to attached sheet resubmission required. | FX -- Receipt acknowledged, does not comply<br>as noted with contract requirements. |
| D -- Will be returned by separate correspondence.   | G -- Other (Specify)  |
10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

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## SECTION 01354

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## SECTION 01354

## ENVIRONMENTAL PROTECTION FOR CIVIL WORKS

## 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.

## CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 261 Identification and Listing of Hazardous Waste

## ENGINEERING MANUALS (EM)

EM 385-1-1 (1996) U.S. Army Corps on Engineers Safety and Health Requirements Manual

## 1.2 DEFINITIONS

Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances of plant or animal communities; or degrade the environment from an aesthetic, cultural or historic perspective. Environmental protection is the prevention/control of pollution and habitat disruption that may occur during construction. The control of environmental pollution and damage requires consideration of air, water, land, biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive materials; and other pollutants.

## 1.3 SUBMITTALS

Government approval is required for all submittals with a "G" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

None

## 1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor shall comply with all applicable Federal, State, and local laws and regulations. The Contractor shall provide environmental

protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction.

#### 1.4.1 Protection of Features

This section supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. The Contractor shall prepare a list of features requiring protection under the provisions of the contract clause which are not specially identified on the drawings as environmental features requiring protection. The Contractor shall protect those environmental features, indicated specially on the drawings, in spite of interference which their preservation may cause to the Contractor's work under the contract.

#### 1.4.2 Permits

This section supplements the Contractor's responsibility under the contract clause PERMITS AND RESPONSIBILITIES to the extent that the Government has already obtained environmental permits. The Government has obtained a 1601 Streambed Alteration Agreement from the California Department of Fish and Game and a Biological Opinion pursuant to the Endangered Species Act from the U.S. Fish and Wildlife Service. The contractor shall comply with the terms, and conditions of these permits and keep a copy of these permits on-site throughout the construction period. Copies of these permits (including the terms and conditions) are included at the end of this section. The contractor shall also comply with other environmental commitments made by the Government, reference section 3.1; paragraph ENVIRONMENTAL COMMITMENTS.

##### 1.4.2.1 National Pollutant Discharge Elimination System (NPDES) Permit

The Contractor shall obtain a NPDES Construction Storm Water Permit from the State Water Resources Control Board, which requires that a Storm Water Pollution Prevention Plan (SWPPP) shall be prepared and maintained on-site throughout the construction period. Within a minimum of two (2) days prior to the start of construction activities, the Contractor shall submit a Notice of Intent (NOI) to:

State Water Resources Control Board (SWRCB)  
Division of Water Quality  
ATTN: Storm Water Permit Unit  
P.O. Box 1977  
Sacramento, CA 95812-1977  
(916) 657-1146  
fax. (916)657-2388

Copies of the NOI and SWPPP shall be provided to the Contracting Officer.

#### 1.4.3 Special Environmental Requirements

The Contractor shall comply with the special environmental requirements included at the end of this section. These special environmental requirements are an outgrowth of environmental commitments made by the

Government during the project development.

#### 1.4.4 Environmental Assessment of Contract Deviations

The Contract specifications have been prepared to comply with the special conditions and mitigation measures of an environmental nature which were established during the planning and development of this project. The Contractor is advised that deviations from the drawings or specifications (e.g., proposed alternate borrow areas, disposal areas, staging areas, alternate access routes, etc.) could result in the requirement for the Government to reanalyze the project from an environmental standpoint. Deviations from the construction methods and procedures indicated by the plans and specifications which may have an environmental impact will require an extended review, processing, and approval time by the Government. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

#### 1.5 ENVIRONMENTAL PROTECTION PLAN

Within 20 calendar days of Notice of Award, the Contractor shall submit an Environmental Protection Plan for review and acceptance by the Contracting Officer. The Government will consider an interim plan for the first 30 days of operations. However, the Contractor shall furnish an acceptable final plan not later than 30 calendar days after receipt of the Notice to Proceed. Acceptance is conditional and is predicated upon satisfactory performance during construction. The Government reserves the right to require the Contractor to make changes in the Environmental Protection Plan or operations if the Contracting Officer determines that environmental protection requirements are not being met. The plan shall detail the actions which the Contractor shall take to comply with all applicable Federal, State, and local laws and regulations concerning environmental protection and pollution control and abatement, as well as the additional specific requirements of this contract. No physical work at the site shall begin prior to acceptance of the Contractor's plan or an interim plan covering the work to be performed. The environmental protection plan shall include, but not be limited to, the following:

##### 1.5.1 List of Federal State and Local Laws and Regulations

The Contractor shall provide as part of the Environmental Protection Plan a list of all Federal, State, and local environmental laws and regulations which apply to the construction operations under the Contract. The Contractor shall also provide a list of permits, including conditions, that the Contractor shall comply with.

##### 1.5.2 Spill Control Plan

The Contractor shall include as part of the environmental protection plan, a Spill Control Plan. The plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by the Emergency Response and Community Right-to-Know Act or regulated under State or local laws or regulations. The Spill Control Plan

supplements the requirements of EM 385-1-1. This plan shall include as a minimum:

- a. The name of the individual who will be responsible for implementing and supervising the containment and cleanup.
- b. Training requirements for Contractor's personnel and methods of accomplishing the training.
- c. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.
- d. 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.
- e. The methods and procedures to be used for expeditious contaminant cleanup.
- f. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Contracting Officer in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity spill occurs. The plan shall contain a list of the required reporting channels and telephone numbers.

#### 1.5.3 Recycling and Waste Minimization Plan

The Contractor shall submit a Recycling and Waste Minimization Plan as a part of the Environmental Protection Plan. The plan shall detail the Contractor's actions to comply with the following recycling and waste minimization requirements:

- a. The Contractor shall participate in State and local government sponsored recycling programs to reduce the volume of solid waste materials at the source.
- b. The Contractor shall ensure that all trash cans and waste disposal dumpsters are kept covered, in order to minimize the attraction of pest species.

#### 1.5.4 Contaminant Prevention Plan

As a part of the Environmental Protection Plan, the Contractor shall prepare a contaminant prevention statement identifying potentially hazardous substances to be used on the job site and intended actions to prevent accidental or intentional introduction of such materials into the air, water, or ground. The Contractor shall detail provisions to be taken to meet Federal, State, and local laws and regulations regarding the storage and handling of these materials.

#### 1.5.5 Environmental Monitoring

A Biological Monitor (under separate contract) shall be present on site to ensure compliance with the terms and conditions of permits and special environmental requirements. The biological monitor shall work with the Contractor to delineate all construction zones, including roads, borrow sites, and staging areas prior to clearing and grubbing. The biological monitor shall also monitor adjacent riparian vegetation during dewatering operations, among other duties. Communication between the biological monitor and the Contractor shall take place via the Contracting Officer. The Monitor, through the Contracting officer/Corps Construction-representative, has the authority to temporarily halt work in areas of sensitive resources that may be discovered. The Contractor shall not take direction from the Biological Monitor, but from the Contracting Officer.

An Archaeological Monitor (under separate contract) shall be present on site to ensure compliance with the terms and conditions of permits and special environmental requirements. The archaeological monitor shall monitor ground disturbing activities during clearing and grubbing. Communication between the archaeological monitor and the Contractor shall take place via the Contracting Officer. The Monitor, through the Contracting Officer/Corps Construction-representative, has the authority to temporarily halt work in areas of sensitive resources that may be discovered. The Contractor shall not take direction from the archaeological monitor, but from the Contracting Officer.

#### 1.5.6 Erosion Control Plan

The Contractor shall include in the plan the details of erosion control under the laws and regulations and a description of how this erosion control will be accomplished. Construction activities shall be managed and controlled to prevent erosion of soil or sediment from entering nearby waters or wetlands. Such methods as necessary shall be utilized to effectively prevent erosion and to control sedimentation. Any erosion control measure shall be constructed from materials, such as clean gravel or sandbags, which will cause little or no siltation.

### PART 2 PRODUCTS (Not Applicable)

### PART 3 EXECUTION

#### 3.1 SPECIAL ENVIRONMENTAL PROTECTION REQUIREMENTS

##### 3.1.1 Tree Protection

No ropes, cables, or guys shall be fastened to or attached to any tree(s) for anchorage unless specifically authorized by the Contracting Officer. Where such special use is permitted, the Contractor shall provide effective protection to prevent damage to the tree and other land and vegetative resources. Unless specifically authorized by the Contracting Officer, no construction equipment or materials shall be placed or used within the drip line of trees shown on the drawings to be saved. No excavation or fill

shall be permitted within the drip line of trees to be saved except as shown on the drawings.

### 3.1.2 Protection of sensitive

All construction zones, including roads, borrow sites and staging areas adjacent to sensitive habitats shall be kept to a minimum and identified and flagged prior to disturbance in coordination with the Biological Monitor. All activities shall be confined to these designated work area.

### 3.1.3 Environmental Commitments

The Contractor shall comply with the environmental commitments included here.

- a) An erosion control plan will be developed to reduce erosion and sedimentation during construction (reference paragraph 1.5.6 Erosion Control Plan).
- b) An NPDES permit will be obtained and measures such as use of settling basin will be employed to control turbidity resulting from dewatering (reference 1.4.2.1 paragraph NPDES Permit).
- c) A pollution-prevention and control plan will be developed to reduce the potential of accidental spills during construction and ensure quick response to clean up of any spills (reference 1.5.2 paragraph Spill Control Plan).
- d) Water trucks and other standard dust control methods will be used to reduce dust generated by the project (reference 3.5.1 paragraph Particulates).
- e) Cutting-down of vegetation will not occur between March 1 and August 15, to reduce impacts on nesting bird species and to preclude removal of nesting birds during vegetation removal (reference 3.4.2 paragraph Protection of Wildlife). Vegetation within the project limits that has been left uncut and conflicts with the contract work, may be removed during the March 1 to August 15 non-clearing window with prior approval of the Contracting Officer. Vegetation to be removed must not contain nests of any protected species.
- f) Biological resources and construction activities will be monitored by the Government prior to and during the construction period (reference paragraph 1.5.5 Environmental Monitoring).
- g) Monitoring by the Government will be conducted during initial grading to determine whether paleontological resources or prehistoric/historic resources are found. Construction will halt in areas where materials are found until a qualified paleontologist or archeologist determines the significance of the find and mitigation is completed, if needed. Sensitive areas within the Area of Potential Effect will be fenced (reference paragraph 1.5.5 Environmental Monitoring and paragraph 3.2 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES).

h) The project site will be surveyed for hazardous materials before construction begins and any hazardous materials that are found will be removed (reference paragraph 3.1.8 Disposal of Contractor Generated Hazardous Wastes).

i) Where possible, all construction traffic shall utilize Old Hamner Avenue as access to the site in order to reduce noise and traffic impacts. Further, all heavy construction equipment, including dirt-hauling trucks is restricted to Old Hamner for access to the project site. Construction traffic will be subject to reduced speed limits and use of crossing guards will be instituted near River View School to decrease construction traffic safety impacts. (**reference paragraph 3.7 TRAFFIC**).

j) Once construction is complete, areas of compacted soil within the limits of the temporary construction easement, including backfill areas, roads, and staging areas, shall be tilled to a minimum depth of 0.2 meters beneath the soil surface. Tilling of the soil shall take place to allow for the growth of plant material.

#### 3.1.4 U.S. Department of Agriculture (USDA) Quarantined Considerations

The Contractor shall thoroughly clean all construction equipment at the prior job site in a manner that ensures all residual soil is removed and that egg deposits from plant pests are not present. The Contractor shall consult with the USDA Plant Protection and Quarantine (USDA - PPQ) jurisdictional office for additional cleaning requirements that may be necessary.

#### 3.1.5 Commercial Borrow

Prior to bringing commercially obtained borrow material onsite, the Contractor shall provide the Contracting Officer with the location of the pit or pits, the names of the owners and operators, and the types and estimated quantities of materials to be obtained from each source.

#### 3.1.6 Disposal of Solid Wastes

Solid waste is rubbish, debris, waste materials, garbage, and other discarded solid materials (excluding clearing debris and hazardous waste as defined in following paragraphs). Solid waste shall be placed in containers and disposed on a regular schedule. All handling and disposal shall be conducted in such a way as to prevent spillage and contamination. The Contractor shall transport all solid waste off Government property and dispose in compliance with Federal, State, and local requirements.

#### 3.1.7 Clearing Debris

Clearing debris is trees, tree stumps, tree trimmings, and shrubs, and leaves, vegetative matter, excavated natural materials (e.g., dirt, sand, and rock), and demolition products (e.g., brick, concrete, glass, and metals).

a. The Contractor shall collect trees, tree stumps, tree trimmings, shrubs, leaves, and other vegetative matter; and shall transport from Government property for proper disposal in compliance with Federal, State, and local requirements. The Contractor shall segregate the matter where appropriate for proper disposal. Untreated and unpainted scrap lumber may be disposed of with this debris where appropriate.

b. Excavated natural materials shall be in accordance with sections 02230 CLEARING AND GRUBBING and 02300 EARTHWORK.

c. Demolition products shall be transported from Government property for proper disposal in compliance with Federal, State, and local requirements.

### 3.1.8 Disposal of Contractor Generated Hazardous Wastes

Hazardous wastes are wastes as defined in 40 CFR 261, and as defined by applicable State and local regulations. Hazardous waste generated by construction activities shall be removed from the work area and be disposed in compliance with Federal, State, and local requirements. The Contractor shall segregate hazardous waste from other materials and wastes, and shall protect it from the weather by placing it in a safe covered location; precautionary measures against accidental spillage such as berming or other appropriate measures shall be taken. Hazardous waste shall be removed from Government property within 60 days. Hazardous waste shall not be dumped onto the ground, into storm sewers or open water courses, or into the sanitary sewer system.

### 3.1.9 Fuels and Lubricants

Fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants and waste oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with Federal, State, and local laws and regulations.

## 3.2 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

### 3.2.1 Known Historic, Archaeological, and Cultural Resources

Known historic, archaeological, and cultural resources within the Contractor's work area are marked on the contract drawings. The Contractor shall install protection for these resources as shown on the drawings and shall be responsible for their preservation during the contract.

### 3.2.2 Discovered Historic, Archaeological, and Cultural Resources

If during construction activities, items are observed that may have historic or archaeological value (e.g., Native American human remains or associated objects are discovered), such observations shall be reported immediately to the Contracting Officer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in impact to or the destruction

of these resources. The Contractor shall prevent his employees from trespassing on, removing, or otherwise disturbing such resources.

### 3.3 PROTECTION OF WATER RESOURCES

The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters.

#### 3.3.1 Wastewater

Wastewater directly derived from construction activities shall not be discharged directly into the Santa Ana River before being treated to remove pollutants. Wastewater shall be discharged outside of the construction zone, and shall be performed in such a manner that will not result in the introduction of any siltation or turbidity into the Santa Ana River or impacts to the Santa Ana sucker or other sensitive animal or plant species.

#### 3.3.2 Monitoring of Water Areas Affected by Construction Activities

The Contractor shall perform discharge monitoring, inspections, stormwater sampling and testing, reporting, and record keeping as set forth in the NPDES Construction Storm Water Permit reference paragraph 1.4.2 Permits.

### 3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES

#### 3.4.1 Flagging Constuction Zones

All constuction zones, including roads, borrow sites, and staging area, adjacent to sensitive habitats shall be kept to a minimum and identified and flagged prior to disturbance in coordination with the Biological Monitor. All activities shall be confined to these designated work areas.

#### 3.4.2 Protection of Wildlife

Vegetation removal shall not occur between March 1 and August 15, to reduce impacts on nesting bird species and to preclude removal of nesting birds during vegetation removal.

### 3.5 PROTECTION OF AIR RESOURCES

Special management techniques as set out below shall be implemented to control air pollution by the construction activities. These techniques supplement the requirements of Federal, State, and local laws and regulations; and safety requirements under this Contract. If any of the following techniques conflict with the requirements of Federal, State, or local laws or regulations, or safety requirements under this contract, then those requirements shall be followed in lieu of the following.

#### 3.5.1 Particulates

Airborne particulates, including dust particles, from construction activities and processing and preparation of materials shall be controlled at all times, including weekends, holidays, and hours when work is not in

progress. The Contractor shall maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, disposal sites, borrow areas, and all other work areas free from airborne dust which would cause a hazard or nuisance.

Methods to reduce PM10 emissions may include the following measures:

- a. Water active storage piles at least twice daily.
- b. Cover inactive storage piles.
- c. Cover haul trucks securely or maintain at least 2 feet of freeboard on all haul trucks when transporting material.
- d. Water all active construction sites at least twice daily. Frequency should be increased if wind speeds exceed 24.1 km/hr (15 mph)
- e. Prohibit all grading activities during periods of high wind (i.e., winds greater than 48 km/hr (30 mph)).
- f. Apply nontoxic chemical soil stabilizers on inactive construction areas (disturbed lands within construction areas that are unused for at least 4 consecutive days), or water at least twice daily.
- g. Apply nontoxic binders (e.g., latex acrylic copolymer) to exposed areas after cut-and-fill operations and hydroseed the areas if appropriate for the project location.
- h. Install wheel washers for all exiting trucks.
- i. Sweep streets if visible soil material is carried onto adjacent public roads.

### 3.5.2 Other Air Pollutants

All construction equipment and trucks shall have their engines kept in a state of tune that will minimize all exhaust pollutants, and shall use fuel of a quality that does not produce excessive amounts of exhaust plumes.

Methods to reduce No levels may include the following measures:

- a. Require injection timing retard of 2 degrees on all diesel vehicles where applicable.
- b. Install high-pressure injectors on all vehicles, where feasible.
- c. Use Caterpillar pre-chamber diesel engines or equivalent, and perform proper maintenance and operation.
- d. Electrify equipment, where feasible.
- e. Maintain equipment in tune with manufacturers' specifications, except as otherwise stated above.
- f. Restrict the drilling of construction equipment to 10 minutes.
- g. Install catalytic converters on gasoline-powered equipment.
- h. Substitute gasoline-powered for diesel-powered equipment, where feasible.

### 3.6 INSPECTION

If the Contracting Officer notifies the Contractor in writing of any observed noncompliance with contract requirements of Federal, State, or local laws, regulations, or permits, the Contractor shall inform the Contracting Officer of proposed corrective action and take such action to correct the noncompliance. 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 is taken. No time extensions will be granted or costs or damages allowed to the Contractor for any such suspension.

### 3.7 TRAFFIC

#### 3.7.1 Routing

The Contractor shall use a crossing guard at the school on Pedley Avenue on school days from one half hour prior to classes commencing until one half hour after school has closed for the day, if construction traffic is routed along Pedley between 7th and 8th Streets. Truck traffic shall slow to 15 mph while transiting the school zone, which for this project is considered to extend from 7th Street in the south to 8th Street in the north. In order to minimize the number of trucks transiting the school zone, it is recommended that any trucks which arrive in the project area via Interstate 15, consider accessing the project site with loaded trucks by way of Old Hammer, and exit the site with empty trucks by way of Pedley Avenue.

#### 3.7.2 Noise

The Contractor shall ensure that all trucks and equipment are equipped with adequate exhaust muffler systems which are in working order.

### 3.8 MAINTENANCE OF POLLUTION CONTROL FACILITIES

The Contractor shall maintain all constructed pollution control facilities and portable pollution control devices for the duration of the Contract or for the length of time construction activities create the particular pollutant.

### 3.9 TRAINING OF CONTRACTOR PERSONNEL

Contractor personnel shall be trained in environmental protection and pollution control.

#### 3.9.1 Pollution Control

The Contractor shall conduct pollution control meetings for all Contractor personnel on a monthly basis. The training and meeting agenda shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, installation and care of facilities (vegetative covers, etc.), and instruments required for monitoring purposes to ensure adequate and continuous pollution control. Anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants, shall also be discussed.

#### 3.9.2 Environmental Protection

Each employee working on the project site shall complete an employee orientation program conducted by the contractor, prior to their

commencement of work on the site. The orientation program shall be approved by the Contracting Officer. The purpose of the program is to inform employees of (1) the sensitive biological resources within and adjacent to the construction site; (2) the various environmental permit requirements; and, (3) the presence of the biological and archeological monitors, and the chain of communication with these monitors. Other items to be discussed shall include recognition and protection of archaeological sites and artifacts.

-- End of Section --



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
Carlsbad Field Office  
2730 Loker Avenue West  
Carlsbad, California 92008

July 15, 1996

Colonel Michal R. Robinson, District Engineer  
Los Angeles District, Corps of Engineers  
P.O. Box 2711  
Los Angeles, CA 90053-2325

Attn: Ms. Jennifer Altergott, Environmental Resources Branch

Re: Endangered Species Consultation on the Norco Bluffs Bank  
Stabilization Project, Riverside County, California (1-6-96-  
F-25)

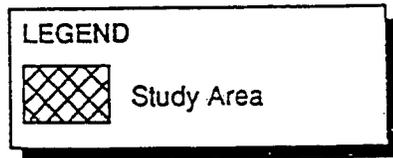
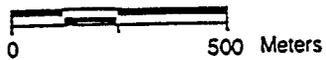
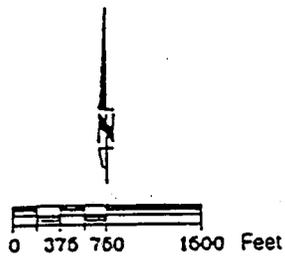
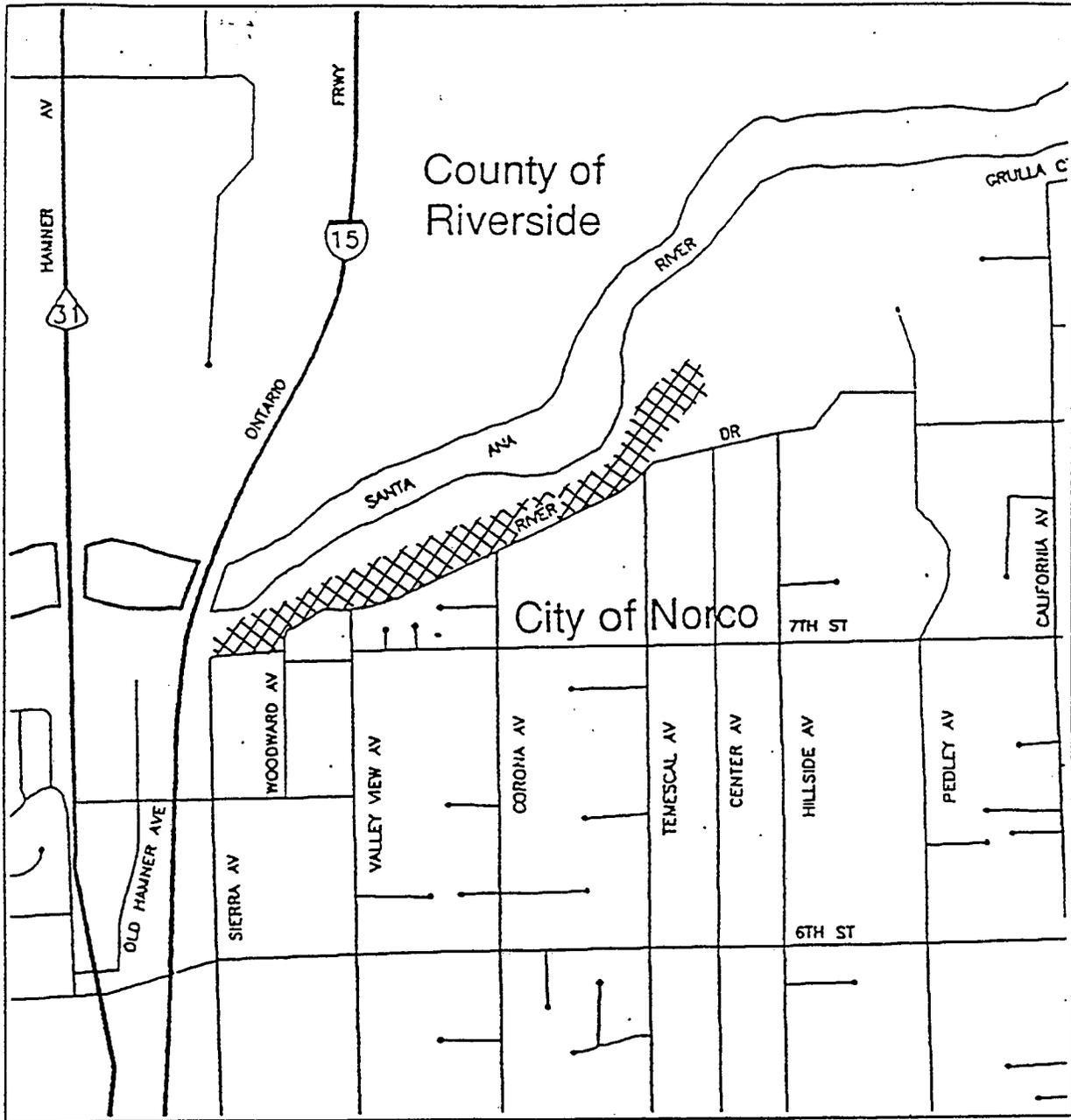
Dear Colonel Robinson:

This biological opinion responds to your request for formal consultation with the U.S. Fish and Wildlife Service (Service) pursuant to section 7(a) of the Endangered Species Act of 1973, as amended (Act). Your request was dated April 18, 1996, and was received by the Service on April 22, 1996. At issue are the effects that the project may have on the federally listed endangered least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*).

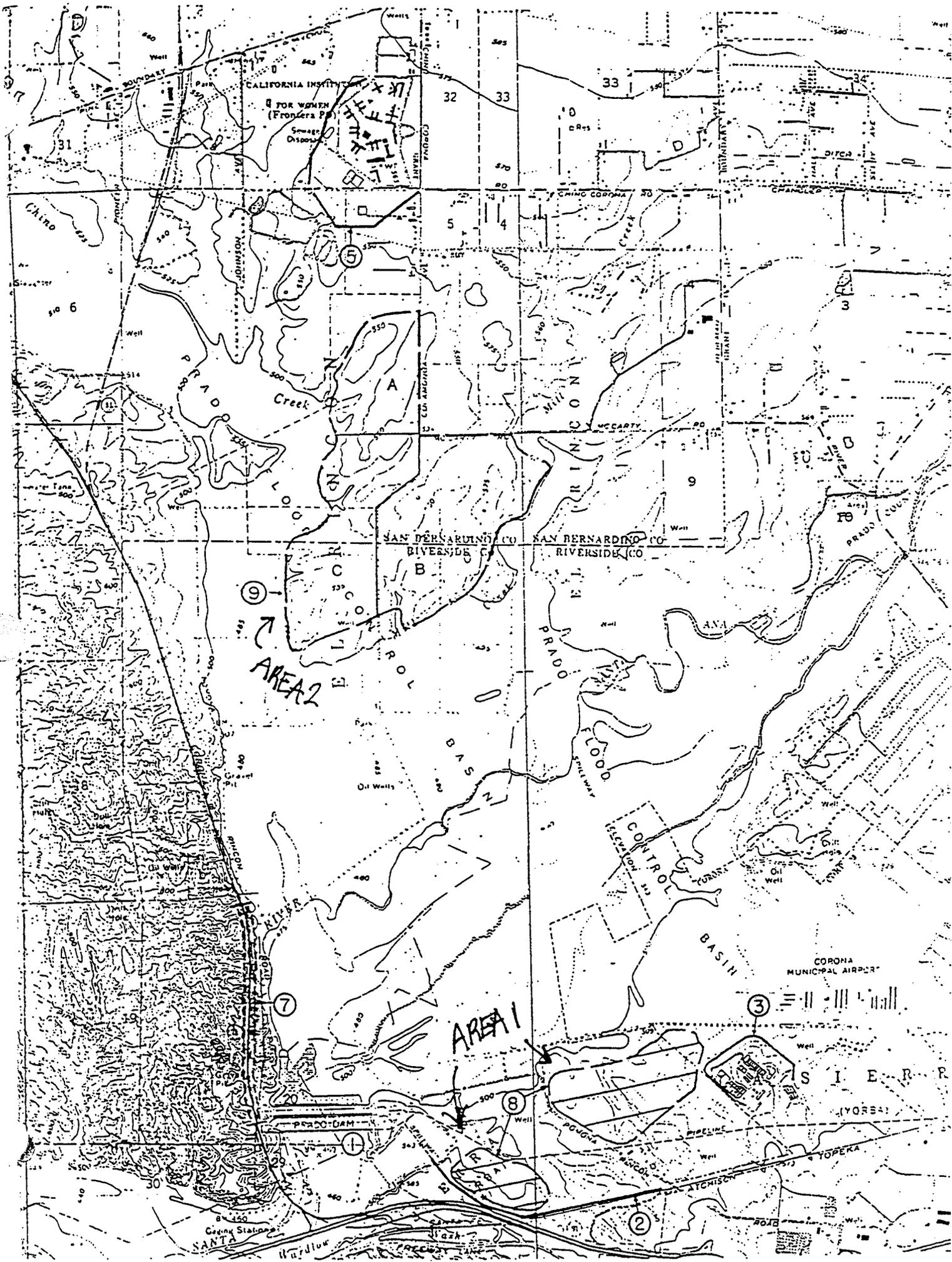
This biological opinion was prepared using information from your request for formal consultation (dated April 18, 1996), site visits by the Service in 1996, informal discussions between our staffs, and the Service's files.

