AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT	1. CONTRACT ID CODE	PAGE	OF PAGES
	N/A	1	226

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
0005	22 JAN 2004	N/A	

6. ISSUED BY	CODE	7. ADMINISTERED BY *(If other than Item 6)*	CODE
DEPARTMENT OF THE ARMY CORPS OF ENGINEERS SACRAMENTO 1325 J STREET SACRAMENTO, CALIFORNIA		SEE ITEM 7	

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*	(√)	9A. AMENDMENT OF SOLICITATION NO.
	X	W912P7-03-B-0001
		9B. DATED *(SEE ITEM 11)* 15 DEC 2003
		10A. MODIFICATION OF CONTRACTS/ORDER NO. N/A
		10B. DATED *(SEE ITEM 13)* N/A
CODE / FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☒ is extended, ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(√)	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

PORT OF OAKLAND NAVIGATION - 50 FOOT IMPROVEMENT PROJECT, MIDDLE HARBOR ENHANCEMENT AREA CONTAINMENT STRUCTURE
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

NOTE: THE BID OPENING DATE HAS BEEN POSTPONED TO 3 FEB 2004.

SEE CONTINUATION SHEET

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
15B. CONTRACTOR/OFFEROR *(Signature of person authorized to sign)*	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY *(Signature of Contracting Officer)*	16C. DATE SIGNED

CONTINUATION SHEET

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT
AMENDMENT/MODIFICATION NO. 0005

PORT OF OAKLAND NAVIGATION - 50 FOOT IMPROVEMENT PROJECT, MIDDLE HARBOR ENHANCEMENT AREA CONTAINMENT STRUCTURE
ALAMEDA AND CONTRA COSTA COUNTIES, CALIFORNIA

2 ENCLS:

1) REVISIONS: SF 1442,PRICING SCHEDULE, 00100, 00700, 01005 ATTACHMENTS, 01270, 1312, 01330 ATTACHMENT, SUBMITTAL REGISTER, 01354, 01360, 01451 ATTACHMENTS, 01500, 02210 BORING LOGS, 02230, 02464, AND 03307.

2) WAGE RATE CA030029, MOD 1 REPLACES EXISTING WAGE RATE IN ITS ENTIRETY.

SOLICITATION, OFFER, AND AWARD *(Construction, Alteration, or Repair)*	1. SOLICITATION NO. W912P7-04-B-0001	2. TYPE OF SOLICITATION [X] SEALED BID (IFB) [ ] NEGOTIATED *(RFP)*	3. DATE ISSUED 15-Dec-2003	PAGE OF PAGES 1 OF 152

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

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO. W62A2B-3328-0346	6. PROJECT NO.

7. ISSUED BY CODE DACW07	8. ADDRESS OFFER TO *(If Other Than Item 7)* CODE
DEPARTMENT OF THE ARMY, SACRAMENTO DISTR CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922 TEL:(916) 557-5201 FAX: (916) 557-7854	**See Item 7** TEL: FAX:

9. FOR INFORMATION CALL:	A. NAME JAMES E GARROR	B. TELEPHONE NO. *(Include area code)* *(NO COLLECT CALLS)* 916-557-5229

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):*

Port of Oakland Navigation-50foot Improvement Project, Middle Harbor Enhancement Area Containment Structure
Alameda and Contra Costa Counties, California.

JOB DESCRIPTION: The work consists of marine construction and placement of approx. 102,000 tons of rock fill, 44,000 lf sheet pile, 5,500 tons riprap, 25,400 tons bedding material, 825 cy concrete, 3 navigational aids and 3 navigational buoys. THIS PROJECT IS AN UNRESTRICTED IFB.

ESTIMATED COST RANGE OF PROJECT: $10,000,000 - 25,000,000

11. The Contractor shall begin performance within 10 calendar days and complete it within ***365*** calendar days after receiving [ ] award, [X] notice to proceed. This performance period is [X] mandatory, [ ] negotiable. *(See* FAR 52.211-10 *.)*

12 A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? *(If "YES," indicate within how many calendar days after award in Item 12B.)* [X] YES [ ] NO	12B. CALENDAR DAYS 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 ***1:00 PM*** *(hour)* local time ***3 FEB 2004*** *(date)*. If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

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

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

D. Offers providing less than 60 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

SOLICITATION, OFFER, AND AWARD (Continued)

(Construction, Alteration, or Repair)

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

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

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

AMOUNTS	SEE SCHEDULE OF PRICES

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

19. ACKNOWLEDGMENT OF AMENDMENTS

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

AMENDMENT NO.										
DATE										

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)*	20B. SIGNATURE	20C. OFFER DATE

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

21. ITEMS ACCEPTED:

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA

24. SUBMIT INVOICES TO ADDRESS SHOWN IN *(4 copies unless otherwise specified)*	**ITEM**	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO ☐ 10 U.S.C. 2304(c) ☐ 41 U.S.C. 253(c)
26. ADMINISTERED BY CODE		27. PAYMENT WILL BE MADE BY: CODE

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

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

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

30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN *(Type or print)*		31A. NAME OF CONTRACTING OFFICER *(Type or print)* TEL: EMAIL:
30B. SIGNATURE	30C. DATE	31B. UNITED STATES OF AMERICA BY	31C. AWARD DATE

PRICING SCHEDULE

CONTRACTOR 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 TO INCLUDE ALL ATTACHMENTS THERETO.

LINE ITEM NO.	DESCRIPTION	QUANTITY	UNIT OF MEASURE	UNIT PRICE	TOTAL PRICE
0001	MOBILIZATION/ DEMOBILIZATION	1	LUMP SUM	LUMP SUM	$_____
0002	MOBILIZATION/ DEMOBILIZATION FINAL STONE AND RIPRAP PLACEMENT	1	LUMP SUM	LUMP SUM	$_____
0003	ROCK FILL	101,450*	TON	$_____	$_____
0004	4,000 LB RIPRAP	5,000*	TON	$_____	$_____
0005	BEDDING MATERIAL	25,400*	TON	$_____	$_____
0006	500 LB RIPRAP	5,500*	TON	$_____	$_____
0007	SHEET PILE WALL DEEP U BOX (PU 32)	3,400*	LF	$_____	$_____
0008	SHEET PILE WALL DEEP U BOX (PU25)	1,280*	LF	$_____	$_____
0009	SHEET PILE WALL AZ-48	7,680*	LF	$_____	$_____
0010	SHEET PILE WALL AZ-36	8,100*	LF	$_____	$_____
0011	SHEET PILE WALL AZ-18	3,990*	LF	$_____	$_____
0012	SHEET PILE WALL AZ-13	19,360*	LF	$_____	$_____
0013	SHEET PILE WALL PU-12	4,670*	LF	$_____	$_____
0014	CONCRETE FILL	825*	CY	$_____	$_____
0015	NAVIGATIONAL AIDS BEACONS	3	EA	$_____	$_____
0016	NAVIGATIONAL AIDS BUOYS	5	EA	$_____	$_____
0017	INSTALLATION OF SETTLEMENT PLATFORMS	4	EA	$_____	$_____
0018	GEOTECHNICAL MONITORING PROGRAM	1	LUMP SUM	LUMP SUM	$_____

0019	***PULLING AZ SHEET PILE***	***500****	***LF***	***$_____***	***$_____***
0020	***PULLING DEEP U BOX SHEET PILE***	***300****	***LF***	***$_____***	***$_____***
0021	***RESIDENT ENGINEERS OFFICE***	***1***	***LUMP SUM***	***LUMP SUM***	***$_____***

TOTAL ESTIMATED PRICE $_____

* QUANTITY IS AN ESTIMATED AMOUNT. SEE SECTION 00700, FAR 52.211-18, FOR VARIATION IN ESTIMATED QUANTITY CONTRACT CLAUSE.

1. Prices must be submitted on all individual items of this Pricing Schedule. Failure to do so may cause the proposal to be determined "unacceptable".

2. If a modification to a price based on unit price is submitted which provides for a lump sum adjustment to the total estimated price, the applications of the lump sum adjustment to each unit price in the Pricing Schedule must be stated. If it is not stated, the bidder/offeror agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the Pricing Schedule.

3. The bidder/offeror shall distribute his indirect costs (overhead, profit, bond, etc.) over all the items in the Pricing Schedule. The Government will review all submitted Pricing Schedules for any unbalancing of the items. Any submitted Pricing Schedule determined to be unbalanced may cause the proposal to be determined "unacceptable".

4. The lump sum, "LS", line items above are not "estimated quantity" line items and therefore are not subject to the Variation in Quantity contract clause.

5. EFARS 52.214-5000 ARITHMETIC DISCREPANCIES

(a) For the purpose of initial evaluation of bids, the following will be utilized in the resolving arithmetic discrepancies found on the face of Pricing Schedule as submitted by the bidder:
(1) Obviously misplaced decimal points will be corrected;
(2) Discrepancy between unit price and extended price, the unit price will govern;
(3) Apparent errors in extension of unit prices will be corrected;
(4) Apparent errors in addition of lump-sum and extended prices will be corrected.
(b) For the purpose of bid evaluation, the Government will proceed on the assumption that the bidder intends the bid to be evaluated on basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.
(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid is low.

FAX: (916) 557-7854, Attn: James Garror

E-MAIL: James.E.Garror@usace.army.mil AND Ronald.A.Schunk@usace.army.mil.

(4) Please include the solicitation number, the project title, the location of the project, the full name of your company and your telephone and FAX numbers in your correspondence. Written inquiries should be received by this office not later than 14 calendar days prior to the date set for bid opening.

(5) Oral explanations or instructions are not binding. Changes to the solicitation can only be made by an amendment to the solicitation.

52.0214-4582 DIRECTIONS FOR SUBMITTING BIDS (MAR 2003)

Envelopes containing bids must be sealed, marked and addressed as follows:

MARK ENVELOPES:

Solicitation No. W912P7-04-B-0001
Bid Opening Date: ***3 FEB 04***
Bid Opening Time: 1:00 PM Local Time

ADDRESS ENVELOPES TO:

Department of the Army
U.S. Army Engineer District, Sacramento
ATTN: Contracting Division
1325 J Street
Sacramento CA 95814-2922

SPECIAL INSTRUCTIONS PERTAINING TO HAND-CARRIED BIDS:

Hand-carried bids must be delivered to: The Building Lobby at 1325 J Street, Sacramento, CA.

Due to security precautions, all Corps of Engineers visitors are now required to sign-in, leave a Photo-ID (such as a drivers license), and get a Visitor's Pass at the Security Desk in the Building Lobby. Bidders may no longer hand-carry their bids directly to Contracting Division without an authorized escort. Bids may NOT be either turned-in at the Security Desk or left unattended elsewhere in the Lobby. Additionally, you are advised that there is no longer public parking in the Building.

The Bid Opening Officer will be in the Building Lobby 20 minutes prior to the scheduled bid opening time to accept sealed bids. After announcing that no further bids will be received, the Bid Opening Officer will take the hand-carried bids and have them x-rayed as a security precaution. After the bids have been x-rayed, the bidders waiting in the Building Lobby will then be escorted as a group to the Bid Opening Room, where the bids will be publicly opened and read.

Bidders who desire to hand-deliver their bids at an earlier time must notify the contract specialist in advance to arrange to be met in the Building Lobby by Contracting Division personnel. In the event the contract specialist cannot be reached, please call the main Contracting Division telephone number, (916) 557-5201, in order to request assistance.

Please ensure that all courier and delivery personnel are aware of these procedures.

Acquisition, the Contractor is encouraged to submit paper documents, such as offers, letters, or reports, that are printed or copied double-sided on recycled paper that meet minimum content standards specified in Section 505 of Executive Order 13101, when not using electronic commerce methods to submit information or data to the Government.

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

(End of clause)

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

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

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

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

(1) The name of the subcontractor.

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

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

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

(End of clause)

52.211-10 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 ***365*** days after receipt of notice to proceed. The time stated for completion shall include final cleanup of the premises.

General Decision Number: CA030029 01/16/2004
Superseded General Decision Number: CA020029
State: California
Construction Types: Building, Heavy (Heavy, and Dredging) and Highway

Counties: Alameda, Calaveras, Contra Costa, Fresno, Kings, Madera, Mariposa, Merced, Monterey, San Benito, San Francisco, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Stanislaus and Tuolumne Counties in California.

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	06/13/2003
1	01/16/2004

ASBE0016-001 01/01/2003

	Rates	Fringes
Asbestos Workers/Insulator Includes the application of all insulating materials, Protective Coverings, Coatings, and Finishes to all types of mechanical systems	$ 37.58	9.96

ASBE0016-004 05/01/2002

	Rates	Fringes
Asbestos Removal worker/hazardous material handler Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not		
AREA 1	$ 22.90	3.25
AREA 2	$ 13.90	2.25

AREA DESCRIPTIONS
AREA 1: ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES
AREA 2: CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, STANISLAUS AND TUOLUMNE COUNTIES

BOIL0549-001 10/01/2002

	Rates	Fringes
Boilermaker	$ 32.46	13.55

BRCA0003-001 08/01/2002

	Rates	Fringes

Marble Finisher	$ 25.17	6.42

BRCA0003-003 08/01/2002

	Rates	Fringes
Marble mason	$ 35.44	11.96

BRCA0003-005 07/01/2002

	Rates	Fringes
Bricklayer		
ALAMEDA, CONTRA COSTA, SAN BENITO AND SANTA CLARA COUNTIES	$ 31.57	10.13
CALAVERAS, SAN JOAQUIN, STANISLAUS AND TOULUMNE COUNTIES	$ 27.30	8.70
FRESNO, KINGS, MADERA, MARIPOSA AND MERCED COUNTIES	$ 25.50	9.5O
MONTEREY AND SAN CRUZ COUNTIES	$ 29.98	10.50
SAN FRANCISCO AND SAN MATEO COUNTIES	$ 32.85	10.95

BRCA0003-008 07/01/2001

	Rates	Fringes
Terrazzo Finisher	$ 18.06	6.57
Terrazzo Worker	$ 33.80	10.15

BRCA0003-011 04/01/2002

	Rates	Fringes
Tile Finisher		
ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA AND SANTA CRUZ COUNTIES:	$ 18.06	6.57
CALAVERAS, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES	$ 18.06	6.52
FRESNO, KINGS, MADERA, MARIPOSA AND MERCED COUNTIES	$ 18.55	4.77
Tile Layer		
ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA AND SANTA CRUZ COUNTIES:	$ 33.53	7.80
CALAVERAS, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES	$ 29.58	7.75
FRESNO, KINGS, MADERA, MARIPOSA AND MERCED COUNTIES	$ 26.27	5.65

* CARP0022-001 08/01/2003

	Rates	Fringes

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  Drywall Installers/Lathers:
    ALAMEDA, CONTRA COSTA,
    SAN FRANCISCO, SAN
    MATEO AND SANTA CLARA
    COUNTIES
      All Projects:.....$ 30.75          12.215
    MONTEREY, SAN BENITO
    AND SANTA CRUZ COUNTIES
      Total Project value
      $25 million and over......$ 28.37          12.215
      Total Project Value
      under $25 Million.........$ 24.62          12.215
    REMAINDER OF COUNTIES:
      Total Project value
      $25 million and over......$ 27.52          12.215
      Total Project Value
      under $25 Million.........$ 23.77          12.215
  Drywall Stocker/Scrapper
    ALAMEDA, CONTRA COSTA,
    SAN FRANCISCO, SAN
    MATEO AND SANTA CLARA
    COUNTIES
      All Projects:.....$ 14.88           6.595
    MONTEREY, SAN BENITO
    AND SANTA CRUZ COUNTIES
      Total Project value
      $25 Million and over......$ 14.88           6.595
      Total Project Value
      under $25 Million.........$ 12.31           6.595
    REMAINDER OF COUNTIES:
      Total Project value
      $25 million and over......$ 14.88           6.575
      Total Project value
      under $25 million.........$ 11.89           6.595
------------------------------------------------------------------
* CARP0034-001 07/01/2003
                                  Rates          Fringes
  Diver
    Diver standby.............$ 32.34          15.795
    Diver Tender..............$ 32.34          15.795
    Diver wet.................$ 43.59          15.795
    Saturation diver..........$ 46.50          15.795
  DEPTH PAY (Surface Diving):
  050 to 100 ft     $1.32/ft
  100 to 150 ft    $66.00 + $1.85/ft
  150 to 200 ft    $158.00 + $2.65/ft
  200 ft and over  $291.00 + $3.00/ft
------------------------------------------------------------------
* CARP0034-003 07/01/2003
                                  Rates          Fringes
  Piledriver..................$ 29.40            15.795
------------------------------------------------------------------
* CARP0035-002 07/01/2003
                                  Rates          Fringes
  Carpenters:
    ALAMEDA, CONTRA COSTA,
    SAN FRANCISCO, SAN
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MATEO, AND SANTA CLARA COUNTIES:

(1) Carpenter	$ 30.75	11.765
(2) Hardwood Floorlayer; Shingler; Power Saw Operator; Steel Scaffold & Steel Shoring Erector; Saw Filer	$ 30.90	11.765
(3) Bridge Builder	$ 30.75	11.765
(4) Millwright	$ 30.85	13.055

CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS, AND TUOLUMNE COUNTIES: PROJECTS $25,000,000 & OVER:

(1) Carpenter	$ 26.02	11.765
(2) Hardwood Floorlayer; Shingler; Power Saw Operator; Steel Scaffold & Steel Shoring Erector; Saw Filer	$ 26.17	11.765
(3) Bridge Builder	$ 30.75	11.765
(4) Millwright	$ 29.52	13.635

CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS, AND TUOLUMNE COUNTIES: PROJECTS UNDER $25,000,000:

(1) Carpenter	$ 23.52	11.765
(2) Hardwood Floorlayer; Shingler; Power Saw Operator; Steel Scaffold & Steel Shoring Erector; Saw Filer	$ 23.67	11.765
(3) Bridge Builder	$ 30.75	11.765
(4) Millwright	$ 26.02	13.055

MONTEREY, SAN BENITO, AND SANTA CRUZ COUNTIES: PROJECTS $25,000,000 & OVER:

(1) Carpenter	$ 28.37	11.765
(2) Hardwood Floorlayer; Shingler; Power Saw Operator; Steel Scaffold & Steel Shoring Erector; Saw Filer	$ 28.52	11.765
(3) Bridge Builder	$ 30.75	11.765
(4) Millwright	$ 30.87	13.055

MONTEREY, SAN BENITO,

AND SANTA CRUZ
COUNTIES: PROJECTS
UNDER $25,000,000:
(1) Carpenter.....$ 24.87 11.765
(2) Hardwood
Floorlayer; Shingler;
Power Saw Operator;
Steel Scaffold &
Steel Shoring
Erector; Saw Filer.....$ 25.02 11.765
(3) Bridge Builder.....$ 30.75 11.765
(4) Millwright.....$ 27.37 13.055

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* CARP0035-007 07/01/2003

	Rates	Fringes
Modular Furniture Installer		
ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO, SANTA CLARA COUNTIES	$ 15.50	8.765
CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS, TUOLUMNE COUNTIES	$ 12.56	8.765
MONTEREY, SAN BENITO AND SANTA CRUZ COUNTIES	$ 13.33	8.765

ELEC0006-001 12/01/2000

COMMUNICATIONS AND SYSTEMS WORK:
ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA, AND SANTA CRUZ COUNTIES

	Rates	Fringes
Communications & Systems Technician	$ 26.55	3%+4.10
Communications and Systems Installer	$ 23.32	3%+4.10

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.

FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0006-007 06/01/2002
SAN FRANCISCO COUNTY

	Rates	Fringes
Electrician	$ 45.55	13.885

ELEC0006-008 12/01/1999
COMMUNICATIONS AND SYSTEMS WORK:
CALAVERAS, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES

	Rates	Fringes
Communications & Systems Technician	$ 21.31	3%+4.10
Communications and Systems Installer	$ 18.72	3%+4.10

SCOPE OF WORK: Including any data system whose only function is to transmit or receive information; excluding all other data systems or multiple systems which include control function or power supply; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding fire alarm work when installed in raceways (including wire and cable pulling) and when performed on new or major remodel building projects or jobs for which the conductors for the fire alarm system are installed in conduit; excluding installation of raceway systems, line voltage work, industrial work, life-safety systems (all buildings having floors located more than 75' above the lowest floor level having building access); excluding energy management systems.
FOOTNOTE: Fire alarm work when installed in raceways (including wire and cable pulling), on projects which involve new or major remodel building construction, for which the conductors for the fire alarm system are installed in the conduit, shall be performed by the inside electrician.

ELEC0100-002 06/01/2002
FRESNO, KINGS, AND MADERA COUNTIES

	Rates	Fringes
Electrician	$ 27.10	3%+8.81

ELEC0100-005 01/07/2002
FRESNO, KINGS, MADERA AND TULARE COUNTIES

	Rates	Fringes
Communications and Systems Installer	$ 21.47	3%+5.40

SCOPE OF WORK
Includes the installation testing, service and maintenance, of the following systems which utilize the transmission and/or transference of voice, sound, vision and digital for commercial, education, 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 system, radio page, school intercom and sound, burglar alarms, and low voltage master clock systems.
A. SOUND AND VOICE TRANSMISSION/TRANSFERENCE SYSTEMS
Background foreground musicc Intercom and telephone

interconnect systems Telephone systems Nurse call systems Radio page systems School intercom and sound systems Burglar alarm systems Low voltage master clock systems Multi-media/multiplex systems Sound and musical entertainment systems RF systems Antennas and Wave Guide
B. FIRE ALARM SYSTEMS Installation, wire pulling and testing
C. TELEVISION AND VIDEO SYSTEMS Television monitoring and surveillance systems Video security systems, Video entertainment systems, Video educational systems, Microwave transmission systems CATV and CCTV
D. SECURITY SYSTEMS Perimeter security systems Vibration sensor systems Card access systems Access control systems Sonar/infrared monitoring equipment
E. COMMUNICATIONS SYSTEMS THAT TRANSMIT OR RECEIVE INFORMATION AND/OR CONTROL SYSTEMS THAT ARE INTRINSIC TO THE ABOVE LISTED SYSTEMS SCADA (Supervisory Control and Data Acquisition) PCM (Pulse Code Modulation) Inventory Control Systems Digital Data Systems Broadband and Baseband and Carriers Point of Sale Systems VSAT Data Systems Data Communication Systems RF and Remote Control Systems Fiber Optic Data Systems
WORK EXCLUDED Raceway systems are not covered (excluding Ladder-Rack for the purpose of the above listed systems). Chases and/or nipples (not to exceed 10 feet) may be installed on open wiring systems. Energy management systems. SCADA (Supervisory Control and Data Acquisition) when not intrinsic to the above listed systems (in the scope). Fire alarm systems when installed in raceways (including wire and cable pulling) shall be performed at the electrician wage rate, when either of the following two (2) conditions apply:
1. The project involves new or major remodel building trades construction.
2. The conductors for the fire alarm system are installed in conduit.

ELEC0234-001 01/27/2003
MONTEREY, SAN BENITO AND SANTA CRUZ COUNTIES

	Rates	Fringes
Electrician	$ 32.01	3%+14.14

ELEC0302-001 06/01/2002
CONTRA COSTA COUNTY

	Rates	Fringes
Cable splicer	$ 41.26	3%+9.90
Electrician	$ 37.51	3%+9.90

ELEC0332-001 12/01/2002
SANTA CLARA COUNTY

	Rates	Fringes
Cable splicer	$ 48.96	3%+12.52
Electrician	$ 42.57	3%+12.52

FOOTNOTES: Work under compressed air or where gas masks are required, orwork on ladders, scaffolds, stacks, "Bosun's chairs," or other structures and where the workers are not protected by permanent guard rails at a distance of 40 to 60 ft. from the ground or supporting structures: to be paid one and one-half times the straight-time rate of pay. Work on

structures of 60 ft. or over (as described above): to be paid twice the straight-time rate of pay.

ELEC0595-001 12/01/2002
ALAMEDA COUNTY

	Rates	Fringes
Cable splicer	$ 46.83	3.45%+15.40
Electrician	$ 37.00	3.45%+15.40

ELEC0595-002 12/01/2002
CALAVERAS AND SAN JOAQUIN COUNTIES

	Rates	Fringes
Electricians:		
(1) TUNNEL WORK:		
Cable splicer	$ 31.84	3%+14.73
Electrician	$ 28.32	3%+14.73
(2) ALL OTHER WORK:		
Cable splicer	$ 31.71	3%+14.73
Electrician	$ 28.19	3%+14.73

ELEC0617-001 06/01/2002
SAN MATEO COUNTY

	Rates	Fringes
Electrician	$ 42.37	3%+11.66

ELEC0684-001 07/01/2002
MARIPOSA, MERCED, STANISLAUS AND TUOLUMNE COUNTIES

	Rates	Fringes
Cable splicer	$ 32.09	7%+9.55
Electrician	$ 29.17	7%+9.55

ELEC1245-001 06/01/2002

	Rates	Fringes
Line Construction		
(1) Lineman; Cable splicer	$ 33.16	4.5%+7.08
(2) 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
(3) Groundman	$ 21.56	4.5%+6.80
(4) Powderman	$ 31.51	4.5%+6.84

ELEV0008-001 08/01/2001

	Rates	Fringes
Elevator Mechanic	$ 42.735	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.

ENGI0003-005 06/16/2002

	Rates	Fringes
Power Equipment Operator		
AREA 1:		
GROUP 1	$ 34.47	13.51
GROUP 2	$ 32.94	13.51
GROUP 3	$ 31.46	13.51
GROUP 4	$ 30.08	13.51
GROUP 5	$ 28.81	13.51
GROUP 6	$ 27.49	13.51
GROUP 7	$ 26.35	13.51
GROUP 8	$ 25.21	13.51
GROUP 8-A	$ 23.00	13.51
AREA 2:		
GROUP 1	$ 36.47	13.51
GROUP 1-A	$ 34.94	13.51
GROUP 3	$ 33.46	13.51
GROUP 4	$ 32.08	13.51
GROUP 5	$ 30.81	13.51
GROUP 6	$ 29.49	13.51
GROUP 7	$ 28.35	13.51
GROUP 8	$ 27.21	13.51
GROUP 8-A	$ 25.00	13.51
Power Equipment Operators - All Cranes and Attachments:		
AREA 1: GROUP 1		
All other	$ 35.35	13.51
Oiler	$ 26.09	13.51
Truck crane oiler	$ 28.38	13.51
AREA 1: GROUP 2		
All other	$ 33.59	13.51
Oiler	$ 25.88	13.51
Truck crane oiler	$ 28.12	13.51
AREA 1: GROUP 3		
All other	$ 31.85	13.51
Hydraulic	$ 27.49	13.51
Oiler	$ 25.60	13.51
Truck crane oiler	$ 27.88	13.51
AREA 2: GROUP 1		
All other	$ 37.35	13.51
Oiler	$ 28.09	13.51
Truck crane oiler	$ 30.38	13.51
AREA 2: GROUP 2		
All other	$ 35.59	13.51
Oiler	$ 27.88	13.51
Truck crane oiler	$ 30.12	13.51
AREA 2: GROUP 3		
All other	$ 33.85	13.51
Hydraulic	$ 28.12	13.51
Oiler	$ 27.60	13.51
Truck crane oiler	$ 29.88	13.51
Power Equipment Operators - Piledrivers:		
GROUP 1		

All other	$ 35.69	13.51
Oiler	$ 26.43	13.51
Truck crane oiler	$ 28.77	13.51
GROUP 2		
All other	$ 33.87	13.51
Oiler	$ 26.16	13.51
Truck crane oiler	$ 28.46	13.51
GROUP 3		
All other	$ 32.19	13.51
Oiler	$ 25.94	13.51
Truck crane oiler	$ 28.17	13.51
GROUP 4		
All other	$ 30.42	13.51
GROUP 5	$ 27.78	13.51
GROUP 6	$ 25.55	13.51
Power equipment operators - steel erection:		
GROUP 1		
All other	$ 36.32	13.51
Oiler	$ 26.77	13.51
Truck crane oiler	$ 29.00	13.51
GROUP 2		
All other	$ 34.55	13.51
Oiler	$ 26.50	13.51
Truck crane oiler	$ 28.78	13.51
GROUP 3		
All other	$ 33.07	13.51
Hydraulic	$ 28.12	13.51
Oiler	$ 26.28	13.51
Truck crane oiler	$ 28.51	13.51
GROUP 4	$ 31.05	13.51
GROUP 5	$ 29.75	13.51
Power Equipment Operators - Tunnel and Underground Work:		
SHAFTS, STOPES, RAISES:		
AREA 1:		
GROUP 1	$ 30.57	13.51
GROUP 1-A	$ 33.04	13.51
GROUP 2	$ 29.31	13.51
GROUP 3	$ 27.98	13.51
GROUP 4	$ 26.74	13.51
GROUP 5	$ 25.70	13.51
SHAFTS, STOPES, RAISES:		
AREA 2:		
GROUP 1	$ 32.57	13.51
GROUP 1-A	$ 35.04	13.51
GROUP 2	$ 31.31	13.51
GROUP 3	$ 29.98	13.51
GROUP 4	$ 28.84	13.51
GROUP 5	$ 27.70	13.51
UNDERGROUND: AREA 1:		
GROUP 1	$ 30.47	13.51
GROUP 1-A	$ 32.94	13.51
GROUP 2	$ 29.21	13.51
GROUP 3	$ 27.88	13.51
GROUP 4	$ 26.74	13.51
GROUP 5	$ 25.60	13.51

UNDERGROUND: AREA 2:

GROUP 1	$ 32.47	13.51
GROUP 1-A	$ 34.94	13.51
GROUP 2	$ 31.21	13.51
GROUP 3	$ 29.88	13.51
GROUP 4	$ 28.74	13.51
GROUP 5	$ 27.60	13.51

FOOTNOTE: Work suspended by ropes or cables, or work on a Yo-Yo Cat: $.60 per hour additional.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Operator of helicopter (when used in erection work); Hydraulic excavator, 7 cu. yds. and over; Power shovels, over 7 cu. yds.

GROUP 2: Highline cableway; Hydraulic excavator, 3-1/2 cu. yds. up to 7 cu. yds.; Licensed construction work boat operator, on site; Power blade operator (finish); Power shovels, over 1 cu. yd. up to and including 7 cu. yds. m.r.c.

GROUP 3: Asphalt milling machine; Cable backhoe; Combination backhoe and loader over 3/4 cu. yds.; Continuous flight tie back machine assistant to engineer or mechanic; Crane mounted continuous flight tie back machine, tonnage to apply; Crane mounted drill attachment, tonnage to apply; Dozer, slope brd; Gradall; Hydraulic excavator, up to 3 1/2 cu. yds.; Loader 4 cu. yds. and over; Long reach excavator; Multiple engine scraper (when used as push pull); Power shovels, up to and including 1 cu. yd.; Pre-stress wire wrapping machine; Side boom cat, 572 or larger; Track loader 4 cu. yds. and over; Wheel excavator (up to and including 750 cu. yds. per hour)

GROUP 4: Asphalt plant engineer/box person; Chicago boom; Combination backhoe and loader up to and including 3/4 cu. yd.; Concrete batch plant (wet or dry); Dozer and/or push cat; Pull- type elevating loader; Gradesetter, grade checker (GPS, mechanical or otherwise); Grooving and grinding machine; Heading shield operator; Heavy-duty drilling equipment, Hughes, LDH, Watson 3000 or similar; Heavy-duty repairperson and/or welder; Lime spreader; Loader under 4 cu. yds.; Lubrication and service engineer (mobile and grease rack); Mechanical finishers or spreader machine (asphalt, Barber-Greene and similar); Miller Formless M-9000 slope paver or similar; Portable crushing and screening plants; Power blade support; Roller operator, asphalt; Rubber-tired scraper, self-loading (paddle-wheels, etc.); Rubber- tired earthmoving equipment (scrapers); Slip form paver (concrete); Small tractor with drag; Soil stabilizer (P & H or equal); Spider plow and spider puller; Tubex pile rig; Unlicensed constuction work boat operator, on site; Timber skidder; Track loader up to 4 yds.; Tractor-drawn scraper; Tractor, compressor drill combination; Welder; Woods-Mixer (and other similar Pugmill equipment)

GROUP 5: Cast-in-place pipe laying machine; Combination slusher and motor operator; Concrete conveyor or concrete pump, truck or equipment mounted; Concrete conveyor, building site; Concrete pump or pumpcrete gun; Drilling equipment, Watson 2000, Texoma 700 or similar; Drilling and boring machinery, horizontal (not to apply to waterliners, wagon drills or jackhammers); Concrete mixer/all; Person and/or material hoist; Mechanical finishers (concrete) (Clary,

Johnson, Bidwell Bridge Deck or similar types); Mechanical burm, curb and/or curb and gutter machine, concrete or asphalt); Mine or shaft hoist; Portable crusher; Power jumbo operator (setting slip-forms, etc., in tunnels); Screed (automatic or manual); Self-propelled compactor with dozer; Tractor with boom D6 or smaller; Trenching machine, maximum digging capacity over 5 ft. depth; Vermeer T-600B rock cutter or similar

GROUP 6: Armor-Coater (or similar); Ballast jack tamper; Boom- type backfilling machine; Assistant plant engineer; Bridge and/or gantry crane; Chemical grouting machine, truck-mounted; Chip spreading machine operator; Concrete saw (self-propelled unit on streets, highways, airports and canals); Deck engineer; Drilling equipment Texoma 600, Hughes 200 Series or similar up to and including 30 ft. m.r.c.; Drill doctor; Helicopter radio operator; Hydro-hammer or similar; Line master; Skidsteer loader, Bobcat larger than 743 series or similar (with attachments); Locomotive; Lull hi-lift or similar; Oiler, truck mounted equipment; Pavement breaker, truck-mounted, with compressor combination; Paving fabric installation and/or laying machine; Pipe bending machine (pipelines only); Pipe wrapping machine (tractor propelled and supported); Screed (except asphaltic concrete paving); Self- propelled pipeline wrapping machine; Soils & materials tester; Tractor; Self-loading chipper; Concrete barrier moving machine

GROUP 7: Ballast regulator; Boom truck or dual-purpose A-frame truck, non-rotating - under 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) - under 15 tons; Cary lift or similar; Combination slurry mixer and/or cleaner; Drilling equipment, 20 ft. and under m.r.c.; Firetender (hot plant); Grouting machine operator; Highline cableway signalperson; Stationary belt loader (Kolman or similar); Lift slab machine (Vagtborg and similar types); Maginnes internal full slab vibrator; Material hoist (1 drum); Mechanical trench shield; Pavement breaker with or without compressor combination); Pipe cleaning machine (tractor propelled and supported); Post driver; Roller (except asphalt); Chip Seal; Self-propelled automatically applied concrete curing mahcine (on streets, highways, airports and canals); Self-propelled compactor (without dozer); Signalperson; Slip-form pumps (lifting device for concrete forms); Tie spacer; Tower mobile; Trenching machine, maximum digging capacity up to and including 5 ft. depth; Truck- type loader

GROUP 8: Bit sharpener; Boiler tender; Box operator; Brakeperson; Combination mixer and compressor (shotcrete/gunite); Compressor operator; Deckhand; Fire tender; Forklift (under 20 ft.); Generator; Gunite/shotcrete equipment operator; Hydraulic monitor; Ken seal machine (or similar); Mixermobile; Oiler; Pump operator; Refrigeration plant; Reservoir-debris tug (self- propelled floating); Ross Carrier (construction site); Rotomist operator; Self-propelled tape machine; Shuttlecar; Self-propelled power sweeper operator (includes vacuum sweeper); Slusher operator; Surface heater; Switchperson; Tar pot firetender; Tugger hoist, single drum; Vacuum cooling plant; Welding

machine (powered other than by electricity)
GROUP 8-A: Elevator operator; Skidsteer loader-Bobcat 743 series or smaller, and similar (without attachments); Mini excavator under 25 H.P. (backhoe-trencher); Tub grinder wood chipper

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ALL CRANES AND ATTACHMENTS

GROUP 1: Clamshell and dragline over 7 cu. yds.; Crane, over 100 tons; Derrick, over 100 tons; Derrick barge pedestal-mounted, over 100 tons; Self-propelled boom-type lifting device, over 100 tons
GROUP 2: Clamshell and dragline over 1 cu. yd. up to and including 7 cu. yds.; Crane, over 45 tons up to and including 100 tons; Derrick barge, 100 tons and under; Self-propelled boom-type lifting device, over 45 tons; Tower crane
GROUP 3: Clamshell and dragline up to and including 1 cu. yd.; Cranes 45 tons and under; Self-propelled boom-type lifting device 45 tons and under; Boom Truck or dual purpose A-frame truck, non-rotating over 15 tons; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) over 15 tons;

PILEDRIVERS

GROUP 1: Derrick barge pedestal mounted over 100 tons; Clamshell over 7 cu. yds.; Self-propelled boom-type lifting device over 100 tons; Truck crane or crawler, land or barge mounted over 100 tons
GROUP 2: Derrick barge pedestal mounted 45 tons to and including 100 tons; Clamshell up to and including 7 cu. yds.; Self-propelled boom-type lifting device over 45 tons; Truck crane or crawler, land or barge mounted, over 45 tons up to and including 100 tons; Fundex F-12 hydraulic pile rig
GROUP 3: Derrick barge pedestal mounted under 45 tons; Self-propelled boom-type lifting device 45 tons and under; Skid/scow piledriver, any tonnage; Truck crane or crawler, land or barge mounted 45 tons and under
GROUP 4: Assistant operator in lieu of assistant to engineer; Forklift, 10 tons and over; Heavy-duty repairperson/welder
GROUP 5: Deck engineer
GROUP 6: Deckhand; Fire tender

STEEL ERECTORS

GROUP 1: Crane over 100 tons; Derrick over 100 tons; Self-propelled boom-type lifting device over 100 tons
GROUP 2: Crane over 45 tons to 100 tons; Derrick under 100 tons; Self-propelled boom-type lifting device over 45 tons to 100 tons; Tower crane
GROUP 3: Crane, 45 tons and under; Self-propelled boom-type lifting device, 45 tons and under
GROUP 4: Chicago boom; Forklift, 10 tons and over; Heavy-duty repair person/welder
GROUP 5: Boom cat POWER

TUNNEL AND UNDERGROUND WORK

GROUP 1-A: Tunnel bore machine operator, 20' diameter or more
GROUP 1: Heading shield operator; Heavy-duty repairperson;

Mucking machine (rubber tired, rail or track type); Raised bore operator (tunnels); Tunnel mole bore operator
GROUP 2: Combination slusher and motor operator; Concrete pump or pumpcrete gun; Power jumbo operator
GROUP 3: Drill doctor; Mine or shaft hoist
GROUP 4: Combination slurry mixer cleaner; Grouting Machine operator; Motorman
GROUP 5: Bit Sharpener; Brakeman; Combination mixer and compressor (gunite); Compressor operator; Oiler; Pump operator; Slusher operator

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AREA DESCRIPTIONS POWER EQUIPMENT OPERATORS, CRANES AND ATTACHMENTS,TUNNEL AND UNDERGROUND These areas do not apply to Piledrivers and Steel Erectors.
AREA 1: ALAMEDA, CONTRA COSTA, KINGS, MERCED, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ AND STANISLAUS COUNTIES
AREA 2 - The remaining counties are split between Area 1 and Area 2 as noted below:
CALAVERAS COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part
FRESNO COUNTY
Area 1: Except Eastern part
Area 2: Eastern part
MADERA COUNTY
Area 1: Except Eastern part
Area 2: Eastern part
MARIPOSA COUNTY
Area 1: Except Eastern part
Area 2: Eastern part
MONTEREY COUNTY
Area 1: Except Southwestern part
Area 2: Southwestern part

ENGI0003-020 07/01/2001

	Rates	Fringes
Dredging: (DREDGING: CLAMSHELL & DIPPER DREDGING; HYDRAULIC SUCTION DREDGING:)		
AREA 1:		
(1) Leverman	$ 34.39	12.37
(2) Dredge Dozer; Heavy duty repairman	$ 29.43	12.37
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator	$ 28.31	12.37
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler	$ 25.01	12.37
AREA 2:		
(1) Leverman	$ 36.39	12.37
(2) Dredge Dozer; Heavy duty repairman	$ 29.93	12.37

(3) Booster Pump
Operator; Deck
Engineer; Deck mate;
Dredge Tender;
Winch Operator.....$ 30.31 12.37
(4) Bargeman;
Deckhand; Fireman;
Leveehand; Oiler.....$ 27.01 12.37

AREA DESCRIPTIONS

AREA 1: ALAMEDA, CONTRA COSTA, KINGS, MERCED, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ AND STANISLAUS COUNTIES

THE REMAINGING COUNTIES ARE SPLIT BETWEEN AREA 1 AND AREA 2 AS NOTED BELOW:

CALAVERAS COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

FRESNO COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

MADERA COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

MARIPOSA COUNTY
Area 1: Except Eastern part
Area 2: Eastern part

MONTERREY COUNTY
Area 1: Except Southwestern part
Area 2: Southwestern part

TUOLUMNE COUNTY:
Area 1: Except Eastern part
Area 2: Eastern part

IRON0001-020 07/01/2002

ALAMEDA, CALAVERAS, CONTRA COSTA, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN BENITO, SAN FRANCISCO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
Ironworker		
Fence erector	$ 25.97	15.29
Ornamental, reinforcing and structural	$ 26.86	15.29

FOOTNOTE: A. CITY OF SAN FRANCISCO defined as the city limits of San Francisco (as described by the San Francisco County Recorder's Office as of July 1, 1998), the Golden Gate Bridge in its entirety, and the west side of the San Francisco Bay Bridge up to and including Treasure Island): Zone fee: $10.00 per day.

B. ALAMEDA, SAN MATEO AND SANTA CLARA COUNTIES ONLY: Zone Fee: $8.00 per day.

IRON0001-021 07/01/2002

MONTEREY COUNTY:

	Rates	Fringes
Ironworker		
Fence erector	$ 25.97	15.29

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    Ornamental, reinforcing
    and   structural.....$ 26.86           15.29
  FOOTNOTE: Work at the Army Defense Language Institute, and
  the Naval Post Graduate School additional $2.00 per hour.
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LABO0036-001 07/01/2002
SAN FRANCISCO AND SAN MATEO COUNTIES:
                                  Rates          Fringes
  Brick Tender.....................$ 23.82            9.61
  FOOTNOTES: Underground work such as sewers, manholes, catch
  basins, sewer pipes, telephone conduits, tunnels and cut
  trenches: $5.00 per day additional. Work in live sewage:
  $2.50 per day additional.
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LABO0036-002 07/01/2002
SAN FRANCISCO AND SAN MATEO COUNTIES:
                                  Rates          Fringes
  Plasterer tender.................$ 23.82            9.69
  FOOTNOTES: Work on a suspended scaffold: $5.00 per day
  additional. Work operating a plaster mixer pump gun: $1.00
  per hour additional.
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LABO0067-002 12/01/2002
ALAMEDA,  CALAVERAS, CONTRA COSTA, FRESNO, KINGS, MADERA,
MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN MATEO, SANTA CLARA,
SAN FRANCISCO, SAN JOAQUIN, SANTA CRUZ, STANISLAUS, AND
TUOLUMNE COUNTIES:
                                  Rates          Fringes
  Asbestos Removal Laborer.......$ 10.75            2.31
  SCOPE OF WORK: Covers site mobilization; initial site
  clean-up; site preparation; removal of asbestos-containing
  materials from walls and ceilings; or from pipes, boilers and
  mechanical systems only if they are being scrapped;
  encapsulation, enclosure and disposal of asbestos-containing
  materials by hand or with equipment or machinery;
  scaffolding; fabrication of temporary wooden barriers; and
  assembly of decontamination stations.
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LABO0067-006 06/24/2002
                                  Rates          Fringes
  Laborer: Gunite
    ALAMEDA, CONTRA COSTA,
    SAN FRANCISCO, SAN
    MATEO AND SANTA CLARA
    COUNTIES
      Group 1.....................$ 23.60            9.08
      GROUP 2.....................$ 23.10            9.08
      GROUP 3.....................$ 22.51            9.08
      GROUP 4.....................$ 22.39            9.08
    CALAVERAS, FRESNO,
    KINGS, MADERA,
    MARIPOSA, MERCED,
    MONTEREY, SAN BENITO,
    SANTA CRUZ, SAN
    JOAQUIN, STANISLAUS AND
    TUOLUMNE COUNTIES
      GROUP 1.....................$ 22.60            9.08
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GROUP 2	$ 22.10	9.08
GROUP 3	$ 21.51	9.08
GROUP 4	$ 21.39	9.08
Laborer: Wrecking, buildings and miscellaneous structures (WRECKING WORK)		
ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES		
GROUP 1	$ 22.64	9.08
GROUP 2	$ 22.49	9.08
GROUP 3	$ 16.08	9.08
CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SANTA CRUZ, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES		
GROUP 1	$ 21.64	9.08
GROUP 2	$ 21.49	9.08
GROUP 3	$ 15.08	9.08
Laborers:		
ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES		
Construction specialist group	$ 23.34	9.08
Group 1	$ 22.64	9.08
Group 1-a	$ 22.86	9.08
GROUP 1-c	$ 22.69	9.08
GROUP 1-e	$ 23.19	9.08
GROUP 1-f	$ 23.22	9.08
GROUP 1-g (Contra Costa County)	$ 22.84	8.08
GROUP 2	$ 22.49	9.08
GROUP 3	$ 22.39	9.08
GROUP 4	$ 16.08	9.08
CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SANTA CRUZ, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES		
Construction specialist group	$ 22.34	9.08
GROUP 1	$ 21.64	9.08
Group 1-a	$ 21.86	9.08
GROUP 1-c	$ 21.69	9.08
GROUP 1-e	$ 22.19	9.08
GROUP 1-f	$ 22.22	9.08
GROUP 2	$ 21.49	9.08
GROUP 3	$ 21.39	9.08
GROUP 4	$ 15.08	9.08

See groups 1-b and 1-d under laborer classifications.

Landscape Laborer
(GARDENERS, HORTICULTURAL &
LANDSCAPE LABORERS)

ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES		
Establishment warranty period	$ 16.08	9.08
New construction	$ 22.39	9.08
CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SANTA CRUZ, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES		
Establishment warranty period	$ 15.08	9.08
New construction	$ 21.39	9.08

FOOTNOTES: Laborers working off or with or from bos'n chairs, swinging scaffolds, belts shall receive $0.25 per hour above the applicable wage rate. This shall not apply to workers entitled to receive the wage rate set forth in Group 1-a below.

LABORER CLASSIFICATIONS

CONSTRUCTION SPECIALIST GROUP: Asphalt ironer and raker; Chainsaw; Laser beam in connection with laborers' work; Cast-in- place manhole form setter; Pressure pipelayer; Davis trencher - 300 or similar type (and all small trenchers); Blaster; Diamond driller; Multiple unit drill; Hydraulic drill

GROUP 1: Asphalt spreader boxes (all types); Barko, Wacker and similar type tampers; Buggymobile; Caulker, bander, pipewrapper, conduit layer, plastic pipelayer; Certified hazardous waste worker; Compactors of all types; Concrete and magnesite mixer, 1/2 yd. and under; Concrete pan work; Concrete sander; Concrete saw; Cribber and/or shoring; Cut granite curb setter; Dri-pak-it machine; Faller, logloader and bucker; Form raiser, slip forms; Green cutter; Headerboard, Hubsetter, aligner, by any method; High pressure blow pipe (1-1/2" or over, 100 lbs. pressure/over); Hydro seeder and similar type; Jackhammer operator; Jacking of pipe over 12 inches; Jackson and similar type compactor; Kettle tender, pot and worker applying asphalt, lay-kold, creosote, lime, caustic and similar type materials (applying means applying, dipping or handling of such materials); Lagging, sheeting, whaling, bracing, trenchjacking, lagging hammer; Magnesite, epoxyresin, fiberglass, mastic worker (wet or dry); No joint pipe and stripping of same, including repair of voids; Pavement breaker and spader, including tool grinder; Perma curb; Pipelayer (including grade checking in connection with pipelaying); Precast-manhole setter; Pressure pipe tester; Post hole digger, air, gas and electric; Power broom sweeper; Power tampers of all types (except as shown in Group 2); Ram set gun and stud gun; Riprap stonepaver and

rock-slinger, including placing of sacked concrete and/or sand (wet or dry) and gabions and similar type; Rotary scarifier or multiple head concrete chipping scarifier; Roto and Ditch Witch; Rototiller; Sandblaster, pot, gun, nozzle operators; Signalling and rigging; Tank cleaner; Tree climber; Turbo blaster; Vibrascreed, bull float in connection with laborers' work; Vibrator; Hazardous waste worker (lead removal); Asbestos and mold removal worker

GROUP 1-a: Joy drill model TWM-2A; Gardner-Denver model DH143 and similar type drills; Track driller; Jack leg driller; Wagon driller; Mechanical drillers, all types regardless of type or method of power; Mechanical pipe layers, all types regardless of type or method of power; Blaster and powder; All work of loading, placing and blasting of all powder and explosives of whatever type regardless of method used for such loading and placing; High scalers (including drilling of same); Tree topper; Bit grinder

GROUP 1-b: Sewer cleaners shall receive $4.00 per day above Group 1 wage rates. "Sewer cleaner" means any worker who handles or comes in contact with raw sewage in small diameter sewers. Those who work inside recently active, large diameter sewers, and all recently active sewer manholes shal receive $5.00 per day above Group 1 wage rates.

GROUP 1-c: Burning and welding in connection with laborers' work; Synthetic thermoplastics and similar type welding

GROUP 1-d: Maintenance and repair track and road beds. All employees performing work covered herein shall receive $ .25 per hour above their regular rate for all work performed on underground structures not specifically covered herein. This paragraph shall not be construed to apply to work below ground level in open cut. It shall apply to cut and cover work of subway construction after the temporary cover has been placed.

GROUP 1-e: Work on and/or in bell hole footings and shafts thereof, and work on and in deep footings. (A deep footing is a hole 15 feet or more in depth.) In the event the depth of the footing is unknown at the commencement of excavation, and the final depth exceeds 15 feet, the deep footing wage rate would apply to all employees for each and every day worked on or in the excavation of the footing from the date of inception.