### BIOLOGICAL OPINION

It is the biological opinion of the Service that the project is not likely to jeopardize the continued existence of the least Bell's vireo or southwestern willow flycatcher. Designated critical habitat of the least Bell's vireo and proposed critical habitat of the southwestern willow flycatcher occurs within the action area. Given the nature of the project and its associated impacts, and proposed mitigation measures, the proposed project will not result in the destruction or adverse modification of designated or proposed critical habitat.



Source: U.S. Army Corps of Engineers 1993.



DESCRIPTION OF THE PROPOSED ACTION

The proposed action involves the protection of the toe of the bluffs along a portion of the Santa Ana River at Norco from erosion due to 100-year flood flows (Figure 1). The toe of the bluffs will be protected through the installation of rock or concrete structures placed between the toe of the bluffs and the river channel. This barrier will extend below the surface of the ground to a depth of approximately 5 meters (16.4 feet). The area where this is proposed to occur lies between the Interstate 15 bridge and Center Avenue 1,600 meters (5,249 feet). Slope stabilization would be accomplished by using buttress fill. Slope stabilization would not result in further impacts to riparian vegetation.

The construction area encompasses approximately 6.5 hectares (ha) (16 acres). Within this area, 2.0 ha (4.94 acres) will be permanently disturbed due to the placement of fill material. An additional 4.5 ha (11.1 acres) will be temporarily disturbed during construction. An approximately 1.0 ha (2.5 acre) area near Interstate 15 will be temporarily disturbed due to its use as a staging and turnaround area. An approximately .2 ha (.5 acres) will be temporarily disturbed due to the construction of an access road from Pedley Avenue to the construction area and from the Interstate 15 bridge to Hamner Avenue.

Fill material for the project will be brought in from two quarry sites located in the Prado Basin (Figure 2). These sites are located in upland areas of Prado Basin.

The proposed action also includes mitigation measures to reduce, offset, and monitor impacts to least Bell's vireos and southwestern willow flycatchers. The mitigation measures presented in the Biological Assessment were modified following discussions between the Service, Corps, and California Department of Fish and Game. The following mitigation measures have been proposed to avoid, reduce, offset, and monitor impacts to the least Bell's vireo and southwestern willow flycatcher:

- Removal of riparian woodlands for temporary and permanent facilities that are potential nesting habitat for the least Bell's vireo and other migratory species will occur during periods of non-nesting (August 15 through February 29).
- Approximately 20.6 hectares (51.5 acres) of giant reed (*Arundo donax*) will be removed and the site will be monitored for eight (8) years to prevent its regrowth. Monitoring will occur during the first two (2) consecutive years and then every other year for the next eight (8) years. Therefore, monitoring and removal

activities will actually occur during five (5) of the eight (8) years.

- Brown-headed cowbird (*Malothrus ater*) trapping will occur in areas adjacent to the study area for a period of six (6) years. Trapping shall consist of four daily monitored traps that will be operated from March 15 to July 30. Trapping will be initiated during the initial year of construction and will proceed each year for the next consecutive five (5) years.
- A least Bell's vireo and southwestern willow flycatcher monitoring program will be developed and implemented prior to and during construction. Construction activities will be monitored to insure that construction and vegetation removal only occurs in designated areas. Riparian areas not to be disturbed will be flagged.

For more specific information regarding the proposed project refer to the draft Environmental Assessment for the proposed project (Corps of Engineers 1996).

#### EFFECTS OF THE PROPOSED ACTION ON THE LISTED SPECIES

##### Species Account

##### Least Bell's Vireo

The least Bell's vireo is a small, olive-gray, migratory songbird that nests and forages almost exclusively in riparian woodland habitats (Garrett and Dunn 1981, Gray and Greaves 1981, Miner 1989). All subspecies of Bell's vireo (*Vireo bellii*), including the least Bell's vireo, are almost exclusively insectivorous (Chapin 1925) and highly territorial (Barlow 1962, Fitch 1958, Salata 1983a).

Historically, the least Bell's vireo ranged from Red Bluff, California in the north, to northwestern Baja California, Mexico in the south. The least Bell's vireo was also known to occur as far east as the Owens Valley, Death Valley, and along the Mojave River. It was described as common to abundant in appropriate riparian habitats (Grinnell and Miller 1944, Grinnell and Storer 1924, Willett 1933). Currently, the species occupies a very small fraction of its former range (Goldwasser and Wilbur 1980, U.S. Fish and Wildlife Service 1986). In 1986, surveys indicated that there were approximately 397 territorial male least Bell's vireos. Since that time, legal protection and active management have resulted in an increase in the population. Surveys conducted in 1994 indicated that there were approximately 927 territorial male least Bell's vireos in the United

States. In 1994, approximately 70 percent of the United States' least Bell's vireo population was concentrated in just 5 localities.

Least Bell's vireos generally begin to establish breeding territories by mid- to late-March (Garrett and Dunn, 1981, Salata 1983a, 1983b, Hays 1989, Pike and Hays, 1992). Most breeding least Bell's vireos depart their breeding grounds by the third week of September, and only a very few are found wintering in the United States (Garrett and Dunn 1981, Pike and Hays 1992, Salata 1983a, 1983b).

Although the least Bell's vireo occupies home ranges that typically range in size from 0.5 to 4.5 acres, a few may be as large as 10 acres. In some areas, least Bell's vireos will also use adjacent upland habitats for foraging (Salata 1983a).

Least Bell's vireo nesting habitat typically consists of well-developed overstories, understories, and low densities of aquatic and herbaceous cover (Hays 1986, Hays 1989, Salata 1983a, Zembal 1984, Zembal et al. 1985). The understory frequently contains dense subshrub or shrub thickets. These thickets are often dominated by sandbar willow (*Salix hindsiana*), mule fat (*Baccharis salicifolia*), young individuals of other willow species such as arroyo willow (*S. lasiolepis*) or black willow (*S. goodingii*), and one or more herbaceous species (Salata 1983a, 1983b, Zembal 1984, Zembal et al. 1985). Significant overstory species include mature arroyo willow and black willow. Occasional cottonwood (*Populus* sp.) and western sycamore (*Platanus racemosa*) occur in some areas used by the least Bell's vireo. Coast live oak (*Quercus agrifolia*) may also make locally important contributions to the overstory.

As much as 90 percent of the original extent of riparian woodland in California has been eliminated, and most of the remaining 10 percent is in a degraded condition (Katibah 1984). It appears that least Bell's vireos nesting in areas containing a high proportion of degraded habitat have lower productivity (e.g., hatching success) than those in areas of high quality riparian woodland (Pike and Hays 1992). Additionally, widespread habitat losses have fragmented most remaining populations into small, disjunct, widely dispersed subpopulations (Franzreb 1989). Habitat fragmentation negatively affects abundance and distribution of neotropical migratory songbirds, in part by increasing incidence of nest predation and parasitism (Whitcomb et al. 1981, Small and Hunter 1988, Yahner and DeLong 1992).

Least Bell's vireos are sensitive to many forms of human disturbance including noise, night lighting, and consistent human presence in an area. Excessive noise is believed to be capable of causing least Bell's vireos to abandon an area and/or decrease their reproductive

success. Greeves (1989) hypothesized that the lack of breeding least Bell's vireos in apparently suitable habitat was due to human disturbances (e.g., bulldozers, off-highway vehicles, and hiker travel). He further suggested that buffer zones between natural areas and surrounding degraded and disturbed areas could be used to increase the suitability of some riparian habitat for this species.

Because of the decline of least Bell's vireos (Salata 1986), attributable in part to the combined, perhaps synergistic, effects of the widespread destruction of riparian habitats and brood-parasitism by the brown-headed cowbird (Garrett and Dunn 1981), the least Bell's vireo was listed as endangered on May 2, 1986 (*Federal Register* 51:16474). In addition, critical habitat was designated for this species on February 2, 1994 (*Federal Register* 51: 4845)

During the spring of 1995, a least Bell's vireo was detected in the action area near Corona Street (Bob James, FWS, pers. com.). During the spring of 1996, three male least Bell's vireos have been detected. Two of these were paired with females as of May 3, 1996. In addition, because of the yearly increase in the least Bell's vireo population over the past several years, and their ability to disperse to other sites, the potential for their use of this area is increasing. It is important to note that the proposed project is located in designated critical habitat for this species.

#### Southwestern Willow Flycatcher

The southwestern willow flycatcher is one of four subspecies of the willow flycatcher (*Empidonax traillii*) recognized in North America (Hubbard 1987, Unitt 1987, Browning 1993). The southwestern willow flycatcher is a relatively small, insectivorous bird with a whitish throat, grayish-green back, a light olive breast, and a pale yellowish belly.

The breeding range of the southwestern willow flycatcher includes southern California, Arizona, New Mexico, southern portions of Nevada and Utah, western Texas, southwestern Colorado, and extreme northwestern Mexico (Hubbard 1987, Unitt 1987, Browning 1993). Southwestern willow flycatchers winter in Mexico, Central America, and northern South America (Phillips 1948, AOU 1983, Stiles and Skutch 1989).

Southwestern willow flycatchers are late spring breeders, typically raising one brood per year. They are generally present and singing on breeding territories by mid-May and fledge young in early July (Willett 1912, Ligon 1961, Brown 1988, Whitfield 1990). Southwestern willow flycatchers are generally gone from breeding grounds in

southern California by late August and are exceedingly scarce in the United States after mid-October (Garrett and Dunn 1981).

The southwestern willow flycatcher occurs in riparian habitats along rivers, streams, and other wetland habitats where dense growths of willows (*Salix* sp.), *Baccharis* sp., arrowweed (*Pluchea* sp.), buttonbush (*Cephalanthus* sp.), or other plants of similar structure and form are present (Grinnell and Miller 1944, Phillips 1948, Whitmore 1977, Hubbard 1987, Unitt 1987, Brown and Trosset 1989, Whitfield 1990, Brown 1991). Overstories in occupied habitats are often composed of willows or cottonwoods (*Populus* sp.) (Unitt 1987, Whitfield 1990, Brown 1991, U.S. Fish and Wildlife Service 1993).

The present existence of small population segments of southwestern willow flycatchers make the species increasingly susceptible to local extirpation through stochastic events such as flood, fire, brood parasitism, predation, and land development. Habitat fragmentation can negatively affect the abundance and distribution of southwestern willow flycatchers by increasing incidences of nest predation and parasitism (Whitcomb et al. 1981, Small and Hunter 1988, Yahner and DeLong 1992). Whitfield (1990) found that predation on willow flycatcher nests increased with decreasing distance from nests to thicket edges, suggesting that habitat fragmentation may increase the threat of predation. McCabe (1991) reported that brown-headed cowbirds lay their eggs in songbird nests closest to the edge of the habitat.

Southwestern willow flycatcher habitat can be degraded and direct disturbances can result from human activity within or adjacent to riparian areas (Taylor 1986). Blakesley and Reese (1988) found a negative correlation between human activity in riparian corridors and flycatcher abundance. Human activities that can affect flycatchers include excessive noise, night lighting, and consistent human presence in an area.

Throughout the known range of the southwestern willow flycatcher, occupied riparian habitats tend to be widely separated. The southwestern willow flycatcher has suffered extensive losses from habitat destruction or modification due to grazing, flood control projects, and other water or land development projects (see, in particular Dahl 1990, Klebenow and Oakleaf (1984), and Taylor and Littlefield (1986). The species is additionally affected by a variety of other factors, including brood parasitism by brown-headed cowbirds (Unitt 1987, Ehrlich et al. 1992). Parasitism rates of southwestern willow flycatcher nests have recently ranged from 50 to 80 percent in California (Whitfield 1990, M. Whitfield and S. Laymon, unpublished data) and to 100 percent in the Grand Canyon in 1993 (U.S. Fish and

Wildlife Service 1993). Mayfield (1977) thought that a species (or population) could probably survive up to a 24 percent parasitism rate.

Unitt (1987) reviewed historical and contemporary records of the southwestern willow flycatcher throughout its range and determined that the species had declined precipitously during the last 50 years. He argued convincingly that the southwestern willow flycatcher is faring poorly throughout much of its breeding range (see also Monson and Phillips 1981, Garrett and Dunn 1981, Unitt 1987), and postulated that the "known southwestern willow flycatcher population in the California range of *extimus* consists of 87 pairs" and that the "total population of the subspecies is well under 1,000 pairs; ... 500 is more likely." A composite of more current information indicates continuing declines, poor reproductive performance, and continued threats to most remaining populations (e.g., Brown 1991, Whitfield and Laymon in litt., 1993).

Southwestern willow flycatchers were once considered widely distributed and common in California, occurring wherever suitable habitat existed in the Los Angeles Basin, San Bernardino, Riverside and San Diego counties, and the lower Colorado River (Grinnell and Miller 1944, Unitt 1987, Willet 1912, 1933). Currently in California, southwestern willow flycatchers exist only in small disjunct groups and have been extirpated from the lower Colorado River (Hunter et al. 1987, Unitt 1987, Rosenburg et al. 1991). Due to the decline, the southwestern willow flycatcher was listed as endangered on February 27, 1995 (Federal Register 60: 10694). In addition, critical habitat was proposed for this species on February 27, 1995 (Federal Register 60: 10694)

There have been no known recent sightings of this species at this location. However, suitable habitat for this species occurs on site, and, therefore, the potential for its future presence. It is important to note that the proposed project is located in proposed critical habitat for this species.

#### Analysis of Impacts

Impacts to least Bell's vireo and southwestern willow flycatchers are combined in this analysis because of the similarities of impacts.

#### Direct Impacts

The project will result in direct impacts to two confirmed pair of least Bell's vireos. In addition, one territorial male least Bell's vireo will be impacted by construction activities. One of the pairs of least Bell's vireo is located near Corona Avenue and the other near

Pedley Avenue (Figure 2). The Corona Avenue pair's territory will likely be completely destroyed by construction activities. The Pedley Avenue pair will be directly impacted by some temporary habitat destruction by the temporary presence of a construction access road through part of their territory. The territorial male least Bell's vireo's territory will likely be completely destroyed by construction activities. Its territory is located approximately 100 meters (328 feet) downstream of the Corona Avenue pair along the southern edge of the riparian vegetation.

#### Indirect Impacts

During preparation of the site for and during placement of the soil cement, excess water will need to be removed from the construction trench. Short-term impacts to riparian vegetation adjacent to this area may occur due to dewatering.

Construction activities have the potential to impact all three least Bell's vireo territories through the production of excessive noise (i.e., 65 dba or above). Excessive noise is believed to be capable of disrupting normal behavior of these species. Excessive noise can mask the song and calls of these species and hinder the establishment and maintenance of territories. Excessive noise can also mask the presence of predators.

Because of construction activities, there is also the potential to preclude the establishment of new territories in this area while project activities are underway. As the population of least Bell's vireo continues to increase at the Prado Basin and elsewhere in southern California, the process of reoccupying historical sites will continue to occur. Because suitable habitat is limited along the Santa Ana River due to the presence of giant reed and general habitat destruction, areas containing habitat as found within the project area are needed to further the recovery of this species.

The Service believes the impacts described above would not jeopardize the continued existence of the least Bell's vireo or southwestern willow flycatcher. We present this conclusion because the number of least Bell's vireo pairs or southwestern willow flycatchers that will be impacted by this project represent less than 1 percent of the known number of pairs of these species. In addition, approximately 20.6 ha (51.5 acres) of giant reed will be removed from this portion of the Santa Ana River. This removal, with management, will allow the reestablishment of approximately 51.5 acres of riparian vegetation. Moreover, a brown-headed cowbird trapping program will be initiated by March 15, 1997, and will continue for six (6) years. This program should help these species as well as other nesting birds and

complement the ongoing program in the Prado Basin through the reduction of nest parasitism.

The presence of proposed and designated critical habitat in the project area adds another dimension to the analysis of impacts. To avoid adverse modification or destruction of critical habitat, a permanent loss in functional value of the habitat must be avoided. Because this project results in the permanent loss of 4.9 acres of riparian woodland, 4.9 acres of riparian habitat of similar value needs to be added to the system to avoid a net loss in functional value. The removal of 51.5 acres of giant reed and the reestablishment of 51.5 acres of riparian vegetation will offset this loss. It is important to note that at the time critical habitat was proposed for the southwestern willow flycatcher and designated for the least Bell's vireo, the basic distribution and density of giant reed in the riparian habitat was essentially the same as that found today. Therefore, an opportunity exists for the enhancement of functional value of the riparian system in this area through the permanent removal of giant reed.

#### Cumulative Effects

Cumulative effects are those impacts of future State and private actions that are reasonably certain to occur in the action area. Future Federal actions will be subject to the requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed project. Many of the actions that are reasonably expected to occur within the vicinity of the proposed project would be subject to future section 7 consultations due to the presence of wetlands and the presence of Federal lands.

The Service is not aware of any State and/or local projects that in conjunction with the proposed action would cumulatively result in jeopardizing the continued existence of the least Bell's vireo or southwestern willow flycatcher.

#### Incidental Take

Section 9 of the Act prohibits the take of listed species without special authorizations. Taking is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Under the terms of section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended

as part of the agency action is not considered to be prohibited taking under the Act provided that such take is in compliance with this incidental take statement. The stipulations described as reasonable and prudent measures and terms and conditions are non-discretionary, and must be undertaken by the agency or made a binding condition of any grant or permit, as appropriate.

This biological opinion anticipates the following forms of take:

1. All least Bell's vireos and southwestern willow flycatchers may be taken in the form of harassment during construction of the project.
2. No least Bell's vireo or southwestern willow flycatcher may be taken in the form of mortality due to this project.

This biological opinion does not authorize any form of take that is not incidental to the completion of the project.

#### Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize the incidental take authorized by this biological opinion.

1. Direct impacts to nesting least Bell's vireos and southwestern willow flycatchers shall be minimized through construction scheduling.
2. Impacts due to short and long term riparian removal to the least Bell's vireo and southwestern willow flycatcher shall be offset through the restoration of riparian habitat.
3. Measures shall be taken to reduce stress on the least Bell's vireo and potential southwestern willow flycatcher populations in the action area due to habitat destruction and degradation and excessive construction noise.
4. Well-defined construction/operational procedures shall be implemented to avoid destruction of riparian habitat.

#### Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, the Corps is responsible for compliance with the following terms and conditions, which implement the reasonable and prudent measures described above:

1. The following term and condition is established to implement reasonable and prudent measure 1:

a. The Corps shall ensure that impacts to nesting least Bell's vireo and potential southwestern willow flycatchers are avoided through the initiation of construction related activities (i.e., removal of riparian vegetation in construction corridor) prior to the March 1, arrival of these species.

*work from  
Aug 16 - Feb?  
no work from  
March 1 - Aug*

2. The following terms and conditions are established to implement reasonable and prudent measure 2:

a. The Corps shall ensure that 20.6 hectares (51.5 acres) of giant reed will be removed within the action area. The area of removal will be agreed upon by the Service prior to removal.

b. This area shall be managed in such a way as to maintain it free of giant reed and other invasive exotics for the full length of the removal/monitoring program (8 years). The mitigation area shall be monitored and invasive exotics entirely removed during the first two consecutive years and then every other year for the duration of the monitoring program. That is, giant reed and other invasive exotics will be removed from the mitigation area during five (5) discrete time periods. This equates to a total of an eight (8) year span in which the area is monitored and invasive exotics are removed.

c. Following initial removal of giant reed and castor bean from the mitigation area(s), these area(s) shall be kept clear of the aforementioned species. That is, there is a zero (0) tolerance for these species in the mitigation area(s).

d. The Corps shall ensure that the hydrology of the mitigation area is conducive to riparian vegetation establishment.

3. The following term and condition is established to implement reasonable and prudent measure 3:

a. The Corps shall initiate a brown-headed cowbird removal program by March 15, of the year of construction initiation. This program shall continue for six (6) consecutive years. Yearly trapping shall be initiated by March 15 and continue until July 30 of each year. The program shall include a minimum of four (4) traps. Placement of traps shall be

coordinated with and approved by the Service.

- b. Potential impacts to riparian vegetation due to dewatering shall be monitored and minimized through the supplementation of water.
  - c. Construction and operation of the borrow site(s) in the Prado Basin shall be conducted in such a way as to avoid direct or indirect impacts to least Bell's vireos and southwestern willow flycatchers in this area. This includes both the borrow sites and haul roads.
4. The following terms and conditions are established to implement reasonable and prudent measure 4:
- a. Construction zones adjacent to riparian habitat shall be kept to a minimum and fenced prior to disturbance and all activities shall be confined to these designated work areas.
  - b. After construction is completed, the Corps shall conduct an evaluation and quantification of the disturbance which occurred in riparian habitat.

**Disposition of Sick, Injured, or Dead Least Bell's Vireos or Southwestern Willow Flycatchers**

Upon locating dead, injured, or sick least Bell's vireos or southwestern willow flycatchers, initial notification must be made to the Service's Division of Law Enforcement in San Diego, California, at (619) 557-5063 within three working days of the finding. The Service's Carlsbad Field Office should be notified concurrently at (619) 431-9440. Written notification to both offices must be made within five calendar days and include the collection date and time, the location of the animal, and any other pertinent information. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. The remains of intact least Bell's vireos or southwestern willow flycatchers shall be placed with educational or research institutions holding the appropriate State and Federal permits.

**CONSERVATION RECOMMENDATIONS**

In furtherance of the purposes of sections 2c and 7(a)(1) of the Act that mandate Federal agencies to utilize their authorities to implement programs for the conservation of listed species, we

recommend that the Corps or the project sponsor implement the following conservation actions. These recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

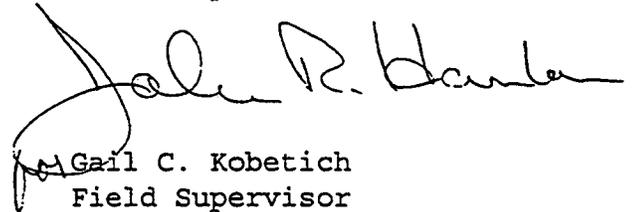
1. Exotic species that degrade the habitat of least Bell's vireo and southwestern willow flycatchers such as giant reed (*Arundo donax*) and castor bean (*Ricinus communis*) should be eradicated from the Santa Ana River.
2. Due to the common presence of brown-headed cowbirds (a brood parasite of least Bell's vireos and southwestern willow flycatchers), the Corps should consider implementing a perpetual brown-headed cowbird management program along the Santa Ana River. Such a program would help offset impacts this species causes the least Bell's vireo and southwestern willow flycatcher.

CONCLUSION

This concludes formal consultation on the Norco Bluffs Bank Stabilization Project, Riverside County, California. Reinitiation of formal consultation is required if: 1) the amount or extent of incidental take is reached; 2) new information reveals effects of the agency action that may adversely affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; 3) the agency action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this biological opinion; or 4) a new species is listed or critical habitat is designated that may be affected by this action (50 CFR 402.16).

Any comments or questions should be directed to the Carlsbad Field Office at (619)431-9440.

Sincerely,

  
Gail C. Kobetich  
Field Supervisor

cc: ARD, Ecological Services, Portland, Oregon

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**DEPARTMENT OF FISH AND GAME**

Eastern Sierra-Inland Deserts Region  
330 Golden Shore, Suite 50  
Long Beach, California 90802  
(562) 590-5113



Date: June 15, 1998

To: Mr. David Zappe  
General Manager and Chief Engineer  
Riverside County Flood Control &  
Water Conservation District  
1995 Market Street  
Riverside, CA 92501

Dear Mr. Zappe:

Enclosed are two copies of Streambed Alteration Agreement No. 5-082-98. **If you agree with the conditions/measures set forth in the agreement, please sign both copies and return both to me for signature, at the above address.** Written notice of your intent to commence project activities needs to be provided to the Department at least five days in advance of commencing project activities.

The California Fish and Game Code requires that you notify the Department in writing within 14 days of receipt of this Proposal as to its acceptability, except that this time may be extended by mutual agreement. If you do not respond within this time period you may lose your right to request binding arbitration. For minor changes we suggest you contact the person responsible for writing your agreement, Dee Sudduth, prior to sending the written response.

If you have any questions regarding the proposed conditions please contact me at (619) 468-9231, or our main office at (562) 590-5137.

Thank you for your cooperation in this matter.

Sincerely,

Dee Sudduth  
Environmental Services Specialist  
Region 6

CALIFORNIA DEPARTMENT OF FISH AND GAME  
330 Golden Shore, Suite 50  
Long Beach, California 90802

Notification No.5-082-98

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### AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the **Department**, and: the Riverside County Flood Control and Water Conservation District; hereinafter called the **District**, represented by: David Zappe, General Manager-Chief Engineer; address: 1995 Market St., Riverside, CA 92501; phone: (909) 955-1250; County of Riverside; State of California, hereinafter called the **Operator**, is as follows:

WHEREAS, pursuant to Section 1601 of California Fish and Game Code, the District, on the 7th day of May, 1998, notified the Department that the District through a Project Cooperation Agreement with the U.S. Army Corps of Engineers (Corps) intends to divert or obstruct the natural flow of, or change the bed, channel, or bank of, or use material from the streambed(s) of, the following water(s): Santa Ana River of Riverside; County tributary to Prado Basin, located East of The I -15 in the city of Norco. Section 31, Township 2 S, Range 6 W , USGS Map Corona North.

WHEREAS, the Department has determined that such operations may substantially adversely affect existing fish and wildlife resources including: **those songbirds, raptors, other birds, mammals, reptiles, amphibians, plants, and all other aquatic resources and wildlife in the streambed/lake and associated area affected by the proposed project in this agreement.**

THEREFORE, the Department hereby proposes measures to protect fish and wildlife resources during the proposed work. The District hereby agrees to accept the following measures/conditions as part of the proposed work.

If the work changes from that stated in the notification specified above, this agreement is no longer valid and a new notification shall be submitted to the Department of Fish and Game. Failure to comply with the provisions of this agreement and with other pertinent code sections, including but not limited to Fish and Game Code Sections 5650, 5652, 5937, and 5948, may result in prosecution.

Nothing in this agreement authorizes the District or the Corps to trespass on any land or property, nor does it relieve the District or the Corps of responsibility for compliance with applicable federal, state, or local laws or ordinances. A consummated agreement does not constitute Department of Fish and Game endorsement of the proposed operation, or assure the Department's concurrence with permits required from other agencies.

THIS AGREEMENT BECOMES EFFECTIVE ON DATE OF DEPARTMENT'S SIGNATURE AND TERMINATES October 30, 2003, for the proposed project only. The District may request an extension of the agreement annually for a 12-month period if additional time is necessary. The extension shall be requested prior to the termination date of the agreement. This agreement shall remain in effect for that time necessary to satisfy the terms/conditions of this agreement.

STREAMBED ALTERATION CONDITIONS FOR NOTIFICATION NUMBER 5-082-98

1. The following provisions constitute the limit of activities agreed to and resolved by this agreement. The signing of this agreement does not imply that the District or Corps is precluded from doing other activities at the site. However, activities not specifically agreed to and resolved by this agreement, shall be subject to separate notification pursuant to Fish and Game Code 1600 et seq. The District's maintenance of the project following construction is also authorized by this agreement for the life of the project. The Norco Bluffs Bank Stabilization Project may be added to the District's Maintenance MOU with the Department when appropriate.

2. The District through the Corps proposes to alter the following streambed: Santa Ana River at the Norco Bluffs east of I-15, to perform the following work: Installation of toe and slope protection along an approximate 5,249 foot length of the south side of the Santa Ana River. The installation of a protective slope constructed of 8 foot thick cement soil (approximately 58,857 cubic yards of material) will be extended at the toe. The toe protection will involve the placement of a soil cement barrier approximately 16.4 feet below the streambed surface. 20.4 acres of riparian vegetation will be permanently and temporarily disturbed. Approximately 278,592 cubic yards of compacted soil will be used to backfill the slope. Soil for the soil cement mixture and backfill material will be mined from an off site upland area. Additional project impacts include 2.5 acres of *Arundo* that would be removed for the construction of staging areas for the equipment and 1.2 acres of *Arundo* scrub that would be removed to create the access roads. Even with all of the mitigation measures outlined below, the project will still result in a net loss of 4.94 acres of wetlands. Although, the proposed mitigation measures identified do not create new wetlands but only enhances the wildlife value of the remaining river wetlands, the proposed mitigation will result in improvement of aquatic functions within low habitat value areas of the Santa Ana River watershed that are currently infested with *Arundo donax*.