GROUP 1-f: Wire winding machine in connection with guniting or shot crete

GROUP 1-g, CONTRA COSTA COUNTY: Pipelayer (including grade checking in connection with pipelaying); Caulker; Bander; Pipewrapper; Conduit layer; Plastic pipe layer; Pressure pipe tester; No joint pipe and stripping of same, including repair of voids; Precast manhole setters, cast in place manhole form setters

GROUP 2: Asphalt shoveler; Cement dumper and handling dry cement or gypsum; Choke-setter and rigger (clearing work); Concrete bucket dumper and chute; Concrete chipping and grinding; Concrete laborer (wet or dry); Driller tender, chuck tender, nipper; Guinea chaser (stake), grout crew; High pressure nozzle, adductor; Hydraulic monitor (over 100 lbs. pressure); Loading and unloading, carrying and hauling of all rods and materials for use in reinforcing concrete

construction; Pittsburgh chipper and similar type brush shredders; Sloper; Single foot, hand-held, pneumatic tamper; All pneumatic, air, gas and electric tools not listed in Groups 1 through 1-f; Jacking of pipe - under 12 inches
GROUP 3: Construction laborers, including bridge and general laborer; Dump, load spotter; Flag person; Fire watcher; Fence erector; Guardrail erector; Gardener, horticultural and landscape laborer; Jetting; Limber, brush loader and piler; Pavement marker (button setter); Maintenance, repair track and road beds; Streetcar and railroad construction track laborer; Temporary air and water lines, Victaulic or similar; Tool room attendant (jobsite only)
GROUP 4: All clean-up work of debris, grounds and building including but not limited to: street cleaner; cleaning and washing windows; brick cleaner (jobsite only); material cleaner (jobsite only). The classification "material cleaner" is to be utilized under the following conditions:
A: at demolition site for the salvage of the material.
B: at the conclusion of a job where the material is to be salvaged and stocked to be reused on another job.
C: for the cleaning of salvage material at the jobsite or temporary jobsite yard.
The material cleaner classification should not be used in the performance of "form stripping, cleaning and oiling and moving to the next point of erection".

GUNITE LABORER CLASSIFICATIONS
GROUP 1: Structural nozzle operator
GROUP 2: Nozzle operator (including gun, pot); Ground person
GROUP 3: Rebound
GROUP 4: Gunite laborer

WRECKING WORK LABORER CLASSIFICATIONS
GROUP 1: Skilled wrecker (removing and salvaging of sash, windows and materials)
GROUP 2: Semi-skilled wrecker (salvaging of other building materials)
GROUP 3: General laborer (includes all clean-up work, loading lumber, loading and burning of debris)

LABO0067-010 06/30/2002

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1	$ 27.00	9.08
GROUP 2	$ 26.77	9.08
GROUP 3	$ 26.52	9.08
GROUP 4	$ 26.25	9.08
GROUP 5	$ 26.07	9.08
GROUP 6	$ 25.53	9.08

TUNNEL AND SHAFT CLASSIFICATIONS
GROUP 1: Diamond driller; Ground person; Gunite and shotcrete nozzle operator
GROUP 2: Rod person; Shaft work & raise (below actual or excavated ground level)
GROUP 3: Bit grinder; Blaster, driller, powder person - heading; Cherry picker operator - where car is lifted; Concrete finisher in tunnel; Concrete screed person; Grout

pump operator and pot person; Gunite & shotcrete gun person & pot person; Header person; High pressure nozzle operator; Miner - tunnel, including top and bottom person on shaft and raise work; Nipper; Nozzle operator on slick line; Sandblaster - pot person
GROUP 4: Steel form raiser and setter; Timber person, retimber person (wood or steel or substitute materials therefore); Tugger (for tunnel laborer work); Cable tender; Chuck tender; Powder person - primer house
GROUP 5: Vibrator operator, pavement breaker; Bull gang - muckers, track person; Concrete crew - includes rodding and spreading
GROUP 6: Dump person (any method); Grout crew; Rebound person; Swamper

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LABO0073-003 07/01/2002
CALAVERAS, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
Brick Tender	$ 23.84	6.51

LABO0073-005 07/01/2002
CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
Plasterer tender	$ 21.58	9.27

LABO0166-001 07/01/2002
ALAMEDA AND CONTRA COSTA COUNTIES:

	Rates	Fringes
Brick Tender	$ 22.90	10.06

FOOTNOTES: Work on jobs where heat-protective clothing is required: $2.00 per hour additional. Work at grinders: $.25 per hour additional. Manhole work: $2.00 per day additional.

LABO0166-002 07/01/2002
ALAMEDA AND CONTRA COSTA COUNTIES:

	Rates	Fringes
Plasterer tender		
Gun operator	$ 28.04	11.41
Plasterer tender	$ 27.29	11.41

LABO0185-001 07/01/2002
MONTEREY AND SAN BENITO COUNTIES:

	Rates	Fringes
Brick Tender	$ 23.84	6.51

LABO0270-001 07/01/2002

	Rates	Fringes
Brick Tender		
SANTA CLARA COUNTY	$ 25.45	6.45
SANTA CRUZ COUNTY	$ 24.45	6.45

FOOTNOTE: $2.00 per hour for refactory work where heat-protective clothing is required.

LABO0270-004 07/01/2000
SANTA CLARA AND SANTA CRUZ COUNTIES:

	Rates	Fringes
Plasterer tender		
All wood framed buildings five (5) stories or more includes all steel structures and all structures with metal studs	$ 24.60	6.75
All wood framed buildings four (4) stories or less and excludes steel structures, structures with metal studs	$ 22.68	6.85

LABO0294-001 07/01/2002
FRESNO, KINGS AND MADERA COUNTIES:

	Rates	Fringes
Brick Tender	$ 24.14	6.51

LABO0297-001 08/01/2002
MONTEREY AND SAN BENITO COUNTIES:

	Rates	Fringes
Plasterer tender	$ 22.75	5.75
FOOTNOTE: Mixer person: $4.00 per day additional.		

PAIN0016-001 11/01/2002

	Rates	Fringes
Painter		
Work on industrial buildings (used for the manufacture and processing of goods for sale or service); Also, steel construction (bridges), stacks, towers, tanks and similar structures):		
Brush and Roller		
(1) under 50 feet	$ 28.43	11.84
(2) over 50 feet	$ 30.43	11.84
(3) 100 to 180 feet	$ 32.43	11.84
(4) over 180 feet	$ 34.43	11.84
Work on industrial buildings (used for the manufacture and processing of goods for sale or service); Also, steel construction (bridges), stacks, towers, tanks and similar structures):		
Spray and Sandblast		
(1) under 50 feet	$ 28.93	11.84
(2) over 50 feet	$ 30.93	11.84
(3) 100 to 180 feet	$ 32.93	11.84

(4) over 180 feet.....$ 34.93 11.84
Work on industrial buildings (used for the manufacture and processing of goods for sale or service); Also, steel construction (bridges), stacks, towers, tanks and similar structures: Application of Exotic materials
(1) under 50 feet.....$ 29.18 11.84
(2) over 50 feet.....$ 31.18 11.84
(3) 100 to 180 feet.....$ 33.18 11.84
(4) over 180 feet.....$ 35.18 11.84
Painters:
All Other Work: Application of Exotic materials
(1) under 50 feet.....$ 28.93 11.84
(2) over 50 feet.....$ 30.93 11.84
(3) 100 to 180 feet.....$ 32.93 11.84
(4) over 180 feet.....$ 34.93 11.84
All Other Work: Brush and Roller
(1) under 50 feet.....$ 28.28 11.84
(2) over 50 feet.....$ 30.18 11.84
(3) 100 to 180 feet.....$ 32.18 11.84
(4) over 180 feet.....$ 34.18 11.84

PAIN0016-003 02/01/2003

	Rates	Fringes
Drywall Finisher/Taper		
ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES:	$ 32.84	12.77
CALAVERAS, MARIPOSA, MERCED, MONTEREY, SAN BENITO SAN JOAQUIN, SANTA CRUZ, STANISLAUS AND TUOLUMNE COUNTIES:	$ 28.94	11.17

PAIN0016-008 01/01/2003
FRESNO, KINGS AND MADERA COUNTIES:

	Rates	Fringes
Painter		
Brush and Roller	$ 19.59	8.42
Drywall Taper	$ 20.84	8.42
Spray and sandblasters	$ 20.84	8.42

FOOTNOTES: Paperhangers, and work over 30 feet (does not include work from a lift): $0.50 per hour additional.

PAIN0016-010 11/01/2002
FRESNO, KINGS, MADERA AND COUNTIES:

	Rates	Fringes

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  Soft Floor Layer..............$ 18.83             6.69
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PAIN0016-012 11/01/2002
MONTEREY, SAN BENITO, SAN MATEO, SANTA CLARA AND SANTA CRUZ
COUNTIES:
                                  Rates          Fringes
  Painter.......................$ 27.73            11.84
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PAIN0016-015 11/01/2002
CALAVERAS AND SAN JOAQUIN COUNTIES:
                                  Rates          Fringes
  Painter
    Brush.......................$ 21.89             7.94
    Sandblaster;
    Waterblaster;  Steam
    cleaning....................$ 22.89             7.94
    Work with coal tar and
    exotic     materials........$ 23.64             7.94
-----------------------------------------------------------------
PAIN0016-017 11/01/2002
MARIPOSA, MERCED, STANISLAUS, AND TOULUMNE COUNTIES:
                                  Rates          Fringes
  Painter
    Brush.......................$ 20.25             9.75
    Hazardous coating,
    application   and
    removal.....................$ 22.00             9.75
    Paperhanger; Spray &
    Sandblast...................$ 21.25             9.75
-----------------------------------------------------------------
PAIN0016-022 01/01/2003
SAN FRANCISCO COUNTY:
                                  Rates          Fringes
  Painter.......................$ 31.51            12.10
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PAIN0169-001 07/01/2002
FRESNO, KINGS, MADERA, MARIPOSA AND MERCED COUNTIES:
                                  Rates          Fringes
  Glazier.......................$ 25.52             8.77
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PAIN0169-005 07/01/2002
ALAMEDA AND CONTRA COSTA COUNTIES:
                                  Rates          Fringes
  Glazier.......................$ 32.33            10.14
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PAIN0169-009 07/01/2002
ALAMEDA AND CONTRA COSTA:
                                  Rates          Fringes
  Shower Door Installer.........$ 24.83           5.01+a
  PAID HOLIDAYS: New Year's Day, President's Day, Memorial Day,
  Fourth of July, Labor Day, Thanksgiving Day, Day after
  Thanksgiving, and Christmas Day.
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PAIN0718-002 07/01/2002
SAN FRANCISCO AND SAN MATEO COUNTIES:
                                  Rates          Fringes
  Glazier.......................$ 30.90            11.57
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PAIN0767-001 07/01/2002

CALAVERAS, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
Glazier	$ 28.43	9.01

PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day.

FOOTNOTE: Employee rquired to wear a bod harness shall receive $1.50 per hour above the basic hourly rate at any elevation.

PAIN1176-001 06/26/2000

	Rates	Fringes
Parking Lot Striping/Highway Marking:		
GROUP 1	$ 22.84	6.91
GROUP 2	$ 22.45	6.91
GROUP 3	$ 19.51	6.91
GROUP 4	$ 22.15	6.91
Parking Lot, Game Court and Playground Installer	$ 19.51	6.91
Service Person (maintenance and repair of equipment)	$ 13.33	5.87

PARKING LOT STRIPING / HIGHWAY MARKING CLASSIFICATIONS

GROUP 1: STRIPER: Layout and application of painted traffic stripes and marking; hot thermo plastic; tape traffic stripes and markings

GROUP 2: TRAFFIC DELINEATING DEVICE APPLICATOR: Layout and application of pavement markers, delineating signs, rumble and traffic bars, adhesives, guide markers, other traffic delineating devices; includes all related surface preparation (sandblasting, waterblasting, grinding) as part of the application process

GROUP 3: TRAFFIC SURFACE ABRASIVE BLASTER: Removal of traffic lines and markings; preparation of surface for coatings and traffic control devices

GROUP 4: TRAFFIC PROTECTIVE DELINEATING SYSTEMS INSTALLER: Removes, relocates, installs permanently affixed roadside and parking delineation barricades, fencing, guard rail, cable anchor, retaining walls, reference signs, and monument markers

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PAIN1237-003 06/01/2001

CALAVERAS; SAN JOAQUIN COUNTIES; STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
Soft Floor Layer	$ 25.00	7.17

PAIN1600-005 01/01/2003

ALAMEDA, CONTRA COSTA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA AND SANTA CRUZ COUNTIES

	Rates	Fringes
Soft Floor Layer	$ 33.85	10.43

PAIN1621-001 07/01/2002

MONTEREY, SAN BENITO, SANTA CLARA AND SANTA CRUZ COUNTIES:

	Rates	Fringes
Glazier	$ 32.36	10.11

PLAS0001-002 07/01/2001

	Rates	Fringes
Cement Mason	$ 27.18	7.58

PLAS0066-002 07/01/2001

ALAMEDA, CONTRA COSTA, SAN MATEO AND SAN FRANCISCO COUNTIES:

	Rates	Fringes
Plasterer	$ 28.76	11.40

PLAS0300-001 01/01/2003

	Rates	Fringes
Plasterer		
CALAVERAS AND SAN JOAQUIN COUNTIES:	$ 25.62	8.65
FRESNO, KINGS AND MADERA COUNTIES:	$ 24.03	8.95
MARIPOSA, MERCED, STANISLAUS AND TUOLUMNE COUNTIES:	$ 25.63	8.65
MONTEREY COUNTY:	$ 24.34	8.15
SAN BENITO, SANTA CLARA AND SANTA CRUZ COUNTIES:	$ 27.75	8.65

PLUM0036-001 01/01/2003

	Rates	Fringes
Plumber and steamfitter		
CALAVERAS, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:	$ 29.29	11.79
FRENSO, KINGS AND MADERA COUNTIES:	$ 28.79	11.79

PLUM0036-004 01/01/2003

FRESNO AND MERCED COUNTIES:

	Rates	Fringes
BUILDING CONSTRUCTION		
PIPE TRADESMAN	$ 12.00	4.85

SCOPE OF WORK Installation of corrugated metal piping for drainage, as well as installation of corrugated metal piping for culverts in connection with storm sewers and drains; Grouting, dry packing and diapering of joints, holes or chases including paving over joints, in piping; Temporary piping for dirt work for building site preparation; Operating jack hammers, pavement breakers, chipping guns, concrete saws and spades to cut holes, chases and channels for piping systems; Digging, grading, backfilling and ground preparation for all types of pipe to all points of the jobsite; Ground preparation including ground leveling, layout and planting of shrubbery, trees and ground cover, including watering, mowing, edging, pruning and fertilizing, the breaking of concrete, digging, backfilling and tamping for the preparation and completion of all work in connection with

lawn sprinkler and landscaping; Loading, unloading and distributing materials at jobsite; Putting away materials in storage bins in jobsite secure storage area; Demolition of piping and fixtures for remodeling and additions; Setting up and tearing down work benches, ladders and job shacks; Clean-up and sweeping of jobsite; Pipe wrapping and waterproofing where tar or similar material is applied for protection of buried piping; Flagman

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PLUM0036-009 01/01/2003
MONTEREY AND SANTA CRUZ COUNTIES:

	Rates	Fringes
Plumber and steamfitter	$ 31.89	11.79

PLUM0038-001 07/01/2002
SAN FRANCISCO COUNTY:

	Rates	Fringes
Plumber		
All other work	$ 41.00	20.50
Work on wooden frame structures 5 stories or less excluding high-rise buildings and commercial work such as hospitals, prisons, hotels and schools	$ 30.75	17.35

PLUM0038-005 07/01/2002
SAN FRANCISCO COUNTY

	Rates	Fringes
Landscape/Irrigation Fitter	$ 25.40	10.38

PLUM0159-001 07/01/2002
CONTRA COSTA COUNTY:

	Rates	Fringes
Plumber and steamfitter		
All other work	$ 35.21	14.34
Construction of motels under 4 stories	$ 27.41	9.64

PLUM0342-001 07/01/2002
ALAMEDA COUNTY

	Rates	Fringes
Plumber, Pipefitter, Steamfitter	$ 35.51	15.05

PLUM0355-004 07/01/2002
ALAMEDA, CALAVERAS, CONTRA COSTA, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, SAN MATEO, SANTA CLARA, SANTA CRUZ, STANISLAUS, AND TUOLUMNE COUNTIES:

	Rates	Fringes
Underground Utility Worker	$ 23.75	5.05

PLUM0355-006 07/01/2002
ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NAPA, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO, SUTTER, TEHAMA, TRINITY, YOLO, AND YUBA

COUNTIES

	Rates	Fringes
Landscape Fitter	$ 23.75	5.05

PLUM0393-001 07/01/2002

SAN BENITO AND SANTA CLARA COUNTIES:

	Rates	Fringes
Plumber/Pipefitter		
All other work	$ 45.51	11.67
Work on motels and hotels which do not exceed 4 stories in height, excluding garages and parking areas	$ 25.87	4.88

PLUM0467-001 07/01/2002

SAN MATEO COUNTY:

	Rates	Fringes
Plumber/Pipefitter/Steamfitter		
ALL OTHER WORK	$ 39.40	11.81
REFRIGERATION & AIR CONDITIONING	$ 40.65	12.12

ROOF0027-002 01/01/2003

FRESNO, KINGS, AND MADERA COUNTIES:

	Rates	Fringes
Roofer	$ 22.10	7.05

FOOTNOTE: Work with pitch, pitch base of pitch impregnated products or any material containing coal tar pitch, on any building old or new, where both asphalt and pitchers are used in the application of a built-up roof or tear off: $2.00 per hour additional.

ROOF0040-002 08/01/2001

SAN FRANCISCO & SAN MATEO COUNTIES:

	Rates	Fringes
Roofer	$ 22.87	11.27

ROOF0081-001 08/01/2000

ALAMEDA AND CONTRA COSTA COUNTIES:

	Rates	Fringes
Roofer	$ 22.80	9.85

ROOF0081-004 08/01/2001

CALAVERAS, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
Roofer	$ 19.80	6.15

ROOF0095-002 08/01/2002

MONTEREY, SAN BENITO, SANTA CLARA, AND SANTA CRUZ COUNTIES:

	Rates	Fringes
Roofer		
BITUMASTIC ENAMELERS, COAL TAR, PITCH AND MASTIC WORKERS	$ 29.57	8.45

KETTLE PERSON (2 kettles).....$ 27.57 8.45
ROOFERS.....$ 27.57 8.45

SFCA0483-001 08/01/2001
ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES:

	Rates	Fringes
Sprinkler Fitter (FIRE).....	$ 36.59	11.20

SFCA0669-011 04/01/2003
CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, MONTEREY, SAN BENITO, SAN JOAQUIN, SANTA CRUZ, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
Sprinkler Fitter (FIRE).....	$ 30.65	6.10

SHEE0104-001 07/01/2002

	Rates	Fringes
Sheet metal worker		
(1) Work on projects with an HVAC contract price of $270,000 equipped with packaged units or a unitary system; Also, tenant completion work extending from an existing trunk line or an existing water or air loop to registers and/or diffusers; Also, remodel or add-on contracts on existing facilities providing the contract price is $165,000 or less; Also, architectural sheet metal contracts of $100,000 or less; Also, pre-engineered and pre-manufactured siding		
ALAMEDA AND CONTRA COSTA COUNTIES.....	$ 31.71	14.95
MONTEREY AND SAN BENITO COUNTIES.....	$ 31.41	12.59
SAN MATEO COUNTY.....	$ 35.10	12.61
SANTA CLARA COUNTY.....	$ 36.54	11.91
(2) Work with an HVAC contract price of $80,000 or less; Also, tenant completion work providing the contract price is $80,000 or less; Also, remodel or add-on contracts on		

existing facilities
providing the contract
price is $50,000 or
less; Also,
architectural sheet
metal contracts of
$100,000 or less; Also,
pre-engineered and
pre-manufactured siding
SAN FRANCISCO COUNTY.....$ 37.09 13.52
(3) All other work
ALAMEDA AND CONTRA
COSTA COUNTIES.....$ 37.40 15.12
SAN FRANCISCO COUNTY.....$ 37.86 14.65
SAN MATEO COUNTY.....$ 38.55 13.77
SANTA CLARA COUNTY.....$ 38.75 13.75
Sheet Metal Worker
SANTA CRUZ COUNTY.....$ 32.95 11.05

SHEE0104-015 07/01/2002
ALAMEDA, CONTRA COSTA, MONTEREY, SAN BENITO, SAN FRANCISCO, SAN MATEO, SANTA CLARA AND SANTA CRUZ COUNTIES:

	Rates	Fringes
Sheetmetal Worker		
Metal decking and siding only	$ 28.17	15.12

SHEE0162-001 01/01/2003
CALAVERAS AND SAN JOAQUIN COUNTIES:

	Rates	Fringes
Sheet metal worker	$ 27.37	10.63

SHEE0162-003 07/01/2002
MARIPOSA, MERCED, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
Sheet metal worker (Excluding metal deck and siding)	$ 28.18	11.93

SHEE0162-004 06/01/2002
FRESNO, KINGS, AND MADERA COUNTIES:

	Rates	Fringes
Sheet metal worker	$ 28.52	12.46

SHEE0162-013 07/01/1999
CALAVERAS, FRESNO, KINGS, MADERA, MARIPOSA, MERCED, SAN JOAQUIN, STANISLAUS AND TUOLUMNE COUNTIES:

	Rates	Fringes
Sheet metal worker (Metal decking and siding only)	$ 29.42	9.52

TEAM0094-001 07/01/2002

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 23.02	13.10
GROUP 2	$ 23.32	13.10
GROUP 3	$ 23.62	13.10

GROUP 4.....$ 23.97 13.10
GROUP 5.....$ 24.32 13.10

FOOTNOTES:

Articulated dump truck; Bulk cement spreader (with or without auger); Dumpcrete truck; Skid truck (debris box); Dry pre-batch concrete mix trucks; Dumpster or similar type; Slurry truck: Use dump truck yardage rate.

Heater planer; Asphalt burner; Scarifier burner; Industrial lift truck (mechanical tailgate); Utility and clean-up truck: Use appropriate rate for the power unit or the equipment utilized.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Dump trucks, under 6 yds.; Single unit flat rack (2-axle unit); Nipper truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump truck (when flat rack truck is used appropriate flat rack shall apply); Concrete pump machine; Fork lift and lift jitneys; Fuel and/or grease truck driver or fuel person; Snow buggy; Steam cleaning; Bus or personhaul driver; Escort or pilot car driver; Pickup truck; Teamster oiler/greaser and/or serviceperson; Hook tender (including loading and unloading); Team driver; Tool room attendant (refineries)

GROUP 2: Dump trucks, 6 yds. and under 8 yds.; Transit mixers, through 10 yds.; Water trucks, under 7,000 gals.; Jetting trucks, under 7,000 gals.; Single-unit flat rack (3-axle unit); Highbed heavy duty transport; Scissor truck; Rubber-tired muck car (not self-loaded); Rubber-tired truck jumbo; Winch truck and "A" frame drivers; Combination winch truck with hoist; Road oil truck or bootperson; Buggymobile; Ross, Hyster and similar straddle carriers; Small rubber-tired tractor

GROUP 3: Dump trucks, 8 yds. and including 35 yds.; Transit mixers, over 10 yds.; Water trucks, 7,000 gals. and over; Jetting trucks, 7,000 gals. and over; Vacuum trucks under 7500 gals. Trucks towing tilt bed or flat bed pull trailers; Lowbed heavy duty transport; Heavy duty transport tiller person; Self- propelled street sweeper with self-contained refuse bin; Boom truck - hydro-lift or Swedish type extension or retracting crane; P.B. or similar type self-loading truck; Tire repairperson; Combination bootperson and road oiler; Dry distribution truck (A bootperson when employed on such equipment, shall receive the rate specified for the classification of road oil trucks or bootperson); Ammonia nitrate distributor, driver and mixer; Snow Go and/or plow

GROUP 4: Dump trucks, over 35 yds. and under 65 yds.; Water pulls - DW 10's, 20's, 21's and other similar equipment when pulling Aqua/pak or water tank trailers; Helicopter pilots (when transporting men and materials); Lowbedk Heavy Duty Transport up to including 7 axles; DW10's, 20's, 21's and other similar Cat type, Terra Cobra, LeTourneau Pulls, Tournorocker, Euclid and similar type equipment when pulling fuel and/or grease tank trailers or other miscellaneous trailers; Vacuum Trucks 7500 gals and over and truck repairman

GROUP 5: Dump trucks, 65 yds. and over; Holland hauler; Low bed Heavy Duty Transport over 7 axles

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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 (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the 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, DC 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, DC 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, DC 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. 00-110

WASTE DISCHARGE REQUIREMENTS AND WATER QUALITY CERTIFICATION FOR:

UNITED STATES ARMY CORPS OF ENGINEERS

AND

PORT OF OAKLAND

OAKLAND HARBOR NAVIGATION IMPROVEMENT (50 FOOT) PROJECT,

OAKLAND, ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter referred to as the Regional Board, finds that:

1. This order will serve as Waste Discharge Requirements and Water Quality Certification under Section 401 of the Clean Water Act for the Oakland Harbor Navigation Improvement Project (hereinafter, "the 50 Foot Project"). The 50 Foot Project will be carried out by the United States Army Corps of Engineers (hereinafter referred to as "the USACE") under Congressional authorization and funding pursuant to the Water Resources Development Act of 1999. The Port of Oakland (hereinafter, "the Port") is the local sponsor for this federal project. The term "Dischargers," when used in this Order, refers to both the USACE and the Port.

2. The order will provide receiving water limits and discharge specifications, as well as monitoring and reporting requirements for the project.

3. The project location is the Oakland Harbor, located on the east side of San Francisco Bay, in the City of Oakland, Alameda County, California (Figure 1).

4. The 50 Foot Project will deepen existing shipping channels and turning basins in the Oakland Harbor from –42 feet Mean Lower Low Water (MLLW) to –50 feet MLLW. The project will also create approximately 180 acres of shallow water habitats in the Middle Harbor Enhancement Area by using dredged material generated by the project to fill in a former berthing area.