3. The District through the Corps shall mitigate for the following project impacts to vireo occupied habitats within federally designated critical habitat: For permanent loss of 3.2 acres cottonwood-willow riparian habitat, and for the permanent loss of 1.2 acres of cottonwood-willow woodland with an *Arundo* component, the Corps shall make a contribution of \$526,000 to the Santa Ana River Conservation Trust Fund to be used for the eradication of *Arundo donax* within the Santa Ana River watershed. For the temporary loss of 15.1 acres of cottonwood -willow riparian forest, the District through the Corps shall mitigate through the monitoring of the site for five years over an eight year period and, revegetation of the 15.1 acres of temporary disturbance if within 12 months following the construction completion date at least 50% of the temporary impact area is not vegetated with young native riparian vegetation. Hydro-seeding the temporary impact area is acceptable.

4. The District through the Corps in cooperation with the Department and the USFWS shall prepare and implement a detailed monitoring program. The monitoring program shall include but not be limited to:

- a. A detailed location map of the proposed access road alignment, and staging areas shall be prepared and developed.
- b. A noise monitoring program shall be developed to minimize noise impacts to wildlife in the surrounding habitats during the 6-9 months of construction.
- c. Potential impacts to riparian vegetation due to dewatering shall be monitored and minimized through the supplementation of water if needed.
- d. All construction zones, roads and staging areas shall be flagged and/or fenced to prevent additional damage to the sensitive areas.
- e. The hydrology of the mitigation areas shall be conducive to the re establishment of riparian vegetation.
- f. The project site shall be kept free of exotic weeds species for a period of eight years.
- g. Success criteria shall be developed for the re establishment of riparian vegetation within the mitigation areas. Parameters shall be established to measure growth, cover, species diversity and wildlife usage within the mitigation areas.
- h. All temporary and permanent disturbance areas shall be posted and fenced or other action taken to discourage access shall be implemented, if necessary, to prevent off road vehicle or other vegetation destroying human activities.

Should the successful re-establishment of desirable vegetation fail to occur within the 15.1 acre mitigation area over the course of 8 years, the District through the Corps shall remain liable for full replacement of lost habitat. Remedial measures and/or alternate mitigation shall be reviewed by all the resource agencies.

5. The District through the Corps shall implement an employee orientation program. Each employee working on the project site shall be made aware of the sensitive vegetation and wildlife within the river.
6. If the active channel of the Santa Ana River will be impacted by activities, the District through the Corps shall prepare a detailed plan that shall preclude any take of the Santa Ana sucker. This plan shall address any proposed diversion of flows, crossing of the river or dewatering of any portion of the river. In addition, the plan must ensure that water quality and sediment level are maintained at levels which do not cause an impact on any fish species.
7. Removal of riparian vegetation in those project areas identified shall be done outside of the nesting season, August 15th through February 29th. If an active bird nest is located the nest site shall be flagged or staked a minimum of 5 yards in all directions, and this flagged zone shall not be disturbed until the nest becomes inactive, unless otherwise directed by the Department (ref.: Fish and Game Codes 3503, 3503.5).
8. Prior to project construction the District through the Corps shall demonstrate to the Department's satisfaction that sufficient funds are or shall be available to implement the mitigation and monitoring program. If the District through the Corps is unable to demonstrate the above, a security (e.g. an irrevocable letter of credit, pledge savings account or CD) for 120% of the cost of the monitoring and Arundo removal program shall be submitted to the Department prior to initiation of construction activities. The security shall be approved by the Department's legal advisors prior to its execution, and shall allow the Department at its sole discretion to recover funds immediately if the Department determines there has been a default.
9. Vehicles shall not be driven or equipment operated in water covered portions of a stream or lake or in wetted areas, or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed, except as otherwise provided for in the agreement and as necessary to complete authorized work.
10. If a stream channel has been altered during project operations, its low flow channel shall be returned as nearly as possible to pre-project conditions without creating a possible future streambed or bank erosion problem, or a flat wide channel or sluice-like area. The disturbed portions of any stream channel within the high water mark of the stream shall be restored to as near original condition as possible, except as otherwise indicated in the submitted application or as directed by the Department.
11. Vegetation removed from the site shall not be stockpiled in the streambed/creek or on its bank. The sites selected on which to push this material out of the stream should be selected in compliance with the other provisions of this agreement. Where possible, suitable brush piles may be left to provide wildlife habitat.
12. This agreement does not authorize the construction of any temporary or permanent dam, structure, flow restriction or fill. Any temporary dam, artificial obstruction, or other flow diversion shall be constructed from materials, such as clean gravel or sandbags, which will cause little or no siltation. If necessary, flow diversions shall be done in a manner that shall prevent pollution, minimize siltation and which shall provide flows to downstream reaches. Flows to downstream reaches shall be provided during all times that the natural flow would have supported aquatic life. Said flows shall be of sufficient quality and quantity to support existing aquatic life both above and below the diversion. Normal flows shall be restored to the stream immediately upon completion of work at that location.
13. Precautions to minimize turbidity/siltation shall be taken into account during project planning and implementation. This may require that the work site be isolated and /or the construction of silt catchment basins, so that silt, or other deleterious materials are not allowed to pass to downstream reaches. The placement of any structure or materials in the stream for this purpose, not included in the original project description, shall be coordinated with the Department. Coordination shall include the negotiation of additional agreement provisions.
14. Upon Department determination that turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation, shall be halted until effective Department approved control devices are installed, or abatement procedures are initiated.

15. Spoil sites shall not be located within a stream/lake, where spoil can be washed back into a stream/lake, or where it will cover aquatic or riparian vegetation. The Operator may remove all human generated debris, such as lawn and farm cuttings, garbage and trash.
16. Structures and associated materials, including debris, not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur.
17. No equipment maintenance shall be done within or near any stream channel or lake margin where petroleum products or other pollutants from the equipment may enter these areas under any flow. This includes any leakage or surface petroleum fluids.
18. The District and Corps shall comply with all litter and pollution laws. All contractors, subcontractors and employees shall also obey these laws and it shall be the responsibility of the District and Corps to ensure compliance.
19. The clean-up of all pollution spills shall begin immediately. The District or Corps shall notify the Department immediately of any spills and shall consult with the Department regarding clean-up procedures and requirements.
20. All debris, bark, slash, sawdust, rubbish, silt, cement or concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances resulting from project related activities which could be hazardous to aquatic life or waters of the state, shall be prevented from contaminating the soil and/or entering the waters of the state. None of these materials shall be allowed to enter into or be placed within or where they may enter or be washed by rainfall or runoff into waters of the state. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any stream or lake.
21. All provisions of this agreement remain in force throughout the term of the agreement. Any provisions of the agreement may be amended or the agreement may be terminated at any time provided such amendment and/or termination is agreed to in writing by all parties. Mutually approved amendments become part of the original agreement and are subject to all previously negotiated provisions.
22. If the District or the Corps or any of the individuals mentioned above, violate any of the terms or conditions of this agreement, all work shall terminate immediately and shall not proceed until the Department has taken all of its legal actions.
23. The Department reserves the right to enter the project site at any time to ensure compliance with terms/conditions of this agreement.
24. The District or Corps shall **provide a copy of this agreement to all contractors, subcontractors, and the District's and Corp's project supervisors. Copies of the agreement shall be readily available at work sites at all times during periods of active work** and must be presented to any Department personnel, or personnel from another agency upon demand.
25. The Operator shall notify the Department, **in writing, at least five (5) days prior to initiation of construction (project) activities, and at least five (5) days prior to completion of construction (project) activities.** Notification shall be sent to the Department at 330 Golden Shore, Suite 50, Long Beach, CA 90802, Attn: Environmental Services.
26. The Department reserves the right to suspend and/or cancel this agreement for other reasons, including but are not limited to, the following:
  - a. The Department determines that the information provided by the District and Corps in support of the Notification/Agreement is incomplete or inaccurate;
  - b. The Department obtains new information that was not known to it in preparing the terms and conditions of the Agreement;
  - c. The project or project activities as described in the Notification/Agreement have changed; and
  - d. The conditions of or affecting fish and wildlife resources change or the Department determines that project activities will result in a substantial adverse effect on the environment.

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**CONCURRENCE:**

**Riverside County Flood Control &  
Water Conservation District**

**California Department of  
Fish and Game**

David Zappe

Dee Sudduth

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(signature) (date)

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(signature) (date)

General Manager-Chief Engineer  
(title)

Environmental Specialist III  
(title)

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SECTION 01415

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## SECTION 01415

## METRIC MEASUREMENTS

## 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

|            |  |
|------------|--|
| ASTM E 380 | (1993) Practice for Use of the International System of Units (SI)                          |
| ASTM E 621 | (1994; R 1999e1) Practice for Use of Metric (SI) Units in Building Design and Construction |

## 1.2 GENERAL

This project includes metric units of measurements. The metric units used are the International System of Units (SI) developed and maintained by the General Conference on Weights and Measures (CGPM); the name International System of Units and the international abbreviation SI were adopted by the 11th CGPM in 1960. A number of circumstances require that both metric SI units and English inch-pound (I-P) units be included in a section of the specifications. When both metric and I-P measurements are included, the section may contain measurements for products that are manufactured to I-P dimensions and then expressed in mathematically converted metric value (soft metric) or, it may contain measurements for products that are manufactured to an industry recognized rounded metric (hard metric) dimensions but are allowed to be substituted by I-P products to comply with the law. Dual measurements are also included to indicate industry and/or Government standards, test values or other controlling factors, such as the code requirements where I-P values are needed for clarity or to trace back to the referenced standards, test values or codes.

## 1.3 USE OF MEASUREMENTS

Measurements shall be either in SI or I-P units as indicated, except for soft metric measurements or as otherwise authorized. When only SI or I-P measurements are specified for a product, the product shall be procured in the specified units (SI or I-P) unless otherwise authorized by the Contracting Officer. The Contractor shall be responsible for all associated labor and materials when authorized to substitute one system of units for another and for the final assembly and performance of the specified work and/or products.

### 1.3.1 Hard Metric

A hard metric measurement is indicated by an SI value with no expressed correlation to an I-P value, i.e., where an SI value is not an exact mathematical conversion of an I-P value, such as the use of 100 mm in lieu of 4 inches. Hard metric measurements are often used for field data such as distance from one point to another or distance above the floor. Products are considered to be hard metric when they are manufactured to metric dimensions or have an industry recognized metric designation.

### 1.3.2 Soft Metric

- a. A soft metric measurement is indicated by an SI value which is a mathematical conversion of the I-P value shown in parentheses (e.g. 38.1 mm (1-1/2 inches)). Soft metric measurements are used for measurements pertaining to products, test values, and other situations where the I-P units are the standard for manufacture, verification, or other controlling factor. The I-P value shall govern while the metric measurement is provided for information.
- b. A soft metric measurement is also indicated for products that are manufactured in industry designated metric dimensions but are required by law to allow substitute I-P products. These measurements are indicated by a manufacturing hard metric product dimension followed by the substitute I-P equivalent value in parentheses (e.g., 190 x 190 x 390 mm (7-5/8 x 7-5/8 x 15-5/8 inches)).

### 1.3.3 Neutral

A neutral measurement is indicated by an identifier which has no expressed relation to either an SI or an I-P value (e.g., American Wire Gage (AWG) which indicates thickness but in itself is neither SI nor I-P).

## 1.4 COORDINATION

Discrepancies, such as mismatches or product unavailability, arising from use of both metric and non-metric measurements and discrepancies between the measurements in the specifications and the measurements in the drawings shall be brought to the attention of the Contracting Officer for resolution.

## 1.5 RELATIONSHIP TO SUBMITTALS

Submittals for Government approval or for information only shall cover the SI or I-P products actually being furnished for the project. The Contractor shall submit the required drawings and calculations in the same units used in the contract documents describing the product or requirement unless otherwise instructed or approved. The Contractor shall use ASTM E 380 and ASTM E 621 as the basis for establishing metric measurements required to be used in submittals.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

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## SECTION 01451

## CONTRACTOR QUALITY CONTROL

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740 (1999b) 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 (1998a) 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 construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a

physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

### 3.2 QUALITY CONTROL PLAN

The Contractor shall furnish for review by the Government, not later than 30 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 30 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 or another interim plan containing the additional features of work to be started.

#### 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 superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, 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 will be

approved by the Contracting Officer.)

- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- h. Reporting procedures, including proposed reporting formats.
- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

### 3.2.2 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in 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, show 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 or, a construction person with a minimum of 10 years in related work. 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: civil, structural, materials technician. 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 shall have no other duties other than quality control.

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 |
| d. | Structural                    | Graduate Structural Engineer with 2 yrs experience or person with 5 yrs related experience  |
| f. | Environmental                 | Graduate Environmental Engineer with 3 yrs experience   |
| i. | Concrete, Pavements and Soils | Materials Technician with 2 yrs experience for the appropriate area   |

3.4.4 Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". This course is periodically offered at U.S. Army Corps of Engineers, Los Angeles District, Emmanuel Molina, (213) 452-3384, for information.

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 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 of 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 24 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 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily 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 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 Transportation of Samples for Testing

Sample of materials for test verification and acceptance testing will be tested at a commercial laboratory approved by the Contracting Officer. All costs for transporting of samples or materials will be borne by the Contractor.

### 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 Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected.

Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

#### 3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

#### 3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include

the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

### 3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.
- g. Offsite surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall

be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

### 3.10 SAMPLE FORMS

Sample forms enclosed at the end of this section.

### 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.

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SECTION 02230

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## SECTION 02230

## CLEARING AND GRUBBING

## PART 1 GENERAL

## 1.1 DEFINITIONS

## 1.1.1 Clearing

Clearing shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including down timber, snags, brush, and rubbish occurring in the areas to be cleared. All trees shall be removed from top of bluff unless otherwise directed by Contracting Officer.

## 1.1.2 Grubbing

Grubbing shall consist of the removing all trees, stumps, roots, logs, arundo scrub and other objectionable vegetative matter in the borrow area site, the bluff site to receive fill, all required cuts and fills, foundation areas, and all excavation areas. In grubbing out stumps and roots, all roots or other timber more than 38 millimeters in diameter shall be removed to 1 meter below the depth of the required excavation or existing ground level, whichever is lower. Trees and stumps shall be pulled, not cut off.

## 1.1.3 ENVIRONMENTAL PROTECTION

All work and Contractor operations shall comply with the requirements of Sections 01354 ENVIRONMENTAL PROTECTION and 02300 EARTHWORK.

## 1.1.4 BURNING

The use of burning at the project site for the disposal of refuse and debris is subject to approval by local fire departments and air quality districts. Fire and smoke shall not take place near or have an affect upon sensitive species. See Section 00700 CONTRACT CLAUSES, paragraph 52.236-7 PERMITS AND RESPONSIBILITIES.

## PART 2 PRODUCTS (Not Applicable)

## PART 3 EXECUTION

## 3.1 GENERAL

Except as otherwise specified, and/or indicated, areas to be cleared will be limited to actual excavation areas, and areas on which fills and/or structures are to be placed. No removal of trees, shrubs, turf, and other vegetation outside of these areas shall be allowed.

### 3.2 EXISTING STRUCTURES and OBSTRUCTIONS

The Contractor shall clear and grub the borrow area site, the bluff site to receive fill, and excavation areas, and remove and dispose of all existing structures surface debris and obstructions for project construction, except those structures which are identified to be protected in place as shown on the drawings. Obstructions which are designed or specified to be removed but which are not designated or specified to be removed by others shall be removed by the Contractor. Except as otherwise specified, obstructions designated to be removed by others will be removed in sufficient time to preclude interference with the Contractor's operations.

### 3.3 CLEARING

Clearing or removal of any tree is subject to approval by the Contracting Officer. Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Trees designated to be left standing within the cleared areas shall be trimmed of dead branches 40 mm or more in diameter and shall be trimmed of all branches to the heights indicated or directed. Limbs and branches to be trimmed shall be neatly cut close to the bole of the tree or main branches. Cuts more than 40 mm in diameter shall be painted with an approved tree-wound paint. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations by the erection of barriers or by such other means as the circumstances require. Clearing shall also include the removal and disposal of structures that obtrude, encroach upon, or otherwise obstruct the work.

### 3.4 GRUBBING

Material to be grubbed, together with logs and other organic or metallic debris not suitable for foundation purposes, shall be removed to a depth of not less than 455 mm below the original surface level of the ground in areas indicated to be grubbed and in areas indicated as construction areas under this contract, such as areas for buildings, and areas to be paved. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform with the original adjacent surface of the ground.

### 3.5 TREE REMOVAL

Where indicated or directed, trees and stumps that are designated as trees shall be removed from areas outside those areas designated for clearing and

grubbing. This work shall include the felling of such trees and the removal of their stumps and roots as specified in paragraph GRUBBING. Trees shall be disposed of as specified in paragraph DISPOSAL OF MATERIALS.

### 3.6 DISPOSAL OF MATERIALS

Cleared, grubbed and removed material shall be removed from project limits for proper disposal in compliance with federal, state and local requirements.

All material removed, except material specified and/or indicated to be salvaged, is designated as scrap, and shall be removed from the site.

Logs, stumps, roots, brush, rotten wood, and other refuse from the clearing and grubbing operations shall be disposed of outside the limits of Government-controlled land at the Contractor's responsibility, except when otherwise directed in writing. Such directive will state the conditions covering the disposal of such products and will also state the areas in which they may be placed.

### 3.7 DISPOSAL OF HAZARDOUS AND TOXIC WASTE

Any materials encountered in work areas which are suspected of having characteristics of hazardous and/or toxic waste shall be handled in a manner conforming to the requirements of Section 01354 ENVIRONMENTAL PROTECTION.

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## SECTION 02300

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## SECTION 02300

## EARTHWORK

## 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

|             |  |
|-------------|--|
| ASTM D 422  | (1963; R 1998) Particle-Size Analysis of Soils   |
| ASTM D 1140 | (1997) Amount of Material in Soils Finer than the No. 200 (75-micrometer) Sieve  |
| ASTM D 1556 | (1990; R 1996) Density and Unit Weight of Soil in Place by the Sand-Cone Method  |
| ASTM D 1557 | (1998) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu. ft. (2,700 kN-m/cu. m.)) |
| ASTM D 2216 | (1992)Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass                                    |
| ASTM D 2487 | (1998) Classification of Soils for Engineering Purposes (Unified Soil Classification System)                           |
| ASTM D 2922 | (1996) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)                                  |
| ASTM D 3017 | (1988; R 1996el) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)                            |
| ASTM D 3080 | (1990) Direct Shear Test of Soils under Consolidated, Drained Conditions   |

## ENGINEERING MANUALS (EM)

EM 385-1-1 (1996) U.S. Army Corps of Engineers Safety  
and Health Requirements Manual

## 1.2 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 SUBMITTAL PROCEDURES:

## SD-04 Samples

excavation plan; G, RE  
methods proposed for transporting material; G, RE  
haul route plan; G, RE  
geotechnical investigation plan; G, ED  
excavating the bluff; G, RE

## SD-07 Certificates

Testing;

Qualifications of the commercial testing laboratory or Contractor's testing facilities.

## SD-09 Manufacturer's Field Reports

calibration curves;

Within 24 hours of conclusion of physical tests, 2 copies of test results, including calibration curves and results of calibration tests.

## 1.3 SUBSURFACE DATA

Subsurface soil boring logs are shown on the drawings. These data represent the best subsurface information available; however, variations may exist in the subsurface between boring locations.

## 1.4 BLASTING

Blasting will not be permitted.

## 1.5 UTILIZATION OF EXCAVATED MATERIALS

Materials from the bluff excavation shall not be used for compacted fill butress. No excavated material shall be disposed of to obstruct the flow of any stream, endanger a partly finished structure, impair the efficiency

or appearance of any structure, or be detrimental to the completed work in any way.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL EXCAVATION

3.1.1 Ditches, Gutters, and Channel Changes

Excavation of ditches, gutters, and channel changes shall be accomplished by cutting accurately to the cross sections, grades, and elevations shown. Ditches and gutters shall not be excavated below grades shown. Excessive open ditch or gutter excavation shall be backfilled with material meeting the requirements of compacted fill, butress and compacted to the requirements of compacted fill, butress, to grades shown. Material excavated shall be disposed of as shown or as directed, except that in no case shall material be deposited less than 1 meter from the edge of a ditch. The Contractor shall maintain excavations free from detrimental quantities of leaves, brush, sticks, trash, and other debris until final acceptance of the work.

3.1.2 Drainage Structures

Excavations shall be made to the lines, grades, and elevations shown, or as directed. Trenches and foundation pits shall be of sufficient size to permit the placement and removal of forms for the full length and width of structure footings and foundations as shown. Rock or other hard foundation material shall be cleaned of loose debris and cut to a firm, level, stepped, or serrated surface. Loose disintegrated rock and thin strata shall be removed. When concrete or masonry is to be placed in an excavated area, the bottom of the excavation shall not be disturbed. Excavation to the final grade level shall not be made until just before the concrete or masonry is to be placed.

3.2 PRESERVATION OF PROPERTY

All excavation operations shall be conducted in such a manner that concrete structures, roads, sidewalks, curbs, gutters, private properties (i.e. backyards, swimming pool, patio, and etc.) utilities, or other facilities and improvements which are to remain in place permanently will not be subjected to settlement or horizontal movement. The Contractor shall furnish and install sheet piling, cribbing, bulkheads, shores, or whatever means may be necessary to adequately support material carrying such improvements or to support the improvements themselves and shall maintain such means in position until they are no longer needed. Temporary sheet piling, cribbing, bulkheads, shores or other protective means shall remain the property of the Contractor and when no longer needed shall be removed from the site. All shoring and bracing shall be designed so that it is effective to the bottom of the excavation, and shall be based upon

calculation of pressures exerted by (and the condition and nature of) the materials to be retained, including surcharge imparted to the side of the trench by equipment and stored materials. Removal of temporary shoring shall be performed in such manner as not to disturb or damage the utilities, finished soil cement or concrete or other facility.

### 3.3 EXCAVATION FOR STRUCTURES

Excavation within the vicinity of existing structures, utilities, roads, drainage pipes and any other improvements to remain in place shall be performed in a manner to prevent damage to the structure. Earth banks and facilities to remain in place shall be supported as necessary during excavation. In general, unless otherwise shown or specified, the actual side slopes shall be in accordance with EM 385-1-1.

### 3.4 EXCAVATION PRADO BORROW AREA

Prado Borrow Area, as indicated on the drawings, is the borrow source for, compacted fill butress and compacted fill, permanent access road. It is also an alternate borrow source for general compacted fill, toe, and backfill, toe. The Contractor is expected to use discretion while excavating within the borrow area to ensure his borrow operations are producing adequate amounts of all specified materials in a timely manner for fill construction. An excavation plan, methods, and equipment to be used in excavating this borrow area shall be submitted to the Contracting Officer for approval fifteen (15) calendar days prior to excavating in the borrow area. The depth of cut in the borrow area will vary and shall at all times be controlled to produce the compacted fill materials as specified in this section. The designated borrow area shall have a maximum average excavation depth of 4.5 meters. Excavation shall be performed in a manner which will produce maximum blending of materials from top to bottom of the excavation. Cobbles and boulders may be encountered at random depths and locations within the designated borrow area. The excavation shall be conducted in such a manner that the excavated area will not pond water. The methods proposed for transporting material from the borrow area to the bluff site shall be submitted for approval ten (10) calendar days after receipt of Notice to Proceed. If haul roads are required, the Contractor shall construct and maintain such roads throughout their required use as specified in Section 01200 GENERAL REQUIREMENTS. Upon completion of excavation, the borrow areas shall be left in a neat condition, graded to drain and in accordance with the requirements specified herein and in Section 01354 ENVIRONMENTAL PROTECTION.

Whenever, in the opinion of the Contracting Officer, it is necessary to change the location of the excavating equipment working in the borrow area in order to obtain specified material, or to avoid areas of unsuitable materials, the Contractor shall move his equipment to a new location at no additional cost to the Government. If deemed necessary, the Contracting Officer may direct the location of excavation to areas within the entire limits of the Borrow Area. The Contractor shall provide sufficient personnel in the borrow areas to monitor the excavation.

After clearing, grubbing, removing obstructions and stripping of vegetative material by removal of soil to the depths specified in Section 02230 CLEAR

SITE AND REMOVE OBSTRUCTIONS, suitable materials shall be excavated with an inclined or vertical cut face for the full depth of excavation. Moisture shall be added before the excavation and during the blending if mixing plants are used. All borrow material shall be blended and moistened for the full depth of excavation prior to placing the materials on the and select compacted fill, toe and compacted fill, permanent access road. The temporary side slopes at the borrow area shall be cut no steeper than 1 vertical to 1 horizontal for depths greater than 1.5 meters. The boring locations and depths indicated on the plan do not necessarily represent the depth to which suitable borrow materials may be encountered. Erosion due to wind or flowing water shall be controlled during borrow operations. Areas of surface water concentration shall be drained into silt ponds to remove sediment prior to water being discharged from the borrow site into existing drainages. Silt ponds shall be maintained routinely and as directed by the Contracting Officer. The finished surface of the borrow area shall be graded to drain at a 2 percent slope toward the natural drainage course to prevent ponding of water at the end of construction in the borrow area and shall be reasonably smooth and free from irregular surface changes. The final side slopes at the borrow area shall be re-graded to a slope of 1 vertical to 5 horizontal. Upon completion of excavation, stockpiled growth media from stripping operations shall be spread over the excavated surface. Approximately 150 millimeters of the top material shall be stripped, and stockpiled for use as a top soil. Prior to using the borrow site for the excavation of fill material, the Contractor shall construct earthen berms along the northwestern and southwestern sides of designated area A within the borrow area No.2. The berm shall be completed within ten (10) days of first accessing the borrow site. The berms shall be at least 3 meters high to remove any direct line of site to the trees located adjacent to Chino Creek. The Contractor shall use the top soil materials to be stockpiled for the construction of the berms, compaction of the berm shall not be required. The Contractor shall also use a whisper mufflers on all construction equipments operating within the borrow site to further reduce the potential for any noise impact.

### 3.5 EXCAVATION, BLUFF

Bluff excavation consists of the removal of all materials to the lines and grades indicated on the plans. The finished surface shall be reasonably smooth, free from irregular surface changes, and shall not vary more than 25 millimeters above or below the indicated grade. No surcharge loads shall be allowed within 3 meters of the excavation at the top of slope. The contractor shall submit an excavation plan for excavating the bluff. The plan shall include excavation methods and equipment and shall be submitted to the Contracting Officer for approval (15) calendar days prior to excavating the bluff.

### 3.6 HAULED EXCAVATION MATERIAL

The Contractor shall have a haul route plan for removal of required excavated materials and for placing required fill materials. This haul route plan shall be submitted to the Contracting Officer for approval. The Contractor will be responsible for obtaining all permits and licenses necessary to haul material on and off-site. The Contractor will provide to the Contracting Officer three copies of the proposed street haul route plan

for transport of all unsatisfactory excavated material.

### 3.7 DISPOSAL OF HAZARDOUS AND TOXIC WASTE

Any materials encountered in work areas which are suspected of having characteristics of hazardous and/or toxic waste shall be handled in a manner conforming to the requirements of Section 01354 ENVIRONMENTAL PROTECTION.

### 3.8 EXCAVATION, PERMANENT ACCESS ROAD

Material from Excavation Permanent Access Road which meets the requirements of paragraphs FILL MATERIAL and Fill Material, Government-Furnished, Prado Borrow Area can be used for Compacted Fill Buttress.

### 3.9 OVERCUT

Except as otherwise specified or as may be ordered in writing, any overcut or excavation made outside the lines indicated on the drawings or directed shall be backfilled with compacted fill conforming to this Section 02300 EARTHWORK. If this overcutting occurs and impacts existing roads, facilities, private property, or sensitive biological habitats, the impacted structures/property shall be reconstructed in-kind. All excavating, backfilling, and compacting of backfill, reconstruction, or restoration of native habitats occasioned thereby shall be by the Contractor at no additional cost to the Government.

### 3.10 COMPACTION EQUIPMENT

Compaction shall be accomplished by tamping roller, rubber tired roller vibratory compactor or mechanical tampers. All equipment, tools, and machines shall be maintained in satisfactory working condition at all times. Compaction equipment shall be suitable for consistently producing uniform soil densities.

### 3.11 FILL MATERIAL

Material performance requirements have been selected for fill material. The intention is to use the specified materials obtainable from a selected source; the suitability of the material shall be subject to approval of the Contracting Officer. Fill materials can be obtained from the Government-Furnished borrow area, located at Prado Dam Basin as indicated on the drawings, or from an optional Contractor-Furnished borrow area as approved by the Contracting Officer. The Contractor may select an optional borrow source for fill material that meets all the requirements of the paragraph Fill Material, Contractor-Furnished, and is approved by the Contracting Officer. Materials considered unsatisfactory for use as compacted fill include but are not limited to those materials containing roots and other organic matter, spongy and saturated materials, trash, debris, chunks or clumps of cemented material, and stone whose greatest dimension is more than 1/3 the lift thickness. Materials classified in ASTM D 2487 as MH, CH, Pt, OH, and OL are also considered unsuitable for use as compacted fill. Stones larger than 0.1 meter shall not be allowed within 0.3 meter of concrete surfaces. Fill material shall be excavated

with an inclined or vertical cut face for the full depth of excavation. Moisture shall be added before the excavation and during the blending if mixing plants are used. All borrow material shall be blended and moistened for the full depth of excavation prior to placing the compacted fill materials. The Contractor is expected to use discretion while excavating within the borrow area to ensure his borrow operations are producing adequate amounts of all specified materials in a timely manner for fill construction.

#### 3.11.1 Fill Material, Government-Furnished, Prado Borrow Area

Fill material for compacted fill, butress shall be obtained from the designated borrow area located at Prado Dam Basin as indicated on the drawings and shall consist of suitable materials with a minimum 25 percent passing the No. 200 sieve when tested in accordance with ASTM D 422.

#### 3.11.2 Fill Material, Contractor-Furnished

Borrow areas proposed by the Contractor shall be subject to approval by the Contracting Officer. Any proposed borrow source, shall meet all the applicable requirements of Section 01354 ENVIRONMENTAL PROTECTION. The contractor furnished fill material shall meet the following requirements. The material will have a minimum saturated Direct Shear strength of 23.9 Kilonewtons per square meter cohesion and 28 degrees angle of internal friction in accordance with ASTM D 3080. The fill material for use as compacted fill, butress shall have a minimum of 25 percent passing the No. 200 sieve when tested in accordance with ASTM D 1140.

For any proposed borrow area, the Contractor shall submit a geotechnical investigation plan to the Contracting Officer for approval within (10) days after receipt of Notice to Proceed. The geotechnical investigation plan shall include but is not limited to site location maps, proposed excavation plan of the borrow area, plan of exploration program, laboratory testing program, and a geotechnical investigation report outline. The excavation plan of the borrow area shall include an adequate quantity of the material for use as compacted fill and shall be prepared by a Civil Engineer registered in the State of California. A geotechnical investigation report shall be prepared by a Geotechnical Engineer registered in the State of California. The Contractor shall submit the final excavation plan and geotechnical investigation report of the proposed borrow area to the Contracting officer for approval (15) days prior to constructing the compacted fill. Material from the proposed borrow area shall not be used in the fill until the proposed borrow area has been approved. The geotechnical investigation report shall generally include but not limited to a discussion of performing borings, collecting soil samples, and performing field and laboratory analyses to determine the specified adequacy of the physical characteristics of the soils.

##### a. Site Investigations and Sampling Procedures

Excavating or drilling of at least (10) backhoe trenches, hollow-stem, or bucket auger borings to determine physical characteristics of the soils. At each boring, standard penetration tests (SPT) shall be performed and samples shall be taken every 3-foot interval and at each change in soil

type. At each trench hole, disturbed samples shall also be taken every 3-foot interval and at each change in soil type. At the conclusion of each exploratory hole, one composite sample shall be taken for subsequent laboratory testing of shear strength analysis, modified compaction test, Atterberg limit testing and grain size gradation analysis. For each exploratory hole, each soil type encountered shall be classified in accordance with the Unified Soil Classification System. Exploratory hole locations and top of exploratory hole elevations shall be identified and approximate location shall be depicted on the proposed excavation plan of the borrow area.

b. Laboratory Testing Procedures

Laboratory test shall be performed to determine performance properties of the proposed fill materials as indicated in this paragraph and approved by the Contracting Officer. Classification of soils ASTM D 2487, particle-size analysis ASTM D 422, moisture content ASTM D 2216, liquid limit, plastic limit and plasticity index ASTM D 4318 shall be performed for each of the samples collected in the exploratory holes as well as for the composite sample collected at the conclusion of each exploratory hole. In addition, the composite sample taken of each hole shall be remolded to 90% relative compaction in accordance with ASTM D 1557 and then tested for direct shear test in accordance with ASTM D 3080. Additional tests shall be performed as appropriate to fully characterize the particular soil type encountered, conform to standard local practices, etc.

c. Geotechnical Investigation Report

The report as a minimum shall include a summary of the results of the borrow area investigations, the soil logs, description of sampling procedures and sampling locations, site geology, results of laboratory tests and suitability of the on-site soils as a fill material to meet performance requirements of the earthfill properties as described in paragraph 3.8.2.

3.11.3 Placement

Fill and backfill material shall be placed within the lines and grades indicated in the drawings. Fill material shall not be placed against concrete which has not been in place at least 14 days or until the concrete has attained a strength of 20 megapascals when tested in accordance with the Section 03307 CONCRETE FOR MINOR STRUCTURES. Heavy equipment shall not be operated over pipes, subdrain pipes and buried structures until at least 0.6 meters of fill material has been placed and compacted over them. Material from the top of the pipe or buried structure to 0.6 meters above pipe or buried structure shall be compacted by mechanical tampers or other equipment approved by the Contracting Officer. Buried structures damaged by the Contractor's operations shall be repaired or replaced at the Contractor's own expense. Compacted fill and backfill shall be placed with suitable equipment in horizontal layers which before compaction, shall not exceed 0.3 meters in depth for rubber-tired or vibratory rollers, 0.2 meters in depth for tamping rollers, and 0.1 meters in depth when mechanical tampers are used. The Contractor may vary the layer thickness within these limits for most efficient operations. Material containing

stones shall be placed in a manner to prevent the stones from striking the concrete structures and to prevent the formation of voids.

#### 3.11.4 Moisture Content

Material shall have a uniform moisture content while being placed and compacted. Water shall be added at the source, if required, and/or by sprinkling each layer of material during placement. Uniform distribution of moisture shall be obtained by disking, harrowing, or otherwise manipulating the soil during and after the time water is added. Material containing an excess of moisture shall be manipulated with suitable implements to facilitate maximum aeration and shall be permitted to dry to the proper consistency before being compacted. Fill shall have a maximum moisture content of not more than 2 percent above optimum and a minimum moisture content of not less than 2 percent below optimum. If, in the opinion of the Contracting Officer, the top or contact surfaces of the partial fill section become too dry to permit suitable bond between these surfaces and the additional fill to be placed thereon, the Contractor shall loosen the dried materials by scarifying or discing to such depths as required, shall dampen the loosened material to an acceptable moisture content, and shall compact this layer in accordance with the applicable requirements specified hereinafter. If the top or contact surfaces of a partial fill section become too wet to permit suitable bond between these surfaces and the additional fill to be placed there on, the wet material shall be scarified and permitted to dry, assisted by discing or harrowing, if necessary, to such depths as required. The material shall be dried to an acceptable moisture content and recompactd in accordance with the applicable requirements specified herein.

#### 3.11.5 Compaction

No layer of fill shall be compacted before the practicable uniform moisture content has been obtained. Scarified areas shall be compacted as specified for the fill placed thereon. Rollers will not be permitted to operate within 0.3 meters of buried structures until the compacted fill over the top of the structures has reached a depth of 0.6 meters. Compaction equipment shall be so operated that structures are not damaged nor overstressed during compaction operations. Mechanical tampers shall be used for compaction of fill material adjacent to structures and in other inaccessible areas where rolling equipment is impracticable for use in compaction.

#### 3.12 COMPACTED FILL

##### 3.12.1 Compacted Fill, Butress

##### 3.12.1.1 Preparation for Placing

Before placing material for compacted fill, toe (i.e. select and general) and compacted fill, Permanent access road, the foundation surface shall be cleared of all existing obstructions, vegetation and debris. Any trash or debris shall be removed in accordance with Section 02230 CLEAR SITE AND REMOVE OBSTRUCTIONS. Unsuitable or unstable (too wet) material not meeting the requirements for fill material shall be removed where directed.

### 3.12.1.2 Compaction

Each layer of the materials shall be compacted to not less than 90 percent of maximum density, per ASTM D 1557.

## 3.13 BACKFILL

### 3.13.1 Structural Backfill

#### 3.13.1.1 Location

Backfill shall consist of all fill against and/or around structures.

#### 3.13.1.2 Placing

Backfill material shall not be placed against concrete which has not been in place at least 14 days or until the concrete has attained a strength of 20 megapascals when tested in accordance with Section 03307 CONCRETE FOR MINOR STRUCTURES. Backfill shall be placed in 0.1 meter layers.

#### 3.13.1.3 Compaction

Compaction shall be not less than 90 percent of maximum density, per ASTM D 1557. Compaction requirements for backfill materials shall also conform to the applicable portions of Section 02630 STORM-DRAINAGE SYSTEM.

## 3.14 SUBGRADE PREPARATION

Subgrade preparation for areas to receive aggregate base and asphalt for street, aggregate base for access roads, maintenance roads and turnarounds shall be cleared of all existing obstructions, vegetation and debris. All trash and debris shall be removed in accordance with Section 02230 CLEAR SITE AND REMOVE OBSTRUCTIONS. After excavation to rough grade, the entire subgrade for areas indicated above shall be scarified, moisture conditioned and compacted with the compaction equipment. The subgrade shall be compacted to a density of 95 percent of maximum density, per ASTM D 1557. If the subgrade is disturbed by the Contractor's operations or is overexcavated, or is soft or yielding, the subgrade shall be restored to grade and compacted to a density of 95 percent of maximum density, per ASTM D 1557. The finished surface of the subgrade shall not be more than 12.5 millimeters from the indicated grade at any point when tested with a 3 meters straightedge.

## 3.15 TESTING

Testing shall be performed by an approved commercial testing laboratory or by the Contractor subject to approval. If the Contractor elects to establish testing facilities, no work requiring testing will be permitted until the Contractor's facilities have been inspected and approved by the Contracting Officer. Field in-place density shall be determined in accordance with ASTM D 1556 and ASTM D 2922. When ASTM D 2922 is used, the calibration curves shall be checked and adjusted using only the sand cone method as described in ASTM D 1556. 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. When test results indicate, as determined by the Contracting Officer, that compaction is not as specified, the material shall be removed, replaced and recompacted to meet specification requirements. Tests on recompacted areas shall be performed to determine conformance with specification requirements. Inspections and test results shall be certified by a registered professional civil engineer. These certifications shall state that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the tests. The following number of tests, if performed at the appropriate time, will be the minimum acceptable for each type operation.

#### 3.15.1 Fill and Backfill Material Gradation

One test per 500 cubic meters stockpiled or in-place source material. Gradation of fill and backfill material shall be determined in accordance with ASTM D 1140.

#### 3.15.2 In-Place Densities

- a. One test per 500 cubic meters, for the first 5,000 cubic meters of material and 1 test for each 1,000 cubic meters thereafter, or fraction thereof, of fill or backfill areas compacted by other than hand-operated machines.
- b. One test per 200 cubic meters, or fraction thereof, of each lift of fill or backfill areas compacted by hand-operated machines.

#### 3.15.3 Moisture Contents

In the stockpile, excavation, or borrow areas, a minimum of two tests per day per type of material or source of material being placed during stable weather conditions shall be performed. During unstable weather, tests shall be made as dictated by local conditions and approved by the Contracting Officer.

#### 3.15.4 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. One representative test per 1000 cubic meters of fill and backfill, or when any change in material occurs which may affect the optimum moisture content or laboratory maximum density.

#### 3.16 SUBGRADE AND EMBANKMENT PROTECTION

During construction, embankments and excavations shall be kept shaped and drained. Ditches and drains along subgrade shall be maintained to drain effectively at all times. The finished subgrade shall not be disturbed by traffic or other operation and shall be protected and maintained by the Contractor in a satisfactory condition until ballast, subbase, base, or pavement is placed. The storage or stockpiling of materials on the finished subgrade will not be permitted. No subbase, base course, ballast, or pavement shall be laid until the subgrade has been checked and approved, and in no case shall subbase, base, surfacing, pavement, or ballast be placed on a muddy, spongy, or frozen subgrade.

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## SECTION 02380

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## SECTION 02380

## STONE PROTECTION AND GROUTING STONE PROTECTION FOR STRUCTURES

## 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.

## ACI INTERNATIONAL (ACI)

ACI 305R (1991) Hot Weather Concreting

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 33 (1999) Concrete Aggregates

ASTM C 94 (1998c) Ready-Mixed Concrete

ASTM C 127 (1988; R 1993) Specific Gravity and Absorption of Coarse Aggregate

ASTM C 143/C 143M (1998) Slump of Hydraulic-Cement Concrete

ASTM C 150 (1998) Portland Cement

ASTM C 171 (1997a) Sheet Materials for Curing Concrete

ASTM C 172 (1997) Sampling Freshly Mixed Concrete

ASTM C 231 (1997) Air Content of Freshly Mixed Concrete by the Pressure Method

ASTM C 295 (1998) Petrographic Examination of Aggregates for Concrete

ASTM C 309 (1998a) Liquid Membrane-Forming Compounds for Curing Concrete

ASTM C 618 (1998) Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

ASTM C 685 (1998a) Concrete Made by Volumetric Batching and Continuous Mixing

ASTM D 1141 (1998) Substitute Ocean Water

ASTM D 5519 (1994) Particle Size Analysis of Natural and Man-Made Riprap Materials

ASTM E 548 (1994) General Criteria Used for Evaluating Laboratory Competence

CORPS OF ENGINEERS (COE)

COE CRD-C 400 (1963) Requirements for Water for Use in Mixing or Curing Concrete

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Bulk Specific Gravity;

Submit the source for materials used in riprap.

Ready-Mixed Concrete Grout;

When ready-mixed grout is furnished, submit a delivery ticket for each batch delivered to the jobsite. The ticket shall show the total weight in kg of cement, water, and fine and coarse aggregate, amount(s) of admixture(s), time of loading, and the revolution counter reading at the time of batching.

Batching and mixing equipment; G, ED  
Conveying and Placing; G, ED

Submit the methods and equipment for transporting, handling, depositing, and consolidating the grout prior to first grout placement.

Curing Materials;

Submit manufacturers' literature for the concrete admixtures and curing materials.

SD-06 Test Reports

Gradation Test;

Submit the gradation tests using the GRADATION TEST DATA SHEET

enclosed at end of this section for riprap or stone.

Evaluation Testing of Stone; G, ED

Quality test on the stone in accordance with PART 2 paragraph EVALUATION TESTING OF STONE shall be the responsibility of the Contractor. Prior to delivery of such material to the worksite, submit a copy of the laboratory inspection report along with actions taken to correct deficiencies. Submit a copy of the test reports.]

SD-07 Certificates

CONCRETE GROUT;

Submit certificates of compliance attesting that the materials meet specification requirements.

## PART 2 PRODUCTS

### 2.1 GENERAL STONE

#### 2.1.1 Stone Sources

##### 2.1.1.1 Source Authorization

Before any stone is produced from a source for completion of the work, under this contract, the source of stone must be authorized, by the Contracting Officer's Representative (COR). Authorization of a stone source shall not be construed as a waiver of the right of the Government to require the Contractor to furnish stone, that complies with these specifications. Materials produced from localized areas, zones, or strata will be rejected, when such materials do not comply with the specifications.

##### 2.1.1.2 Source Development

Before a proposed source or sources of stone will be considered for sampling and testing, the Contractor must demonstrate that the source has sufficient stone to fulfill the contract requirements. If sufficient amounts of stone, conforming to these specifications, are not available from a source or sources used in the work, the Contractor shall submit stone from another source, for authorization.

##### 2.1.1.3 Source Documentation

Authorization of a proposed stone source will be based on test results and/or service records. In general, current Corps of Engineers test results shall be required, as outlined in paragraph: Quality Compliance Testing, below. In special cases, however, the COR may elect to use either past Corps of Engineers test results, test results from other agencies or private laboratories, or service records. A service record is considered to be acceptable, if stone from the proposed source has remained sound and functional, after at least 10 years of exposure, on a project similar to

the one to be constructed, under these specifications.

2.1.1.4 Potential Stone Sources

The following are a few of the sources in the project area, that have either undergone recent quality compliance testing, for use on Corps of Engineers projects or have acceptable service records:

| <u>Source Name</u>                          | <u>Nearest City</u> |
|---|---------------------|
| All-American Asphalt                        | Corona              |
| Ormond (Atkinson)                           | Riverside           |
| Corona-Pacific                              | Corona              |
| Harlow                                      | Corona              |
| Slover Mountain<br>(Colton Portland Cement) | Colton              |
| Pyrite Street                               | Riverside           |
| 3M  | Corona              |
| Eagle Valley                                | Corona              |
| Fish Canyon                                 | Azusa               |

Listing of a stone source is not to be construed as to current or future availability of the source, authorization of all materials from the source, nor as a waiver of inspection and testing of the source. Stone produced from any listed source must meet all the requirements set forth in these specifications. Listing of a stone source is also not to be construed as an indication that the source can produce the total quantity of stone required for the project. Stone may be furnished from other sources, designated by the Contractor and authorized by the COR, subject to the conditions stated herein.

2.1.2 Evaluation Testing of Stone

Stone shall be subjected to such tests, as are necessary, to demonstrate to the satisfaction of the COR, that the materials are acceptable for use in the work. At a minimum, the stone shall meet the following test requirements:

| <u>Test</u>                                     | <u>Test Method</u>                | <u>Requirement</u>           |
|---|-----------------------------------|------------------------------|
| Specific Gravity (Bulk SSD)                     | ASTM C 127                        | 2.60 minimum                 |
| Absorption                                      | ASTM C 127                        | 2.0% maximum                 |
| Wetting and Drying<br>fracturing <sup>(3)</sup> | SPD Test Procedure <sup>(1)</sup> | No                           |
| Sulfate Soundness<br>(4)                        | ASTM C 88 <sup>(2)</sup>          | 10% max. loss                |
| Abrasion Loss                                   | ASTM C 535                        | 50% max. loss <sup>(4)</sup> |

In addition to the above tests, the stone shall be subjected to a petrographic and X-ray diffraction analysis, in accordance with ASTM C 295<sup>(5)</sup>. The stone must not contain any expansive clays. Stone for grouted stone protection shall not contain excessive amounts of deleterious minerals, associated with alkali-silica or alkali-carbonate reactions, as

described in ASTM C 33.

NOTE (1): The test procedure for wetting and drying test is as follows: The entire sample is carefully examined, and representative test specimens are selected. The sample should be large enough to produce two cut slabs, each one being 1-inch thick (+/- 1/4-inch), with a minimum surface area of 30 square inches, on one side. Two chunks, approximately three by four inches, are also chosen. The slabs and chunks are carefully examined, under a low-power microscope, and all visible surface features are noted and recorded. The specimens are then oven-dried, at 140 degrees F., for eight hours, cooled and weighed, to the nearest tenth of a gram. The test specimens are photographed, to show all surface features, before the test. The chunks and slabs are then subjected to fifteen cycles of wetting and drying. One slab and one chunk are soaked in fresh tap water. The other slab and chunk are soaked in salt water, prepared in accordance with ASTM D 1141. Each cycle consists of soaking for sixteen hours, at room temperature, and then drying in an oven, for eight hours at 140 degrees F. After each cycle, the specimens are examined with the low-power microscope, to check for opening or movement of fractures, flaking along edges, swelling of clays, softening of rock surfaces, heaving of micaceous minerals, breakdown of matrix material, and any other evidence of weakness developing in the rock. The cycle in which any of these actions occurs is recorded. After fifteen cycles, the slabs and chunks are again carefully examined, and all changes in the rocks are noted and recorded. The test specimens, together with all particles broken-off during the test, are oven-dried, weighed, and photographed.

NOTE (2): The test shall be made on 50 particles, each weighing 100 grams (+/- 25 grams), in lieu of the gradation given in ASTM C 88.

NOTE (3): Weakening and loss of individual surface particles is permissible, unless bonding of the surface grains softens and causes general disintegration of the surface material.

NOTE (4): Stone which has a loss greater than the specified limit will be accepted, if the Contractor demonstrates that the stone has a satisfactory service record.

NOTE (5): The test procedure for Petrographic and X-ray Diffraction is performed according to ASTM C 295, except for the following:

(a) A color, microscopic photograph shall be made of each stone type, and the individual minerals within the stone shall be identified by labels and arrows upon the photograph.

(b) A very detailed macroscopic and microscopic description shall be made of the stone, to include all the mineral constituents, individual sizes, their approximate percentages, and mineralogical histories. A description of stone hardness, texture, weathering, and durability factors shall also be discussed.

(c) A written summary of the suitability of stone for use as grouted stone, based on the Petrographic and X-ray tests and the results of ASTM C 535, shall be presented in the final laboratory report on stone quality.

#### 2.1.3 Stone Acceptance Criteria

Prior to placement, all stone shall be subject to acceptance by the COR. Acceptance of any stone, shall not constitute acceptance of all stone from a source. All accepted stone shall be as follows:

- a. of the same lithology as the original stone, from which test results or service records were taken, as a basis for authorization of the source;
- b. sound, durable, and hard, and free from laminations, weak cleavages, undesirable weathering, or blasting or handling-induced fractures (or fracture zones, which subtend more than 1/3 of the total circumference of the stone, along the plane of fracturing);
- c. of such character, that it will not disintegrate from the action of air, water, or the conditions of handling and placing; and,
- d. clean and free from earth, clay, refuse, or adherent coatings.

#### 2.1.4 Stone for Grouted Stone

Stone for grouted stone protection may be either rounded stone or angular quarried material, with a shape which assures reasonable adhesion with cement grout, yet allows flow of grout throughout the layer, to ensure adequate bonding.

#### 2.1.5 Gradation

##### 2.1.5.1 General

All points on individual grading curves shall be between the boundary limits, as defined by smooth curves drawn through specified grading limits, plotted on a mechanical analysis diagram. The individual grading curves shall not exhibit abrupt changes in slope, denoting skip-grading or scalping of certain sizes. Specified grading of all material shall be met both at the source and as-delivered to the project. In addition, material not meeting the required grading, because of segregation or degradation, during placement, shall be rejected. If test results show that stone does not meet the required grading, the hauling operation will be stopped immediately and will not resume, until processing procedures are adjusted, and a gradation test is completed, showing gradation requirements are met. All gradation tests shall be at the expense of the Contractor.

- a. Stone for grouted stone may be obtained from a source authorized by

the COR and shall be reasonably well-graded, between the limits specified below, when tested in accordance with ASTM D 5519, Test Method A. The grouted stone layer will be 300 mm thick. The stone will be reasonably well-graded, between 100 and 300 mm (in diameter), with not less than 40 percent nor more than 70 percent of the stone 150 mm in diameter.

#### 2.1.5.2 Gradation Test

The Contractor shall perform a gradation test on the stone in accordance with paragraph GRADATION TEST METHOD FOR STONE. The sample shall be taken by the Contractor in the presence of the Contracting Officer. The Contractor shall notify the Contracting Officer not less than 3 days in advance of each test. At least one test shall be performed.

#### 2.1.5.3 Gradation Sampling and Testing

Testing shall be the responsibility of the Contractor and shall be performed at no additional cost to the Government. Tests shall be performed by an approved testing laboratory, on samples selected by the COR. Testing may be done by the Contractor, subject to approval by the COR. If the Contractor elects to establish testing facilities, approval of such facilities shall be based on compliance with ASTM E 548, and no work requiring testing will be permitted, until the Contractor's facilities have been inspected and approved by the COR. Testing shall be supervised by a registered Civil Engineer, experienced in rock-testing. The Government reserves the right to perform check-tests and to use the Contractor's sampling and testing facilities to make the tests. One gradation test shall be required at the beginning of production prior to delivery of stone, from the source to the project site, and results (including gradation plots) submitted, prior to placement. The sample shall consist of not less than 1 ton of stone, selected at random, from the production run for the first test or from stone placed on grade or stockpiled on-site, for required additional tests. All sampling and gradation tests performed by the Contractor shall be under the supervision of the COR.

#### 2.1.5.4 Proportional Dimension Limitations

The maximum aspect ratio (greatest dimension:least dimension) of any piece of stone for size ranges shall be not greater than 3:1 when measured across mutually perpendicular axis.

### 2.2 CONCRETE GROUT

#### 2.2.1 Cementitious Materials

Cementitious materials will be accepted on the basis of a manufacturer's certificate of compliance, accompanied by mill test reports, that the materials meet the requirements of the specification under which it is furnished.

##### 2.2.1.1 Portland Cement

ASTM C 150, Type II, low alkali.

#### 2.2.1.2 Pozzolan

ASTM C 618, Class F, with the loss on ignition limited to 6 percent.

#### 2.2.2 Aggregates for Concrete Grout

The fine aggregates for grout shall meet the quality and gradation requirements of ASTM C 33. The coarse aggregates shall meet the quality and gradation requirements of ASTM C 33, Class designation 4M, Size No. 67, 7 or 8.

#### 2.2.3 Curing Materials

Curing materials shall be as follows:

- a. Impervious Sheet Materials: ASTM C 171, type optional, except polyethylene film, if used, shall be white opaque.
- b. Membrane-Forming Curing Compound: ASTM C 309, Type 2.

#### 2.2.4 Water

Water for mixing and curing shall be fresh, clean, potable, and free from injurious amounts of oil, acid, salt, alkali, except that unpotable water may be used if it meets the requirements of COE CRD-C 400.

#### 2.2.5 Equipment

Batching and mixing equipment will be accepted on the basis of manufacturer's data which demonstrates compliance with the applicable specifications.

### PART 3 EXECUTION

#### 3.1 BASE PREPARATION

Areas on which stone is to be placed shall be graded and/or dressed to conform to cross sections shown on the contract drawings within an allowable tolerance of plus or minus 25 mm from the theoretical lines and grades. The prepared base shall be approved by the Contracting Officer. Where such areas are below the allowable minus tolerance limit they shall be brought to grade by fill and then compacted to a density equal to the adjacent in place material. No payment will be made for any material thus required. Immediately prior to placing the stone, the prepared base will be inspected by the Contracting Officer and no material shall be placed thereon until that area has been approved.

#### 3.2 PLACEMENT OF GROUTED RIPRAP

##### 3.2.1 Placement

Riprap shall be placed in a manner which will produce a well-graded mass of rock with the minimum practicable percentage of voids, and shall be

constructed, within the specified tolerance, to the lines and grades either shown on the contract drawings or staked in the field. A tolerance of not less than plus 25 mm from the slope lines and grades shown on the contract drawings will be allowed in the finished surface of the riprap except that the extreme of this tolerance shall not be continuous over an area greater than 18 m<sup>2</sup>. The average tolerance of the entire job shall have no more than 50 percent of the tolerances specified above. Riprap shall be placed to its full course thickness in one operation and in such manner as to avoid displacing the subgrade material. Placement shall begin at the bottom of the area to be covered and continue up slope. Subsequent loads of material shall be placed against previously placed material in such a manner as to ensure a relatively homogenous mass. The large stones shall be well distributed and the entire mass of stones in their final position shall be graded to conform to the gradation specified in paragraph RIPRAP, subparagraph GENERAL. The finished riprap shall be free from objectionable pockets of small stones and clusters of larger stones. Placing riprap in layers will not be permitted. Placing riprap by dumping it into chutes, or by similar methods likely to cause segregation of the various sizes, will not be permitted. Placing riprap by dumping it at the top of the slope and pushing it down the slope will not be permitted. No equipment shall be operated directly on the completed stone protection system. The desired distribution of the various sizes of stones throughout the mass shall be obtained by selective loading of the material at the quarry or other source; by controlled dumping of successive loads during final placing; or by other methods of placement which will produce the specified results. Each truckload shall be representative of the gradation requirements. Rearranging of individual stones will be required to the extent necessary to obtain a well-graded distribution of stone sizes as specified above. The Contractor shall maintain the stone protection until accepted by the Government and any material displaced prior to acceptance and due to the Contractor's negligence shall be replaced at his expense and to the lines and grades shown on the contract drawings.

### 3.2.2 Grouting of Riprap

Placement of grout shall be as specified in paragraph PRODUCING, CONVEYING AND PLACING GROUT.