5. The 50 Foot Project is related to the Port of Oakland's Vision 2000 Program of port improvements. The Port indicates that the purpose of the Vision 2000 program is to meet the anticipated demand for transportation services in the San

Francisco Bay Area and Northern California, and to serve markets in the Midwest and beyond. The specific purpose of the 50 Foot Project is to reduce tidal-caused delays associated with containership passages, to increase economies of scale for waterborne commerce, and to increase navigation safety at the Port of Oakland.

6. Other Vision 2000 projects related to the 50 Foot Project include the Berths 55-58 Project (marine terminals development), and the Joint Intermodal Terminal (railyards). The Berths 55-58 project was authorized by Board Order No. 99-055. The other related projects will be regulated by future Regional Board actions as appropriate.

7. The major construction features of the 50-Foot Project are described below (also, see Figure 2). Disposal of dredged material generated is addressed in separate findings. All depths mentioned below do not include overdredge allowance, which is two feet in all cases. The major construction features are:

    a. Deepening and widening of:

        - **Entrance Channel:** The Entrance Channel will be widened slightly, and deepened to –50 feet MLLW.

        - **Outer Harbor Channel:** The Outer Harbor Channel will be deepened to –50 feet MLLW, and widened to provide sufficient space for ships to navigate the Outer Harbor Channel without compromising structural stability at adjacent berths; and

        - **Inner Harbor Channel:** The Inner Harbor Channel will be deepened to –50 feet MLLW.

    b. Turning Basin Improvements:

        - **Outer Harbor Turning Basin**: The Outer Harbor Turning Basin will be deepened from -42 feet MLLW to -50 feet MLLW. The diameter will be widened from 1,480 feet to 1,650 feet.

        - **Inner Harbor Turning Basin**: This portion of the 50 Foot Project includes widening and deepening the turning basin from its existing dimensions (-42 feet MLLW, 1,200 feet in diameter) to a depth of -50 feet MLLW, and a diameter of 1,500 feet. The widening of the Turning Basin will include changes to the Alameda shoreline at two locations (see Figure 3): (1) the former Fleet and Industrial Supply Center annex, Alameda (FISC) and (2) at the Alameda Gateway Complex (formerly known as the Todd Shipyard). Activities at the FISC site will include: removal of 81,000 square feet of pile-supported wharf, as well as the portions of "Building 1" overlying this footprint. At the Alameda Gateway, Pier 4 and the Seaway Transportation Building will be demolished. Pier 2 will be cut back to a length of 75 feet, allowing for continued use of the pier by small vessels. The sheet metal shop, a pile-supported catwalk, and mooring dolphins will also

be demolished. The entire shoreline will be stabilized and protected from erosion by a cantilevered bulkhead. All debris generated by the demolition of structures will be removed and disposed of at an appropriate landfill facility.

The excavation of the shoreline will generate approximately 24,500 cubic yards (cy) of concrete, rock, wood, and fill from above the mean high water line. Excavation below mean high water will generate approximately 1,065,000 cy of concrete, rock, wood, artificial fill, bay mud, and Old Bay Mud/Merritt Sand.

c. Infrastructure modifications:

- Modification of the Bay Area Rapid Transit (BART) anode structure and cable (the project would not affect the BART tube itself); and
- Lowering or relocating all existing submarine utilities within the project area as necessary, including the Navy's Alameda sewer pipeline crossing the Inner Harbor Channel.

d. Middle Harbor Enhancement Area.

This portion of the 50 Foot Project will create approximately 180 acres of various shallow water habitats by using dredged material generated by the project to fill in a former berthing area (Figure 4, see detailed findings below).

8. Responsibilities of Dischargers

The USACE is responsible for work associated with improving the federal channels including all work required beyond the federal channel to construct and support the expansion of the Inner Harbor Turning Basin and any side slope stabilization of the channels (such as the construction of bulkheads and dikes), and for the disposal of all dredged material generated by this process, including the disposal of material and all construction activities necessary to complete and meet the goals of the Middle Harbor Enhancement Area. Therefore, the USACE is responsible for compliance with all provisions of this Order related to these activities as well as other provisions of this order, except as expressly conditioned or limited by this finding.

The Port owns the land underlying the Middle Harbor Enhancement Area, and therefore after completion of the initial construction of the Middle Harbor Enhancement Area the Port is required to share responsibility with the USACE for the success of this portion of the project, including the successful development of the habitat as expressly provided for in this finding. As between the USACE and the Port, after the USACE completes the initial construction, the USACE will assume exclusive control of a 10-year monitoring and adaptive management or remediation program, and the Port will assume exclusive control of maintenance and other replacement and rehabilitation requirements. Beyond the 10-year

program, the Port assumes all control and responsibility until such time as the management of the site is turned over to another public agency.

9. Additional portions of the 50 Foot Project are the sole responsibility of the Port, and will be authorized separately from this order. These portions are:

    - Berth deepening and necessary wharf strengthening
    - Sediment rehandling facility expansion, if necessary (existing Berth 10 sediment rehandling facility is currently authorized by Regional Board Order No. 98-019)
    - Infrastructure improvements at Alameda Gateway, if made necessary by the widening of the Inner Harbor Turning Basin, to allow continued operations at Bay Ship and Yacht, a commercial ship repair facility, or relocation of Bay Ship and Yacht.
    - Relocation of the Alameda Ferry stop, if made necessary by the widening of the Inner Harbor Turning Basin.

10. The 50 Foot Project will involve dredging and excavation of approximately 13.3 million cubic yards (mcy) of material. Approximately 5.8 mcy of the dredged material will be placed in the Middle Harbor, as part of the Middle Harbor Enhancement Area to create shallow water habitat. The remaining 7.5 mcy of sediments will be divided among several potential disposal options, which are discussed below. Material suitability for each disposal option is discussed in Findings 11 and 12, below.

11. The USACE distinguishes the different types of material that will be dredged (or excavated) in the Project as follows (they are described in order from the deeper and older materials to the more recently deposited or placed materials):

    a. The deepest material that will be impacted by the Project is the **Old Bay Mud/Merritt Sands (OM)** material. These materials were deposited and covered over by more recent sediments in pre-historical times, and therefore are expected to be free from anthropogenic contaminants. These sediments include Old Bay Mud, Merritt Sand, Posey Sand, and San Antonio Formation materials.

    b. On top of the OM material is the **Younger Bay Mud (YBM) formation** that was deposited beginning 10,000 years ago and was covered by hydraulic fill beginning in the 1880s. The USACE has divided this material into between one and three layers of four-foot thickness each, based on the expected risk of contamination. Four feet was chosen as a dredgeable unit that a contractor can be expected to dredge with reasonable accuracy. Young Bay Mud Surface (YS) consists of all Younger Bay Mud from the mudline down to a maximum of four feet below the mudline. Young Bay Mud Middle (YM) consists of all Younger Bay Mud from four feet below the mudline down to a maximum of eight feet below the mudline. Young Bay Mud Bottom (YB) consists

of all younger Bay Mud from eight feet below the mudline to the interface with OM material.

c. In certain areas of the Inner Harbor Turning Basin, **Artificial Fill (AF)** overlying the YBM will be impacted. This material will be discussed in more detail below. After excavation, the AF material will be stockpiled and tested for disposal at appropriate permitted landfill facilities.

12. The 7.5 mcy of material generated by the project that will not be used in the Middle Harbor Enhancement Area will be disposed of off site, with the final disposal sites to be determined in the future, based on logistical and cost issues at the time of disposal needs. The potential disposal sites are:

a. **Hamilton Wetlands Restoration Project**.

This project would involve creating wetlands on over 950 acres of subsided diked baylands at the former Hamilton Army Airfield, adjacent Navy ball fields, and the decommissioned Hamilton Army antenna field. Dredged materials would be used to raise elevations at the site to those suitable for the establishment of wetland vegetation. The project proponent (the California Coastal Conservancy) has stated its intent to accept only clean dredged material at the site. The Hamilton project has been authorized by Congress (WRDA 1999) and approved by the Coastal Conservancy. Preliminary environmental review is complete and the EIR/S for the project has been certified, but issues of site cleanup that may impact wetland creation are still unresolved. Eventual restoration of the site would require authorization by the Regional Board, as well as other state and federal agencies. Therefore, the project may not be available to accept dredged material from the 50 Foot Project during the appropriate time frame.

b. **Montezuma Wetlands Restoration Project**.

This project proposes to restore approximately 1,800 acres of tidal wetlands to subsided diked baylands by using dredged sediments to raise elevations at the site to those suitable for the establishment of wetland vegetation. The project proponents (Levine-Fricke Restoration Corporation and Montezuma Wetlands LLC) will accept both wetland cover and wetland non-cover quality dredged material at the site. This project is authorized by Regional Board Order No. 00-061, but other required permits have not yet been issued. Therefore, the Montezuma project may not be available to accept dredged material from the 50 Foot Project during the appropriate time frame.

c. **San Francisco Deep Ocean Disposal Site (SF-DODS)**.

Located approximately 50 miles offshore of the Golden Gate (and beyond the jurisdiction of the Regional Board), this disposal site was established by the USEPA in 1994, with publication of the final rule guiding its use

and management in the Federal Register in 1999. Only material determined to be suitable for ocean disposal could be disposed of at this site. The USACE only plans to use this site if the Hamilton or Montezuma wetland restoration sites were unavailable.

d. **Former Alameda Naval Air Station**.

Up to 750,000 cubic yards of material may be transported to the former Alameda Naval Air Station property to be dewatered and stockpiled for use is future development projects at this location. Only sediments designated suitable for in-Bay disposal would be transported to this site. Such use of the site would require authorization by the Regional Board. If this disposal option is used, the Project Sponsor will apply for a permit to undertake the placement and dewatering activities.

e. **Various Landfills**.

Some of the dredged sediments, particularly those with high levels of contaminants of concern, may be disposed of at a permitted Bay Area landfill. Debris from removal of structures during the widening of the Inner Harbor Turning Basin will also be disposed of at an appropriate permitted disposal facility. Sediments to be disposed of at a landfill would first be dewatered at the Port's Berth 10 facility, authorized by Regional Board Order No. 98-019.

13. **Sediment Suitability Determinations**

a. The dredged material to be generated by the project has been evaluated by Regional Board staff in conjunction with the inter-agency Dredged Material Management Office (DMMO), of which the Regional Board is a member. The DMMO reviews proposals to dredge and reuse or dispose of dredged material. After approving the sediment sampling and analysis plan, the DMMO participants review the results of the testing and make recommendations to their respective agencies regarding the suitability of sediments for proposed disposal and reuse locations.

b. Sediments to be dredged as part of the 50 Foot Project were characterized to determine their suitability for various disposal options: ocean disposal, in-Bay disposal, wetland creation (cover material and non-cover material), construction material, and landfill disposal. Much of the sediment tested was found to be suitable for more than one of the potential disposal options. None of the sediments were found to have levels of contaminants that would lead to their classification as hazardous waste, therefore requiring disposal in a landfill, however, landfill disposal or reuse of sediments as daily cover are potential disposal options for the sediments generated by the project.

c. The Regional Board finds that material determined to be suitable for in-Bay disposal (by the Regional Board, in conjunction with the DMMO), is

suitable for placement in the Middle Harbor Enhancement Area. The majority of the material has been determined to be suitable for aquatic disposal, based on pre-dredge testing. Additional testing may be completed to determine the final suitability of some material. While the DMMO also made suitability determinations relating to use of sediments in wetland restoration, each wetland restoration project will have sediment acceptance and testing criteria established by a site-specific Board action, which would be the final determinant of what sediments could be used at each site.

14. **Inner Harbor Turning Basin**

a. **Sediment Contamination in the Inner Harbor Turning Basin Widening Area along the Alameda Shoreline**: Based on past sediment characterizations conducted during the -42 foot Harbor Deepening Project, the Younger Bay Mud (YBM) in the Inner Harbor Turning Basin widening area along the Alameda shoreline was expected to be contaminated. This was confirmed by sediment characterization testing conducted for the 50 Foot Project. Many of the composite samples for test cells in the Inner Harbor Turning Basin widening area exceeded Wetland Non-Cover Criteria[1] for several constituents including heavy metals, PAHs, and PCBs. Contamination appears to increase with depth, down to the interface between the YBM and the Merritt Sand. To avoid leaving unacceptable levels of contaminants exposed in the Inner Harbor Turning Basin widening area, the USACE will remove all YBM material down to the Old Bay Mud/Merritt Sand layer throughout the entire Inner Harbor Turning Basin widening area.

b. **Site Control During Dredging of Inner Harbor Turning Basin Widening Area**: Computer modeling performed to evaluate the potential for dredging of the Inner Harbor Turning Basin Widening Area to adversely impact water quality indicated that water quality criteria exceedances would not occur with the use of a clamshell dredge. The USACE will dredge using a clamshell bucket no larger than 30 cubic yards.

Although it is not expected that water quality will be degraded by dredging sediment from the Inner Harbor Turning Basin Widening Area, additional precautions such as the use of silt curtains and absorbent booms are warranted due to the presence of petroleum hydrocarbon wastes, debris, and buried pilings in the YBM stratum. In order to better control the site and avoid discharges of oily sheens and debris, the USACE will

[1] As defined in the 1992 Regional Board staff report, "Interim Sediment Screening Criteria and Testing requirements for Wetland Creation and Upland Beneficial Reuse," Wetland Non-Cover material is a category of dredged material suitable for use in wetland creation projects, but that must be covered by at least three feet of cleaner, "Wetland Cover" material. Since this material exceeded the Non-Cover criteria, it was determined to be unsuitable for use in wetland creation projects.

use silt curtains and absorbent booms around the YBM material during dredging operations in the Inner Harbor Turning Basin Widening Area. Debris will be collected separately from dredged sediments and will be disposed of at an approved facility.

c. **Soil and Groundwater Contamination at FISC Annex and Alameda Gateway Complex**:

Although three borings sampled in the excavation footprint at FISC Annex on the easternmost shoreline appeared to contain little or no soil or groundwater contamination, a soil boring within 50 feet of this area sampled in 1997 as part of the -42 foot Harbor Deepening Project had a total PAH concentration of 519 mg/kg and a dibenzofuran concentration of 1.6 mg/kg at a depth of five feet.

The Alameda Gateway Complex on the westernmost shoreline has a long history of maritime construction and maintenance activity. A substantial portion of the property is currently leased to Bay Ship and Yacht, which conducts ship maintenance and repair including the operation of a floating drydock facility. In 1990 a leaking underground storage tank was removed from the shoreline directly adjacent to the proposed excavation. A groundwater monitoring well was installed and monitored in 1992, but no further information was gathered between 1992 and August 2000. In order to ascertain the potential for groundwater contamination within or near the proposed excavation, the well was redeveloped and monitored in August 2000. A slight sheen and 140 mg/l of diesel range total petroleum hydrocarbons (TPH) were observed, along with 43 μg/l total PAHs and 660 μg/l gasoline range TPH, indicating that shallow groundwater is impacted by petroleum products.

d. **Site Control During Land Excavation of the Inner Harbor Turning Basin Widening Area**:

Barrier Wall on Alameda Gateway Complex Property: The USACE will install a physical barrier to groundwater migration (low permeability cutoff wall) along the shoreline of the Alameda Gateway Complex to prevent the discharge of contaminated groundwater to the Estuary during and after land excavation activities. Shoreline excavation, except that required for installation of the barrier wall, will not commence until installation of the barrier wall has been certified complete according to a Board staff-approved construction work plan (see Provision 2, Tasks #6 and #7). Investigation and cleanup of soil and groundwater contamination inboard of the barrier wall alignment is the responsibility of the property owner, not the Port, who is acquiring for the USACE only necessary real estate interests in the land outboard of the barrier that must be removed to widen the Inner Harbor Turning Basin. This order does not address investigation and cleanup of soil and groundwater that will be inboard of

the barrier wall. Alameda County is currently overseeing follow-up work related to the 1990 UST removal.

Procedures Applicable to all Inner Harbor Turning Basin Shoreline Excavation: Soil above Mean High Water that lies within the excavation footprint of the Inner Harbor Turning Basin will be removed by backhoes starting at the shoreline and working inland. The USACE will prevent excessive turbidity in the Estuary by deploying weighted silt curtains at least 5 feet in depth completely around the excavation area (shoreline to shoreline). Floating absorbent boom capable of controlling moderate to large spills for up to 24 hours will be on-hand. All construction staff will be trained in spill response procedures according to the Spill Response Plan required pursuant to Provision 2, Task #10 of this order. Any soil that is stockpiled on-site prior to disposal will be placed on plastic liners at least 100 feet from the shoreline and treated as contaminated until chemical analysis demonstrates otherwise. The USACE will contain the stockpiles to prevent windblown dust and stormwater runoff from leaving the site.

15. **Middle Harbor Enhancement Area**

a. Historically the Middle Harbor Enhancement Area site contained shallow tidal flats. During World War II the Navy dredged the harbor to a depth of approximately –36 feet to support a supply depot. The approximately 180-acre site will be restored to its historic shallow water depths of –4 to –8 feet MLLW by placing approximately 5.8 million cubic yards of clean dredged material generated from the channel deepening portion of the project at the site.

b. Eelgrass beds are important components of estuarine ecosystems, and have declined from historical levels both globally and in the San Francisco Bay. Eelgrass restoration projects should therefore be encouraged in the region in order to increase water clarity, reduce erosion, provide nurseries for fish, and increase habitat for invertebrates, in shallow water coastal habitats.

c. The Middle Harbor Enhancement Area conforms to mitigation measures required for the Oakland Harbor Navigation Improvement (50 Foot) Project Final Environmental Impact Statement/Environmental Impact Report (EIR/EIS), the U.S. Fish and Wildlife Service and National Marine Fisheries Service Endangered Species Act Section 7 Biological Opinions, and the First Phase Coastal Zone Management Consistency Determination.

d. Impacts to existing resources will include the elimination of 0.28 acres of existing eelgrass beds on the perimeter of the site and approximately 180

acres of deep water habitat considered to be of lesser ecological value than the shallow water habitat proposed to be created by the project.

e. The U.S. Fish and Wildlife Section 7 Consultation has been conducted and has resulted in the federal requirement that the Middle Harbor Enhancement Area will serve to offset impacts to listed species and biological resources by creating shallow subtidal flats, eelgrass beds, and shallow mudflats.

f. The project will involve construction of a containment dike, fill of the project area, a settlement period after filling, and final grading and planting. This construction phase is anticipated to take five to six years. The construction phase will be followed by a monitoring and adaptive management period lasting approximately 10 years.

g. Final habitat types will consist of shallow water habitats including salt marsh, mudflats, and eelgrass beds. Fish species expected to benefit from these habitats are: surfperch, gobies, silversides, sculpin, pipefish, sharks, rays, English sole, speckled sanddab, starry flounder, and California halibut. Bird species expected to benefit from these habitats are: endangered birds such as the California least tern and California brown pelican, and both migratory and resident wading and shore birds. Shallow water and intertidal invertebrates such as crustaceans and amphipods are also expected to benefit from these habitats. The shallow habitat to be created by the Middle Harbor Enhancement Area will provide more species diversity for desirable biological groups and will be more ecologically productive than the existing deep-water habitat.

h. Monitoring of the project will cover 5 periods:

Phase 1 -- Construction Restriction Compliance;

Phase 2 – Design Verification and Refinements;

Phase 3 – Site Suitability Evaluation/Warranty;

Phase 4 – Performance Evaluation; and

Phase 5 – Long-Term Management.

i. Public access to the Middle Harbor Enhancement Area will be provided through the adjacent Middle Harbor Shoreline Park. Only non-motorized vessels will be allowed in the project area, and the site will be dedicated in perpetuity for the protection of fish and wildlife and managed by an agency or organization capable of managing the site in accordance with the McAteer-Petris Act and the San Francisco Bay Conservation and Development Commission's *San Francisco Bay Plan*.

j. The Middle Harbor Enhancement Area design has been overseen by a Technical Advisory Committee consisting of representatives of the California Department of Fish and Game, National Marine Fisheries

Service, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Save San Francisco Bay Association, Bay Conservation and Development Commission, Sierra Club, Golden Gate Audubon, East Bay Regional Park District, Regional Water Quality Control Board, community representatives, the Port, and the Port's consultants.

k. The Middle Harbor Enhancement Area is consistent with the *Baylands Ecosystem Habitat Goals* (1999), which recommends that the harbor be restored to shallow bay, intertidal mudflat, and eelgrass beds.

l. The Middle Harbor Enhancement Area conforms to the Long Term Management Strategy goals of beneficial use of dredged material. The alternative to using this site would be to dispose of the material at the San Francisco Deep Ocean Disposal Site. It is estimated that it would take the Middle Harbor Enhancement Area site between 175 to 700 years to fill if natural sedimentation rates were relied upon exclusively. Reuse of dredged sediments generated by the channel deepening at Middle Harbor Enhancement Area site avoids disposal in the deep ocean and provides the raw materials for a productive shallow water restoration site.

m. The Middle Harbor Enhancement Area will receive only clean sediment classified as suitable for in-Bay disposal by the DMMO (see finding 12, above).

16. The USACE have analyzed the project for consistency with Section 404(b)(1) Guidelines (40 CFR 230 *et seq.*), promulgated by the USEPA, for disposal of dredged or fill material into waters of the US. The USACE found that the project complies with the applicable provisions of the Guidelines in that the project is the practicable alternative with the least adverse impact on the aquatic ecosystem, and includes appropriate practical steps to minimize adverse impacts of the discharge of dredged materials on the aquatic ecosystem. The Regional Board concurs with this assessment.

a. Mitigation is not required for loss of deep water habitat because there will be a net increase of deep water habitat as a result of the widening and deepening in all aspects of the 50 Foot Project.

b. Mitigation is not required for the fill of approximately 180 acres of deep water habitat in the Middle Harbor Enhancement Area because:

i. it will create 55 acres of habitat suitable for eelgrass habitat development and approximately 125 acres of shallow water and other habitat types;

ii. the current site has been disturbed by dredging about every 3 years;

iii. the restoration project will return the site to its natural state of shallow water, intertidal mudflat, and eelgrass beds;

iv. shallow water, intertidal mudflat, and eelgrass bed habitats have been adversely impacted over the last 150 years in San Francisco Bay and only a small percentage of the original extent of these habitats remains;

v. restoration of this site to shallow bay, intertidal mudflat, and eelgrass beds has been recommended for this site by the *Baylands Ecosystem Habitat Goals*; and

vi. a comprehensive and detailed monitoring program will be implemented to ensure that these habitats are realized; if they are not realized by the end of the 10-year Performance Evaluation phase, then the Regional Board will require mitigation for the fill in waters of the State.

17. Beneficial Uses

a. Groundwater: The existing and potential beneficial uses for groundwater in the vicinity of the 50 Foot Project include municipal and domestic water supply, industrial process water supply, industrial service water supply and agricultural water supply. The Project overlies the East Bay Plain Groundwater Basin. Shallow groundwater to a depth of about 100 feet below ground surface is brackish. Furthermore there is no historical, current, or planned use of the shallow brackish groundwater as source of drinking water. However, the deeper aquifers beneath the site are a potential source of drinking water. The East Bay Plain Groundwater Basin is being evaluated for the storage of imported surface waters by East Bay Municipal Utilities District.

The potential for the 50 Foot Project to increase saltwater intrusion into the underlying groundwater aquifers was evaluated by Subsurface Consultants, Inc., and Todd Engineers, 1998, (*Hydrogeologic Investigation Oakland Harbor Navigation Improvement (-50 Foot) Project Port of Oakland, Oakland and Alameda, California*). The evaluation included a compilation of information on hundreds of existing wells, drilling 11 onshore borings and 19 offshore borings, preparing isopach maps of the underlying geologic units, conducting aquifer tests of selected wells, collecting water quality data, and modeling potential saltwater intrusion due to the harbor deepening using the U.S. Geological Survey's SUTRA model.

This evaluation found that the harbor deepening could increase the vertical flux of groundwater by approximately 4% in the Inner Harbor and 5% in the Outer Harbor. Simulations of total dissolved solids concentrations over time in the Alameda Formation sand layers indicate an increase of up to 5% after channel deepening. They also indicate travel times of 125 years in the Inner Harbor and 470 years in the Outer Harbor channel associated with vertical transport of water and TDS from the channels to

the top sand layers of the Alameda Formation. These long transport times reflect the significant capacity of the underlying aquitards to delay vertical transport of water and TDS. Therefore, the Board finds that the proposed channel improvements have the potential to result in minimal impacts to a potential source of drinking water by increasing TDS levels in the underlying aquifers. The Board finds that this minimal impact is acceptable. However, because it may be necessary to manage the groundwater basin to protect its long-term beneficial use, it will be necessary to monitor the groundwater impacts to make sure that the actual impacts are within the range predicted in the simulation.

The Port has, and will continue to monitor water quality, including long-term changes in TDS levels, in the groundwater aquifers. Task 8 has therefore been established to require a monitoring program that demonstrates that the actual impacts of the project on groundwater are within the range predicted in the reports cited above. Existing wells and monitoring of groundwater quality, particularly TDS and electroconductivity data, may be used to assemble sufficient data to determine whether or not any trends can be detected.

b. Surface Water: The beneficial uses of the waters of the Central San Francisco Bay as set forth in the Basin Plan are as follows:

i. Water Contact Recreation

ii. Non-Contact Water Recreation

iii. Wildlife Habitat

iv. Industrial Service Supply

v. Industrial Process Supply

vi. Preservation of Rare and Endangered Species

vii. Fish Migration and Spawning

viii. Navigation

ix. Ocean and Commercial Sport Fishing

x. Fish Spawning

xi. Estuarine Habitat

xii. Shellfish Harvesting

18. To comply with the provisions of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), the USACE and Port jointly prepared the Oakland Harbor Navigation Improvement (-50 Foot) Project Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) dated May 1998. The USACE issued a Record of Decision (ROD) on October 8, 1999. On February 1, 2000, the Board of Port Commissioners certified the EIR. An

Addendum to the EIS/EIR was certified by the Board of Port Commissioners on July 18, 2000.

19. The Port has voluntarily agreed to augment the existing California State Lands Commission's ballast water treatment program by providing an additional $150,000 for that program. This augmentation is not a requirement of this Order, but is a voluntary, "good neighbor" commitment of the Port.

20. The Board finds that the EIS/EIR properly identified all potentially significant impacts and, with the possible exception of ballast water exotic species impacts, all identified impacts have been, or with compliance with the terms and conditions of this permit will be, fully mitigated. Commenters have raised concerns that the EIS/EIR does not fully mitigate for all potential impacts from exotic species discharged with ballast water. The Board, however, is explicitly prohibited by law from requiring additional mitigation relating to exotic species in ballast water. (Pub. Resources Code, § 71207, sub d.(a).) A public agency may require only that mitigation which it has the power to require under law other than CEQA. (Pub. Resources Code, § 21004.) Under the same legislation that prohibits the Board from imposing additional requirements regarding exotic species from ballast water, all ships are required to employ specified ballast water management practices. (Pub. Resources Code, § 71204.) To the extent that compliance with this law may not fully mitigate exotic species impacts from ballast water, the Board finds that these impacts are not mitigatable under law, and that the vital importance of the project to environmental restoration and the national, regional and local navigational and shipping interests are overriding considerations.

21. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20 and November 13, 1995, respectively. A summary of regulatory provisions is contained in Title 23 of the California Code of Regulations, section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters. This order is in compliance with the Basin Plan.

22. Effluent limitations in these requirements are based on the plans, policies, and water quality objectives of the Basin Plan, Quality Criteria for Water (EPA440/5-86-001, 1986; Gold Book and 63 Federal Register 68354, December 10, 1998), Applicable Federal Regulations (40 CFR Parts 122 and 131), the National Toxics Rule (57 FR 60848, 22 December, 1992; NTR), and Best Professional Judgment.

23. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Section 13330 of the CWC and Section 3867 of Title 23 of the California Code of Regulations (23 CCR).

24. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR Subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought; and,

25. Certification is conditioned upon total payment of the full fee required in State regulations (23 CCR Section 3833) and owed by the applicant. The issue of the USACE paying application fees to the Board is a matter of dispute between the USACE and the Regional Boards. The matter is currently before the federal Ninth Circuit Court of Appeals. The Board will act consistently with the decision of this Court.

26. The Regional Board has notified the Dischargers and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge.

27. The Regional Board, in a public meeting on October 18, 2000, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Dischargers, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following in meeting their respective responsibilities as described in finding number 8 of this order:

A. Discharge Prohibitions:

1. The direct discharge of wastes to surface waters or surface water drainage courses is prohibited, except as authorized in this Order.
2. The discharge shall not cause degradation of any water supply.
3. The dredged material shall remain within all the designated disposal areas at all times.
4. The dredging, excavation, filling and disposal activities subject to these requirements shall not cause a condition of pollution or nuisance as defined in Sections 13050 (l) and (m), respectively, of the California Water Code.

B. Discharge Specifications

1. The USACE shall ensure to the extent practicable that the suspended solids generated by construction activities (including dredging, excavation and placement in the Bay of solid materials permitted by this order) do not exceed 1500 mg/L more than 100 feet beyond the Project Boundary for the Inner Harbor Turning Basin widening area and for the Middle Harbor Enhancement Area. The Project Boundary for the Inner Harbor Turning Basin widening area is defined to be the silt curtain. In the Middle Harbor Enhancement Area,

the Project Boundary is defined as the outer limit (the "toe") of the containment dike buttress.

2. In accordance with Section13260 of the California Water Code, the USACE shall file a report with this Regional Board of any material change or proposed change in the character, location, or volume of the discharge. Any proposed material change in the operation shall be reported to the Executive Officer at least 7 days in advance of implementation of any such proposal.

3. The responsible representative of the USACE shall immediately notify the Regional Board staff by telephone whenever an adverse condition occurs as a result of this discharge. An adverse condition includes, but is not limited to, a violation or threatened violation of the conditions of this Order, significant spill of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance. Pursuant to Section 13267(b) of the California Water Code, a written notification of the adverse condition shall be submitted to the Regional Board within 30 days of occurrence. The written notification shall identify the adverse condition, describe the actions necessary to remedy the condition, and specify a timetable, subject to the modifications of the Regional Board, for the remedial actions.

C. Effluent Limitations

1. Wastewater discharged as any part of the project shall not exceed the following limits of quality at any time. It is anticipated that there will be no wastewater discharged as part of the project.

   a. pH: 6.5 - 8.5

   b. Settleable matter: 1.0 mL/L/hr

   c. Dissolved sulfide: 0.1 mg/L

   d. Suspended solids 100 mg/L

D. Receiving Water Limitations

1. The dredging and/or disposal of sediments and/or return water shall not cause:

   a. Floating, suspended or deposited macroscopic particulate matter or foam in waters of the State at any place more than 100 feet from the Project Boundary or point of discharge of the return flow, except as authorized under Section B, Discharge Specifications, of this Order.

   b. Visible floating, suspended, or deposited oil or other products of petroleum origin in waters of the State at any place.

c. Waters of the State to exceed the following quality limits at any point *except* within the Middle Harbor Enhancement Area and Inner Harbor Turning Basin widening area Project Boundaries during construction activities:

i)	Dissolved Oxygen:	5.0 mg/l minimum. When natural factors cause lesser concentrations, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
ii)	Dissolved Sulfide:	0.1 mg/l maximum.
iii)	pH:	A variation of natural ambient pH by more than 0.5 pH units.
iv)	Toxic or other deleterious substances:	None shall be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

2. The groundwater shall not be degraded as a result of the fill or sediment disposal, reuse, or handling.

3. The total suspended solids in the top 5 feet of the water column shall not exceed 1500 mg/L for more than 10% of the measurements or exceed 750 mg/L for more than 50% of the measurements during a 24-hour period (midnight to midnight) taken no more than 100 feet beyond either the Inner Harbor Turning Basin or the Middle Harbor Enhancement Area Project Boundaries.

4. The concentrations of chemicals of concern, as found in grab samples taken no more than 100 feet beyond the Inner Harbor Turning Basin Project Boundary, shall not exceed the Receiving Water Limits in Table A-1 of the attached Self-Monitoring Program, unless it can be shown that site concentrations are not significantly different from ambient concentrations of those chemicals (as measured in the approach channel to Oakland Harbor).

E. Provisions

1. The Dischargers shall comply with all the Prohibitions, Specifications and Provisions of this Order, pursuant to the responsibilities of each Discharger, described earlier in this Order, immediately upon adoption of this Order or as provided below.

2. **Permit Tasks:**

Task #1: Quality Assurance Project Plan

The USACE shall submit a technical report acceptable to the Executive Officer that contains a site-specific Quality Assurance Project Plan (QAPP) for all data collection associated with this Order. The QAPP will outline *in situ* monitoring methods, the collection of soil, sediment, and water samples, analysis of the samples, and reporting of the results. The plan will specifically address project organization, quality assurance objectives, sampling procedures, sample handling and custody, laboratory analyses and quality control procedures, audits, corrective action, data reduction, management, reporting and validation.

REPORT DUE DATE: At least 60 days prior to commencement of construction activities associated with any portion of the project

Task #2: Receiving Water Monitoring and Contingency Plan

The USACE shall submit a Receiving Water Monitoring Plan acceptable to the Executive Officer that describes how the USACE will comply with the requirements set forth in the Self Monitoring and Reporting Plan (SMP) associated with this order. The plan shall include a description of how the USACE will continuously monitor turbidity within 100 feet of the Project Boundaries for the Inner Harbor Turning Basin widening area and the Middle Harbor Enhancement Area. The plan shall also describe how the turbidity meters will be calibrated to estimate total suspended solids and how ambient (pre-project) conditions will be evaluated. The plan shall describe how the grab samples required in the SMP will be taken and how the USACE will keep Regional Board staff informed of the compliance with Receiving Water Limits. The Plan will also describe how the USACE will take action if the Receiving Water Limits are exceeded (Contingency Plan).

REPORT DUE DATE: At least 60 days prior to commencement of construction activities associated with any portion of the project

Task #3: Post Placement Confirmation Sampling Plan

The USACE shall submit a technical report acceptable to the Executive Officer that contains a Post Placement Confirmation Sampling Plan for sediments placed in the Middle Harbor Enhancement Area.

REPORT DUE DATE: July 20, 2001

Task #4: Results of Post Placement Confirmation Sampling

The USACE shall submit a technical report acceptable to the Executive Officer that contains the results of the Post Placement Confirmation Sampling at the Middle Harbor Enhancement Area.

REPORT DUE DATE: Within 120 days of completion of final grading of Middle Harbor Enhancement Area

Task #5: Dredging, Excavation and Filling Final Report

The USACE shall submit a report acceptable to the Executive Officer that summarizes compliance of the Project with requirements in this order related to dredging, excavation, and filling. This report shall include a comprehensive discussion of: the compliance record of the project and corrective actions taken; the effectiveness of the receiving water monitoring methods; the effectiveness of dredging, excavating, and filling methods used for minimizing water quality impacts; estimates of the volumes of material dredged, excavated and placed during the project and estimates of total volume of decant water (if any) generated by the project.

REPORT DUE DATE: Within 120 days of completion of the dredging and filling operations

Task # 6: Alameda Shoreline Structural Bulkhead and Barrier Wall Design and Construction Work Plan

The USACE shall submit a work plan and schedule acceptable to the Executive Officer that provides design and construction specifications for the structural bulkhead to be placed along the Alameda shoreline and for a low permeability barrier wall to be installed at the Alameda Gateway Complex on the westernmost shoreline of the Inner Harbor Turning Basin widening area. The minimum performance requirements for the barrier wall are:

In situ hydraulic conductivities of 1×10^{-6} cm/s or less; and

A minimum key-in depth of four feet into the Young Bay Mud or other stratum of equally low permeability.

The work plan shall also include procedures for conducting and documenting construction quality analysis inspections and a procedure for post-placement performance testing to demonstrate that the wall achieves a hydraulic conductivity of 1×10^{-6} cm/s or less.

Prevention of hydraulic pressure head build-up from groundwater inboard of the barrier wall and potential contaminated groundwater releases due to breakthrough, overtopping, and/or diversion around the ends of wall must also be addressed in this work plan. Plans for constructing a groundwater

extraction system shall be included if hydraulic pressure build-up is determined to be a potential problem. Appropriate treatment and disposal of extracted groundwater, if necessary, shall also be discussed.

Lastly, the work plan shall discuss the construction sequencing of the two projects and how construction of the structural bulkhead may impact the structural integrity and functioning of the barrier wall.

REPORT DUE DATE: At least 60 days prior to start of shoreline excavation activities

Task #7: Structural Bulkhead and Barrier Wall Construction Completion Report

The USACE shall submit a report acceptable to the Executive Officer documenting completion of construction of the structural bulkhead and the low permeability barrier wall to be installed along the Alameda shoreline of the Inner Harbor Turning Basin. The report shall include as-built drawings, post-placement permeability testing results, construction quality analysis inspection results, and any other documentation necessary to demonstrate that the wall was installed according to the approved workplan submitted pursuant to Task #6 of this order.

REPORT DUE DATE: Within 120 days of completion of Inner Harbor Turning Basin construction activities

Task #8: Oakland Harbor Groundwater Monitoring Plan

The Dischargers shall submit a plan acceptable to the Executive Officer describing proposed groundwater monitoring activities on property impacted by the 50 Foot Project and related projects. The plan shall include monitoring for saltwater intrusion due to deepening of the harbor channel and turning basins. This task can be satisfied by the Port of Oakland by including a saltwater intrusion monitoring plan in the existing groundwater monitoring plan required for the ongoing Port of Oakland Berth 55-58 Project.

REPORT DUE DATE: February 15, 2001

Task #9: Floating and Non-Floating Debris Management Plan

The USACE shall submit a plan acceptable to the Executive Officer for preventing building, pier and wharf demolition waste generated during widening of the Inner Harbor Turning Basin from adversely impacting beneficial uses of the Bay. The plan shall address both prevention of debris from falling into the Bay, and collection of debris from the Bay in the event

that prevention measures fail, as well as disposal procedures for the debris once it has been broken into manageable pieces and collected.

REPORT DUE DATE: At least 60 days prior to commencement of construction activities associated with any portion of the project

Task #10: Spill Response Plan

The USACE shall submit a plan acceptable to the Executive Officer for responding to and cleaning up visible releases of contaminants, including, but not limited to, releases of petroleum product "sheens" during dredging operations.

REPORT DUE DATE: At least 60 days prior to commencement of construction activities associated with any portion of the project

Task #11: Inner Harbor Turning Basin Widening Area Sediment Removal Confirmation Sampling Plan

The USACE shall submit a plan acceptable to the Executive Officer to confirm the removal of contaminated sediment from the Inner Harbor Turning Basin widening area and demonstrate that the sediment remaining in the biologically active layer (top 3 feet) after completion of dredging activities is substantially similar in physical and chemical characteristics to Merritt Sands/Old Bay Muds, as characterized in the report, Tier I Evaluation of Dredged Material (EVS Environmental Consultants, 1997), or that the sediments do not pose an unacceptable risk to biological receptors. The plan shall include, but not be limited to, a procedure for estimating the appropriate number and distribution of samples, a map showing proposed sample locations, a list of constituents to be analyzed, and a description sample collection and analysis methods.

REPORT DUE DATE: At least 60 days prior to the start of dredging in the Inner Harbor Turning Basin

Task #12: Inner Harbor Turning Basin Widening Area Sediment Removal Confirmation Sampling Results

The USACE shall submit a report acceptable to the Executive Officer documenting the results of the Inner Harbor Turning Basin widening area sediment removal confirmation sampling. The report shall provide results of the sediment analyses and an evaluation of the potential risk to biological receptors of the remaining sediments in the widening area.

REPORT DUE DATE: Within 120 days of completion of sediment removal in the Inner Harbor Turning Basin widening area

3. The USACE shall conduct monitoring activities according to the Self-Monitoring and Reporting Program (SMP) attached to this order and as may be amended by the Executive Officer. At any time after adoption of this order, the Dischargers may file a written request proposing modifications to the attached SMP. If the proposed modifications are acceptable, the Executive Officer may issue a letter of approval incorporating the revisions into the SMP.

4. Each discharger shall notify the Regional Board immediately whenever violations of this order (for which the discharger is responsible) are detected.

5. The USACE will continuously estimate total suspended solids concentration using turbidity meters during excavation of the Inner Harbor Turning Basin widening area and during the placement of material at the Middle Harbor Enhancement Area, which will be calibrated with enough grab samples to reduce the error in any measurement to less than 100 mg/L.

6. The USACE will use silt curtains (or an equivalent method) when dredging using a clamshell dredge or excavating in water less than 20 feet deep.

7. During herring spawning season, a monitor, trained by California Department of Fish and Game staff, will observe the construction area and if spawning is observed, will redirect construction activities away from areas of active spawning.

8. Return water overflow from dredging barges shall be limited to no longer than 15 minutes at the dredge site when sediments that have been determined to be suitable for unconfined aquatic disposal are being dredged.

9. In order to minimize resuspension, the USACE will use a clamshell dredge (or equivalent method) for the Inner Harbor Turning Basin widening. The USACE may be required to use alternative construction methods to move the Merritt Sand materials if the suspended solids generated by hydraulic dredging cannot meet the Receiving Water Limits.

10. The USACE shall use a clamshell dredge with a closed (watertight) bucket no larger than 30 cubic yards or the equivalent when dredging or excavating Young Bay Muds in the Inner Harbor Turning Basin widening area. No return water shall be discharged from the disposal barge when dredging in this area.

11. The USACE shall use silt curtains and absorbent booms (or equivalent methods) when dredging or excavating offshore in the Inner Harbor Turning Basin widening area. Both containment and absorbent booms shall be deployed during demolition of concrete and creosote-treated piles. During shoreline excavation, the USACE shall deploy weighted silt curtains, at least 5 feet in depth, completely around the excavation (shoreline to shoreline). If sheens or other visible signs of contaminant releases originating from the excavation and within the silt curtain are detected in surface water, the USACE shall report the spill to Board staff and implement response actions according to the plan submitted pursuant to Task #10 of this Order.

12. Any building, wharf, or pier demolition debris or excavated soil from land above MHW that is stockpiled onshore prior to offsite disposal shall be stored in a manner that utilizes BMPs for construction operations and is in compliance with the NPDES General Construction Stormwater Permit. No runoff of non-stormwater shall be allowed to enter the Bay. All such material shall be disposed of at an appropriate, permitted facility.

13. The USACE and the Port, in accordance with each of the dischargers responsibilities, will follow the proposed plan described in the *Middle Harbor Enhancement Area Construction Period and Long-term Monitoring, Maintenance, and Adaptive Management Program* (Winzler & Kelley and Merkel & Associates, August 2000) and the *Middle Harbor Enhancement Area Construction Period and Long-Term Monitoring Protocols* (Winzler & Kelley and Merkel & Associates, August 2000), as modified per Table 1 (see attachments).

14. The Middle Harbor Enhancement Area will provide the following environmental benefits and habitat types:
    - 3-5 acres of new salt marsh habitat;
    - a minimum of 15 acres of eelgrass habitat within 10 years not including that planted in the previous 3 years;
    - in addition to the 15 acres of eelgrass habitat, above, a minimum of 40 acres of habitat suitable for eelgrass habitat development and 110 acres of other shallow water habitat;
    - new public access beach area;
    - four avian islands, each being a maximum of 5,000 square feet;
    - a protected area for birds along the UP Mole shoreline;
    - 4-8 acres of artificial reef habitat containing some existing hard bottom surfaces such as concrete (4 acres already exist);
    - an estuarine community and habitat that has a higher productivity and greater diversity than the existing community and habitat of Middle Harbor;
    - increased habitat benefits for aquatic birds, especially for the least tern, by increasing the productivity of fish prey; and,
    - a greater number of fish than the existing site.

15. Performance Standards for these benefits will be measured after construction of the site is completed. Monitoring will continue for not less than 10 years and will include the following measurements carried out according to the Middle Harbor Enhancement Area Monitoring Plan documents cited above and as modified per Table 1 in the attachments: surveys of elevation, bathymetry, topography, water depths and velocities, hydrologic turnover rates, sediment size, vegetation, birds, invertebrates, fish; and assessment of physical conditions such as settlement, erosion, and deposition, and monitoring for hydrodynamics and water quality. Monitoring data will be compared to both baseline studies conducted at the Middle Harbor site prior to the restoration project and to reference site data.

While some flexibility in achieving the diverse habitat goals for the Middle Harbor Enhancement Area site should be allowed, performance standards are required to ensure that the desired habitats are provided. Those performance standards are presented in the attached Table 1 and summarized below. Assessment of overall habitat progress will be made on an annual basis, and a final determination of success will be made at the end of the tenth year of monitoring by the Executive Officer.

a. The 3-5 acres of new salt marsh habitat will consist of a complex of habitats including high, middle, and low elevation salt marsh, mudflats, salt pannes, salt ponds, and tidal channels. The Regional Board's decision on habitat success will depend on the number of shorebirds and marsh birds using the site compared to reference sites, as well as the overall number of people that visit the marsh annually.

b. 15 acres of eelgrass habitat will have at least 5% cover of eelgrass and eelgrass density comparable to the selected reference sites.

c. In addition to the 15 acres above, 40 additional acres of habitat suitable for eelgrass habitat development will be constructed at depths ranging from –6 feet to +1 foot MLLW, water velocities between 1 to 20 cm/sec, hydrologic turnover rates for the entire harbor area of no less than once/week, and median sediment grain sizes between 0.1 to 0.3 millimeters. The presence of eelgrass is desired, but not required on these 40 acres. Approximately 120 acres of other shallow water habitat will be created and defined by depths ranging from –18 feet MLLW to intertidal depths.

d. Four avian islands, each being a maximum of 5,000 square feet, will have maximum vegetation cover of 20% and will have avian use comparable to the selected reference sites.

e. Higher productivity and greater diversity of the native estuarine community and habitat in the restored Middle Harbor Enhancement Area will be realized by the following increases in abundance and/or diversity compared to baseline measurements taken in 1997 and 1999:
    1) Benthic Community: abundance will increase by at least 10% and polychaete numbers will decrease in favor of other taxonomic groups;
    2) Avian Community: abundance will increase by at least 10% for shore birds and wading birds; the abundance of other birds such as pelicans and least terns will not decrease; and,
    3) Fish Community: abundance will increase by at least 15%
    Prey species for aquatic birds, especially for the Least Tern, will increase by at least 15%.

16. During construction of the Middle Harbor Enhancement Area, TSS will be monitored continuously and silt curtains will be deployed if TSS concentrations exceed 1,500 mg/L measures at 100 feet from the Project Boundary more than 10% of the time. Also, herring spawns, will be monitored during construction of

the project and, if they occur within the Middle Harbor Enhancement Area, discharges will cease for two weeks.

17. The USACE and the Port, in accordance with their respective responsibilities, will provide a Program Manager who will oversee phases 1 through 4 of the Middle Harbor Enhancement Area project and be responsible for implementing a quality assurance program, coordinating with the Technical Advisory Committee, coordinating all data analysis, and producing all reports.

18. The USACE and the Port, in accordance with their respective responsibilities, will submit annual reports describing the activities associated with the first three phases of construction at the Middle Harbor Enhancement Area.

19. The USACE and the Port, in accordance with their respective responsibilities, will monitor the Middle Harbor Enhancement Area over a 10-year Performance Evaluation phase after construction is completed to ensure that standards are met for the eelgrass habitat, salt marsh, avian islands, benthic infauna, epifauna, fish, and birds.

20. Annual reports on the post-construction monitoring of the Middle Harbor Enhancement Area portion of the project will be submitted by the USACE and the Port, in accordance with their respective responsibilities to the Executive Officer beginning one year after final construction, grading, and planting operations have ceased. Annual reports will be submitted each year of the ten-year monitoring period. These reports will include descriptions of monitoring methods used, locations sampled, representative photographs, results of monitoring, reference site data and analysis, condition of sensitive species, wildlife use, aquatic invertebrate and invertebrate community development, management actions taken, responsible parties, recommendations, and other appropriate items. These reports will be due on January 31 of each year, unless another date is approved by the Executive Officer. The USACE and the Port, in accordance with their respective responsibilities, shall notify the Board in writing of the actual start dates of each phase of the project. Any substantive future changes to the Final Construction and Monitoring Plan must be approved in writing in advance by the Executive Officer.

21. To determine the quality of the Middle Harbor Enhancement Area after placement of dredged sediment and after planting of the eelgrass the USACE and the Port, in accordance with their respective responsibilities, will provide and carry out a sediment/water monitoring sampling plan acceptable to the Executive Officer.

22. The USACE and the Port, in accordance with their respective responsibilities, will provide sufficient financing for the Middle Harbor Enhancement Area to include construction, implementation, monitoring, corrective actions, maintenance, and contingencies. The USACE and the Port have made commitments in the Consistency Determination that BCDC will take up in December 2000. Those commitments provide financial assurances going beyond a conventional bond, through adaptive management of the Middle Harbor Enhancement Area to ensure

that the project achieves its restoration objectives. In addition, the Port will establish a $2 million corrective action contingency escrow account. The amount of funding in this account will in no way limit the USACE's or the Port's obligations for corrective actions or restoration obligations.

23. The Port will provide the necessary legal instruments and financial commitments to ensure permanent preservation and management of Middle Harbor Enhancement Area as a wildlife habitat.

24. The USACE or the Port will either relocate all storm drains currently draining into the Middle Harbor Enhancement Area or provide a treatment system for those outfalls.

25. The Port will provide replacement habitat for any proposed habitat that does not meet the goals or performance criteria after 10 years of monitoring. Replacement habitat may include mitigation for temporal habitat losses and will be left to the discretion of the Executive Officer. If replacement habitat is required, the ten year monitoring program will begin again for that replacement habitat.

26. When the USACE has determined that the Middle Harbor Enhancement Area has achieved its success criteria after 10 years of monitoring, it shall submit a notice of project completion, acceptable to the Executive Officer. The notice of project completion shall include a plan for long-term maintenance and management, including funding in perpetuity for these management activities, which is acceptable to the Executive Officer. After acceptance by the Executive Officer of the notice of completion, submittal of annual reports for the construction and monitoring phases is no longer required.

27. For construction activities, the USACE and the Port, in accordance with their respective responsibilities and their contractors will be held responsible for compliance with the General Construction Stormwater Permit. The contractors will be held responsible for implementing the Storm Water Pollution Prevention Plan (SWPPP) under the Permit. For ongoing operations at the project site, the Port's tenants will be held responsible for compliance with the General Industrial Stormwater Permit and implementation of the SWPPP.

28. During the startup of any phase of the proposed work that may increase turbidity in the Bay, the USACE and the Port, in accordance with their respective responsibilities shall download continuously-monitored turbidity data daily and file with the Regional Board self-monitoring reports on the fifth day. The Dischargers may request less frequent sampling (of the Executive Officer) if the Receiving Water Limits are being met.