### 3.3 GROUTING OF STONE PROTECTION

Placement of grout shall be as specified in paragraph PRODUCING, CONVEYING AND PLACING OF GROUT.

#### 3.3.1 Producing, Conveying and Placing of Grout

#### 3.3.2 Producing Grout

The batching and mixing equipment shall provide sufficient capacity to prevent cold joints. Materials shall be stockpiled and batched by methods that will prevent segregation or contamination of aggregates and insure accurate proportioning of the ingredients of the mixture. No mixing water in excess of the amount required by the job mix shall be added to the grout mixture during mixing, hauling, or after arrival at the delivery point, except as required and approved.

### 3.3.2.1 Ready-Mixed Concrete Grout

Ready-mixed concrete grout shall conform to ASTM C 94 except as otherwise specified.

### 3.3.2.2 Volumetric Batching and Continuous Mixing

Volumetric batching and mixing shall conform to ASTM C 685.

### 3.3.3 Preparation for Placing

The rock shall be flushed with water to remove the fines from the rock prior to placing the grout. The rock shall be kept moist just ahead of the actual placing, but no flowing or standing water shall be present during the grout operation. All equipment needed to place, protect, and cure the grout shall be at the placement site and in good operating condition. The entire preparation shall be accepted by the Contracting Office prior to placing the grout.

### 3.3.4 Conveying and Placing

#### 3.3.4.1 General

Grout placement shall not be permitted when, weather conditions prevent proper placement, except upon approval. The grout mixture shall not be placed until the stone protection has been inspected and approved. Grout shall be in place within 15 minutes after discharge from the mixer. Grout shall not be dropped more than 1.5 m vertically unless suitable equipment is used to prevent segregation.

#### 3.3.4.2 Conveying

When the grout is mixed and transported by a truck mixer, the grout shall be delivered to the site of the work and discharge shall be completed within 1-1/2 hours after introduction of the cement to the aggregate and water. When the air temperature is 29 degrees C or greater or under conditions contributing to quick stiffening of the grout, the time between the introduction of the cement and discharge of the grout shall not exceed 45 minutes. The Contracting Officer may allow a longer time, provided the setting time of the grout is increased a corresponding amount by the addition of an approved set-retarding admixture. Grout shall be deposited as close as possible to its final position by methods that will prevent segregation of the aggregates or loss of mortar.

#### 3.3.4.3 Placing

The riprap shall be kept moist just ahead of the actual grout placement, but the grout shall not be placed in standing or flowing water. Grout placed on inverts or other nearly level areas may be placed in one course. On slopes, the grout shall be placed in two (2) courses in successive lateral strips approximately 3 m in width starting at the toe of the slope and progressing to the top. The grout shall be delivered to the place of final deposit and discharged directly on the surface of the riprap, using a splash plate of metal or wood to prevent displacement of the rock directly

under the discharge. The flow of grout shall be directed with brooms, spades or baffles to prevent it from flowing excessively along the same path and to assure that all intermittent spaces are filled. Sufficient barring shall be done to loosen tight pockets of riprap and otherwise aid the penetration of grout so that all voids shall be filled and the grout fully penetrates the riprap from the base of the riprap layer to at least two-thirds of the thickness of the stone layer. All brooming on slopes shall be uphill and after the grout has stiffened, the entire surface shall be rebroomed to eliminate runs, to fill voids caused by sloughing, and to remove grout from the top surface and pockets or depressions of the upper stones.

#### 3.3.4.4 Cold-Weather Requirements

No grout placement shall be made when the ambient temperature is below 2 degrees C, nor if the ambient temperature is below 5 degrees C and falling.

Suitable covering and other means, as approved, shall be provided for maintaining the grout at a temperature of at least 10 degrees C for not less than 72 hours after placing and at a temperature above freezing for the remainder of the curing period. When freezing conditions prevail, riprap to be grouted must be covered and heated to a range of 5 degrees C to 16 degrees C for at least 24 hours prior to placing the grout. Salt, chemicals, or other foreign materials shall not be mixed with the grout to prevent freezing. Any grout damaged by freezing shall be removed and replaced at the expense of the Contractor.

#### 3.3.4.5 Hot Weather Requirements

When the rate of evaporation of surface moisture, as determined by use of Figure 2.1.5 of ACI 305R, is expected to exceed 100 g/m<sup>2</sup> per hour, provisions for windbreaks, shading, fog spraying, or wet covering with a light-colored material shall be made in advance of placement, and such protective measures shall be taken as quickly as finishing operations will allow.

#### 3.3.5 Curing and Protection of Grouted Stone Protection

Beginning immediately after placement and continuing for at least 7 days, all grout shall be cured and protected from premature drying, extremes in temperature, rapid temperature change, freezing, mechanical damage, and exposure to rain or flowing water. All materials and equipment needed for adequate curing and protection shall be available and at the site of the placement prior to the start of grout placement. After completion of any strip or panel, no workman or other load shall be permitted on the grouted surface for a period of twenty-four (24) hours. Exposed surfaces shall be kept continuously moist for the entire period, or until curing compound is applied. Preservation of moisture for grout surfaces shall be accomplished by one of the following methods:

- a. Continuous sprinkling and ponding.
- b. Application of absorptive mats or fabrics kept continuously wet.
- c. Application of sand kept continuously wet.

d. Application of impervious sheet material conforming to ASTM C 171.

e. Application of membrane-forming curing compound conforming to ASTM C 309. The compound shall be sprayed on the moist surface as soon as free water has disappeared, but shall not be applied to any surface until finishing of that surface is completed. The compound shall be applied at a uniform rate of not less than 300 ml/m<sup>2</sup> of surface and shall form a continuous adherent membrane over the entire surface. Curing compound shall not be applied to surfaces requiring bond to subsequently placed grout. If the membrane is damaged during the curing period, the damaged area shall be resprayed at the rate of application specified above.

### 3.4 TESTS AND INSPECTIONS

#### 3.4.1 Concrete Grout

##### 3.4.1.1 General

Individuals who sample and test grout as required by this section shall have demonstrated a knowledge and ability to perform the necessary test procedures equivalent to ACI minimum guidelines for certification of Concrete Transportation Construction Inspector or ACI Concrete Construction Inspector Level II, obtainable from the address and telephone number for ACI INTERNATIONAL specified in Section 01090 SOURCES FOR REFERENCE PUBLICATIONS.

##### 3.4.1.2 Preparations for Placing

Riprap shall be inspected in sufficient time prior to each grout placement by the Contractor in order to certify that it is ready to receive the grout.

##### 3.4.1.3 Air Content

Air Content shall be checked at least once during each shift that grout is placed. Samples shall be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 231. Whenever a test result is outside the specification limits, the grout shall not be delivered to the area to be grouted and an adjustment shall be made to the air-entrainment admixture.

##### 3.4.1.4 Slump

Slump shall be checked once during each shift that concrete grout is produced. Samples shall be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 143/C 143M.

##### 3.4.1.5 Placing

The placing foreman shall not permit placing to begin until he has verified that adequate equipment and workmen are available.

#### 3.4.2 Pre-Production

#### 3.4.2.1 Bulk Specific Gravity

Quantity determinations are contingent upon the range of bulk specific gravity (saturated surface dry (SSD) basis) of stone to be supplied. Therefore, during the process of selecting a source or sources of stone for the project, the Contractor shall make an investigation to determine the lowest and highest bulk specific gravity (SSD) of stone available at the source or sources he proposes to utilize for each gradation range of stone. Tests shall be performed at a Government approved testing laboratory in accordance with ASTM C 127. The testing results shall be submitted in accordance with paragraph SUBMITTALS. Test results which display an extraordinarily wide range of values may necessitate additional testing to determine whether the source contains stratas with stones of an acceptable range of bulk specific gravity. For Category I sources which have been acceptably tested not more than two years earlier, and the material is of an acceptable quality and bulk specific gravity, the Contracting Officer may waive the requirement for bulk specific gravity testing.

#### 3.4.2.2 Material Quality

Before selecting a source for preparation of a demonstration stockpile, the Contractor shall be reasonably certain that the source is capable of meeting the quality and source requirements specified in paragraphs SOURCES and EVALUATION TESTING OF STONE, including their respective subparagraphs.

#### 3.4.2.3 Borderline Material Quality

If the COR's evaluation of a demonstration stockpile results in not being able to determine by visual examination whether the material is acceptable or unacceptable, the COR will select at least one but not more than three representative stones from the demonstration stockpile to be prepared for shipment to the Government's laboratory for testing in accordance with paragraph EVALUATION TESTING OF STONE. Samples of stone groupings with a maximum size less than 230 kg shall contain at least two (2) stones representative of the higher limit of the stone weights specified. In addition, the sample shall be representative of the gradation specified and the minimum weight of the total sample shall be not less than 230 kg. The sampling and testing procedures shall be repeated for each strata being quarried. The Contractor shall ship the samples to the laboratory as specified in paragraph EVALUATION TESTING OF STONE. If the laboratory testing reveals the materials are unacceptable, the Contractor shall submit a replacement source for approval and proceed with the demonstration stockpile procedures anew.

#### 3.4.2.4 Reporting

Reporting shall be in accordance with paragraph GRADATION TEST.

-- End of Section --

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DIVISION 02 - SITE WORK

SECTION 02620

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## SECTION 02620

## SUBDRAINAGE SYSTEM AND WEEP HOLES

## 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

|             |  |
|-------------|--|
| ASTM D 2751 | (1996a) Acrylonitrile-Butadiene-Styrene<br>(ABS) Sewer Pipe and Fittings             |
| ASTM D 3034 | (1998) Type PSM Poly(Vinyl Chloride) (PVC)<br>Sewer Pipe and Fittings                |
| ASTM D 3212 | (1996a) Joints for Drain and Sewer Plastic<br>Pipes Using Flexible Elastomeric Seals |
| ASTM D 5034 | (1995) Breaking Strength and Elongation of<br>Textile Fabrics (Grab Test)            |

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings  
plan for placing the pipe; G, ED

## SD-04 Samples

Filter Fabric; G, ED  
Pipe for Subdrains; G, ED

Samples of filter fabric, pipe, and pipe fittings, before starting the work.

## SD-07 Certificates

Filter Fabric;  
Pipe for Subdrains;

Certifications from the manufacturers attesting that materials meet specification requirements. Certificates are required for drain pipe, drain tile, fittings, and filter fabric.

### 1.3 DELIVER, STORAGE, AND HANDLING

#### 1.3.1 Delivery and Storage

Materials delivered to site shall be inspected for damage, unloaded, and stored with minimum handling. Materials shall not be stored directly on the ground. The inside of pipes and fittings shall be kept free of dirt and debris. During shipment and storage, filter fabric shall be wrapped in burlap or similar heavy duty protective covering. The storage area shall protect the fabric from mud, soil, dust, and debris. Filter fabric materials that are not to be installed immediately shall not be stored in direct sunlight. Plastic pipe shall be installed within 6 months from the date of manufacture unless otherwise approved.

#### 1.3.2 Handling

Materials shall be handled in such a manner as to insure delivery to the trench in sound undamaged condition. Pipe shall be carried and not dragged to the trench.

## PART 2 PRODUCTS

### 2.1 PIPE FOR SUBDRAINS

Pipe for subdrains shall be of the types and sizes indicated.

#### 2.1.1 Plastic Pipe

Plastic pipe shall contain ultraviolet inhibitor to provide protection from exposure to direct sunlight.

##### 2.1.1.1 Acrylonitrile-Butadiene-Styrene (ABS) Piping

Acrylonitrile-butadiene-styrene (ABS) piping and fittings shall conform to ASTM D 2751, with maximum SDR of 35.

##### 2.1.1.2 Polyvinyl Chloride (PVC) Pipe and Fittings

Polyvinyl chloride (PVC) pipe and fittings shall conform to ASTM D 3034. Type PSM with a maximum SDR of 35, with flexible elastomeric joints.

##### 2.1.1.3 Pipe Perforations

Water inlet area shall be a minimum of 600 mm squared per linear meter (0.28 square inch per linear foot). The perforations shall face upward. Manufacturer's standard perforated pipe which essentially meets these requirements may be substituted with prior approval of the Contracting Officer.

- a. Circular Perforations in Plastic Pipe: Circular holes shall be cleanly cut not more than 6.35 mm (1/5 inch) or less than 4.75 mm (3/16 inch) in diameter and arranged in rows parallel to the longitudinal axis of the pipe. Perforations shall be approximately 76.2 mm (3 inches) center-to-center along rows. The rows shall be approximately 38.1 mm (1-1/2 inches) apart and arranged in a staggered pattern so that all perforations lie at the midpoint between perforations in adjacent rows. The rows shall be spaced over not more than 120 degrees of circumference. The spigot or tongue end of the pipe shall not be perforated for a length equal to the depth of the socket, and perforations shall continue at uniform spacing over the entire length of the pipe.
- b. Slotted Perforations in Plastic Pipe: Circumferential slots shall be cleanly cut so as not to restrict the inflow of water and uniformly spaced along the length and circumference of the tubing. Width of slots shall not exceed 6.35 mm (1/5 inch) nor be less than 4.75 mm (3/16 inch). The length of individual slots shall not exceed 100 mm (4 inch). Rows of slots shall be symmetrically spaced so that they are fully contained in the upper 120 degree arc of the pipe. Slots shall be centered in the valleys of the corrugations of profile wall pipe.

## 2.2 FILTER FABRIC

Filter fabric shall be a nonwoven needle punch pervious sheet of plastic yarn. The filter fabric shall provide an apparent opening size no finer than the No. 100 sieve and no coarser than the No. 50 sieve. The filaments shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of propylene, ethylene, or vinylidene-chloride, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistant to deterioration due to ultraviolet and heat exposure. The fabric shall have a minimum physical strength of 440 N per per inch) in any direction when tested in accordance with ASTM D 5034 using the grab test method with 645.2 square mm (1 square inch) jaws and a constant rate of travel of 304.8 mm (12 inches) per minute. Elongation at failure shall be between 15 and 70 percent. The fabric shall be constructed so that the filaments will retain their relative position with respect to each other.

## 2.3 SUBDRAIN FILTER AND BEDDING MATERIAL

Subdrain filter and bedding material shall be washed sand, sand and gravel, crushed stone, crushed stone screenings, or slag composed of hard, tough, durable particles free from adherent coatings. Filter material shall not contain corrosive agents, organic matter, or soft, friable, thin, or elongated particles and shall be evenly graded between the limits specified in TABLE I. Gradation curves will exhibit no abrupt changes in slope denoting skip or gap grading. Filter materials shall be clean and free from soil and foreign materials. Filter blankets found to be dirty or otherwise contaminated shall be removed and replaced with material meeting the specific requirements, at no additional cost to the Government.

TABLE I. FILTER GRADATION

| Sieve Size (millimeters) | Percent by Weight Passing |
|--------------------------|---------------------------|
| 63mm                     | 100                       |
| 50mm                     | 95-100                    |
| 37.5mm                   | 35-70                     |
| 25mm                     | 0-15                      |
| 12.5mm                   | 0-5                       |

### PART 3 EXECUTION

#### 3.1 INSTALLATION OF DRAIN MATERIAL, FILTER FABRIC AND PIPE FOR SUBDRAINS

##### 3.1.1 Drain Material

Drain material shall be placed, moistened, and spread to a uniform grade to the lines and grades indicated. Placing and spreading equipment shall be operated in such manner as to not disturb the underlying material. Water shall be added and the material manipulated with spreading equipment until a uniform density is achieved. After installation of the drain material, equipment shall not be operated over the blanket except for placement of filter material. Any drain material contaminated or rutted by equipment shall be removed and replaced with fresh drain material. At pipe drains, drain material shall be placed to pipe bed elevation. Any pipe displaced or damaged during placement of the drain material shall be replaced and realigned by the Contractor at no additional cost to the Government. The drain material shall be wrapped in filter fabric; the filter fabric shall be secured and have a minimum overlap of 0.3 meters. The Contractor shall submit his plan for placing the pipe (including the filter fabric wrap) to the Contracting Officer for approval.

##### 3.1.2 Pipe Laying

Each pipe shall be carefully inspected immediately before it is laid, and any damaged or defective pipe shall not be used. The pipe shall be placed in the bedding surface that is accurately shaped to conform to the lower 1/4 of the outside portion of the pipe. Perforated pipe shall be laid with the perforated side in the top 120 degrees of the pipe. Pipe shall be laid to the grades and alignment indicated or as directed. The laying shall proceed upgrade from the lower end of the pipe line. Pipe grade shall be maintained within 63.5 millimeters in 3 meters of that indicated.

##### 3.1.3 Joints

The joints between sections of perforated pipe shall be of a type that will hold the pipe securely in alignment and maintain the inner surfaces of abutting pipes flush and even. Solvent cement or elastomeric joints for Acrylonitrile-Butadiene-Styrene pipe shall be in accordance with ASTM D 2751. Dimensions and tolerances shall be in accordance with ASTM D 2751. Joints for PolyVinyl Chloride pipe shall be in accordance with ASTM D 3212.

### 3.2 TESTS

#### 3.2.1 Drain Material

##### 3.2.1.1 Points

Points on the individual grading curves obtained from representative samples of the drain material not only shall lie between the boundary limits as defined by smooth curves drawn through the tabulated grading limits plotted on a mechanical-analysis diagram but also shall exhibit no abrupt changes in slope denoting skip grading, scalping of certain sizes, or other irregularities which would be detrimental to the proper functioning of the drain and filter.

##### 3.2.1.2 Sampling and Testing

Sampling and testing of the drain material shall be performed by the Contractor to determine compliance of the installed materials with specified requirements in conformance with ASTM C 131, ASTM C 136, and ASTM D 75. Sampling and testing shall be performed at regular intervals with at least three tests being made for both the drain and filter materials. The location of after placement tests shall be as directed.

##### 3.2.1.3 Smoothness Test

The finished surface of the drain material shall not vary more than 12.5 millimeters from the established grade and in addition every area shall show no deviation greater than 12.5 millimeters when tested with a 3 meter straightedge.

-- End of Section --

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-- End of Section Table of Contents --

## SECTION 02630

## STORM-DRAINAGE SYSTEM

## 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

|             |  |
|-------------|--|
| ASTM C 76M  | (1999a) Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe (Metric)  |
| ASTM C 231  | (1997e1) Air Content of Freshly Mixed Concrete by the Pressure Method  |
| ASTM C 443M | (1998) Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets (Metric)  |
| ASTM C 789  | (1998) Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers   |
| ASTM C 850  | (1998) Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers with Less Than 2 Ft. of Cover Subjected to Highway Loadings |
| ASTM D 1557 | (1998) Laboratory Compaction Characteristics of Soil Using Modified Effort (2,700 kN-m/cu.m.)  |
| ASTM D 1751 | (1999) Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)              |
| ASTM D 1752 | (1984; R 1996e1) Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction                          |

## 1.2 DELIVERY, STORAGE, AND HANDLING

### 1.2.1 Delivery and Storage

Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. Materials shall not be stored directly on the ground. The inside of pipes and fittings shall be kept free of dirt and debris. Before, during, and after installation, plastic pipe and fittings shall be protected from any environment that would result in damage or deterioration to the material. The Contractor shall have a copy of the manufacturer's instructions available at the construction site at all times and shall follow these instructions unless directed otherwise by the Contracting Officer. Solvents, solvent compounds, lubricants, elastomeric gaskets, and any similar materials required to install plastic pipe shall be stored in accordance with the manufacturer's recommendations and shall be discarded if the storage period exceeds the recommended shelf life. Solvents in use shall be discarded when the recommended pot life is exceeded.

### 1.2.2 Handling

Materials shall be handled in a manner that ensures delivery to the trench in sound, undamaged condition. Pipe shall be carried to the trench, not dragged.

## 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-03 Product Data

Placing Pipe;  
PIPE FOR STORM DRAINS;

Printed copies of the manufacturer's recommendations for installation procedures of the material being placed, prior to installation.

#### SD-07 Certificates

Hydrostatic Test on Watertight Joints;  
Determination of Density;

Certified copies of test reports demonstrating conformance to applicable pipe specifications, before pipe is installed.

## PART 2 PRODUCTS

### 2.1 PIPE FOR STORM DRAINS

Pipe for storm drains shall be of the sizes indicated and shall conform to the requirements specified.

#### 2.1.1 Concrete Pipe

ASTM C 76M , Class IV.

### 2.2 DRAINAGE STRUCTURES

#### 2.2.1 Precast Reinforced Concrete Box

For highway loadings with 600 mm of cover or more or subjected to dead load only, ASTM C 789; for less than 600 mm of cover subjected to highway loading, ASTM C 850.

### 2.3 MISCELLANEOUS MATERIALS

#### 2.3.1 Concrete

Unless otherwise specified, concrete and reinforced concrete shall conform to the requirements for 25 MPa concrete under Section 03307 CONCRETE FOR MINOR STRUCTURES. The concrete mixture shall have air content by volume of concrete, based on measurements made immediately after discharge from the mixer, of 5 to 7 percent when maximum size of coarse aggregate exceeds 37.5 mm. Air content shall be determined in accordance with ASTM C 231. The concrete covering over steel reinforcing shall not be less than 25 mm thick for covers and not less than 40 mm thick for walls and flooring. Concrete covering deposited directly against the ground shall have a thickness of at least 75 mm between steel and ground. Expansion-joint filler material shall conform to ASTM D 1751, or ASTM D 1752, or shall be resin-impregnated fiberboard conforming to the physical requirements of ASTM D 1752.

#### 2.3.2 Mortar

Mortar for pipe joints, connections to other drainage structures, and brick or block construction shall conform to ASTM C 270, Type M, except that the maximum placement time shall be 1 hour. The quantity of water in the mixture shall be sufficient to produce a stiff workable mortar but in no case shall exceed 15 liters of water per sack of cement. Water shall be clean and free of harmful acids, alkalies, and organic impurities. The mortar shall be used within 30 minutes after the ingredients are mixed with water. The inside of the joint shall be wiped clean and finished smooth. The mortar head on the outside shall be protected from air and sun with a proper covering until satisfactorily cured.

#### 2.3.3 Precast Concrete Segmental Blocks

Precast concrete segmental block shall conform to ASTM C 139, not more than 200 mm thick, not less than 200 mm long, and of such shape that joints can be sealed effectively and bonded with cement mortar.

#### 2.3.4 Joints

##### 2.3.4.1 Flexible Watertight Joints

- a. Materials: Flexible watertight joints shall be made with plastic or rubber-type gaskets for concrete pipe. The design of joints and the physical requirements for plastic gaskets shall conform to AASHTO M 198, and rubber-type gaskets shall conform to ASTM C 443M.
- b. Test Requirements: Watertight joints shall be tested and shall meet test requirements of paragraph HYDROSTATIC TEST ON WATERTIGHT JOINTS. Rubber gaskets shall comply with the oil resistant gasket requirements of ASTM C 443M. Certified copies of test results shall be delivered to the Contracting Officer before gaskets or jointing materials are installed. Alternate types of watertight joint may be furnished, if specifically approved.

## 2.4 HYDROSTATIC TEST ON WATERTIGHT JOINTS

### 2.4.1 Concrete Pipe

A hydrostatic test shall be made on the watertight joint types as proposed.

Only one sample joint of each type needs testing; however, if the sample joint fails because of faulty design or workmanship, an additional sample joint may be tested. During the test period, gaskets or other jointing material shall be protected from extreme temperatures which might adversely affect the performance of such materials. Performance requirements for joints in reinforced concrete pipe shall conform to AASHTO M 198 or ASTM C 443M.

## PART 3 EXECUTION

### 3.1 EXCAVATION FOR STORM DRAINS, AND DRAINAGE STRUCTURES

Excavation of trenches, and for appurtenances and backfilling for storm drains, shall be in accordance with the applicable portions of Section 02300 "Earthwork and the requirements specified below.

#### 3.1.1 Trenching

The width of trenches at any point below the top of the pipe shall be not greater than the outside diameter of the pipe plus 300 mm to permit satisfactory jointing and thorough tamping of the bedding material under and around the pipe. Sheet piling and bracing, where required, shall be placed within the trench width as specified. Contractor shall not overexcavate.

#### 3.1.2 Removal of Unstable Material

Where wet or otherwise unstable soil incapable of properly supporting the pipe, as determined by the Contracting Officer, is unexpectedly encountered in the bottom of a trench, such material shall be removed to the depth required and replaced to the proper grade with material, compacted as provided in paragraph BACKFILLING. When removal of unstable material is due to the fault or neglect of the Contractor in his performance of shoring and sheet piling, water removal, or other specified requirements, such removal and replacement shall be performed at no additional cost to the government.

### 3.2 BEDDING

The bedding surface for the pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe free of protruding rock.

#### 3.2.1 Concrete Pipe Requirements

When no bedding class is specified or detailed on the drawings, concrete pipe shall be bedded in a soil foundation accurately shaped and rounded to conform to the lowest one-fourth of the outside portion of circular pipe or to the lower curved portion of pipe arch for the entire length of the pipe or pipe arch. When necessary, the bedding shall be tamped. Bell holes and depressions for joints shall be not more than the length, depth, and width required for properly making the particular type of joint.

### 3.3 PLACING PIPE

Each pipe shall be thoroughly examined before being laid; defective or damaged pipe shall not be used. Pipelines shall be laid to the grades and alignment indicated. Proper facilities shall be provided for lowering sections of pipe. Pipe shall not be laid in water, and pipe shall not be laid when conditions or weather are unsuitable for such work. Diversion of drainage or dewatering of trenches during construction shall be provided as necessary.

#### 3.3.1 Concrete Pipe

Laying shall proceed upgrade with spigot ends of bell-and-spigot pipe and tongue ends of tongue-and-groove pipe pointing in the direction of the flow.

### 3.4 JOINTING

#### 3.4.1 Concrete Pipe

##### 3.4.1.1 Cement-Mortar Bell-and-Spigot Joint

The first pipe shall be bedded to the established gradeline, with the bell end placed upstream. The interior surface of the bell shall be thoroughly cleaned with a wet brush and the lower portion of the bell filled with mortar as required to bring inner surfaces of abutting pipes flush and even. The spigot end of each subsequent pipe shall be cleaned with a wet brush and uniformly matched into a bell so that sections are closely fitted. After each section is laid, the remainder of the joint shall be filled with mortar, and a bead shall be formed around the outside of the joint with sufficient additional mortar. If mortar is not sufficiently stiff to prevent appreciable slump before setting, the outside of the joint shall be wrapped or bandaged with cheesecloth to hold mortar in place.

##### 3.4.1.2 Cement-Mortar Tongue-and-Groove Joint

The first pipe shall be bedded carefully to the established gradeline with the groove upstream. A shallow excavation shall be made underneath the

pipe at the joint and filled with mortar to provide a bed for the pipe. The grooved end of the first pipe shall be thoroughly cleaned with a wet brush, and a layer of soft mortar applied to the lower half of the groove. The tongue of the second pipe shall be cleaned with a wet brush; while in horizontal position, a layer of soft mortar shall be applied to the upper half of the tongue. The tongue end of the second pipe shall be inserted in the grooved end of the first pipe until mortar is squeezed out on interior and exterior surfaces. Sufficient mortar shall be used to fill the joint completely and to form a bead on the outside.

#### 3.4.1.3 Flexible Watertight Joints

Gaskets and jointing materials shall be as recommended by the particular manufacturer in regard to use of lubricants, cements, adhesives, and other special installation requirements. Surfaces to receive lubricants, cements, or adhesives shall be clean and dry. Gaskets and jointing materials shall be affixed to the pipe not more than 24 hours prior to the installation of the pipe, and shall be protected from the sun, blowing dust, and other deleterious agents at all times. Gaskets and jointing materials shall be inspected before installing the pipe; any loose or improperly affixed gaskets and jointing materials shall be removed and replaced. The pipe shall be aligned with the previously installed pipe, and the joint pushed home. If, while the joint is being made the gasket becomes visibly dislocated the pipe shall be removed and the joint remade.

#### 3.4.1.4 External Sealing Band Joint for Noncircular Pipe

Surfaces to receive sealing bands shall be dry and clean. Bands shall be installed in accordance with manufacturer's recommendations.

### 3.5 DRAINAGE STRUCTURES

#### 3.5.1 Inlets

Construction shall be of reinforced concrete or plain concrete; complete with frames and covers or gratings. Pipe connections to concrete inlets shall be made with flexible, watertight connectors.

#### 3.5.2 Walls and Headwalls

Construction shall be as indicated.