29. All reports pursuant to these Provisions shall be prepared under the supervision of a registered civil engineer or certified engineering geologist.

30. The USACE and the Port, in accordance with their respective responsibilities shall install any additional monitoring devices required to fulfill the terms of any

Self-Monitoring Program issued to the Discharger in order that the Regional Board may evaluate compliance with the conditions of this order.

31. The USACE shall remove and properly dispose of any wastes, which are discharged at this site in violation of these Requirements.

32. The USACE and the Port, in accordance with their respective responsibilities shall file with the Regional Board a report of any material change or proposed change in the character, location, or quantity of this waste discharge. For the purpose of these requirements, this includes any proposed change in the boundaries of the disposal areas or the ownership of the site.

33. The Dischargers shall maintain a copy of this Order at the site so as to be available at all times to site operating personnel.

34. The USACE and the Port, in accordance with their respective responsibilities are considered to have full responsibility for correcting any and all problems, which arise in the event of a failure, which results in an unauthorized release of waste or wastewater.

35. The USACE and the Port, in accordance with their respective responsibilities shall maintain all devices or designed features installed in accordance with this Order such that they function without interruption for the life of the operation.

36. The Dischargers shall permit the Regional Board or its authorized representative, upon presentation of credentials:

    a. Entry on to the premises on which wastes are located or in which records are kept.

    b. Access to copy any records required to be kept under the terms and conditions of this Order.

    c. Inspection of any treatment equipment, monitoring equipment, or monitoring method Sampling of any discharge or surface water covered by this Order.

37. These Requirements do not authorize commission of any act causing injury to the property of another or of the public; do not convey any property rights; do not remove liability under federal, state or local laws, regulations or rules of other programs and agencies nor do these Requirements authorize the discharge of wastes without appropriate permits from other agencies or organizations.

I, Lawrence Kolb, Acting Executive Officer, do hereby certify that the foregoing is a full, complete and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on October 18, 2000.

Lawrence P. Kolb
Acting Executive Officer

Attachments:

Table

Table 1 – Performance standards and commitments for the Middle Harbor Enhancement Area

Figures

Figure 1 – Site Location Map

Figure 2 – Components of the Oakland Harbor Navigation Improvement (50 Foot) Project

Figure 3 – Inner Harbor Turning Basin Widening Area: Conceptual Demolition and Excavation Plan

Figure 4 - Middle Harbor Enhancement Area Habitat Design Plan

Appendix

Self Monitoring and Reporting Program

Table 1. Performance standards and commitments for the Middle Harbor Enhancement Area[2].

NO	GOALS & OBJECTIVES	WHEN AND HOW DETERMINED	PERFORMANCE CRITERIA
1	Provide a new 3-5 acre marsh to provide bird, fish, benthic and epifaunal foraging opportunities and educational/interpretive benefits.	When: 1) completion of final construction; 2) 10 years after completion of final construction. How: 1) topographic survey (at construction); 2) assessment of vegetation and avian use (over 10 year)	Overall habitat will consist of high, middle, and low elevation salt marsh, mudflats, salt panes, salt ponds, and tidal channels[3]. For wildlife, especially birds: use comparable to wetland reference sites comparable to sites located at the San Leandro Bay complex of Martin Luther King Restoration Marsh, Arrowhead, and Damon Slough (depending the final habitat type(s) restored). For education: metric will be the total number of annual visitors/year but no performance criteria set. Importance will be assessed at the end of the monitoring period.

[2] Note: some combination of these performance criteria may be met to achieve success of the project. Success will be determined by the Technical Advisory Committee and regulatory agencies after the 10 year monitoring program is completed.

[3] No vegetation cover criteria is required since the goals of bird use and education can be met with only mudflats if that is the final habitat type.

NO	GOALS & OBJECTIVES	WHEN AND HOW DETERMINED	PERFORMANCE CRITERIA
2	Create a minimum of • 55 acres of habitat suitable for eelgrass habitat development, 15 acres of which must have eelgrass (see #6, Below) and • 110 acres of other shallow water,	When: 1) completion of final construction 2) completion of site suitability evaluation and warranty period How: 1) topographic survey (at construction); 2) assessment of physical conditions developed	<u>Eelgrass Habitat</u> Water Depths: Target: -4 to 0 feet MLLW Acceptable Range: -6 feet to +1 foot MLLW Velocities: Target: 10-16 cm/sec Acceptable Range: 1 to 20 cm/sec Hydrologic Turnover Rates for Middle Harbor Basin: Target: once/day Acceptable Range: once/week Sediment Grain Size: Target: 0.25 mm median size Acceptable Range: 0.1 to 0.3 mm median size <u>Shallow Water Habitat</u> Water Depths: Range: -18 feet MLLW to Intertidal [4]

[4] Note: performance criteria for shallow water habitat reflect only the design criteria because the increases in floral and faunal species expected in this habitat are covered in Performance Criteria Number 7 (i.e., increases in benthic invertebrates, birds, and fish).

NO	GOALS & OBJECTIVES	WHEN AND HOW DETERMINED	PERFORMANCE CRITERIA
3	Provide new public access beach area that will also provide storm refuge to birds.	When: 1) To be completed as part of Berths 55-58/Middle Harbor Shoreline Park work. How: 1) Confirm beach construction under Port's project.	No performance criteria.
4	Provide improved bird habitat, with reduced predators and human disturbance (a) through construction of four avian islands, each being a maximum size of 5,000 sq. ft. and with a gull population of no more than 50%, and (b) by providing a protected area along the shoreline of the UP Mole.	When: 1) completion of final construction; 2) 10 years after completion of final construction. How: 1) topographic survey (at construction); 2) assessment of vegetation and avian use (over 10 year)	Avian Use comparable to wetland reference sites located at San Leandro Bay complex of Martin Luther King Restoration Marsh, Arrowhead, and Damon Slough Vegetation: maximum percent cover of 20%
5	Provide 4-8 acres of artificial reef habitat containing some existing hard bottom concrete surfaces (approximately 4 acres presently exist)	When: 1) completion of final construction. How: 1) site survey at completion.	No performance criteria.

NO	GOALS & OBJECTIVES	WHEN AND HOW DETERMINED	PERFORMANCE CRITERIA
6	Create a minimum of 15 acres of eelgrass habitat within 10 years after initiation (start of dredging) of project not including that planted in the previous 3 years.	When: 1) completion of 10-year post-construction monitoring program. How: 1) annually evaluate eelgrass cover and density throughout site and reference areas using side-scan sonar and diver verification; 2) compare eelgrass cover with reference areas to control for natural interannual variability in eelgrass.	1) 5% cover after 10 years [5] 2) density comparable to reference sites located at Crown Beach and Bay Farm Island after 10 years
7	Provide an estuarine community within Middle Harbor Enhancement Area that is of higher productivity and greater diversity than the existing community of Middle Harbor. Provide a habitat that is more highly productive than existing conditions and provides a net increase in habitat value.	When: 1) completion of 10 year post-construction monitoring program. How: 1) evaluation of plant, invertebrate, fish, and avian communities relative to baseline Middle Harbor conditions reported in prior studies.	Benthic community: At least 10% increase in overall density and a decrease in polychaete numbers [6] Avian community (includes all habitat types created by the project): Aerial birds (pelicans, terns other than the least tern, etc.): Abundance equal to or greater baseline numbers. Shore birds: at least a 10% increase in abundance and diversity Wading birds: at least a 10% increase in abundance and diversity Fish community: At least a 15% in abundance.

[5] Note: low criterion based on Merkel & Associates inventories of eelgrass beds in the SF Bay.

NO	GOALS & OBJECTIVES	WHEN AND HOW DETERMINED	PERFORMANCE CRITERIA
8	Increase habitat benefits for aquatic birds and most particularly the least tern colony, by providing more tern prey sized forage species.	When: 1) completion of 10 year post-construction monitoring program. How: 1) evaluate availability of forage species and size classes consumed by avifauna, and specifically least terns.	At least a 15% increase in fish that are prey species for the endangered least tern, compared to baseline measures

[6] Note: benthic diversity may decline by supporting fewer polychaete and oligochaete species, but overall diversity of the estuarine community will improve with increased numbers of amphipods, mollusks, and other shallow water species.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING AND REPORTING PROGRAM
FOR

UNITED STATES ARMY CORPS OF ENGINEERS
AND
PORT OF OAKLAND

OAKLAND HARBOR NAVIGATION IMPROVEMENT (50 FOOT) PROJECT

OAKLAND, ALAMEDA COUNTY

ORDER NO. 00-110

CONSISTS OF

PART A

AND

PART B

PART A

A. GENERAL

1. Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16. This Self-Monitoring Program is issued in accordance with Provision 3 of Regional Board Order No. 00-110.

2. The principal purposes of a discharge monitoring program are: (1) to document compliance with waste discharge requirements and prohibitions established by the Board, (2) to facilitate self-policing by the waste dischargers in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of standards of performance, and toxicity standards, (4) to assist the dischargers in complying with the requirements of the California Code of Regulations.

B. SAMPLING AND ANALYTICAL METHODS

1. Sample collection, storage, and analyses shall be performed according to the most recent version of EPA Standard Methods and in accordance with an approved Quality Assurance Project Plan (Provision 2, Task 1 of Order No. 00-110).

2. Water and waste analysis shall be performed by a laboratory approved for these analyses by the State of California. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.

3. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. DEFINITION OF TERMS

1. A **grab sample** is a discrete sample collected at any time.

2. **Receiving waters** refers to any surface or groundwater which actually or potentially receives surface or groundwater, which pass over, through, or under waste materials or contaminated soils. For these requirements, the samples to evaluate the condition of the receiving water should be taken within 100 feet of the Project Boundary.

3. **Project boundary** as defined in Board Order No. 00-110, is any point along the silt curtain in the Inner Harbor Turning Basin (IHTB) widening area and any point along the outer limit (the "toe") of the containment dike buttress in the Middle Harbor Enhancement Area (MHEA).

4. **Standard observations** refer to:

    a. Receiving Waters

        i) Evidence of floating and suspended materials generated by the construction activities, as recorded by visual observations, video or photographic records, continuous, fixed-turbidity meters that have been calibrated to total suspended solids and grab samples.
        ii) Discoloration and turbidity: description of color, source, and size of affected area.
        iii) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.

    b. IHTB Widening Area- On-shore

        i) Evidence of liquids leaving or entering the shoreline excavation/demolition area, estimated size of affected area and flow rate. (Show affected area on map)
        ii) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
        iii) Evidence of erosion of stockpiled materials or generation of dust from the stockpiles.

5. **Operations monitoring** refers to the following information:

    a. A description of and a map showing the area(s) dredged during the previous month.
    b. Estimates of the daily volume in cubic yards and the disposal location(s) of dredged materials removed during each day of the previous month.

6. **Construction activities** refer to dredging, excavation, and filling.

D. SAMPLING, ANALYSIS, AND OBSERVATIONS

The Dischargers are required to perform sampling, analyses, and observations in the following media:

1. The total suspended solids (TSS) in the top 5 feet of the water column at the IHTB and MHEA Project Boundaries shall be continuously estimated with turbidity meters (optical backscatter sensors) that have been calibrated with grab samples.

2. Dissolved mercury in the top 5 feet of the water column shall be monitored at turbidity/TSS station using the methods described in Part B and according to the schedule in Table A-1.

E. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the Dischargers or their laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board. Such records shall show the following for each sample:

1. Identity of sample and sample station number.

2. Date and time of sampling.

3. Date and time that analyses are started and completed, and name of the personnel performing the analyses.

4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.

5. Calculation of results.

6. Results of analyses, and detection limits for each analysis.

F. REPORTS TO BE FILED WITH THE BOARD

1. Written monitoring reports shall be filed according to the schedule set forth in Table A-1. The reports shall contain the following:

    a. Letter of Transmittal

    A letter transmitting the essential points in each report should accompany each report. Such a letter shall include a discussion of any requirement violations found during the last report period, and actions taken or planned for correcting the violations. If the Dischargers have previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred in the last report period this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by the Army Corps District Engineer or his

duly authorized representative or a principal executive officer at the level of Deputy Port Director or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

b. Each monitoring report shall include a compliance evaluation summary. The summary shall contain:

    i) An estimation of the volume of the facility discharge on a daily, weekly and monthly basis.
    ii) The method and time of measurement, equipment and methods used to monitor turbidity and total suspended solids (TSS) in the field.

c. A map or aerial photograph shall accompany each report showing observation and monitoring station locations.

d. Laboratory statements of results of analyses specified in Part B must be included in each report. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Board.

    i. The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review and approved by the Executive Officer.

    ii. In addition to the results of the analyses, laboratory quality assurance/quality control (QA/QC) information must be included in the monitoring report. The laboratory QA/QC information should include the method, equipment and analytical detection limits; the recovery rates; an explanation for any recovery rate that is less than the recovery acceptance limits specified in the USEPA method procedures or the laboratory's acceptance limits, if they are more stringent than those in the USEPA method procedures; the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.

e. A summary and certification of completion of all Standard Observations for the facility including the IHTB and MHEA Project Boundaries in the receiving waters and the demolition and excavation areas on the Alameda shoreline that are part of the IHTB widening.

f. A summary and certification of completion of all Operations Monitoring information.

2. Contingency Reporting

a. A report to the Executive Officer and Regional Board case manager shall be made by telephone of any accidental discharge of whatever origin immediately after it is discovered. A written report shall be filed with the Board within five days thereafter. This report shall contain the following information:

i) A map showing the location(s) of discharge(s);
ii) Approximate flow rate;
iii) Nature of effects, ie., all pertinent observations and analyses; and
iv) Corrective measures underway or proposed.

b. If the receiving water limits for Total Suspended Solids and/or dissolved mercury shown in Table A-1 are exceeded, the Dischargers shall implement contingency actions per the *Receiving Water Monitoring and Contingency Plan* to be submitted by the Dischargers pursuant to Provision 2, Task #2 of Board Order No. 00-110 and approved by Board staff.

3. Final Reporting

The Dischargers shall notify the Regional Board by letter upon completion of the project. Project completion is considered to be the date on which all dredged material has been deposited at its final disposal location(s). The Dischargers shall also submit a final report containing the following information:

a. A comprehensive discussion of the compliance record, and the corrective actions taken or planned, which were needed for compliance with the waste discharge requirements;
b. A comprehensive discussion of the effectiveness of receiving water monitoring methods;
c. An evaluation of the effectiveness of dredging and filling methods used (at minimizing water quality impacts);
d. An estimate of the total volume of material dredged or excavated from each discrete site during the project and the total volume of material placed at each disposal or reuse location; and,
e. An estimate of the total volume of decant water generated from dewatering of the dredged material (handled and disposed of under Waste Discharge Requirements Order No. 98-019 for the Port of Oakland's Berth 10 Dredged Sediment Rehandling Facility).

PART B: MONITORING AND OBSERVATION SCHEDULE

I. DESCRIPTION OF MONITORING STATIONS AND ANALYSES

A. RECEIVING WATERS

1. Number and locations of turbidity (optical backscatter) meters[1]:

    a. Minimum of one turbidity meter no more than 100 feet beyond the Project Boundary in the MHEA (monitoring for constituents other than turbidity is described in Table A-2)

    b. Minimum of one turbidity meter per construction area, no more than 100 feet beyond the Project Boundary in the IHTB widening area (may be attached to clamshell dredging barge/ electrical spool barge combination)

        i. If simultaneous construction activities (e.g. land excavation on Alameda shoreline and offshore dredging in the IHTB widening area) occur > 300 yards apart, each construction area will have a turbidity meter located no more than 100 feet beyond the boundary of that particular area, as defined by the silt curtain.

        ii. If simultaneous construction activities occur > 100 feet but ≤ 300 yards apart, the Dischargers may deploy one turbidity meter for both areas (see special receiving water limits for this scenario in Table A-1).

    c. One turbidity meter located > 300 yards from all construction activities in the MHEA and the IHTB to measure ambient conditions

2. Dissolved Total Mercury grab samples (to be located coincident with turbidity/TSS moorings, including the ambient station)

    a. Grab water samples shall be collected and analyzed using two different methods for comparison purposes:

        i. US EPA Method 245.1: Mercury in Water by Cold Vapor Atomic Absorption; and,

[1] Specific locations to be proposed in *Receiving Water Monitoring and Contingency Plan* to be submitted by the Discharger pursuant to Provision 2, Task #2 of Board Order No. 00-110

ii. Ultra-Clean Sampling and Analytical Methods consisting of:

- Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, US EPA; and,

- Method 1631: Mercury in water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence, Proposed Rule, US EPA, Federal Register June 8, 1999.

II. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis is provided in the attached Tables A-1 and A-2.

III. REPORTING SCHEDULE

Reports submitted in compliance with this Self-Monitoring Program shall be submitted on the following basis:

Initial Construction Phase Turbidity/TSS Reporting - Reports of the turbidity measurements and TSS estimates downloaded daily during the first five days of each new construction phase shall be submitted on the fifth day after initiation of that phase during all dredging and fill placement operations that may impact surface waters.

Monthly Reporting - Monthly reports shall be submitted during all dredging, fill placement and decanting operations. Monthly reports shall be submitted by the 15th day of the month following the reporting period, beginning with the first month of dredging. Monthly reports shall include the measurements, observations and monitoring as enumerated in Table A-1.

Annual Reporting – Annual reports on the various phases of development of the Middle Harbor Enhancement Area shall be submitted starting with the first year of construction and shall continue for 10 years after completion of construction. Annual reports shall include the measurements, observations and monitoring as enumerated in Table A-2.

Final Reporting - The Dischargers shall notify the Regional Board by letter upon completion of the project. Project completion is considered to be the date on which all dredged material has been deposited at its final disposal location(s). The Dischargers shall also submit a final report within 60 days of the project completion date.

All reports shall be submitted to the Regional Board case manager at:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

I, Lawrence P. Kolb, Acting Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 00-110;
2. Was adopted by the Board on October 18, 2000; and

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Dischargers, and revisions will be ordered by the Executive Officer or the Board.

_____
Lawrence P. Kolb
Acting Executive Officer

Attachments: Tables A-1 and A-2

Table A-1. Receiving Water Monitoring Schedule for Inner Harbor Turning Basin Widening Area (IHTB) and Middle Harbor Enhancement Area (MHEA)

Type of Monitoring	Receiving Water Limits ≤ 100 Feet Beyond Project Boundary	Receiving Water Limits > 100 Feet But ≤ 300 Yards Beyond Project Boundary	Frequency	Reporting Period	Report Due Date
Total Suspended Solids - estimated from turbidity measurements (See Part B, I.A.1.)	90% of all measurements ≤ 1500 mg/l 50% of all measurements ≤ 750 mg/l	90% of all measurements ≤ 500 mg/l 50% of all measurements ≤ 250 mg/l	Continuous	First 5 days of each new construction phase – data downloaded daily Following weeks – data downloaded twice weekly	5th day after new construction phase begins Monthly
Dissolved Total Mercury (See Part B, I.A.2.)	0.025 µg/l	0.025 µg/l	Grab	First 5 days of each new construction phase – Daily sampling (72-hour lab turnaround) For remainder of phase – Monthly sampling	10th day after new construction begins or sooner, depending on when all 5 days' lab results have been received Monthly
Standard Observations (See Part A, C.4.a&b)	--	--	Daily	Monthly	15th of month following reporting period
Operations Monitoring (See Part A, C.5.a&b)	--	--	Daily	Monthly	15th of month following reporting period
MHEA Construction Period and Long-Term Monitoring (See Table A-2 for description)	--	--	Varies depending on project phase and type of measurement	Annual	January 31 for previous monitoring year (Beginning with 1st year of construction and continuing for 10 years after completion of construction)

Table A-2. Monitoring Schedule for Middle Harbor Enhancement Area

PHASE	DURATION	CATEGORY	CONSTITUENT OR MEASUREMENT	SPECIFIC MODE OF SAMPLING OR LOCATION	TYPE & FREQUENCY OF SAMPLE	Reference; COE/PORT Monitoring Plan [1, 2]
I. Construction	4-4.5 years[3]	Water Quality	TSS (mg/l)	≤ 100 ft bayward of toe of containment dike	Continuous	2.4.1
		Biological Windows/ Surveys	Herring Spawn	Observations from dredge by trained observers & coordination with CDFG monitors	Seasonal: weekly during 12/01 through 3/01	2.4.2
			Least Tern Foraging Activities	Trained observers	Seasonal: weekly during 4/15 through 9/01	2.4.2
II. Design Verification	4 years (concurrent with construction)	Sheetpile Jetty Reflected Waves	Wave Properties (wave height and steepness)	Sheetpile Wall (1 location)	Every daytime hour over 1-2 months, starting 6-9 months after jetty construction	2.5.1
		Sediment Fill Stratigraphy & Material Placement	Source & Placement data; Bathymetry	Cell placement locations	Weekly during material placement (approx. 1 year)	2.5.2
		Hydrodynamic Model Verification/Adjustment	Flow velocity, wave height & direction, tidal delay & muting	Current data measured both at 2 fixed monitoring stations & along 7 transects. Wave data from 3 fixed stations	Approx. 1 year with various periods of deployment depending on constituent	2.5.4
		Light, Sediment, Water Quality	Sediment erosion & accretion, TOC, grain-size distribution measured from top 2 cm	MHEA will be divided into several sectors with fixed monitoring points at 38 stations of future pilot planting areas	4, 6, 8 & 10 months following 2nd fill placement.	2.5.5

[1] *Middle Harbor Enhancement Area Construction Period and Long-Term Monitoring, Maintenance and Adaptive Management Program* (Winzler & Kelley and Merkel & Associates, August 2000)
[2] Specific monitoring protocols identified in *Middle Harbor Enhancement Area: Construction Period and Long-term Monitoring Protocols (Program* (Winzler & Kelley and Merkel & Associates, August 2000)
[3] Includes jetty construction, initial fill placement, initial settlement, 2nd fill placement and 2nd settlement period& surface sculpting.