### 3.6 BACKFILLING

#### 3.6.1 Backfilling Pipe in Trenches

After the pipe has been properly bedded, selected material from excavation or borrow, at a moisture content that will facilitate compaction, shall be placed along both sides of pipe in layers not exceeding 150 mm in compacted depth. The backfill shall be brought up evenly on both sides of pipe for the full length of pipe. The fill shall be thoroughly compacted under the haunches of the pipe. Each layer shall be thoroughly compacted

with mechanical tampers or rammers. This method of filling and compacting shall continue until the fill has reached an elevation of at least 300 mm above the top of the pipe. The remainder of the trench shall be backfilled and compacted by spreading and rolling or compacted by mechanical rammers or tampers in layers not exceeding 300 millimeters. Tests for density shall be made as necessary to ensure conformance to the compaction requirements specified below. Where it is necessary, in the opinion of the Contracting Officer, that sheeting or portions of bracing used be left in place, the contract will be adjusted accordingly. Untreated sheeting shall not be left in place beneath structures or pavements.

### 3.6.2 Backfilling Pipe in Fill Sections

For pipe placed in fill sections, backfill material and the placement and compaction procedures shall be as specified below. The fill material shall be uniformly spread in layers longitudinally on both sides of the pipe, not exceeding 150 mm in compacted depth, and shall be compacted by rolling parallel with pipe or by mechanical tamping or ramming. Prior to commencing normal filling operations, the crown width of the fill at a height of 300 mm above the top of the pipe shall extend a distance of not less than twice the outside pipe diameter on each side of the pipe or 4 m, whichever is less. After the backfill has reached at least 300 mm above the top of the pipe, the remainder of the fill shall be placed and thoroughly compacted in layers not exceeding 300 mm.

### 3.6.3 Movement of Construction Machinery

When compacting by rolling or operating heavy equipment parallel with the pipe, displacement of or injury to the pipe shall be avoided. Movement of construction machinery over a culvert or storm drain at any stage of construction shall be at the Contractor's risk. Any damaged pipe shall be repaired or replaced.

### 3.6.4 Compaction

#### 3.6.4.1 General Requirements

#### 3.6.4.2 Minimum Density and Moisture Content

Backfill over and around the pipe and backfill around and adjacent to drainage structures shall be compacted to at least 90 percent of maximum density at a moisture content between plus or minus 2 percent of optimum moisture.

### 3.6.5 Determination of Density

Testing shall be the responsibility of the Contractor and performed at no additional cost to the Government. Testing shall be performed by an approved commercial testing laboratory or by the Contractor subject to approval. Tests shall be performed in sufficient number to ensure that specified density is being obtained. Laboratory tests for moisture-density relations shall be made in accordance with ASTM D 1557 except that mechanical tampers may be used provided the results are correlated with

those obtained with the specified hand tamper. Test results shall be furnished the Contracting Officer. 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.

-- End of Section --

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## SECTION 02722

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-- End of Section Table of Contents --

## SECTION 02722

## AGGREGATE BASE COURSE

## 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

|             |  |
|-------------|--|
| ASTM C 117  | (1995) Materials Finer Than 75 micrometer (No. 200) Sieve in Mineral Aggregates by Washing                             |
| ASTM C 127  | (1988; R 1993) Specific Gravity and Absorption of Course Aggregate   |
| ASTM C 128  | (1993) Specific Gravity and Absorption of Fine Aggregate   |
| ASTM C 131  | (1996) Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine      |
| ASTM C 136  | (1996a) Sieve Analysis of Fine and Coarse Aggregates   |
| ASTM D 75   | (1987; R 1992) Sampling Aggregates   |
| ASTM D 1556 | (1990; R 1996) Density and Unit Weight of Soil in Place by the Sand-Cone Method  |
| ASTM D 1557 | (1991) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu. ft. (2,700 kN-m/cu. m.)) |
| ASTM D 2216 | (1998) Laboratory Determination of Water (Moisture) Content of Soil and Rock   |
| ASTM D 2487 | (1993) Classification of Soils for Engineering Purposes (Unified Soil Classification System)                           |
| ASTM D 4318 | (1995a) Liquid Limit, Plastic Limit, and   |

## Plasticity Index of Soils

ASTM E 11 (1995) Wire Cloth Sieves for Testing Purposes

## 1.2 DEFINITIONS

For the purposes of this specification, the following definitions apply.

## 1.2.1 Aggregate Base Course

Aggregate base course (ABC) is well graded, durable aggregate uniformly moistened and mechanically stabilized by compaction.

## 1.2.2 Degree of Compaction

Degree of compaction is the ratio of the field dry density to the maximum dry density determined in the laboratory, expressed as a percentage of the maximum density. The field dry density shall be determined by ASTM D 1556. The laboratory maximum dry density shall be determined by ASTM D 1557.

## 1.2.3 Moisture Content

Moisture content is the ratio of the water to the weight of the solid matter expressed as a percent and shall be determined by ASTM D 2216.

## 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-03 Product Data

Plant, Equipment, and Tools;

List of proposed equipment to be used in performance of construction work, including descriptive data.

## SD-06 Test Reports

Sampling and testing;  
Field Density Tests;

Calibration curves and related test results prior to using the device or equipment being calibrated. Copies of field test results within 24 hours after the tests are performed. Certified copies of test results for approval not less than 30 days before material is required for the work.

## 1.4 SAMPLING AND TESTING

Sampling and testing shall be the responsibility of the Contractor. Sampling and testing shall be performed by a testing laboratory approved in accordance with Section 01451 CONTRACTOR QUALITY CONTROL. Work requiring testing will not be permitted until the testing laboratory has been inspected and approved. The materials shall be tested to establish compliance with the specified requirements; testing shall be performed at the specified frequency. The Contracting Officer may specify the time and location of the tests. Copies of test results shall be furnished to the Contracting Officer within 24 hours of completion of the tests.

#### 1.4.1 Sampling

Samples for laboratory testing shall be taken in conformance with ASTM D 75. When deemed necessary, the sampling will be observed by the Contracting Officer.

#### 1.4.2 Tests

The following tests shall be performed in conformance with the applicable standards listed.

##### 1.4.2.1 Sieve Analysis

Sieve analysis shall be made in conformance with ASTM C 117 and ASTM C 136. Sieves shall conform to ASTM E 11.

##### 1.4.2.2 Liquid Limit and Plasticity Index

Liquid limit and plasticity index shall be determined in accordance with ASTM D 4318.

##### 1.4.2.3 Moisture-Density Determinations

The maximum density and optimum moisture content shall be determined in accordance with ASTM D 1557.

##### 1.4.2.4 Field Density Tests

Density shall be field measured in accordance with ASTM D 1556. For the method presented in ASTM D 1556 the base plate as shown in the drawing shall be used.

##### 1.4.2.5 Wear Test

Wear tests shall be made on ABC course material in conformance with ASTM C 131.

##### 1.4.2.6 Field Moisture Content

Field moisture content shall be determined in accordance with ASTM D 2216.

#### 1.4.3 Testing Frequency

#### 1.4.3.1 Initial Tests

One of each of the following tests shall be performed on the proposed material prior to commencing construction to demonstrate that the proposed material meets all specified requirements when furnished. If materials from more than one source are going to be utilized, this testing shall be completed for each source.

- a. Sieve Analysis including 0.02 mm size material.
- b. Liquid limit and plasticity index moisture-density relationship.
- c. Moisture-density relationship.
- d. Wear.

#### 1.4.3.2 In Place Tests

One of each of the following tests shall be performed on samples taken from the placed and compacted ABC. Samples shall be taken and tested at the rates indicated.

- a. Density tests shall be performed on every lift of material placed and at a frequency of one set of tests for every 250 square meters , or portion thereof, of completed area.
- b. Sieve Analysis including 0.02 mm size material shall be performed for every 500 metric tons, or portion thereof, of material placed.
- c. Liquid limit and plasticity index tests shall be performed at the same frequency as the sieve analysis.

#### 1.4.4 Approval of Material

The source of the material shall be selected 30 days prior to the time the material will be required in the work. Tentative approval of material will be based on initial test results. Final approval of the materials will be based on sieve analysis, liquid limit, and plasticity index tests performed on samples taken from the completed and fully compacted ABC.

#### 1.5 WEATHER LIMITATIONS

Construction shall be done when the atmospheric temperature is above 2 degrees C. When the temperature falls below 2 degrees C, the Contractor shall protect all completed areas by approved methods against detrimental effects of freezing. Completed areas damaged by freezing, rainfall, or other weather conditions shall be corrected to meet specified requirements.

#### 1.6 PLANT, EQUIPMENT, AND TOOLS

All plant, equipment, and tools used in the performance of the work will be

subject to approval before the work is started and shall be maintained in satisfactory working condition at all times. The equipment shall be adequate and shall have the capability of producing the required compaction, meeting grade controls, thickness control, and smoothness requirements as set forth herein.

## PART 2 PRODUCTS

### 2.1 AGGREGATES

The ABC shall consist of clean, sound, durable particles of crushed stone, crushed gravel, crushed recycled concrete, angular sand, or other approved material. ABC shall be free of lumps of clay, organic matter, and other objectionable materials or coatings. The portion retained on the 4.75 mm sieve shall be known as coarse aggregate; that portion passing the 4.75 mm sieve shall be known as fine aggregate.

#### 2.1.1 Coarse Aggregate

Coarse aggregates shall be angular particles of uniform density. When the coarse aggregate is supplied from more than one source, aggregate from each source shall meet the specified requirements and shall be stockpiled separately.

a. Crushed Gravel: Crushed gravel shall be manufactured by crushing gravels, and shall meet all the requirements specified below.

b. Crushed Stone: Crushed stone shall consist of freshly mined quarry rock, and shall meet all the requirements specified below.

c. Crushed Recycled Concrete: Crushed recycled concrete shall consist of previously hardened portland cement concrete or other concrete containing pozzolanic binder material. The recycled material shall be free of all reinforcing steel, bituminous concrete surfacing, and any other foreign material and shall be crushed and processed to meet the required gradations for coarse aggregate. Crushed recycled concrete shall meet all other applicable requirements specified below.

##### 2.1.1.1 Aggregate Base Course

ABC coarse aggregate shall not show more than 50 percent loss when subjected to the Los Angeles abrasion test in accordance with ASTM C 131. The amount of flat and elongated particles shall not exceed 30 percent. A flat particle is one having a ratio of width to thickness greater than 3; an elongated particle is one having a ratio of length to width greater than 3. In the portion retained on each sieve specified, the crushed aggregates shall contain at least 50 percent by weight of crushed pieces having two or more freshly fractured faces with the area of each face being at least equal to 75 percent of the smallest midsectional area of the piece. When two fractures are contiguous, the angle between planes of the fractures must be at least 30 degrees in order to count as two fractured faces. Crushed gravel shall be manufactured from gravel particles 50 percent of which, by weight, are retained on the maximum size sieve listed in TABLE 1.

2.1.2 Fine Aggregate

Fine aggregates shall be angular particles of uniform density. When the fine aggregate is supplied from more than one source, aggregate from each source shall meet the specified requirements.

2.1.2.1 Aggregate Base Course

ABC fine aggregate shall consist of screenings, angular sand, crushed recycled concrete fines, or other finely divided mineral matter processed or naturally combined with the coarse aggregate.

2.1.3 Gradation Requirements

The specified gradation requirements shall apply to the completed base course. The aggregates shall have a maximum size of 25 mm and shall be continuously well graded within the limits specified in TABLE 1. Sieves shall conform to ASTM E 11.

TABLE 1. GRADATION OF AGGREGATES

Percentage by Weight Passing Square-Mesh Sieve

| Sieve Designation | Percentage by Weight Passing |
|-------------------|------------------------------|
| 25.0 mm           | 100                          |
| 19.0 mm           | 90-100                       |
| 9.5 mm            | 50-80                        |
| 4.75 mm           | 35-55                        |
| 0.600 mm          | 10-30                        |
| 0.075 mm          | 2-9                          |

NOTE 1: Particles having diameters less than 0.02 mm shall not be in excess of 3 percent by weight of the total sample tested.

NOTE 2: The values are based on aggregates of uniform specific gravity. If materials from different sources are used for the coarse and fine aggregates, they shall be tested in accordance with ASTM C 127 and ASTM C 128 to determine their specific gravities. If the specific gravities vary by more than 10 percent, the percentages passing the various sieves shall be corrected as directed by the Contracting Officer.

2.1.4 Liquid Limit and Plasticity Index

Liquid limit and plasticity index requirements shall apply to the completed course and shall also apply to any component that is blended to meet the required gradation. The portion of any component or of the completed course passing the 0.425 mm sieve shall be either nonplastic or have a liquid limit not greater than 25 and a plasticity index not greater than 5.

### PART 3 EXECUTION

#### 3.1 GENERAL REQUIREMENTS

When the ABC is constructed in more than one layer, the previously constructed layer shall be cleaned of loose and foreign matter by sweeping with power sweepers or power brooms, except that hand brooms may be used in areas where power cleaning is not practicable. Adequate drainage shall be provided during the entire period of construction to prevent water from collecting or standing on the working area. Line and grade stakes shall be provided as necessary for control. Grade stakes shall be in lines parallel to the centerline of the area under construction and suitably spaced for string lining.

#### 3.2 OPERATION OF AGGREGATE SOURCES

Aggregates shall be obtained from offsite sources.

#### 3.3 STOCKPILING MATERIAL

Prior to stockpiling of material, storage sites shall be cleared and leveled by the Contractor. All materials, including approved material available from excavation and grading, shall be stockpiled in the manner and at the locations designated. Aggregates shall be stockpiled on the cleared and leveled areas designated by the Contracting Officer to prevent segregation. Materials obtained from different sources shall be stockpiled separately.

#### 3.4 PREPARATION OF UNDERLYING COURSE

Prior to constructing the ABC, the underlying course or subgrade shall be cleaned of all foreign substances. At the time of construction of the ABC, the underlying course shall contain no frozen material. The surface of the underlying course or subgrade shall meet specified compaction and surface tolerances. The underlying course shall conform to Section 02300 EARTHWORK. Ruts or soft yielding spots in the underlying courses, areas having inadequate compaction, and deviations of the surface from the requirements set forth herein shall be corrected by loosening and removing soft or unsatisfactory material and by adding approved material, reshaping to line and grade, and recompacting to specified density requirements. For cohesionless underlying courses containing sands or gravels, as defined in ASTM D 2487, the surface shall be stabilized prior to placement of the ABC.

Stabilization shall be accomplished by mixing ABC into the underlying course and compacting by approved methods. The stabilized material shall be considered as part of the underlying course and shall meet all requirements of the underlying course. The finished underlying course shall not be disturbed by traffic or other operations and shall be maintained by the Contractor in a satisfactory condition until the ABC is placed.

#### 3.5 INSTALLATION

##### 3.5.1 Mixing the Materials

The coarse and fine aggregates shall be mixed in a stationary plant, or in a traveling plant or bucket loader on an approved paved working area. The Contractor shall make adjustments in mixing procedures or in equipment as directed to obtain true grades, to minimize segregation or degradation, to obtain the required water content, and to insure a satisfactory ABC meeting all requirements of this specification.

#### 3.5.2 Placing

The mixed material shall be placed on the prepared subgrade or subbase in layers of uniform thickness with an approved spreader. When a compacted layer 150 mm or less in thickness is required, the material shall be placed in a single layer. When a compacted layer in excess of 150 mm is required, the material shall be placed in layers of equal thickness. No layer shall exceed 150 mm or less than 75mm when compacted. The layers shall be so placed that when compacted they will be true to the grades or levels required with the least possible surface disturbance. Where the ABC is placed in more than one layer, the previously constructed layers shall be cleaned of loose and foreign matter by sweeping with power sweepers, power brooms, or hand brooms, as directed. Such adjustments in placing procedures or equipment shall be made as may be directed to obtain true grades, to minimize segregation and degradation, to adjust the water content, and to insure an acceptable ABC.

#### 3.5.3 Grade Control

The finished and completed ABC shall conform to the lines, grades, and cross sections shown. Underlying material(s) shall be excavated and prepared at sufficient depth for the required ABC thickness so that the finished ABC with the subsequent surface course will meet the designated grades.

#### 3.5.4 Edges of Base Course

Approved fill material shall be placed along the outer edges of ABC in sufficient quantities to compact to the thickness of the course being constructed, or to the thickness of each layer in a multiple layer course, allowing in each operation at least a 600 mm width of this material to be rolled and compacted simultaneously with rolling and compacting of each layer of ABC. If this base course material is to be placed adjacent to another pavement section, then the layers for both of these sections shall be placed and compacted along this edge at the same time.

#### 3.5.5 Compaction

Each layer of the ABC shall be compacted as specified with approved compaction equipment. Water content shall be maintained at optimum water content determined from laboratory tests as specified in paragraph SAMPLING AND TESTING. Rolling shall begin at the outside edge of the surface and proceed to the center, overlapping on successive trips at least one-half the width of the roller. Alternate trips of the roller shall be slightly different lengths. Speed of the roller shall be such that displacement of the aggregate does not occur. In all places not accessible to the rollers, the mixture shall be compacted with hand-operated power tampers.

Compaction shall continue until each layer has a degree of compaction that is at least 100 percent of laboratory maximum density through the full depth of the layer. The Contractor shall make such adjustments in compacting or finishing procedures as may be directed to obtain true grades, to minimize segregation and degradation, to reduce or increase water content, and to ensure a satisfactory ABC. Any materials that are found to be unsatisfactory shall be removed and replaced with satisfactory material or reworked, as directed, to meet the requirements of this specification.

#### 3.5.6 Thickness

Compacted thickness of the aggregate course shall be as indicated. No individual layer shall exceed 150 mm nor be less than 75 mm in compacted thickness. The total compacted thickness of the ABC course shall be within 13 mm of the thickness indicated. Where the measured thickness is more than 13 mm deficient, such areas shall be corrected by scarifying, adding new material of proper gradation, reblading, and recompacting as directed. Where the measured thickness is more than 13 mm thicker than indicated, the course shall be considered as conforming to the specified thickness requirements. Average job thickness shall be the average of all thickness measurements taken for the job, but shall be within 6 mm of the thickness indicated. The total thickness of the ABC course shall be measured at intervals in such a manner as to ensure one measurement for each 500 square meters of base course. Measurements shall be made in 75 mm diameter test holes penetrating the base course.

#### 3.5.7 Finishing

The surface of the top layer of ABC shall be finished after final compaction by cutting any overbuild to grade and rolling with a steel-wheeled roller. Thin layers of material shall not be added to the top layer of base course to meet grade. If the elevation of the top layer of ABC is 13 mm or more below grade, then the top layer should be scarified to a depth of at least 75 mm and new material shall be blended in, compacted and proof rolled to bring to grade. Adjustments to rolling and finishing procedures shall be made as directed to minimize segregation and degradation, obtain grades, maintain moisture content, and insure an acceptable base course. Should the surface become rough, corrugated, uneven in texture, or traffic marked prior to completion, the unsatisfactory portion shall be scarified, reworked and recompacted or it shall be replaced as directed.

#### 3.5.8 Smoothness

The surface of the top layer shall show no deviations in excess of 10 mm when tested with a 3.05 meter straightedge. Measurements shall be taken in successive positions parallel to the centerline of the area to be paved. Measurements shall also be taken perpendicular to the centerline at 15 meter intervals. Deviations exceeding this amount shall be corrected by removing material and replacing with new material, or by reworking existing material and compacting it to meet these specifications.

### 3.6 TRAFFIC

Completed portions of the ABC course may be opened to limited traffic, provided there is no marring or distorting of the surface by the traffic. Heavy equipment shall not be permitted except when necessary to construction, and then the area shall be protected against marring or damage to the completed work.

### 3.7 MAINTENANCE

The ABC shall be maintained in a satisfactory condition until accepted. Maintenance shall include immediate repairs to any defects and shall be repeated as often as necessary to keep the area intact. Any area of ABC that is damaged shall be reworked or replaced as necessary to comply with this specification.

### 3.8 DISPOSAL OF UNSATISFACTORY MATERIALS

Any unsuitable materials that must be removed shall be disposed of as directed. No additional payments will be made for materials that must be replaced.

-- End of Section --

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## SECTION 02741

## HOT-MIX ASPHALT (HMA) FOR ROADS

## 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

|             |   |
|-------------|---|
| ASTM C 88   | (1999a) Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate                                     |
| ASTM C 117  | (1995) Materials Finer than 75 micrometer (No. 200) Sieve in Mineral Aggregates by Washing                        |
| ASTM C 131  | (1996) Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine |
| ASTM C 136  | (1996a) Sieve Analysis of Fine and Coarse Aggregates  |
| ASTM C 566  | (1997) Evaporable Total Moisture Content of Aggregate by Drying   |
| ASTM C 1252 | (1998) Uncompacted Void Content of Fine Aggregate (as Influenced by Particle Shape, Surface Texture, and Grading) |
| ASTM D 242  | (1995) Mineral Filler for Bituminous Paving Mixtures  |
| ASTM D 995  | (1995b) Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures  |
| ASTM D 1461 | (1985) Moisture or Volatile Distillates in Bituminous Paving Mixtures   |
| ASTM D 2419 | (1995) Sand Equivalent Value of Soils and Fine Aggregate  |
| ASTM D 2489 | (1984; R 1994e1) Degree of Particle Coating of Bituminous-Aggregate Mixtures                                      |
| ASTM D 2950 | (1997) Density of Bituminous Concrete in  |

## Place by Nuclear Method

|                     |   |
|---------------------|---|
| ASTM D 3381         | (1999) Viscosity-Graded Asphalt Cement for Use in Pavement Construction                         |
| ASTM D 4791         | (1999) Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate |
| ASTM D 4867/D 4867M | (1996) Effect of Moisture on Asphalt Concrete Paving Mixtures                                   |
| ASTM D 5444         | (1998) Mechanical Size Analysis of Extracted Aggregate  |
| AI MS-2             | (1997) Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types                          |

## CORPS OF ENGINEERS (COE)

|               |   |
|---------------|---|
| COE CRD-C 171 | (1995) Test Method for Determining Percentage of Crushed Particles in Aggregate |
|---------------|---|

## 1.2 DESCRIPTION OF WORK

The work shall consist of pavement courses composed of mineral aggregate and asphalt material heated and mixed in a central mixing plant and placed on a prepared course. HMA designed and constructed in accordance with this section shall conform to the lines, grades, thicknesses, and typical cross sections shown on the drawings. Each course shall be constructed to the depth, section, or elevation required by the drawings and shall be rolled, finished, and approved before the placement of the next course.

## 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-03 Product Data

Mix Design; G, ED.

Proposed JMF.

Contractor Quality Control; G, RE.

Quality control plan.

## SD-06 Test Reports

Aggregates; G, ED.  
QC Monitoring; .

Aggregate and QC test results.

SD-07 Certificates

Asphalt Cement Binder ; G, ED.

Copies of certified test data.

#### 1.4 ASPHALT MIXING PLANT

Plants used for the preparation of hot-mix asphalt shall conform to the requirements of ASTM D 995 with the following changes:

a. Truck Scales. The asphalt mixture shall be weighed on approved certified scales at the Contractor's expense. Scales shall be inspected and sealed at least annually by an approved calibration laboratory.

b. Testing Facilities. The Contractor shall provide laboratory facilities at the plant for the use of the Government's acceptance testing and the Contractor's quality control testing.

c. Inspection of Plant. The Contracting Officer shall have access at all times, to all areas of the plant for checking adequacy of equipment; inspecting operation of the plant; verifying weights, proportions, and material properties; checking the temperatures maintained in the preparation of the mixtures and for taking samples. The Contractor shall provide assistance as requested, for the Government to procure any desired samples.

#### 1.5 HAULING EQUIPMENT

Trucks used for hauling hot-mix asphalt shall have tight, clean, and smooth metal beds. To prevent the mixture from adhering to them, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other approved material. Petroleum based products shall not be used as a release agent. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers (tarps) shall be securely fastened.

#### 1.6 ASPHALT PAVERS

Asphalt pavers shall be self-propelled, with an activated screed, heated as necessary, and shall be capable of spreading and finishing courses of hot-mix asphalt which will meet the specified thickness, smoothness, and grade. The paver shall have sufficient power to propel itself and the hauling equipment without adversely affecting the finished surface.

##### 1.6.1 Receiving Hopper

The paver shall have a receiving hopper of sufficient capacity to permit a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed without segregation. The screed shall effectively produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture.

#### 1.6.2 Automatic Grade Controls

If an automatic grade control device is used, the paver shall be equipped with a control system capable of automatically maintaining the specified screed elevation. The control system shall be automatically actuated from either a reference line and/or through a system of mechanical sensors or sensor-directed mechanisms or devices which will maintain the paver screed at a predetermined transverse slope and at the proper elevation to obtain the required surface. The transverse slope controller shall be capable of maintaining the screed at the desired slope within plus or minus 0.1 percent. A transverse slope controller shall not be used to control grade.

The controls shall be capable of working in conjunction with any of the following attachments:

- a. Ski-type device of not less than 9.14 m in length.
- b. Taut stringline set to grade.
- c. Short ski or shoe for joint matching.
- d. Laser control.

#### 1.7 ROLLERS

Rollers shall be in good condition and shall be operated at slow speeds to avoid displacement of the asphalt mixture. The number, type, and weight of rollers shall be sufficient to compact the mixture to the required density while it is still in a workable condition. Equipment which causes excessive crushing of the aggregate shall not be used.

#### 1.8 WEATHER LIMITATIONS

The hot-mix asphalt shall not be placed upon a wet surface or when the surface temperature of the underlying course is less 7 degrees C. The temperature requirement may be waived by the Contracting Officer, if requested; however, all other requirements, including compaction, shall be met.

### PART 2 PRODUCTS

#### 2.1 AGGREGATES

Aggregates shall consist of crushed stone, crushed gravel, screenings, natural sand and mineral filler, as required. The portion of material retained on the 4.75 mm sieve is coarse aggregate. The portion of material passing the 4.75 mm sieve and retained on the 0.075 mm sieve is fine aggregate. The portion passing the 0.075 mm sieve is defined as

mineral filler. All aggregate test results and samples shall be submitted to the Contracting Officer at least 14 days prior to start of construction.

#### 2.1.1 Coarse Aggregate

Coarse aggregate shall consist of sound, tough, durable particles, free from films of material that would prevent thorough coating and bonding with the asphalt material and free from organic matter and other deleterious substances. All individual coarse aggregate sources shall meet the following requirements:

a. The percentage of loss shall not be greater than 45 percent after 500 revolutions when tested in accordance with ASTM C 131.

b. The percentage of loss shall not be greater than 18 percent after five cycles when tested in accordance with ASTM C 88 using magnesium sulfate.

c. At least 75 percent by weight of coarse aggregate shall have at least two or more fractured faces when tested in accordance with COE CRD-C 171. Fractured faces shall be produced by crushing.

d. The particle shape shall be essentially cubical and the aggregate shall not contain more than 20% percent, by weight, of flat and elongated particles (3:1 ratio of maximum to minimum) when tested in accordance with ASTM D 4791.

#### 2.1.2 Fine Aggregate

Fine aggregate shall consist of clean, sound, tough, durable particles. The aggregate particles shall be free from coatings of clay, silt, or any objectionable material and shall contain no clay balls. All individual fine aggregate sources shall have a sand equivalent value not less than 45 when tested in accordance with ASTM D 2419.

The fine aggregate portion of the blended aggregate shall have an uncompacted void content not less than 43.0 percent when tested in accordance with ASTM C 1252 Method A.

#### 2.1.3 Mineral Filler

Mineral filler shall be nonplastic material meeting the requirements of ASTM D 242.

#### 2.1.4 Aggregate Gradation

The combined aggregate gradation shall conform to gradations specified in Table 1, when tested in accordance with ASTM C 136 and ASTM C 117.

Table 1. Aggregate Gradation

| <u>Sieve Size, mm</u> | <u>Percent Passing<br/>by Weight</u> |
|-----------------------|--------------------------------------|
| 19.0                  | 100                                  |
| 12.5                  | 95-100                               |
| 9.5                   | 72-88                                |
| 4.75                  | 46-60                                |
| 2.36                  | 28-42                                |
| 0.60                  | 15-27                                |
| 0.30                  | 10-20                                |
| 0.075                 | 2-7                                  |

## 2.2 ASPHALT CEMENT BINDER

Asphalt cement binder shall conform to ASTM D 3381 Table 3, Grade AR-4000 or AR-8000. Test data indicating grade certification shall be provided by the supplier at the time of delivery of each load to the mix plant. Copies of these certifications shall be submitted to the Contracting Officer. The supplier is defined as the last source of any modification to the binder. The Contracting Officer may sample and test the binder at the mix plant at any time before or during mix production.