PHASE	DURATION	CATEGORY	CONSTITUENT OR MEASUREMENT	SPECIFIC MODE OF SAMPLING OR LOCATION	TYPE & FREQUENCY OF SAMPLE	Reference; COE/PORT Monitoring Plan [1, 2]
			Untended Water Quality: temperature, turbidity, D.O., PAR, salinity, depth		At 20-minute intervals during 2-week period immediately following 2nd fill placement and repeated 6 months later.	
			Tended Water Quality: GPS location for light, turbidity, salinity, temperature, and DO.	Four water quality units (one at a reference and 3 around the 38 sediment stations)	4, 6, 8 & 10 months following fill placement.	
III. Suitability Eval/Warranty Period	±1.5 years (beginning after completion of Phase I)	Consolidation/ Settlement Assessment	Bathymetric surveys	Lines run in a 200 foot grid pattern parallel and perpendicular to the fill centerline	Once at beginning, once ± 1.5 yr. Later.	2.6.1
			Consolidation curves for settling rates and interstitial porewater pressures	Consolidation & settlement will be monitored with 4 fixed location platforms.	Semi-annually	
			Surveys of bird islands & marsh containment berm	Aerial imagery	3 times over 18 months	
		Stability & Topographic Suitability for Habitat	Sediment erosion & deposition; bottom stability	38 stations of future pilot planting areas	Total 4 – 12 months with various intervals (e.g., 20 minutes or monthly) depending on constituent	2.6.2
		Water Column	Light, temperature, turbidity, D.O., PAR, salinity, depth	MHEA Reference Areas (Crown Beach, Bayfarm Island)	Total duration 18 months: 6, 12, & 18 months (high & low and spring & neap tides) two weeks of untended sampling	2.6.3

PHASE	DURATION	CATEGORY	CONSTITUENT OR MEASUREMENT	SPECIFIC MODE OF SAMPLING OR LOCATION	TYPE & FREQUENCY OF SAMPLE	Reference; COE/PORT Monitoring Plan [1, 2]
IV. Establish-ment Monitor-ing Program	10 years (beginning after completion of Phase III)					2.7
Physical		Bathymetric & Avian Islands surveys	Elevation/area	Lines run in a 200 foot grid pattern parallel and perpendicular to the fill centerline	Years 1, 2, 3, 5, and 10	2.7.1
Biological		Eelgrass Vegetation	Lateral spread and turion density, survival, growth, vigor, and natural recruitment measured by side-scan sonar & diver surveys.	Donor beds MHEA & Reference areas: 20 plants measured in each of the 38 pilot transplant plots	6 & 12 months following harvest 6 months & Years 1, 2,3,5,7, & 10	2.7.2
		Salt Marsh	Vegetation cover, species composition, height, & recruitment; presence of exotic species	Stratified random quadrat field surveys & aerial surveys. 4 samples from 3 strata (high, medium, low vegetation zones) totaling 12 quadrats (quadrat size = 1 m^2).	Years 1, 2, 3, 5, 7, and 10	2.7.2
		Benthic Invertebrates	Infaunal: density, biomass, composition by major taxonomic group. Epifaunal: density, biomass, composition by species.	Infaunal: 15 cm cores taken in 15 subtidal and 5 intertidal habitats—20 samples/sampling year Epifaunal: Number of hauls and size of sampling area depends on equipment used. Methods will follow CDFG guidance.	Infaunal surveys: Years 1,2,3,5,7, and 10. Epifaunal surveys: Years 1 through 10.	2.7.2
		Fish	Density, biomass, length, composition in shallow areas, shallow channels,	Number of hauls and size of sampling area depends on equipment used.	Annually during years 1 through 10 for surveys; (April and Summer)	2.7.2

PHASE	DURATION	CATEGORY	CONSTITUENT OR MEASUREMENT	SPECIFIC MODE OF SAMPLING OR LOCATION	TYPE & FREQUENCY OF SAMPLE	Reference; COE/PORT Monitoring Plan [1, 2]
			and eelgrass habitat, as well as eelgrass habitat at reference sites.	Methods will follow CDFG guidance	Different gear and location for 2 sampling events	
		General Birds	Composition, abundance, avian activities, habitat type, tide heights, and nearby human activities.	2-4 Study blocks TBD.	2 times/yr in Years 1, 2, 3, 5, 7, and 10. (December and June, during both high and low tides)	2.7.2
		Human Use	Surveys on group size, activity, and habitat.	2-4 Study Blocks, TBD.	2 times/yr in Years 1, 2, 3, 5, 7, and 10. (December and June, during both high and low tides)	2.7.3
V. Long-Term Management	Indefinite (beginning after completion of Phase IV)	Physical	Bathymetry	Lines run in a 200 foot grid pattern parallel and perpendicular to the fill centerline	Once every 3 years in perpetuity	2.8.1
		Avian Islands	Settlement & Bird Usage	Lines run in a 200 foot grid pattern parallel and perpendicular to the fill centerline	Once every 3 years in perpetuity for island surveys Annually in perpetuity for bird use;	2.8.1
		Habitat Concerns	Conditions at site for access, compliance, and general degradation		At least monthly in perpetuity	2.8.2

ACTIVITY HAZARD ANALYSIS

ACTIVITY_____ ANALYZED BY/DATE_____

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
Identify the Principal steps involved and the sequence of work Activities.	Analyze each principal step for potential Hazards	Develop specific controls for each potential Hazard
EQUIPMENT TO USED	INPECTION REQUIREMENTS	TRAINING REQUIREMENTS
List equipment to be used in the work activity	List inspection requirements for the work activity	List training requirements, including hazard communication

(For Safety Staff only)	REPORT NO.	EROC CODE	**UNITED STATES ARMY CORPS OF ENGINEERS** **ACCIDENT INVESTIGATION REPORT** *(For Use of this Form See Help Menu and USACE Suppl to AR 385-40)*	REQUIREMENT CONTROL SYMBOL: CEEC-S-8(R2)

1. **ACCIDENT CLASSIFICATION**

PERSONNEL CLASSIFICATION	INJURY/ILLNESS/FATAL	PROPERTY DAMAGE	MOTOR VEHICLE INVOLVED	DIVING
GOVERNMENT ☐ CIVILIAN ☐ MILITARY	☐	☐ FIRE INVOLVED ☐ OTHER	☐	☐
☐ CONTRACTOR	☐	☐ FIRE INVOLVED ☐ OTHER	☐	☐
☐ PUBLIC	☐ FATAL ☐ OTHER		☐	

2. **PERSONAL DATA**

a. Name *(Last, First, MI)*	b. AGE	c. SEX ☐ MALE ☐ FEMALE	d. SOCIAL SECURITY NUMBER	e. GRADE

f. JOB SERIES/TITLE	g. DUTY STATUS AT TIME OF ACCIDENT	h. EMPLOYMENT STATUS AT TIME OF ACCIDENT
	☐ ON DUTY ☐ TDY ☐ OFF DUTY	☐ ARMY ACTIVE ☐ ARMY RESERVE ☐ VOLUNTEER ☐ PERMANENT ☐ FOREIGN NATIONAL ☐ SEASONAL ☐ TEMPORARY ☐ STUDENT ☐ OTHER *(Specify)*

3. **GENERAL INFORMATION**

a. DATE OF ACCIDENT *(month/day/year)*	b. TIME OF ACCIDENT *(Military time)* hrs	c. EXACT LOCATION OF ACCIDENT	d. CONTRACTOR'S NAME (1) PRIME: (2) SUBCONTRACTOR:

e. CONTRACT NUMBER	f. TYPE OF CONTRACT	g. HAZARDOUS/TOXIC WASTE ACTIVITY
☐ CIVIL WORKS ☐ MILITARY ☐ OTHER *(Specify)*	☐ CONSTRUCTION ☐ SERVICE ☐ A/E ☐ DREDGE ☐ OTHER *(Specify)*	☐ SUPERFUND ☐ DERP ☐ IRP ☐ OTHER *(Specify)*

4. **CONSTRUCTION ACTIVITIES ONLY** *(Fill in line and corresponding code number in box from list - see help menu)*

a. CONSTRUCTION ACTIVITY	(CODE) #	b. TYPE OF CONSTRUCTION EQUIPMENT	(CODE) #

5. INJURY/ILLNESS INFORMATION *(Include name on line and corresponding code number in box for items e, f & g - see help menu)*

a. SEVERITY OF ILLNESS/INJURY	(CODE) #	B. ESTIMATED DAYS LOST	C. ESTIMATED DAYS HOSPITALIZED	D. ESTIMATED DAYS RESTRICTED DUTY

e. BODY PART AFFECTED	(CODE) #	g. TYPE AND SOURCE OF INJURY/ILLNESS	(CODE) #
PRIMARY		TYPE	
SECONDARY		SOURCE	
f. NATURE OF ILLNESS / INJURY			

6. PUBLIC FATALITY *(Fill in line and correspondence code number in box - see help menu)*

a. ACTIVITY AT TIME OF ACCIDENT	(CODE) #	b. PERSONAL FLOATATION DEVICE USED?
		☐ YES ☐ NO ☐ N/A

7. MOTOR VEHICLE ACCIDENT

a. TYPE OF VEHICLE	b. TYPE OF COLLISION	c. SEAT BELTS	USED	NOT USED	NOT AVAILABLE
☐ PICKUP/VAN ☐ AUTOMOBILE ☐ TRUCK ☐ OTHER *(Specify)*	☐ SIDE SWIPE ☐ HEAD ON ☐ REAR END ☐ BROADSIDE ☐ ROLL OVER ☐ BACKING ☐ OTHER *(Specify)*	(1) FRONT SEAT			
		(2) REAR SEAT			

8. PROPERTY/MATERIAL INVOLVED

a. NAME OF ITEM	B. OWNERSHIP	C. $ AMOUNT OF DAMAGE
(1)		
(2)		
(3)		

9. VESSEL/FLOATING PLANT ACCIDENT *(Fill in line and correspondence code number in box from list - see help menu)*

a. TYPE OF VESSEL/FLOATING PLANT	(CODE) #	b. TYPE OF COLLISION/MISHAP	(CODE) #

10. ACCIDENT DESCRIPTION *(Use additional paper, if necessary)*

See attached page.

11. **CAUSAL FACTOR(S)** *(Read Instruction Before Completing)*

a. (Explain YES answers in item 13)	YES	NO
DESIGN: Was design of facility, workplace or equipment a factor?	☐	☐
INSPECTION/MAINTENANCE: Were inspection & maintenance procedures a factor?	☐	☐
PERSON'S PHYSICAL CONDITION: In your opinion, was the physical condition of the person a factor?	☐	☐
OPERATING PROCEDURES: Were operating procedures a factor?	☐	☐
JOB PRACTICES: Were any job safety/health practices not followed when the accident occurred?	☐	☐
HUMAN FACTORS: Did any human factors such as, size or strength of person, etc., contribute to accident?	☐	☐
ENVIRONMENTAL FACTORS: Did heat, cold, dust, sun, glare, etc., contribute to the accident?	☐	☐

a. *(CONTINUED)*	YES	NO
CHEMICAL AND PHYSICAL AGENT FACTORS: Did exposure to chemical agents, such as dust, fumes, mists, vapors or physical agents, such as, noise, radiation, etc., contribute to accident?	☐	☐
OFFICE FACTORS: Did office setting such as, lifting office furniture, carrying, stooping, etc., contribute to the accident?	☐	☐
SUPPORT FACTORS: Were inappropriate tools/resources provided to properly perform the activity/task?	☐	☐
PERSONAL PROTECTIVE EQUIPMENT: Did the improper selection, use or maintenance of personal protective equipment contribute to the accident?	☐	☐
DRUGS/ALCOHOL: In your opinion, was drugs or alcohol a factor to the accident	☐	☐

b. WAS A WRITTEN JOB/ACTIVITY HAZARD ANALYSIS COMPLETED FOR TASK BEING PERFORMED AT TIME OF ACCIDENT?

☐ YES *(If yes, attach a copy.)* ☐ NO

12. **TRAINING**

a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK?	b. TYPE OF TRAINING.	c. DATE OF MOST RECENT FORMAL TRAINING.
☐ YES ☐ NO	☐ CLASSROOM ☐ ON JOB	(Month) (Day) (Year)

13. **FULLY EXPLAIN WHAT ALLOWED OR CAUSED THE ACCIDENT; INCLUDE DIRECT AND INDIRECT CAUSES** *(See instruction for definition of direct and indirect causes.) (Use additional paper, if necessary)*

a. DIRECT CAUSE

See attached page.

b. INDIRECT CAUSE(S)

See attached page.

14. **ACTION(S) TAKEN, ANTICIPATED OR RECOMMENDED TO ELIMINATE CAUSE(S).**

DESCRIBE FULLY:

See attached page.

15. **DATES FOR ACTIONS IDENTIFIED IN BLOCK 14.**

a. BEGINNING (Month/Day/Year)	b. ANTICIPATED COMPLETION (Month/Day/Year)		
c. SIGNATURE AND TITLE OF SUPERVISOR COMPLETING REPORT CORPS _____ CONTRACTOR _____	d. DATE *(Mo/Da/Yr)*	e. ORGANIZATION IDENTIFIER *(Div, Br, Sect)*	f. OFFICE SYMBOL

16. **MANAGEMENT REVIEW** *(1st)*

a. ☐ CONCUR b. ☐ NON CONCUR c. COMMENTS

SIGNATURE	TITLE	DATE

17. **MANAGEMENT REVIEW** *(2nd - Chief Operations, Construction, Engineering, etc.)*

a. ☐ CONCUR b. ☐ NON CONCUR c. COMMENTS

SIGNATURE	TITLE	DATE

18. **SAFETY AND OCCUPATIONAL HEALTH OFFICE REVIEW**

a. ☐ CONCUR b. ☐ NON CONCUR c. ADDITIONAL ACTIONS/COMMENTS

SIGNATURE	TITLE	DATE

19. **COMMAND APPROVAL**

COMMENTS

COMMANDER SIGNATURE	DATE

*U.S. GOVERNMENT PRINTING OFFICE: 1993-0-791-757

10. **ACCIDENT DESCRIPTION** *(Continuation)*

13a. **DIRECT CAUSE** *(Continuation)*

13b. INDIRECT CAUSES *(Continuation)*

14. ACTION(S) TAKEN, ANTICIPATED, OR RECOMMENDED TO ELIMINATE CAUSE(S) *(Continuation)*

WORKER'S COMPENSATION CLAIMS
(EM385-1-1, Section 2)

Issuing Office: CESPN-ET-CO-SF

Contract Name:_____ Date: _____
_____

Contract No. _____

Contract Completion: ☐ 50%

☐ 100%

Contractor: ☐ PRIME TIME: _____
_____

☐ SUB NAME: _____
_____

LISTINGS OF CLAIMS

NONE ☐

1._____
_____

2._____
_____

3._____
_____

4._____

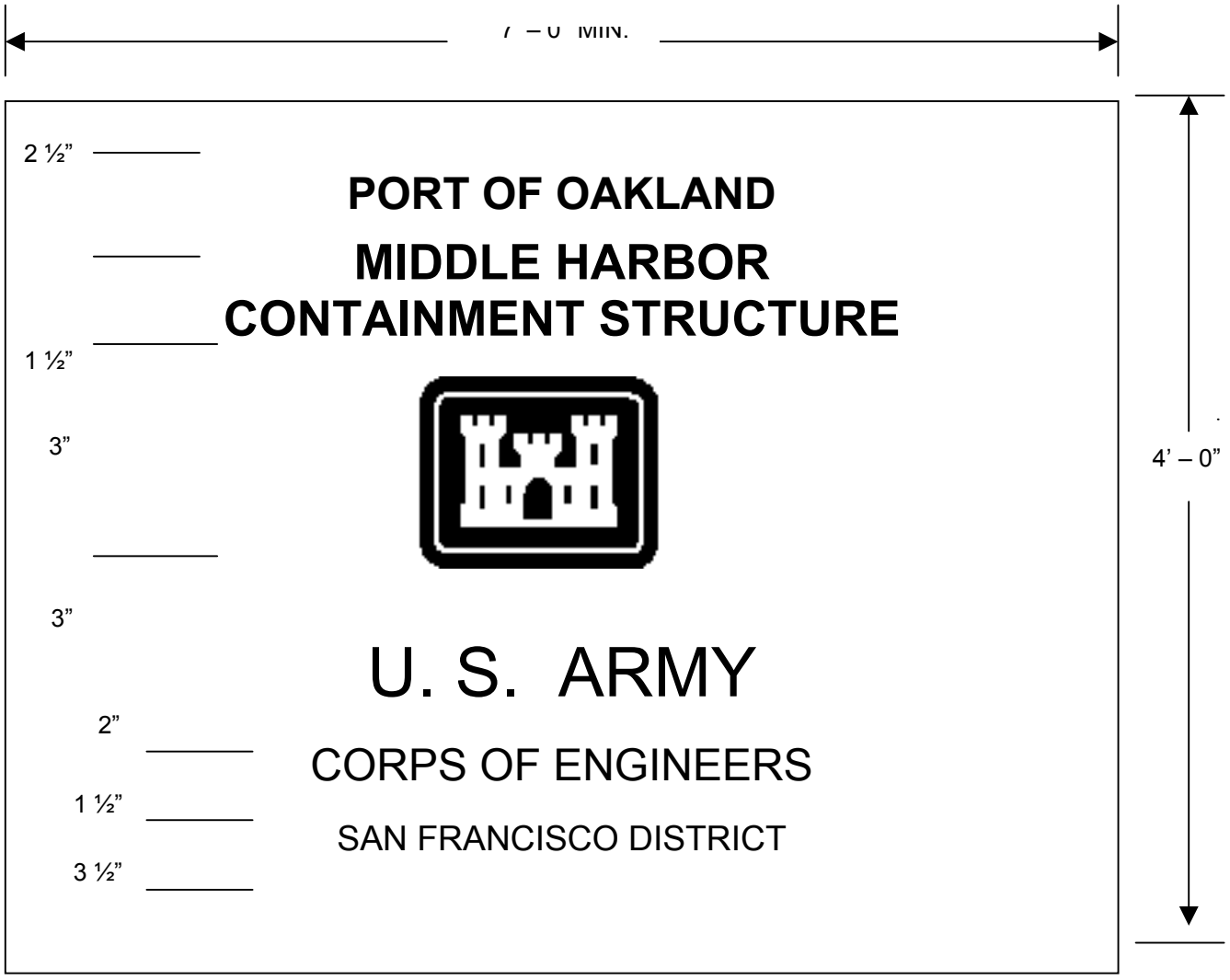
CERTIFIED BY (Compensation Insurance Carrier):
_____
_____
_____

CLARIFICATION: Above listing is true and correct to the best of my knowledge.

SIGNED: _____

_____
Title

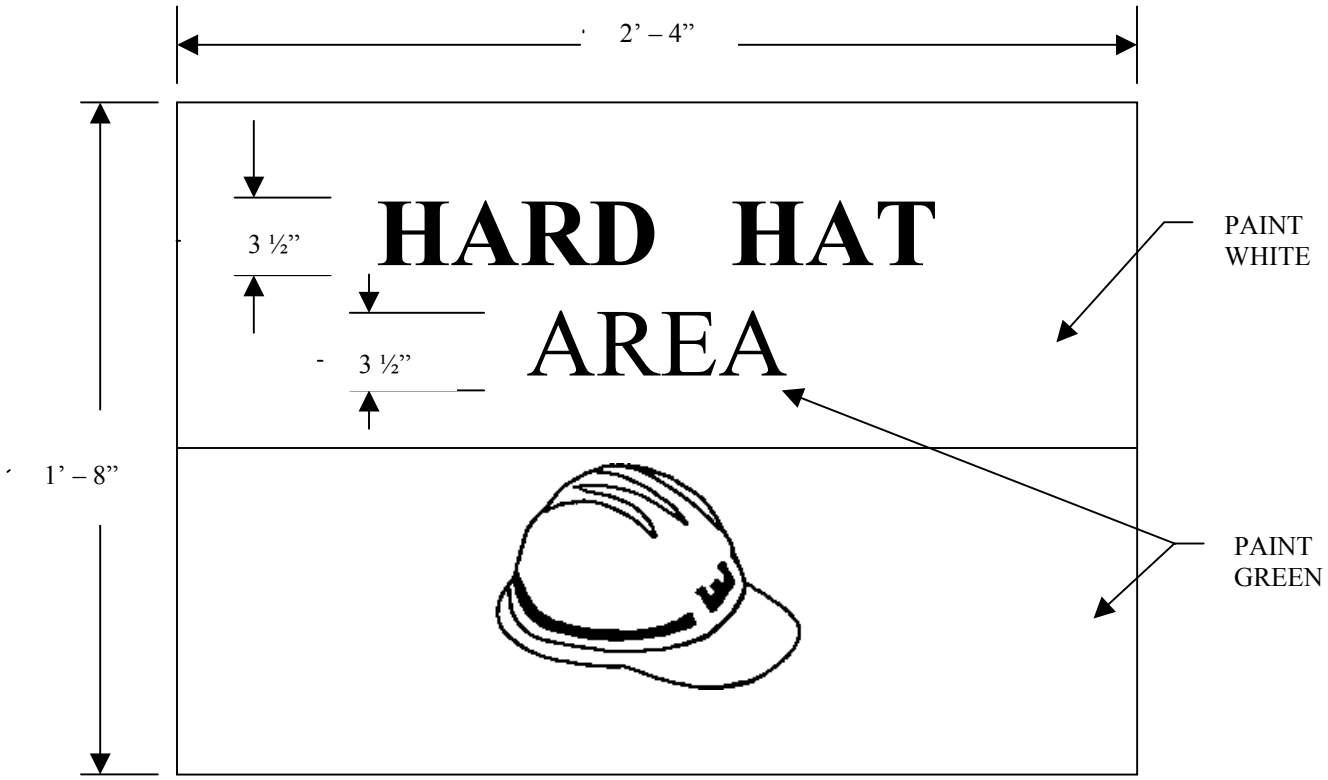
***** SAFETY PAYS******



LETTER SIZES

PROJECT LOCATION – 4" HIGH
TITLE OF PROJECT – 3 ½" HIGH
CORPS OF ENGINEERS CASTLE (DECAL) – 14" HIGH
"U.S. ARMY" – 4 ½" HIGH
"CORPS OF ENGINEERS" – 2 ¾" HIGH
"SAN FRANCISCO DISTRICT" – 2 ¼" HIGH
OTHER LETTERS – 2" HIGH

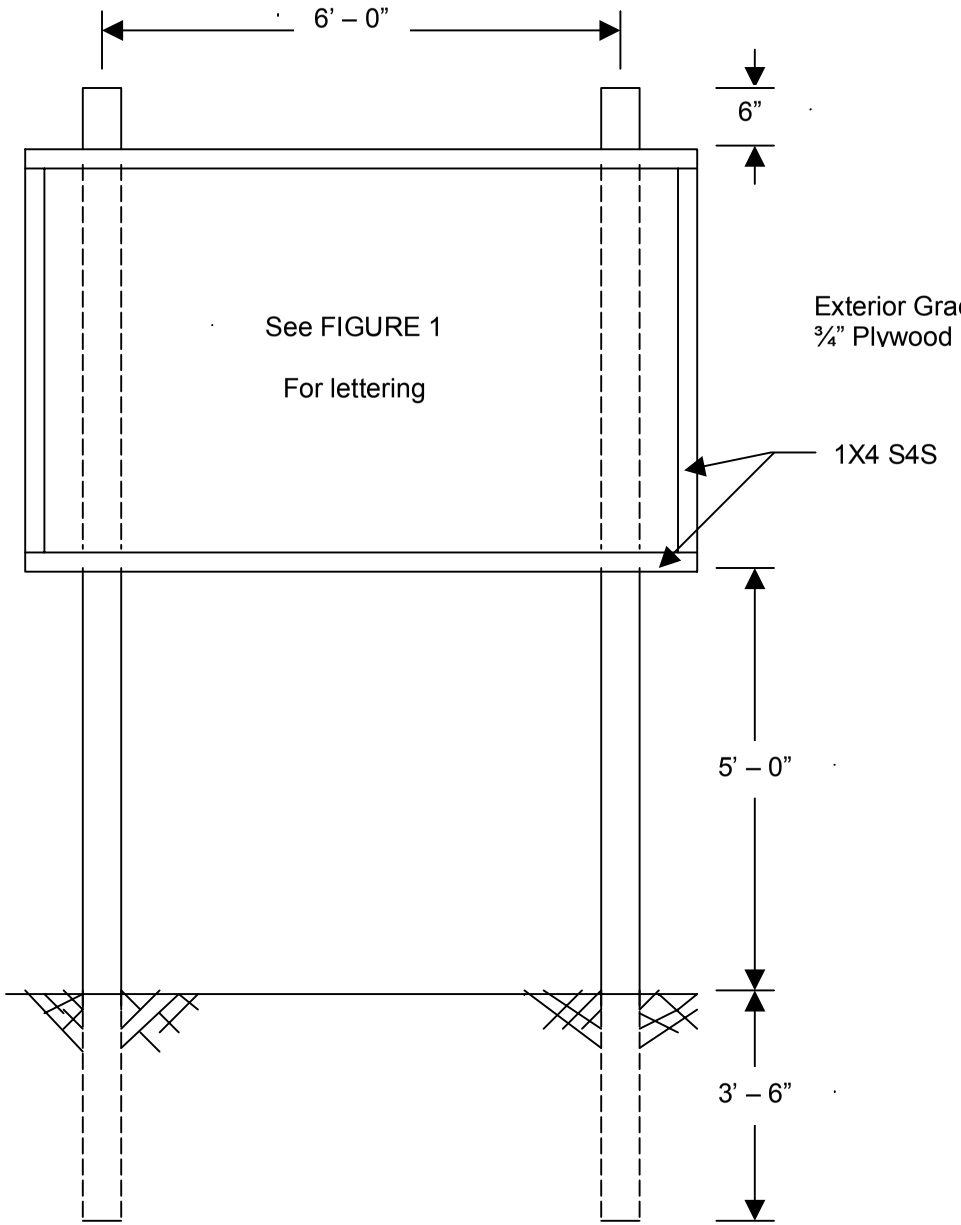
PROJECT SIGN
FIGURE 1



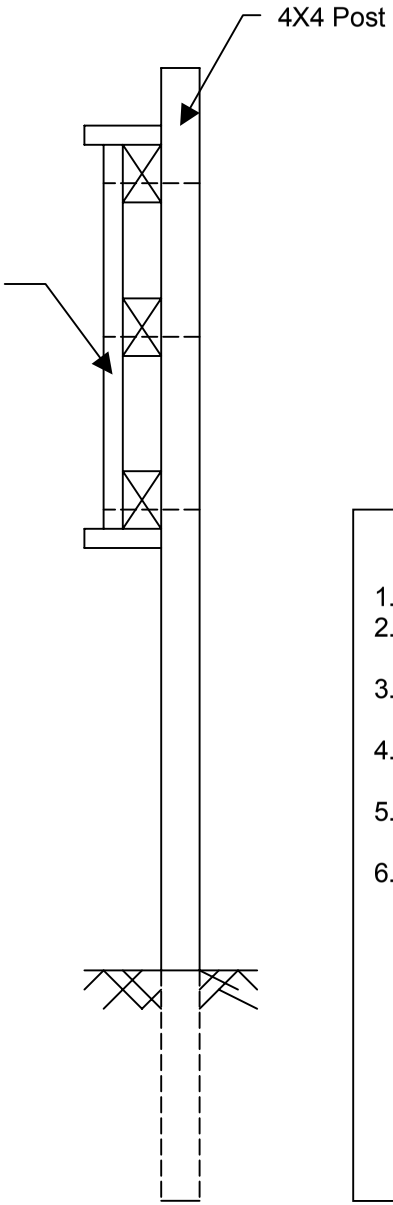
GENERAL NOTES

1. Green & White Paint shall be opaque as specified in ANSI Std Z53.1.
2. Paint Back of Sign White.
3. Hard hat Decal Furnished by Government.

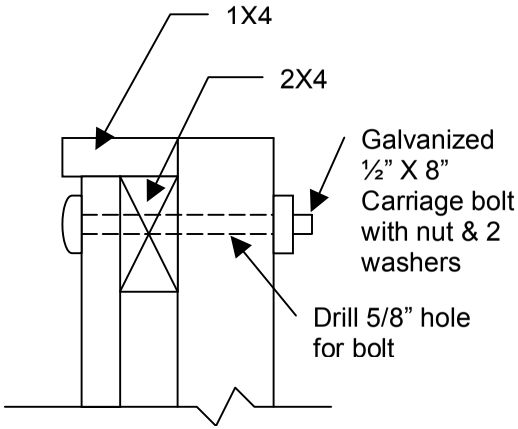
HARD HAT AREA SIGN
FIGURE 2
FOR STAGING AREA AND
FLOATING PLANT



ELEVATION



SECTION



DETAIL

GENERAL NOTES

1. Lumber to be cut & formed accurately.
2. Secure 1X4 and plywood with 6d finish nails at not less than 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, post shall be braced to provide a solid installation
6. Paint primer (Fed Spec TT-P-25) Finish paint (Fed Spec TT-E-529)

All exposed surfaces and edges of plywood shall be given one coat of linseed oil and wiped prior to applying primer. All exposed surfaces of signs and supports shall be given one coat of primer and two finish coats of semi-gloss white paint.