## 2.3 MIX DESIGN

The Contractor shall develop the mix design. The asphalt mix shall be composed of a mixture of well-graded aggregate, mineral filler if required, and asphalt material. The aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula (JMF). No hot-mix asphalt for payment shall be produced until a JMF has been approved. The hot-mix asphalt shall be designed using procedures contained in AI MS-2 and the criteria shown in Table 2. If the Tensile Strength Ratio (TSR) of the composite mixture, as determined by ASTM D 4867/D 4867M is less than 75, the aggregates shall be rejected or the asphalt mixture treated with an approved anti-stripping agent. The amount of anti-stripping agent added shall be sufficient to produce a TSR of not less than 75. If an antistrip agent is required, it shall be provided by the Contractor at no additional cost.

### 2.3.1 JMF Requirements

The job mix formula shall be submitted in writing by the Contractor for approval at least 14 days prior to the start of construction and shall include as a minimum:

- a. Percent passing each sieve size.
- b. Percent of asphalt cement.
- c. Percent of each aggregate and mineral filler to be used.
- d. Asphalt viscosity grade, penetration grade, or performance grade.

- e. Number of blows of hammer per side of molded specimen.
- f. Laboratory mixing temperature.
- g. Lab compaction temperature.
- h. Temperature-viscosity relationship of the asphalt cement.
- i. Graphical plots of stability, flow, air voids, voids in the mineral aggregate, and unit weight versus asphalt content as shown in AI MS-2.
- j. Specific gravity and absorption of each aggregate.
- k. Percent natural sand.
- l. Percent particles with 2 or more fractured faces (in coarse aggregate).
- m. Fine aggregate angularity.
- n. Percent flat or elongated particles (in coarse aggregate).
- o. Tensile Strength Ratio(TSR).
- p. Antistrip agent (if required) and amount.
- q. List of all modifiers and amount.

Table 2. Marshall Design Criteria

| <u>Test Property</u>          | <u>50 Blow Mix</u> |
|-------------------------------|--------------------|
| Stability, newtons<br>minimum | *4450              |
| Flow, 0.25 mm                 | 8-18               |
| Air voids, percent            | 3-5                |
| TSR, minimum percent          | 75                 |

\* This is a minimum requirement. The average during construction shall be significantly higher than this number to ensure compliance with the specifications.

2.3.2 Adjustments to Field JMF

The Laboratory JMF for each mixture shall be in effect until a new formula is approved in writing by the Contracting Officer. Should a change in

sources of any materials be made, a new laboratory JMF design shall be performed and a new JMF approved before the new material is used. The Contractor will be allowed to adjust the Laboratory JMF within the limits specified below to optimize mix volumetric properties with the approval of the Contracting Officer. Adjustments to the Laboratory JMF shall be applied to the field (plant) established JMF and limited to those values as shown. Adjustments shall be targeted to produce or nearly produce 4 percent voids total mix (VTM).

TABLE 3. Field (Plant) Established JMF Tolerances  
Sieves                      Adjustments (plus or minus), percent

|                |     |
|----------------|-----|
| 12.5 mm        | 3   |
| 4.75 mm        | 3   |
| 2.36 mm        | 3   |
| 0.075 mm       | 1   |
| Binder Content | 0.4 |

If adjustments are needed that exceed these limits, a new mix design shall be developed. Tolerances given above may permit the aggregate grading to be outside the limits shown in Table 1; while not desirable, this is acceptable.

### PART 3 EXECUTION

#### 3.1 PREPARATION OF ASPHALT BINDER MATERIAL

The asphalt cement material shall be heated avoiding local overheating and providing a continuous supply of the asphalt material to the mixer at a uniform temperature. The temperature of asphalt shall be no more than 160 degrees C when added to the aggregates.

#### 3.2 PREPARATION OF MINERAL AGGREGATE

The aggregate for the mixture shall be heated and dried prior to mixing. No damage shall occur to the aggregates due to the maximum temperature and rate of heating used. The temperature of the aggregate and mineral filler shall not exceed 175 degrees C when the asphalt cement is added. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

#### 3.3 PREPARATION OF HOT-MIX ASPHALT MIXTURE

The aggregates and the asphalt cement shall be weighed or metered and introduced into the mixer in the amount specified by the JMF. The combined materials shall be mixed until the aggregate obtains a uniform coating of asphalt binder and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but no less than 25 seconds for batch plants. The wet mixing time for all plants shall be established by the Contractor, based on the procedure for determining the percentage of coated particles described in

ASTM D 2489, for each individual plant and for each type of aggregate used.

The wet mixing time will be set to at least achieve 95 percent of coated particles. The moisture content of all hot-mix asphalt upon discharge from the plant shall not exceed 0.5 percent by total weight of mixture as measured by ASTM D 1461.

### 3.4 PREPARATION OF THE UNDERLYING SURFACE

Immediately before placing the hot mix asphalt, the underlying course shall be cleaned of dust and debris. A prime coat and/or tack coat shall be applied in accordance with the contract specifications.

### 3.5 TRANSPORTING AND PLACING

#### 3.5.1 Transporting

The hot-mix asphalt shall be transported from the mixing plant to the site in clean, tight vehicles. Deliveries shall be scheduled so that placing and compacting of mixture is uniform with minimum stopping and starting of the paver. Adequate artificial lighting shall be provided for night placements. Hauling over freshly placed material will not be permitted until the material has been compacted as specified, and allowed to cool to 60 degrees C. To deliver mix to the paver, the Contractor shall use a material transfer vehicle which shall be operated to produce continuous forward motion of the paver.

#### 3.5.2 Placing

The mix shall be placed and compacted at a temperature suitable for obtaining density, surface smoothness, and other specified requirements. Upon arrival, the mixture shall be placed to the full width by an asphalt paver; it shall be struck off in a uniform layer of such depth that, when the work is completed, it shall have the required thickness and conform to the grade and contour indicated. The speed of the paver shall be regulated to eliminate pulling and tearing of the asphalt mat. On isolated areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the mixture may be spread and luted by hand tools.

### 3.6 COMPACTION OF MIXTURE

After placing, the mixture shall be thoroughly and uniformly compacted by rolling. The surface shall be compacted as soon as possible without causing displacement, cracking or shoving. The sequence of rolling operations and the type of rollers used shall be at the discretion of the Contractor. The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture and be effective in compaction. Any displacement occurring as a result of reversing the direction of the roller, or from any other cause, shall be corrected at once. Rolling shall continue until the surface is of uniform texture, true to grade and cross section, and at least 95 percent of the density of a laboratory specimen of the same mixture has been obtained. To prevent adhesion of the mixture to the roller, the wheels shall be kept properly moistened but excessive water will not be permitted. In areas not

accessible to the roller, the mixture shall be thoroughly compacted with hand tampers. Any mixture that becomes loose and broken, mixed with dirt, contains check-cracking, or is in any way defective shall be removed full depth, replaced with fresh hot mixture and immediately compacted to conform to the surrounding area. This work shall be done at the Contractor's expense. Skin patching will not be allowed.

### 3.7 JOINTS

The formation of joints shall be made ensuring a continuous bond between the courses and to obtain the required density. All joints shall have the same texture as other sections of the course and meet the requirements for smoothness and grade.

#### 3.7.1 Transverse Joints

The roller shall not pass over the unprotected end of the freshly laid mixture, except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course. The tapered edge shall be cut back to its full depth and width on a straight line to expose a vertical face prior to placing material at the joint. The cutback material shall be removed from the project. In both methods, all contact surfaces shall be given a light tack coat of asphalt material before placing any fresh mixture against the joint.

#### 3.7.2 Longitudinal Joints

Longitudinal joints which are irregular, damaged, uncompacted, cold (less than 80 degrees C at the time of placing adjacent lanes), or otherwise defective, shall be cut back a minimum of 50 mm from the edge with a cutting wheel to expose a clean, sound vertical surface for the full depth of the course. All cutback material shall be removed from the project. All contact surfaces shall be given a light tack coat of asphalt material prior to placing any fresh mixture against the joint. The Contractor will be allowed to use an alternate method if it can be demonstrated that density, smoothness, and texture can be met.

### 3.8 CONTRACTOR QUALITY CONTROL

#### 3.8.1 General Quality Control Requirements

The Contractor shall develop an approved Quality Control Plan. Hot-mix asphalt for payment shall not be produced until the quality control plan has been approved. The plan shall address all elements which affect the quality of the pavement including, but not limited to:

- a. Mix Design
- b. Aggregate Grading
- c. Quality of Materials
- d. Stockpile Management

- e. Proportioning
- f. Mixing and Transportation
- g. Mixture Volumetrics
- h. Moisture Content of Mixtures
- i. Placing and Finishing
- j. Joints
- k. Compaction
- l. Surface Smoothness

### 3.8.2 Quality Control Testing

The Contractor shall perform all quality control tests applicable to these specifications and as set forth in the Quality Control Program. The testing program shall include, but shall not be limited to, tests for the control of asphalt content, aggregate gradation, temperatures, aggregate moisture, moisture in the asphalt mixture, laboratory air voids, stability, flow, in-place density, grade and smoothness. A Quality Control Testing Plan shall be developed as part of the Quality Control Program.

#### 3.8.2.1 Asphalt Content

A minimum of one test to determine asphalt content will be performed.

#### 3.8.2.2 Gradation

Aggregate gradation shall be determined once from mechanical analysis of recovered aggregate in accordance with ASTM D 5444.

#### 3.8.2.3 Temperatures

Temperatures shall be checked hourly to determine the temperature at the asphalt mixture at the job site.

#### 3.8.2.4 Aggregate Moisture

The moisture content of aggregate used for production shall be determined for each day's production in accordance with ASTM C 566.

#### 3.8.2.5 Moisture Content of Mixture

The moisture content of the mixture shall be determined daily in accordance with ASTM D 1461 or an approved alternate procedure.

#### 3.8.2.6 In-Place Density

The Contractor shall conduct any necessary testing to ensure the specified

density is achieved. A nuclear gauge may be used to monitor pavement density in accordance with ASTM D 2950.

#### 3.8.2.7 Additional Testing

Any additional testing, which the Contractor deems necessary to control the process, may be performed at the Contractor's option.

#### 3.8.2.8 QC Monitoring

The Contractor shall submit all QC test results to the Contracting Officer on a daily basis as the tests are performed. The Contracting Officer reserves the right to monitor any of the Contractor's quality control testing and to perform duplicate testing as a check to the Contractor's quality control testing.

#### 3.8.3 Sampling

When directed by the Contracting Officer, the Contractor shall sample and test any material which appears inconsistent with similar material being produced, unless such material is voluntarily removed and replaced or deficiencies corrected by the Contractor. All sampling shall be in accordance with standard procedures specified.

### 3.9 MATERIAL ACCEPTANCE

Testing for acceptability of work will be performed by an independent laboratory hired by the Contractor. Test results shall be forwarded daily to the Contracting Officer. Acceptance of the plant produced mix and in-place requirements will be for the entire pavement construction.

#### 3.9.1 Additional Sampling and Testing

The Contracting Officer reserves the right to direct additional samples and tests for any area which appears to deviate from the specification requirements. The cost of any additional testing will be borne by the Contractor.

#### 3.9.2 Grade

The final surface of pavement shall conform to the elevations and cross sections shown and shall vary not more than 15 mm from the plan grade established and approved at site of work. Finished surfaces at juncture with other pavements shall coincide with finished surfaces of abutting pavements. Deviation from the plan elevation will not be permitted in areas of pavements where closer conformance with planned elevation is required for the proper functioning of drainage and other appurtenant structures involved. The final surface of the pavement will be tested for conformance with specified plan grade requirements. The grade will be determined by running lines of levels at intervals of 7.6 m, or less, longitudinally and transversely, to determine the elevation of the completed pavement surface. In areas where the grade exceeds the tolerance by more than 50 percent, the Contractor shall remove the surface lift full depth; the Contractor shall then replace the lift with hot-mix asphalt to

meet specification requirements, at no additional cost to the Government. Diamond grinding may be used to remove high spots to meet grade requirements. Skin patching for correcting low areas or planing or milling for correcting high areas will not be permitted.

### 3.9.3 Surface Smoothness

The Contractor shall use the following method (below) to test and evaluate surface smoothness of the pavement. All testing shall be performed in the presence of the Contracting Officer. Detailed notes of the results of the testing shall be kept and a copy furnished to the Government immediately after each day's testing. Where drawings show required deviations from a plane surface (crowns, drainage inlets, etc.), the surface shall be finished to meet the approval of the Contracting Officer.

Straightedge Testing: The finished surfaces of the pavements shall have no abrupt change of 6 mm or more, and all pavements shall be within 6 mm (both longitudinal and transverse direction) when checked with an approved 4 m straightedge.

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## SECTION 02748

## BITUMINOUS TACK COAT

## 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 977 (1991) Emulsified Asphalt

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Waybills and Delivery Tickets;

Waybills and delivery tickets, during progress of the work.

## 1.3 Waybills and Delivery Tickets

Before the final statement is allowed, the Contractor shall file with the Contracting Officer certified waybills and certified delivery tickets for all bituminous materials used in the construction of the pavement covered by the contract. The Contractor shall not remove bituminous material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

## 1.4 PLANT, EQUIPMENT, MACHINES AND TOOLS

## 1.4.1 General Requirements

Plant, equipment, machines and tools used in the work shall be subject to approval and shall be maintained in a satisfactory working condition at all times.

#### 1.4.2 Bituminous Distributor

The distributor shall have pneumatic tires of such size and number to prevent rutting, shoving or otherwise damaging the base surface or other layers in the pavement structure. The distributor shall be designed and equipped to spray the bituminous material in a uniform coverage at the specified temperature, at readily determined and controlled rates with an allowable variation from the specified rate of not more than plus or minus 5 percent, and at variable widths. Distributor equipment shall include a separate power unit for the bitumen pump, full-circulation spray bars, tachometer, pressure gauges, volume-measuring devices, adequate heaters for heating of materials to the proper application temperature, a thermometer for reading the temperature of tank contents, and a hand hose attachment suitable for applying bituminous material manually to areas inaccessible to the distributor. The distributor shall be equipped to circulate and agitate the bituminous material during the heating process.

#### 1.4.3 Power Brooms and Power Blowers

Power brooms and power blowers shall be suitable for cleaning the surfaces to which the bituminous coat is to be applied.

#### 1.5 WEATHER LIMITATIONS

Bituminous coat shall be applied only when the surface to receive the bituminous coat is dry. Bituminous coat shall be applied only when the atmospheric temperature in the shade is 10 degrees C or above and when the temperature has not been below 2 degrees C for the 12 hours prior to application.

### PART 2 PRODUCTS

#### 2.1 TACK COAT

Emulsified asphalt shall conform to ASTM D 977 Type SS-1h.

### PART 3 EXECUTION

#### 3.1 PREPARATION OF SURFACE

Immediately before applying the bituminous coat, if surface is sufficiently bonded, all loose material, dirt, clay, or other objectionable material shall be removed from the surface to be treated with a power broom or blower supplemented with hand brooms. The surface shall be dry and clean at the time of treatment.

#### 3.2 APPLICATION RATE

The exact quantities within the range specified, which may be varied to suit field conditions, will be determined by the Contracting Officer.

##### 3.2.1 Tack Coat

Bituminous material for the tack coat shall be applied in quantities of not less than 0.20 liter nor more than 0.70 liter per square meter of pavement surface.

### 3.3 APPLICATION

Following preparation and subsequent inspection of the surface, the bituminous coat shall be applied at the specified rate with uniform distribution over the surface to be treated at a temperature determined by the Contracting Officer, within the range 24 to 55 degrees C. Under no circumstances shall emulsion be heated to a temperature greater than 60 degrees C or exposed to a temperature of less than 4 degrees C. All areas and spots missed by the distributor shall be properly treated with the hand spray. Until the succeeding layer of pavement is placed, the surface shall be maintained by protecting the surface against damage and by repairing deficient areas at no additional cost to the Government. If required, clean dry sand shall be spread to effectively blot up any excess bituminous material. No smoking, fires, or flames other than those from the heaters that are a part of the equipment shall be permitted within 8 meters of heating, distributing, and transferring operations of bituminous material other than bituminous emulsions.

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## SECTION 02821

## FENCING

## 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 SOCIETY FOR TESTING AND MATERIALS (ASTM)

|                   |  |
|-------------------|--|
| ASTM A 153/A 153M | (1998) Zinc-Coated (Hot Dip) on Iron and Steel Hardware  |
| ASTM A 392        | (1996) Zinc-Coated Steel Chain-Link Fence Fabric   |
| ASTM A 780        | (1993a) Repair of Damaged and Uncoated Areas of Hot-Dipped Galvanized Coatings                         |
| ASTM A 824        | (1995) Metallic-Coated Steel Marcellled Tension Wire for Use With Chain Link Fence                     |
| ASTM C 94         | (1998) Ready-Mixed Concrete  |
| ASTM F 626        | (1996) Fence Fittings  |
| ASTM F 883        | (1997) Padlocks  |
| ASTM F 900        | (1994) Industrial and Commercial Swing Gates   |
| ASTM F 1043       | (1998a) 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 1184       | (1994) Industrial and Commercial Horizontal Slide Gates  |

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation;

submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

#### SD-07 Certificates

##### Chain Link Fence

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 1, zinc-coated steel wire with minimum coating weight of 370 grams of zinc per square meter of coated surface, Fabric shall be fabricated of 9 gauge wire woven in 50.8 mm mesh. Fabric height shall be 1.83 m. Fabric shall be twisted and barbed on the top selvage and knuckled on the bottom selvage. Damage to the galvanized surface shall be repaired as specified these specifications.

### 2.2 GATES

ASTM F 900 and/or ASTM F 1184. Gate shall be the type and swing shown. 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 2.44 m 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 2.44 m 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.

### 2.3 POSTS

#### 2.3.1 Metal Posts for Chain Link Fence

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, formed steel sections, shall meet the strength and coating requirements of ASTM F 1043. Group III, ASTM F 1043 steel H-section may be used for line posts in lieu of line post shapes specified for the other classes. 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 and/or ASTM F 1184.

#### 2.4 BRACES AND RAILS

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 IIA, formed steel sections, size 42.16 mm (1.66 inch), conforming to ASTM F 1043, may be used as braces and rails if Group IIA line posts are furnished.

#### 2.5 Tension Wire

Tension wire shall be Type I or Type II, Class 2 coating, in accordance with ASTM A 824.

#### 2.6 ACCESSORIES

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. 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 herein.

#### 2.7 CONCRETE

ASTM C 94, using 19 mm maximum size aggregate, and having minimum compressive strength of 21 MPa 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 PADLOCKS

Padlocks shall conform to ASTM F 883, Type P01, Grade 2, Size 44.4 mm (1-3/4 inch). Padlocks shall be keyed alike and each lock shall be furnished with two keys.

### PART 3 EXECUTION

#### 3.1 INSTALLATION

Fence shall be installed to the lines and grades indicated. The area on either side of the fence line shall be cleared to the extent indicated. Line posts shall be spaced equidistant at intervals not exceeding 3.05 m (10 feet). Terminal (corner, gate, and pull) posts shall be set at abrupt changes in vertical and horizontal alignment. Fabric shall be continuous

between terminal posts; however, runs between terminal posts shall not exceed 152.4 m (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 50.8 mm clearance between the bottom of the fabric and finish grade.

### 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 the depth indicated on the drawings. Where solid rock is encountered with no overburden, posts shall be set to a minimum depth of 457 mm (18 inches) in rock. Where solid rock is covered with an overburden of soil or loose rock, posts shall be set to the minimum depth indicated on the drawing unless a penetration of 457 mm (18 inches) in solid rock is achieved before reaching the indicated depth, 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 the diameter shown on the drawings. Diameters of holes in solid rock shall be at least 25 mm (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. Group II line posts may be mechanically driven, for temporary fence construction only, if rock is not encountered. Driven posts shall be set to a minimum depth of 914 mm (3 feet) and shall be protected with drive caps when being set. For high security fences, fence post rigidity shall be tested by applying a 222.4 newtons (50 pound) force on the post, perpendicular to the fabric, at 1.52 m (5 feet) above ground; post movement measured at the point where the force is applied shall be less than or equal to 19 mm (3/4 inch) from the relaxed position; every tenth 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. Top rail, if required for high security fence, shall be installed as indicated on the drawings.

### 3.4.2 Bottom Rail

The bottom 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. Bottom rail shall be installed before chain link fabric.

### 3.5 BRACES AND TRUSS RODS

Braces and truss rods shall be installed as indicated 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 1.83 m (6 feet) in height. A center brace or 2 diagonal truss rods shall be installed on 3.66 m (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 1.83 m (6 feet) high or less if a top rail is installed.

### 3.6 TENSION WIRES

Tension wires shall be installed along the [top and] [bottom] of the fence line and attached to the terminal posts of each stretch of the fence. Top tension wires shall be installed within the top 305 mm of the installed fabric. Bottom tension wire shall be installed within the bottom 152 mm (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. Fabric shall be attached to terminal posts with stretcher bars and tension bands. Bands shall be spaced at approximately 381 mm (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 381 mm (15 inch) intervals and fastened to all rails and tension wires at approximately 610 mm 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 50.8 mm plus or minus 12.7 mm above the ground. For high security fence, after the fabric installation is complete, the fabric shall be exercised by applying a 222 newtons (50 pound) push-pull force at the center of the fabric between posts; the use of a 133 newtons (30 pound) pull at the center of the panel shall cause fabric deflection of not more than 63.5 mm (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 as indicated

and as recommended by the manufacturer. Supporting arms shall be anchored [to the posts in a manner to prevent easy removal with hand tools] [with 9.5 mm (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.

### 3.8.2 Barbed Wire for Farm Style Fence

Wire shall be installed on the side of the post indicated. Wire shall be pulled taut to provide a smooth uniform appearance, free from sag. Wire shall be fastened to line posts at approximately 381 mm intervals unless indicated otherwise.

### 3.9 GATE INSTALLATION

Gates shall be installed at the locations shown. Hinged gates shall be mounted to swing as indicated. Latches, stops, and keepers shall be installed as required. Padlocks shall be attached to gates or gate posts with chains. Hinge pins, and hardware shall be welded or otherwise secured to prevent removal.

### 3.10 GROUNDING

Fences crossed by powerlines of 600 volts or more shall be grounded at or near the point of crossing and at distances not exceeding 45 m on each side of crossing. Ground conductor shall consist of No. 8 AWG solid copper wire. Grounding electrodes shall be 19 mm (3/4 inch) by 3.05 m (10 foot) long copper-clad steel rod. Electrodes shall be driven into the earth so that the top of the electrode is at least 152 mm (6 inches) below the grade. Where driving is impracticable, electrodes shall be buried a minimum of 305 mm deep and radially from the fence. The top of the electrode shall be not less than 0.6 m or more than 2.4 m from the fence.

Ground conductor shall be clamped to the fence and electrodes with bronze grounding clamps to create electrical continuity between fence posts, fence fabric, and ground rods. After installation the total resistance of fence to ground shall not be greater than 25 ohms.

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## SECTION 03307

## CONCRETE FOR MINOR STRUCTURES

## 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.

## ACI INTERNATIONAL (ACI)

|                |  |
|----------------|--|
| ACI 308        | (1992) Standard Practice for Curing Concrete                       |
| ACI 318M/318RM | (1992) Building Code Requirements for Reinforced Concrete (Metric) |
| ACI 347R       | (1994) Formwork for Concrete                                       |

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

|                   |   |
|-------------------|---|
| ASTM A 185        | (1994) Steel Welded Wire Fabric, Plain, for Concrete Reinforcement      |
| ASTM A 615/A 615M | (1995a) Deformed and Plain Billet-Steel Bars for Concrete Reinforcement |
| ASTM C 31         | (1991) Making and Curing Concrete Test Specimens in the Field           |
| ASTM C 33         | (1993) Concrete Aggregate   |
| ASTM C 39         | (1993) Compressive Strength of Cylindrical Concrete Specimens           |
| ASTM C 94         | (1994) Ready-Mixed Concrete   |
| ASTM C 143        | (1990a) Slump of Hydraulic Cement Concrete                              |
| ASTM C 150        | (1995) Portland Cement  |
| ASTM C 171        | (1992) Sheet Materials for Curing Concrete                              |
| ASTM C 172        | (1990) Sampling Freshly Mixed Concrete                                  |
| ASTM C 231        | (1991b) Air Content of Freshly Mixed Concrete by the Pressure Method    |

|            |  |
|------------|--|
| ASTM C 309 | (1994) Liquid Membrane-Forming Compounds for Curing Concrete   |
| ASTM C 494 | (1992) Chemical Admixtures for Concrete  |
| ASTM C 618 | (1994a) Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete |
| ASTM D 75  | (1987; R 1992) Sampling Aggregates   |

## CORPS OF ENGINEERS (COE)

|               |  |
|---------------|--|
| COE CRD-C 400 | (1963) Requirements for Water for Use in Mixing or Curing Concrete |
|---------------|--|

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-03 Product Data

Water-Reducing or Retarding Admixture; G, ED  
Curing Materials; G, ED  
Reinforcing Steel; G, ED

Manufacturer's literature is available from suppliers which demonstrates compliance with applicable specifications for the above materials.

Conveying and Placing Concrete; G, ED

The methods and equipment for transporting, handling, depositing, and consolidating the concrete shall be submitted prior to the first concrete placement.

Formwork; G, ED

Formwork design shall be submitted prior to the first concrete placement.]

## SD-06 Test Reports

Aggregates;

Aggregates will be accepted on the basis of certificates of compliance and test reports that show the material(s) meets the quality and grading requirements of the specifications under which

it is furnished.

Concrete Mixture Proportions; G, ED

Ten days prior to placement of concrete, the contractor shall submit the mixture proportions that will produce concrete of the quality required. Applicable test reports shall be submitted to verify that the concrete mixture proportions selected will produce concrete of the quality specified.

SD-07 Certificates

Cementitious Materials; G, ED

Certificates of compliance attesting that the concrete materials meet the requirements of the specifications shall be submitted in accordance with the Special Clause "CERTIFICATES OF COMPLIANCE". Cementitious material will be accepted on the basis of a manufacturer's certificate of compliance, accompanied by mill test reports that the material(s) meet the requirements of the specification under which it is furnished.

Aggregates; G, ED

Aggregates will be accepted on the basis of certificates of compliance and tests reports that show the material(s) meet the quality and grading requirements of the specifications under which it is furnished.

### 1.3 DESIGN AND PERFORMANCE REQUIREMENTS

The Government will maintain the option to sample and test aggregates and concrete to determine compliance with the specifications. The Contractor shall provide facilities and labor as may be necessary to assist the Government in procurement of representative test samples. Samples of aggregates will be obtained at the point of batching in accordance with ASTM D 75. Concrete will be sampled in accordance with ASTM C 172. Slump and air content will be determined in accordance with ASTM C 143 and ASTM C 231, respectively, when cylinders are molded. Compression test specimens will be made, cured, and transported in accordance with ASTM C 31. Compression test specimens will be tested in accordance with ASTM C 39. Samples for strength tests will be taken not less than once each shift in which concrete is produced. A minimum of three specimens will be made from each sample; two will be tested at 28 days, and one will be tested at 7 days for information.

#### 1.3.1 Strength

Acceptance test results will be the average strengths of two specimens tested at 28 days. The strength of the concrete will be considered satisfactory so long as the average of three consecutive acceptance test results equal or exceed the specified compressive strength, f'c, and no individual acceptance test result falls below f'c by more than 3.5 MPa.

### 1.3.2 Construction Tolerances

A Class "C" finish shall apply to all surfaces except those specified to receive a Class "D" finish and those specified to receive a Class "B" finish. A Class "B" finish shall apply to all surfaces exposed to flowing water. A Class "D" finish shall apply to all surfaces which will be permanently concealed after construction. The surface requirements for the classes of finish required shall be as specified in ACI 347R.

### 1.3.3 Concrete Mixture Proportions

Concrete mixture proportions shall be the responsibility of the Contractor.

Mixture proportions shall include the dry weights of cementitious material(s); the nominal maximum size of the coarse aggregate; the specific gravities, absorptions, and saturated surface-dry weights of fine and coarse aggregates; the quantities, types, and names of admixtures; and quantity of water per cubic yard of concrete. All materials included in the mixture proportions shall be of the same type and from the same source as will be used on the project. Specified compressive strength f'c shall be 25 MPa at 28 days. The maximum nominal size coarse aggregate shall be 25 mm, in accordance with ACI 318M/318RM. The air content shall be between 4 and 6 percent. The slump shall be between 50 and 127 mm. The maximum water cement ratio shall be 0.50.

## PART 2 PRODUCTS

### 2.1 MATERIALS

#### 2.1.1 Cementitious Materials

Cementitious materials shall conform to the appropriate specifications listed:

##### 2.1.1.1 Portland Cement

ASTM C 150, Type II, low alkali.

##### 2.1.1.2 Pozzolan

Pozzolan shall conform to ASTM C 618, Class F, with the loss on ignition limited to 6 percent.

#### 2.1.2 Aggregates

Aggregates shall meet the quality and grading requirements of ASTM C 33.

#### 2.1.3 Admixtures

Admixtures to be used, when required or approved, shall comply with the appropriate specification listed. Chemical admixtures that have been in storage at the project site for longer than 6 months or that have been subjected to freezing shall be retested at the expense of the contractor at the request of the Contracting Officer and shall be rejected if test results are not satisfactory.

#### 2.1.3.1 Water-Reducing or Retarding Admixture

Water-reducing or retarding admixture shall meet the requirements of ASTM C 494, Type A, B, or D.

#### 2.1.4 Water

Water for mixing and curing shall be fresh, clean, potable, and free from injurious amounts of oil, acid, salt, or alkali, except that unpotable water may be used if it meets the requirements of COE CRD-C 400.

#### 2.1.5 Reinforcing Steel

Reinforcing steel bar shall conform to the requirements of ASTM A 615/A 615M, Grade 60. Welded steel wire fabric shall conform to the requirements of ASTM A 185. Details of reinforcement not shown shall be in accordance with ACI 318M/318RM, Chapters 7 and 12.

#### 2.1.6 Formwork

The design and engineering of the formwork as well as its construction, shall be the responsibility of the Contractor.

#### 2.1.7 Curing Materials

Curing materials shall conform to the following requirements.

##### 2.1.7.1 Impervious Sheet Materials

Impervious sheet materials, ASTM C 171, type optional, except polyethylene film, if used, shall be white opaque.

##### 2.1.7.2 Membrane-Forming Curing Compound

ASTM C 309, Type 2.

### PART 3 EXECUTION

#### 3.1 PREPARATION

##### 3.1.1 General

Earth surfaces upon which concrete is to be placed shall be clean, damp, and free from debris, frost, ice, and standing or running water. Concrete shall not be placed on soft yielding and spongy earth foundation. Prior to placement of concrete, the earth foundation shall have been satisfactorily compacted in accordance with Section 02300 EARTHWORKS. Additionally, the foundation shall be inspected by the Contractor prior to concrete placement in order certify that it is ready to receive concrete.

##### 3.1.2 Embedded Items

Reinforcement shall be secured in place; joints, anchors, and other

embedded items shall have been positioned. Internal ties shall be arranged so that when the forms are removed all metal will be not less than 50 mm from concrete surfaces permanently exposed to view or exposed to water on the finished structures. Embedded items shall be free of oil and other foreign matters such as loose coatings or rust, paint, and scale. The embedding of wood in concrete will be permitted only when specifically authorized or directed. All equipment needed to place, consolidate, protect, and cure the concrete shall be at the placement site and in good operating condition.

### 3.1.3 Formwork Installation

Forms shall be properly aligned, adequately supported, and mortar-tight. The form surfaces shall be smooth and free from irregularities, dents, sags, or holes when used for permanently exposed faces. All exposed joints and edges shall be chamfered, unless otherwise indicated.

### 3.1.4 Production of Concrete

#### 3.1.4.1 Ready-Mixed Concrete

Ready-mixed concrete shall conform to ASTM C 94 except as otherwise specified.

### 3.2 CONVEYING AND PLACING CONCRETE

Conveying and placing concrete shall conform to the following requirements.

#### 3.2.1 General

Concrete placement shall not be permitted when weather conditions prevent proper placement and consolidation without approval. When concrete is mixed and/or transported by a truck mixer, the concrete shall be delivered to the site of the work and discharge shall be completed within 1-1/2 hours. Concrete shall be conveyed from the mixer to the forms as rapidly as practicable by methods which prevent segregation or loss of ingredients.

Concrete shall be in place and consolidated within 15 minutes after discharge from the mixer. Concrete shall be deposited as close as possible to its final position in the forms and be so regulated that it may be effectively consolidated in horizontal layers 450 mm or less in thickness with a minimum of lateral movement. The placement shall be carried on at such a rate that the formation of cold joints will be prevented.

#### 3.2.2 Consolidation

Each layer of concrete shall be consolidated by internal vibrating equipment. Internal vibration shall be systematically accomplished by inserting the vibrator through the fresh concrete in the layer below at a uniform spacing over the entire area of placement. The distance between insertions shall be approximately 1.5 times the radius of action of the vibrator and overlay the adjacent, just-vibrated area by approximately 100 mm. The vibrator shall penetrate rapidly to the bottom of the layer and at least 150 mm into the layer below, if such a layer exists. It shall be held stationary until the concrete is consolidated and then withdrawn

slowly at the rate of about 75 mm per second.

### 3.2.3 Cold-Weather Requirements

No concrete placement shall be made when the ambient temperature is below 2 degrees C or if the ambient temperature is below 5 degrees C and falling. Suitable covering and other means as approved shall be provided for maintaining the concrete at a temperature of at least 10 degrees C for not less than 72 hours after placing and at a temperature above freezing for the remainder of the curing period. Salt, chemicals, or other foreign materials shall not be mixed with the concrete to prevent freezing. Any concrete damaged by freezing shall be removed and replaced at the expense of the contractor.

### 3.2.4 Hot-Weather Requirements

When the rate of evaporation of surface moisture, as determined by use of Figure 1 of ACI 308, is expected to exceed 1 kilogram per square meter per hour, provisions for windbreaks, shading, fog spraying, or covering with a light-colored material shall be made in advance of placement, and such protective measures shall be taken as quickly as finishing operations will allow.

## 3.3 FORM REMOVAL

Forms shall not be removed before the expiration of 24 hours after concrete placement except where otherwise specifically authorized. Supporting forms and shoring shall not be removed until the concrete has cured for at least 5 days. When conditions on the work are such as to justify the requirement, forms will be required to remain in place for longer periods.

## 3.4 FINISHING

### 3.4.1 General

No finishing or repair will be done when either the concrete or the ambient temperature is below 10 degrees C.

### 3.4.2 Finishing Formed Surfaces

All fins and loose materials shall be removed, and surface defects including tie holes shall be filled. All honeycomb areas and other defects shall be repaired. All unsound concrete shall be removed from areas to be repaired. Surface defects greater than 13 mm in diameter and holes left by removal of tie rods in all surfaces not to receive additional concrete shall be reamed or chipped and filled with dry-pack mortar. The prepared area shall be brush-coated with an approved epoxy resin or latex bonding compound or with a neat cement grout after dampening and filled with mortar or concrete. The cement used in mortar or concrete for repairs to all surfaces permanently exposed to view shall be a blend of portland cement and white cement so that the final color when cured will be the same as adjacent concrete.

### 3.4.3 Finishing Unformed Surfaces

All unformed surfaces that are not to be covered by additional concrete or backfill shall be float finished to elevations shown, unless otherwise specified. Surfaces to receive additional concrete or backfill shall be brought to the elevations shown and left as a true and regular surface. Exterior surfaces shall be sloped for drainage unless otherwise shown. Joints shall be carefully made with a jointing tool. Unformed surfaces shall be finished to a tolerance of 10 mm for a float finish as determined by a 3 m straightedge placed on surfaces shown on the plans to be level or having a constant slope. Finishing shall not be performed while there is excess moisture or bleeding water on the surface. No water or cement shall be added to the surface during finishing.

#### 3.4.3.1 Float Finish

Surfaces to be float finished shall be screeded and darbyed or bullfloated to eliminate the ridges and to fill in the voids left by the screed. In addition, the darby or bullfloat shall fill all surface voids and only slightly embed the coarse aggregate below the surface of the fresh concrete. When the water sheen disappears and the concrete will support a person's weight without deep imprint, floating should be completed. Floating should embed large aggregates just beneath the surface, remove slight imperfections, humps, and voids to produce a plane surface, compact the concrete, and consolidate mortar at the surface.

#### 3.5 CURING AND PROTECTION

Beginning immediately after placement and continuing for at least 7 days, all concrete shall be cured and protected from premature drying, extremes in temperature, rapid temperature change, freezing, mechanical damage, and exposure to rain or flowing water. All materials and equipment needed for adequate curing and protection shall be available and at the site of the placement prior to the start of concrete placement. Preservation of moisture for concrete surfaces not in contact with forms shall be accomplished by one of the following methods:

- a. Continuous sprinkling or ponding.
- b. Application of absorptive mats or fabrics kept continuously wet.
- c. Application of sand kept continuously wet.
- d. Application of impervious sheet material conforming to ASTM C 171.
- e. Application of membrane-forming curing compound conforming to ASTM C 309, Type 1-D, on surfaces permanently exposed to view and Type 2 on other surfaces shall be accomplished in accordance with manufacturer's instructions.

The preservation of moisture for concrete surfaces placed against wooden forms shall be accomplished by keeping the forms continuously wet for 7 days. If forms are removed prior to end of the required curing period, other curing methods shall be used for the balance of the curing period. During the period of protection removal, the temperature of the air in

contact with the concrete shall not be allowed to drop more than 15 degrees C within a 24 hour period.

### 3.6 TESTS AND INSPECTIONS

#### 3.6.1 General

The individuals who sample and test concrete as required in this specification shall have demonstrated a knowledge and ability to perform the necessary test procedures equivalent to the ACI minimum guidelines for certification of Concrete Field Testing Technicians, Grade I.

#### 3.6.2 Inspection Details and Frequency of Testing

##### 3.6.2.1 Preparations for Placing

Foundation or construction joints, forms, and embedded items shall be inspected in sufficient time prior to each concrete placement by the Contractor to certify that it is ready to receive concrete.

##### 3.6.2.2 Air Content

Air content shall be checked at least once during each shift that concrete is placed. Samples shall be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 231.

##### 3.6.2.3 Slump

Slump shall be checked once during each shift that concrete is produced. Samples shall be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 143.

##### 3.6.2.4 Consolidation and Protection

The Contractor shall ensure that the concrete is properly consolidated, finished, protected, and cured.

#### 3.6.3 Action Required

##### 3.6.3.1 Placing

The placing foreman shall not permit placing to begin until he has verified that an adequate number of acceptable vibrators, which are in working order and have competent operators, are available. Placing shall not be continued if any pile is inadequately consolidated.

##### 3.6.3.2 Air Content

Whenever a test result is outside the specification limits, the concrete shall not be delivered to the forms and an adjustment shall be made to the dosage of the air-entrainment admixture.

##### 3.6.3.3 Slump

Whenever a test result is outside the specification limits, the concrete shall not be delivered to the forms and an adjustment should be made in the batch weights of water and fine aggregate. The adjustments are to be made so that the water-cement ratio does not exceed that specified in the submitted concrete mixture proportion.

#### 3.6.4 Reports

The results of all tests and inspections conducted at the project site shall be reported informally at the end of each shift and in writing weekly and shall be delivered within 3 days after the end of each weekly reporting period. See Section 01451 CONTRACTOR QUALITY CONTROL.

-- End of Section --

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## SECTION 03371

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## SECTION 03371

## SHOTCRETE

## 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.

## ACI INTERNATIONAL (ACI)

ACI 506.3R (1991) Certification of Shotcrete Nozzlemen

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 33 (1993) Concrete Aggregates

ASTM C 42 (1990) Obtaining and Testing Drilled Cores and Sawed Beam of Concrete

ASTM C 94 (1994) Ready-Mixed Concrete

ASTM C 136 (1993) Sieve Analysis of Fine and Coarse Aggregates

ASTM C 150 (1995) Portland Cement

ASTM C 171 (1992) Sheet Materials for Curing Concrete

ASTM C 309 (1993) Liquid Membrane-Forming Compounds for Curing Concrete

ASTM C 566 (1989) Total Moisture Content of Aggregate by Drying

ASTM C 618 (1994a) Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

ASTM C 685 (1994) Concrete Made by Volumetric Batching and Continuous Mixing

ASTM C 881 (1990) Epoxy-Resin-Base Bonding Systems for Concrete

ASTM C 1077 (1995a) Laboratories Testing Concrete and Concrete Aggregates for Use in

Construction and Criteria for Laboratory  
Evaluation

ASTM C 1140 (1989) Preparing and Testing Specimens  
from Shotcrete Test Panels

ASTM C 1141 (1994) Admixtures for Shotcrete

## CORPS OF ENGINEERS (COE)

COE CRD-C 400 (1963) Requirements for Water for Use in  
Mixing or Curing Concrete

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-06 Test Reports

## Mixture Proportions; G, ED

The recommended mixture proportions, sources of materials, and all test results shall be submitted for approval.

## Aggregates; G, ED

Supplier's test reports for aggregates showing the materials meet the requirements of this specification.

## Preconstruction Test Panels;

Cores and sawed concrete beams shall be taken from test panels and tested.

## SD-07 Certificates

## Portland Cement; G, ED

Portland cement shall be certified for compliance with all specification requirements.

## Pozzolans;

Fly ash and other pozzolans shall be certified for compliance with all specification requirements.

## Curing Materials;

Curing materials shall be certified for compliance with all specification requirements.

Qualifications; G, RE

Qualifications of each nozzleman shall be certified.

### 1.3 QUALITY ASSURANCE

The Contractor shall provide facilities and labor as may be necessary for obtaining and testing representative test samples. Shotcrete shall be sampled and tested by the method given in paragraph STRENGTH TESTING.

### 1.4 MIXTURE PROPORTIONS

Mixture proportions and test data from prior experience within 5 years, if available, may be submitted for approval. If test data from experience are not available or accepted, specimens shall be made and tested from mixtures having three or more different proportions. The recommended mixture proportions, sources of materials, and all test results shall be submitted for acceptance. Mixture proportions shall be selected on the basis of compressive strength tests of test panel cores continuously moist cured and tested at 28 days. For mixture acceptance purposes, average core compressive strength shall be at least 1.2 times the required compressive strength specified in paragraph "STRENGTH"

### 1.5 EVALUATION AND ACCEPTANCE

#### 1.5.1 Strength

Final acceptance of the shotcrete will be based on compressive strength results.

##### 1.5.1.1 Compressive Strength

The required compressive strength of cores shall not be less than 25 MPa at 28 days age when tested in accordance with ASTM C 42. The average compressive strength of cores taken from the structure, representing a shift or not more than 40 cubic meters of shotcrete tested at 28 days of age, shall equal or exceed the required compressive strength specified with no individual core less than 85 percent of the required compressive strength. When the length of a core is less than 1.94 times the diameter, the correction factors given in ASTM C 42 will be applied to obtain the compressive strength of individual cores.

### 1.6 QUALIFICATIONS

The Contractor shall submit a resume for each nozzleman certifying that each has not less than 1 year's experience for the particular type of shotcrete to be applied. The resume shall include company name, address, and telephone number, name of supervisor, and detailed description of work performed. All nozzlemen shall be certified in accordance with ACI 506.3R.

Qualifications of additional nozzlemen throughout the job shall be similarly submitted for approval.

### 1.7 PRECONSTRUCTION TEST PANELS

Specimens of the preconstruction test panels shall be made by each application crew using the equipment, materials, mixture proportions, and procedures for each mixture being considered, and for each shooting position to be encountered in the job. The same reinforcement as in the structure shall be provided in at least one-half of the panel to test for proper embedment of reinforcing steel. The test panels shall be fabricated to the same thickness as the structure, but not less than 100 mm. At least five 75 mm diameter cores from each panel shall be taken for testing for compressive strength in accordance with ASTM C 1140 when nonfiber-reinforced shotcrete is used. The compressive strength of the cores shall meet the requirements specified in paragraph COMPRESSIVE STRENGTH.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Cementitious Materials

Cementitious materials shall be portland cement and shall conform to appropriate specifications listed below.

2.1.1.1 Portland Cement

Portland cement shall meet the requirements of ASTM C 150 Type II low alkali.

2.1.1.2 Pozzolan Other Than Silica Fume

Pozzolans shall conform to ASTM C 618, Class F with the loss on ignition limited to 6 percent.

2.1.2 Aggregates

Aggregates shall conform to ASTM C 33 with the combined grading of coarse and fine aggregates conforming to the grading shown below.

| SIEVE SIZE        | PERCENT BY MASS PASSING INDIVIDUAL SIEVES |       |
|-------------------|---|-------|
| 19.0 mm (3/4 in.) | 100                                       |       |
| 12.5 mm (1/2 in.) |   | 80-95 |
| 9.5 mm (3/8 in.)  |   | 70-90 |
| 4.75 mm (No. 4)   |   | 50-70 |
| 2.36 mm (No. 8)   |   | 35-55 |
| 1.18 mm (No. 16)  |   | 20-40 |
| 600 µm (No. 30)   |   | 10-30 |
| 300 µm (No. 50)   |   | 5-17  |
| 150 µm (No. 100)  |   | 2-10  |

\* Fine and coarse aggregates shall be batched separately to avoid segregation.

### 2.1.3 Water

Fresh, clean, potable mixing water or nonpotable water which meets the requirements of COE CRD-C 400 shall be used.

### 2.1.4 Admixtures

Admixtures to be used, when required or approved, shall comply with the appropriate sections of ASTM C 1141. Except as otherwise accepted, soluble admixtures shall be dissolved in water before introduction into the shotcrete mixture.

### 2.1.5 Curing Materials

Curing materials shall meet the following requirements.

#### 2.1.5.1 Impervious Sheet Materials

ASTM C 171, type optional except polyethylene film, if used, shall be white opaque.

#### 2.1.5.2 Membrane-Forming Curing Compound

ASTM C 309, Type 2.

### 2.1.6 Reinforcement

Section 03307 CONCRETE for MINOR STRUCTURES for all types of reinforcement.

## PART 3 EXECUTION

### 3.1 PRODUCTION OF SHOTCRETE

The shotcrete shall be produced by wet-mix process or dry-mix process at the contractor's option.

#### 3.1.1 Dry Mix Process

##### 3.1.1.1 Batching and Mixing

The dry mixture shall consist of one part Portland cement to not more than 4-1/2 parts of fine aggregate. Aggregate and cementitious materials may be batched by mass or by volume. Equipment for batching by mass shall be capable of the accuracy specified in ASTM C 94. Volumetric equipment shall be capable of batching with the accuracy specified in ASTM C 685. The mixing equipment shall be capable of thoroughly mixing the materials in sufficient quantity to maintain placing continuity and be capable of discharging all mixed material without any carryover from one batch to the next.

##### 3.1.1.2 Delivery Equipment

The equipment shall be capable of discharging the aggregate-cement mixture

into the delivery hose and delivering a continuous smooth stream of uniformly mixed material to the discharge nozzle. The discharge nozzle shall be equipped with a manually operated water injection system (water ring) for directing an even distribution of water through the aggregate-cement mixture. The water valve shall be capable of ready adjustment to vary the quantity of water and shall be convenient to the nozzleman. The water pressure at the discharge nozzle shall be sufficiently greater than the operating air pressure to ensure that the water is completely mixed with the other materials. If the line water pressure is inadequate, a water pump shall be introduced into the line. The water pressure shall be steady (nonpulsating). The delivery equipment shall be thoroughly cleaned at the end of each shift. Equipment parts, especially the nozzle liner and water ring, shall be regularly inspected and replaced as required.

### 3.1.2 Wet Mix Process

#### 3.1.2.1 Batching and Mixing

Batching and mixing shall be accomplished in accordance with the applicable provisions of ASTM C 94. If volumetric batching and mixing are used, the materials shall be batched and mixed in accordance with the applicable provisions of ASTM C 685. The mixing equipment shall be capable of thoroughly mixing the specified materials in sufficient quantity to maintain continuous placing. Ready-mix shotcrete complying with ASTM C 94 may be used.

#### 3.1.2.2 Delivery Equipment

The equipment shall be capable of delivering the premixed materials accurately, uniformly, and continuously through the delivery hose. Recommendations of the equipment manufacturer shall be followed on the type and size of nozzle to be used and on cleaning, inspection, and maintenance of the equipment.

### 3.1.3 Air Supply

The Contractor shall provide a supply of clean, dry air adequate for maintaining sufficient nozzle velocity for all parts of the work and, if required, for simultaneous operation of a suitable blowpipe for clearing away rebound.

## 3.2 PREPARATION OF SURFACES

### 3.2.1 Earth

Earth shall be compacted and trimmed to line and graded before placement of shotcrete. Surfaces to receive shotcrete shall be dampened.

### 3.2.2 Existing Concrete

All unsound and loose materials shall be removed by sandblasting, grinding, or high-pressure water jets before applying shotcrete. Any area to be repaired shall be chipped off or scarified to remove offsets which would

cause an abrupt change in thickness without suitable reinforcement. Edges shall be tapered to leave no square shoulders at the perimeter of a cavity. The surface shall be dampened but without visible free water.

### 3.2.3 Rock

Rock surfaces shall be cleaned to remove loose or drummy material, mud, running water, and other foreign matter that will prevent bond of the shotcrete. The rock surface shall be dampened prior to placement of shotcrete.

### 3.2.4 Shotcrete

When a layer of shotcrete is to be covered by a succeeding layer at a later time, it shall first be allowed to develop its initial set. Then all laitance, loose material, and rebound shall be removed by brooming or scraping. Hardened laitance set shall be removed by sandblasting and the surface thoroughly cleaned.

### 3.2.5 Construction Joints

Unless otherwise specified, construction joints shall be tapered to a shallow edge form, about 25 mm thick. If nontapered joints are specified, special care shall be taken to avoid or remove trapped rebound at the joint. The entire joint shall be thoroughly cleaned and wetted prior to the application of additional shotcrete.

## 3.3 PLACEMENT OF SHOTCRETE

### 3.3.1 General

Shotcrete shall be placed using suitable delivery equipment and procedures. The area to which shotcrete is to be applied shall be clean and free of rebound or overspray.

### 3.3.2 Placement Techniques

#### 3.3.2.1 Placement Control

Thickness, method of support, air pressure, and water content of shotcrete shall be controlled to preclude sagging or sloughing off. Shotcreting shall be discontinued or suitable means shall be provided to screen the nozzle stream if wind or air currents cause separation of the nozzle stream during placement.

#### 3.3.2.2 Corners

Horizontal and vertical corners and any area where rebound cannot escape or be blown free shall be filled first.

#### 3.3.3 Placement Around Reinforcement

The nozzle shall be held at such distance and angle to place material behind reinforcement before any material is allowed to accumulate on the

face of the reinforcement. In the dry-mix process, additional water may be added to the mixture when encasing reinforcement to facilitate a smooth flow of material behind the bars. Shotcrete shall not be placed through more than one layer of reinforcing steel rods or mesh in one application unless demonstrated by preconstruction tests that steel is properly encased.

#### 3.3.4 Cover of Reinforcement

The following minimum cover shall be provided.

- a. For shotcrete used as linings, coatings, slab, or wall: 40 mm.

#### 3.3.5 Placement Precautions

The following precautions shall be taken during placement.

- a. Placement shall be stopped if drying or stiffening of the mixture takes place at any time prior to delivery to the nozzle.
- b. Rebound or previously expended material shall not be used in the shotcrete mixture.

### 3.4 REPAIR OF DEFECTS

#### 3.4.1 Defects

Defective areas larger than 31 000 square millimeters or 50 mm deep shall be removed and replaced with fresh shotcrete. These defects include honeycombing, lamination, dry patches, voids, or sand pockets. Defective areas shall be removed in accordance with the procedures described in paragraph EXISTING CONCRETE and replaced with fresh shotcrete.

##### 3.4.1.1 Repairs

All repairs shall be made within 1 week of the time the deficiency is discovered. All unacceptable materials shall be removed and repaired by the procedures described in the following two paragraphs. Voids and holes left by the removal of tie rods in all permanently exposed surfaces not to be backfilled and in surfaces to be exposed to water shall be reamed and completely filled with dry-patching mortar as specified below.

##### 3.4.1.2 Minor Patching

Minor patching may be accomplished with a dry-pack mixture, or with materials as approved by the Contracting Officer. Patches that exceed 0.003 cubic meters in volume shall receive a brush coat of approved epoxy resin meeting ASTM C 881, Type II, as a prime coat. Care shall be taken not to spill epoxy or overcoat the repair surface so that the epoxy runs or is squeezed out onto the surface which will remain exposed to view. Epoxy resin shall be used in strict conformance with manufacturer's recommendations with special attention paid to pot life, safety, and thin film tack time.

##### 3.4.2 Core Holes

Core holes shall not be repaired with shotcrete. Instead, they shall be filled solid with a dry-pack mixture after being cleaned and thoroughly dampened.

### 3.5 FINISHING

#### 3.5.1 Float and Trowel Finish

Final surface finish shall be provided using wood float.

### 3.6 CURING AND PROTECTION

#### 3.6.1 Initial Curing

Immediately after finishing, shotcrete shall be kept continuously moist for at least 7 days. One of the following materials or methods shall be used:

- a. Ponding or continuous sprinkling.
- b. Absorptive mat or fabric, sand, or other covering kept continuously wet.
- c. Curing Compounds. On natural gun or flash finishes, use the coverage application requirement of 2.5 square meters per liter or twice the manufacturer's requirement, whichever is less. Curing compounds shall not be used on any surfaces against which additional shotcrete or other cementitious finishing materials are to be bonded unless positive measures, such as sandblasting, are taken to completely remove curing compounds prior to the application of such additional materials.

#### 3.6.2 Final Curing

Additional curing shall be provided immediately following the initial curing and before the shotcrete has dried. One of the following materials or methods shall be used:

- a. Continue the method used in initial curing.
- b. Application of impervious sheet material conforming to ASTM C 171.

#### 3.6.3 Formed Surface

If forms are to be removed during curing period, one of the curing materials or methods listed in paragraph INITIAL CURING shall be used immediately. Such curing shall be continued for the remainder of the curing period.

#### 3.6.4 Duration of Curing

Curing shall be continued for the first 7 days after shotcreting or until the specified compressive strength of the in-place shotcrete as determined by specimens obtained and tested in accordance with ASTM C 42 is achieved.

### 3.6.5 Temperature Considerations

The air temperature in contact with the shotcrete shall be continuously maintained at a temperature above 5 degrees C for at least 7 days after placement. No shotcrete shall be applied when the concrete surface or air in contact with the concrete surface is below 5 degrees C.

## 3.7 TESTS

### 3.7.1 Strength Testing

Test specimens shall be initially cured onsite, then shall be transported in an approved manner to an approved testing laboratory meeting the requirements of ASTM C 1077 within 48 hours of scheduled testing time.

#### 3.7.1.1 Test Panel

One test panel shall be made for every 40 cubic meters of shotcrete placed but not less than one per each shift during which any shotcrete is placed. Panels shall have minimum dimensions of 450 by 450 by 100 mm and shall be gunned in the same positions as the work represented during the course of the work by the Contractor's regular nozzleman. Panels shall be field cured in the same manner as in the job. Three 150 mm diameter cores shall be drilled from each panel at least 40 hours prior to testing and tested in accordance with ASTM C 1140. If the quality of shotcrete is questionable, the Government may saw or core the panel specimens to determine the shotcrete quality and if remedial action is necessary.]

#### 3.7.1.2 Compressive Strength

The compressive strength of the shotcrete shall be determined from the average of three cores obtained from a test panel representing a specific volume of shotcrete and tested on the 28 day after panel fabrication.

### 3.7.2 Aggregate Moisture

Prior to batching the shotcrete and at least once during a shift in which shotcrete is being batched, the coarse and fine aggregate moisture content shall be determined in accordance with ASTM C 566. The batch weights of both the aggregates and mixing water shall be appropriately adjusted to account for the available free moisture in the aggregates. The amount of free moisture in the aggregates, expressed as kilograms of water per cubic meter, shall be recorded on the batching ticket and delivered to the Contracting Officer prior to placement during the shift. The Contracting Officer will have the option to request additional aggregate moisture content tests for each of the required tests.

### 3.7.3 Grading

The grading of the coarse and fine aggregate shall be determined in accordance with ASTM C 136. The fine and coarse aggregate grading shall be determined prior to batching the shotcrete and at least once during a shift in which shotcrete is being batched. The Contracting Officer will have the option to require one additional sieve analysis test for aggregate type.

#### 3.7.4 Thickness

The minimum shotcrete thickness shall be as shown in the drawings. The unhardened shotcrete shall be checked for thickness using a probe by the nozzleman or laborer at the time of placement. These thickness checks shall be at 15-minute intervals and all low or thin areas shall be corrected by applying additional shotcrete.

#### 3.7.5 Mixture Proportions

Record and check mixture proportions at least once per shift for weigh batching. Record and check mixture proportions as recommended by ASTM C 685 at least once per shift for volumetric batching and continuous mixing plants.

#### 3.7.6 Preparations

Prior to each placement of shotcrete, the Contractor's inspector shall certify in writing or by an approved checkout form that cleanup and preparations are in accordance with the plans and specifications.

-- End of Section --