SIGN DETAILS
FIGURE 3

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 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.

1.1.1 Mobilization and Demobilization

1.1.1.1 Payment

Payment will be made for costs associated with mobilization and demobilization, as defined in Special Clause PAYMENT FOR MOBILIZATION AND DEMOBILIZATION. Refer to Section 02230 STONE AND RIPRAP", paragraph 3.1.5 Sequence of Rock Fill Placement, which addresses a possible second mobilization and demobilization of rock placing equipment.

1.1.1.2 Unit of Measure

Unit of measure: lump sum.

1.2 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.

1.2.1 Containment Jetty Rock

1.2.1.1 Payment

Payment will be made for costs associated with furnishing, transporting, stockpiling (if applicable), placing, and constructing the containment jetty rock as specified. Payment will be made for the contract unit price listed in the BIDDING SCHEDULE for each stone and rock type.

1.2.1.2 Measurement

Rock will be measured for payment by the ton (2,000 pounds) as determined

by barge displacement. See specification Section 02230.

1.2.1.3 Unit of Measure

Unit of measure: ton (2,000 pounds).

1.2.2 Steel Sheet Piling

1.2.2.1 Payment

Payment for sheet piling quantities will be made at the applicable contract price per linear foot for furnished, installed, and accepted sheet piling. Payment shall cover all cost of furnishing, handling, storing and installing piling including placing, coating, driving, cutting holes and other materials and work incident thereto.

1.2.2.2 Measurement

The length of sheet piling installed will be measured to the nearest tenth of a linear foot. For installed pilings directed to be cut off before reaching the penetration depth shown, the portion cut off will be measured for payment as the difference between the total length of piling shown on the plans for that location and the length of piling installed below the point of cut-off.

1.2.2.3 Unit of Measure

Unit of measure: linear foot.

1.2.3 Navigational Aids

1.2.3.1 Payment

Payment will be made for costs associated with furnishing, transporting, storing, erecting, and testing the navigational aids as specified.

1.2.3.2 Measurement

Payment for navigational aids will be made at the applicable contract unit price per each complete and installed structure, including all associated equipment, power supplies, lights, ladders, buoys, and appurtenances.

1.2.3.3 Unit of Measure

Unit of measure: EACH.

1.2.4 Lean Concrete Fill

1.2.4.1 Payment

Payment will be made for all costs associated with furnishing, transporting, placing, testing and curing the lean concrete tremie fill as specified.

1.2.4.2 Measurement

Payment for will be made at the applicable contract unit price per cubic yard for furnished, installed and accepted concrete tremie fill. The cubic yard measurement is based on conveyed volume to the box sheet piles.

1.2.4.3 Unit of Measure

Unit of measure: cubic yard.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --

SECTION 01312

RESIDENT MANAGEMENT SYSTEM (RMS)

1. GENERAL

The Government will use the Resident Management System for Windows (RMS-W) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS-Windows, referred to as RMS-QC (QC for Quality Control), to record, maintain, and submit various information throughout the contract period. This joint Government-Contractor use of RMS-W and RMS-QC will facilitate electronic exchange of information and overall management of the contract. RMS-QC provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

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

1.1 CORRESPONDENCE AND ELECTRONIC COMMUNICATIONS

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

1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01330, SUBMITTAL PROCEDURES, and Section 01451, QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through RMS-QC. Also, there is no separate payment for establishing and maintaining the RMS-QC database; all costs associated therewith shall be included in the contract pricing for the work.

2. RMS-QC SOFTWARE

RMS-QC is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the RMS-QC

software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the RMS-QC software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide RMS-QC on 3-1/2" high-density diskettes or CD-ROM. Any program updates of RMS-QC will be made available to the Contractor via the Government RMS Website as they become available.

3. SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run RMS-QC:

Hardware

IBM-compatible PC with 200 MHz Pentium or higher processor

32+ MB RAM

4 GB hard drive disk space for sole use by the RMS-QC system

3 1/2 inch high-density floppy drive

Compact disk (CD) Reader

Color monitor

Laser printer compatible with HP LaserJet III or better, with minimum 4 MB installed memory.

Connection to the Internet, minimum 28 BPS

Software

Microsoft (MS) Access 97 or newer version database software

MS Windows 95 or newer version operating system (MS Windows NT 4.0 or newer is recommended)

Word Processing software compatible with MS Word 97 or newer

Internet browser

The Contractor's computer system shall be protected by virus protection software that is regularly upgraded with all issued manufacturer's updates throughout the life of the contract.
Electronic mail (E-mail) compatible with MS Outlook

4. RELATED INFORMATION

4.1 RMS-QC USER GUIDE

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

4.2 CONTRACTOR QUALITY CONTROL(CQC) TRAINING

The use of RMS-QC will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

4.3 Video Training for RMS-QC

After contract award, the Contractor will be provided with a CD containing a training video on the use of RMS-QC.

5. CONTRACT DATABASE

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

6. DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the RMS-QC database throughout the duration of the contract. The Contractor shall establish and maintain the RMS-QC database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM). The RMS-QC database typically shall include current data on the following items:

6.1 ADMINISTRATION

6.1.1 Contractor Information

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

6.1.2 Subcontractor Information

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

6.1.3 Correspondence

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

6.1.4 Requests for Information

RMS-QC includes a means for the Contractor to enter, log, and transmit requests for information (RFI) to the Government. RFIs can be exchanged electronically using the import/export functions of RMS-QC. The Contractor shall also provide the Government with a signed, printed copy of each RFI. All RFIs from the Contractor to the Government shall have the prefix "RFI" and shall be numbered sequentially beginning with RFI-0001.

6.1.5 Equipment

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

6.1.6 EM 385-1-1, Corps of Engineers Safety Manual and RMS Linkage

Upon request, the Contractor can obtain a copy of the current version of the Safety Manual, EM 385-1-1, on CD. Data on the CD will be accessible through RMS-QC, or in stand-alone mode.

6.1.7 Management Reporting

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

6.2 FINANCES

6.2.1 Pay Activity Data

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

6.2.2 Payment Requests

All progress payment requests shall be prepared using RMS-QC. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using RMS-QC. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

6.3 QUALITY CONTROL (QC)

RMS-QC provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the RMS-QC generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01405, QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

6.3.1 Daily Contractor Quality Control (CQC) Reports.

RMS-QC includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by RMS-QC shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the RMS-QC-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01451, QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

6.3.2 Deficiency Tracking.

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

6.3.3 Three-Phase Control Meetings

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

6.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize RMS-QC to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 200.

6.3.5 Features of Work

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

6.3.6 QC Requirements

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

6.4 SUBMITTAL MANAGEMENT

The Government will provide the initial submittal register, ENG Form 4288, SUBMITTAL REGISTER, in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns as described in Section 01330, SUBMITTAL PROCEDURES. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use RMS-QC to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using RMS-QC. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

6.5 SCHEDULE

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts", as applicable. This schedule shall be input and maintained in the RMS-QC database either manually or by using the Standard Data Exchange Format (SDEF). The updated schedule data shall be included with each pay request submitted by the Contractor.

6.6 IMPORT/EXPORT OF DATA

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

7. IMPLEMENTATION

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

8. DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of

computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the RMS-QC built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

8.1 FILE MEDIUM

The Contractor shall submit required data on 3-1/2" double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

8.2 DISK OR CD-ROM LABELS

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the RMS-QC file name, full contract number, project name, project location, data date, name and telephone number of person responsible for the data.

8.3. FILE NAMES

The Government will provide the file names to be used by the Contractor with the RMS-QC software.

9. MONTHLY COORDINATION MEETING

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

10. NOTIFICATION OF NONCOMPLIANCE

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

11. PAYMENT.

No separate payment will be made for the work covered under this section and all costs in connection therewith will be considered a subsidiary obligation of the Contractor.

* * *

SAFETY IS A TEAM EFFORT

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE

(Read instructions on the reverse side prior to initiating this form)

DATE	TRANSMITTAL NO.

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS *(This section will be initiated by the contractor)*

TO:	FROM:	CONTRACT NO.	CHECK ONE: ☐ THIS IS A NEW TRANSMITTAL ☐ THIS IS A RESUBMITTAL OF TRANSMITTAL _____
SPECIFICATION SEC. NO. *(Cover only one section with each transmittal)*	PROJECT TITLE AND LOCATION		CHECK ONE: THIS TRANSMITTAL IS FOR ☐ FIO ☐ GOV'T. APPROVAL

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

REMARKS

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as other wise stated.

_____

NAME AND SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED *(List by Item No.)*	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.

2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.

3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.

4. Submittals requiring expeditious handling will be submitted on a separate form.

5. Separate transmittal form will be used for submittals under separate sections of the specifications.

6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".

7. Form is self-transmittal, letter of transmittal is not required.

8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.

9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A -- Approved as submitted.

B -- Approved, except as noted on drawings.

C -- Approved, except as noted on drawings. Refer to attached sheet resubmission required.

D -- Will be returned by separate correspondence.

E -- Disapproved (See attached).

F -- Receipt acknowledged.

FX -- Receipt acknowledged, does not comply as noted with contract requirements.

G -- Other *(Specify)*

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

SUBMITTAL REGISTER
(ER 415 1-10)

CONTRACT NO

TITLE AND LOCATION
MIDDLE HARBOR CONTAINMENT STRUCTURE

CONTRACTOR

SPECIFICATION SECTION
01005

ACTIVITY NO a.	TRANSMITTAL NO. b.	ITEM NO c.	SPECIFICATION PARAGRAPH NUMBER d.	DESCRIPTION OF ITEM SUBMITTED e.	TYPE OF SUBMITTAL: DATA f.	DRAWINGS g.	INSTRUCTIONS h.	SCHEDULES i.	STATEMENTS j.	REPORTS k.	CERTIFICATES l.	SAMPLES m.	RECORDS n.	O&M MANUALS o.	CLASSIFICATION: INFORMATION ONLY p.	CLASSIFICATION: GOVERNMENT APPROVED q.	REVIEWER r.	CONTRACTOR SCHEDULE DATES: SUBMIT s.	CONTRACTOR SCHEDULE DATES: APPROVAL NEEDED BY t.	CONTRACTOR SCHEDULE DATES: MATERIAL NEEDED BY u.	CONTRACTOR ACTION: CODE v.	CONTRACTOR ACTION: DATE w.	CONTRACTOR ACTION: SUBMIT TO GOVERNMENT x.	GOVERNMENT ACTION: CODE y.	GOVERNMENT ACTION: DATE z.	REMARKS aa.
			1.1	Copy of all permits issued to the					X						X											
				Contractor for construction																						
			1.1	Accident Prevention Plan					X							X										
			1.1	Emergency Plan for Fuel Spills					X							X										
			1.1	Copy of Notice to Mariners Request					X						X											
				Letter																						
			1.1	Public Safety Program					X							X										
			1.1	Tug and Scow Operator Certifications							X				X											
			1.1	Liability Insurance Certificates							X					X										

SUBMITTAL REGISTER
(ER 415 1-10)

CONTRACT NO.

TITLE AND LOCATION
MIDDLE HARBOR CONTAINMENT STRUCTURE

CONTRACTOR

SPECIFICATION SECTION
01360

ACTIVITY NO a.	TRANS-MITTAL NO. b.	ITEM NO c.	SPECIFICATION PARAGRAPH NUMBER d.	DESCRIPTION OF ITEM SUBMITTED e.	TYPE OF SUBMITTAL: DATA f.	DRAWINGS g.	INSTRUCTIONS h.	SCHEDULES i.	STATEMENTS j.	REPORTS k.	CERTIFICATES l.	SAMPLES m.	RECORDS n.	O&M MANUALS o.	CLASSIFICATION: INFORMATION ONLY p.	GOVERNMENT APPROVED q.	REVIEWER r.	CONTRACTOR SCHEDULE DATES: SUBMIT s.	APPROVAL NEEDED BY t.	MATERIAL NEEDED BY u.	CONTRACTOR ACTION: CODE v.	DATE w.	SUBMIT TO GOVERN-MENT x.	GOVERNMENT ACTION: CODE y.	DATE z.	REMARKS aa.
			1.2	Safety Checklist for Launches,					X							X										
				Motorboats and Skiffs																						
			1.2	Survey Vessel Inspection Checklist					X							X										
			1.2	Qualifications of surveyor, vessel					X							X										
				operator and other survey personnel																						
			1.2	On-site Calibration Report					X							X										
			1.2	Placement QC Surveys					X							X										
			1.2	Weekly Placement Progress Work					X							X										
				Plan																						
			1.2	Actual-Survey-Data in accordance					X																	
				with Paragraph 4.7																						

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~~2003) U.S. Army Corps of 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 "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-08 Statements

Environmental Protection Plan; GA

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. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of this contract.

1.4.1 Protection of Features

This section supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS (APR 1984). 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 contractor shall comply with the terms, and conditions of all permits. The contractor shall also comply with other environmental commitments made by the Government. Copies of permit terms and conditions as well as those other commitments made by the Government are available upon request from the Corps of Engineers, San Francisco District.

1.4.3 Special Environmental Requirements

The Contractor shall comply with all special environmental requirements. These special environmental requirements are an outgrowth of environmental commitments made by the Government or Port of Oakland during the project development. The list of relevant environmental documents related to this projects provided in Section 01005 SUPPLEMENTAL CONDITIONS.

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.

1.4.5 Subcontractors

The Contractor shall ensure compliance with this section by subcontractors.

1.5 ENVIRONMENTAL PROTECTION PLAN

~~Within 20 calendar days of Notice of Award, t~~The Contractor shall submit an Environmental Protection Plan for review and acceptance by the Contracting Officer at the pre-construction. ~~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~~15 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 government will notify the Contractor if construction activities threaten or violate environmental permit requirements. The Contractor will be responsible for compliance by conforming to the approved environmental plan or by altering construction activities to achieve compliance. These actions are to be taken at no cost to the government. 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.

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.

1.5.4 Contaminant Prevention Plan

As a part of the Environmental Protection Plan, the Contractor shall prepare a Contaminant Prevention Plan 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

The Contractor shall include in the plan the details of environmental monitoring requirements including land, water, air and noise monitoring, under the laws and regulations and a description of how this monitoring will be accomplished. Monitoring reports will be prepared as required by the references in Section 01005, 1.2.2. At a minimum, monthly written reports shall be prepared and forwarded to the Contracting Officer's Representative. Monitoring and reporting required by the state for Waste Discharge Requirements (WDR) under Water Quality Certification Order 00-110 will be preformed by others.

1.5.6 Protection of Features

Methods for protection of features to be preserved within authorized work areas like trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archaeological, and cultural resources.

1.5.7 Procedures to be Implemented

Procedures to be implemented to provide the required environmental protection, to comply with the applicable laws and regulations, and to correct pollution due to accident, natural causes, or failure to follow the procedures of the environmental protection plan.

1.5.8 Drawings

Drawings showing locations of any proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials.

1.5.9 Traffic Control Plan

Traffic control plan including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather, and the

amount of mud transported onto paved public roads by vehicles or runoff.

1.5.10 Preconstruction Survey

Prior to starting any onsite construction activities, the Contractor and the Contracting Officer shall make a joint condition survey after which the Contractor shall prepare a brief report indicating on a layout plan the condition of trees, shrubs and grassed areas immediately adjacent to work sites and adjacent to the assigned storage area and access routes as applicable. This report will be signed by both the Contracting Officer and the Contractor upon mutual agreement as to its accuracy and completeness.

1.5.11 Meetings

The Contractor shall meet with representatives of the Contracting Officer to alter the environmental protection plan as needed for compliance with the environmental pollution control program.

1.5.12 Notification

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with the previously mentioned Federal, State or local laws or regulations, permits, and other elements of the Contractor's environmental protection plan. The Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action and take such action when approved. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or costs or damages allowed to the Contractor for any such suspensions.

1.5.13 Litigation

If work is suspended, delayed, or interrupted due to a court order of competent jurisdiction, the Contracting Officer will determine whether the order is due in any part to the acts or omissions of the Contractor, or subcontractors at any tier, not required by the terms of the contract. If it is determined that the order is not due to Contractor's failing, such suspension, delay, or interruption shall be considered as ordered by the Contracting Officer in the administration of the contract under the contract clause SUSPENSION OF WORK.

1.5.14 Previously Used Equipment

The Contractor shall thoroughly clean all construction equipment previously used at other sites before it is brought into the work areas, ensuring that soil residuals are removed and that egg deposits from plant pests are not present; the Contractor shall consult with the USDA jurisdictional office for additional cleaning requirements.

1.5.15 Payment

No separate payment will be made for work covered under this section; all costs associated with this section shall be included in the contract unit and/or lump sum prices in the Bidding Schedule.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 SPECIAL ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 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.

3.1.2 Soil Disposal Areas on Government Property

Soil disposal on Government or Port property shall be made only in those areas designated on the contract drawings. Hazardous, toxic, and radiological wastes (HTRW) shall not be disposed of on Government or Port property. Disposal operations shall be managed and controlled to prevent erosion of soil or sediment from entering nearby waters or wetlands. Disposal operations shall be developed and managed in accordance with the grading plan shown on the drawings or as approved by the Contracting Officer.

3.1.3 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 or Port property and dispose in compliance with Federal, State, and local requirements.

3.1.4 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 placed in the designated area on the drawings.~~ Excavated natural materials shall be transported from Government or Port property for proper disposal in compliance with Federal, State, and local requirements.

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

3.1.5 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 or Port 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.

3.1.6 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 Discovered Historic, Archaeological, and Cultural Resources

~~If during construction activities, items are observed that may have historic or archaeological value (e.g., Native American or Native Hawaiian 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.~~If during construction activities, archaeological or historical artifacts are encountered, the Contractor shall immediately report the discovery to the Contracting Officer and shall immediately cease all activities at the discovery site that may result in further impacts until the Corps archaeologist (or designated alternate) has evaluated the finds and determined their significance and the Contracting Officer has notified the Contractor to resume work. Such artifacts include, but are not limited to, Native American cultural materials (stone mortars and pestles, bone tools, or human remains), remains of submerged vessels (anchor, cannon, rudder, boiler, structural timbers), and remains of aircraft or railroad cars. The Contractor shall prevent his employees from trespassing on the discovery site, or from removing or otherwise disturbing artifacts. During the evaluation of discovered materials, the Contractor may relocate his equipment to other locations, provided the new sites are at least 50 meters from the original discovery site. The Corps archaeologist, or authorized alternate selected by the Government, shall evaluate the finds and determine the disposition in accordance with State and Federal laws and regulations. The Contracting Officer may request that the Contractor provide equipment and personnel to assist the Government in additional discovery work, such as limited removal of overburden, physical removal of large artifacts, and protection of discovered artifacts. Should the Contractor agree to assist the Government, he will be compensated under appropriate contract provisions.

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 before being treated to remove pollutants. Wastewater shall be collected and placed in retention ponds so the suspended materials can settle so the water can evaporate in order to separate the pollutants from the water. ~~See paragraph SETTLING POND REMOVAL for disposal procedures.~~

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 permit conditions which are referenced in this section. See paragraphs 1.4.2, and 1.4.3.

3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES

The Contractor shall minimize interference with, disturbance to, and damage of fish and wildlife. Species that require specific attention along with measures for their protection shall be listed by the Contractor prior to beginning of construction operations.

3.5 AIR RESOURCES

Equipment operation and activities or processes performed by the Contractor in accomplishing the specified construction shall be in accordance with the Bay Area Air Quality Management District's rules and all Federal emission and performance laws and standards. Ambient Air Quality Standards set by the Environmental Protection Agency shall be maintained. Monitoring of air quality shall be the Contractor's responsibility. All air areas affected by the construction activities shall be monitored by the Contractor. Monitoring results will be periodically reviewed by the Government to ensure compliance.

3.5.1 Particulates

Dust particles; aerosols and gaseous by-products from construction activities; and processing and preparation of materials, such as from asphaltic batch plants; shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The Contractor shall maintain, stockpiles, staging areas, permanent and temporary access roads, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause the air pollution standards to be exceeded or which would cause a hazard or a nuisance. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs.

3.5.2 Equipment Emissions

Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times. The Contractor is advised to understand the requirements for diesel-powered equipment, including fuel requirements and injection timing, as detailed in the project environmental documents referenced in SECTION 01005.

3.5.3 Odors

Odors shall be controlled at all times for all construction activities, processing and preparation of materials.

3.5.4 Sound Intrusions

The project environmental permits and other related documents place no specific restriction on noise for the Containment Structure construction, however the Contractor shall keep construction activities under surveillance and control to minimize environment damage by noise. The Contractor shall comply with the provisions of the rules and regulations of the County of Alameda, City of Oakland, and the State of California.

3.6 LAND RESOURCES

The Contractor shall confine all activities to areas defined by the drawings and specifications. Prior to the beginning of any construction, the Contractor shall identify the land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without permission. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such emergency use is permitted, the Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Stone, earth or other material displaced into uncleared areas shall be removed.

3.6.1 Work Area Limits

Prior to any construction, the Contractor shall mark the areas that need not be disturbed under this contract. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

3.6.2 Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques. Areas to consider include the Port View Park and 7th Street Landscaping areas.

3.6.3 Disturbed Areas

The Contractor shall effectively prevent erosion and control sedimentation through approved methods including, but not limited to, the following:

a. Retardation and control of runoff. Runoff from the construction site or from storms shall be controlled, retarded, and diverted to protected drainage courses by means of diversion ditches, benches, berms, and by any measures required by area wide plans under the Clean Water Act.

b. Erosion and sedimentation control devices. The Contractor shall construct or install temporary and permanent erosion and

sedimentation control features as indicated on the drawings. Berms, dikes, drains, sedimentation basins, grassing, and mulching shall be maintained until permanent drainage and erosion control facilities are completed and operative.

c. Sediment basins. Sediment from construction areas shall be trapped in temporary or permanent sediment basins in accordance with the drawings. The basins shall accommodate the runoff of a local 5-year storm. After each storm, the basins shall be pumped dry and accumulated sediment shall be removed to maintain basin effectiveness. Overflow shall be controlled by paved weirs or by vertical overflow pipes. The collected topsoil sediment shall be reused for fill on the construction site, and/or stockpiled for use at another site. The Contractor shall institute effluent quality monitoring programs as required by State and local environmental agencies.

3.6.4 Contractor Facilities and Work Areas

The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas designated on the drawings or as directed by the Contracting Officer. Temporary movement or relocation of Contractor facilities shall be made only when approved. Borrow areas shall be managed to minimize erosion and to prevent sediment from entering nearby waters. Spoil areas shall be managed and controlled to limit spoil intrusion into areas designated on the drawings and to prevent erosion of soil or sediment from entering nearby waters. Spoil areas shall be developed in accordance with the grading plan indicated on the drawings. Temporary excavation and embankments for plant and/or work areas shall be controlled to protect adjacent areas from despoilment.

3.7 INSPECTION

If the Contracting Officer notifies the Contractor in writing of any observed noncompliance with contract requirements or 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.

3.8 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. The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel monthly. 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 environmental protection/pollution control. Anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants, shall also be discussed. Other items to be discussed shall include recognition and protection of archaeologic sites and artifacts.

3.10 POST CONSTRUCTION CLEANUP

The Contractor shall clean u p all areas used for construction.

3.11 RESTORATION OF LANDSCAPE DAMAGE

The Contractor shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work areas.

-- End of Section --

SECTION 01360

CONTRACT PLACEMENT QUALITY CONTROL SURVEYS

1. DESCRIPTION OF WORK: Survey work to establish compliance with the contract drawings and to provide measurements required for determination of excess volume computations for stone materials shall be performed by the Contractor's independent and licensed third party surveyor, in the presence of the Contracting Officer, before and at the completion of each stone element placement for Rock Fill, Bedding Material and Riprap. Post-placement surveys of previous stone placement elements shall be the basis of proceeding to the subsequent stone element. The Contractor shall perform all quality control surveys and the Government will perform quality assurance surveys.

All contract-required surveys shall be performed in accordance with the line files provided to the Contractor by the Government. The Government provided survey line files shall determine where contract survey lines shall be taken as well as all geospatial reference/control points to be used (e.g. specified tide gauge locations). The government provided survey line files will be a HYPACK For Windows (HFW) .LNW. This file will be provided to the contractor upon written Government acceptance of items 1 through 5 of Paragraph 4.3.

Contract-required surveys as used in this section shall be defined as any survey which the Contractor is required to perform as part of this contract. The Contracting Officer may also require the Contractor to employ divers, to take probings and/or to employ other methods to distinguish mud from stone. Stone quantity computations shall be based entirely upon weights of new stone as determined from carrier displacement.

1.1 SUBMITTALS

SD-08 Statements

Safety Checklist for Launches, Motorboats and Skiffs; GA

Survey Vessel Inspection Checklist; GA

Qualifications of surveyor, vessel operator and other survey personnel; GA

On-site Calibration Report; GA

Placement QC Surveys; GA

Weekly Placement Progress Work Plan; GA

Actual-Survey-Data in accordance with Para 4.7

2. GENERAL: The Contractor shall provide all resources, including but not limited to a survey vessel and crew(s) necessary to perform all contract-required surveys. The survey vessel/equipment used to begin the contract-required survey operations shall be used for the entire contract period and shall not be changed. Accuracies and other standards are outlined in the hydrographic survey manual EM 1110-2-1003-Jan 01, 2002, Chapter 3. These hydrographic standards as modified by these contract documents shall be followed when performing any contract-required survey. Whenever a conflict arises, the stricter, more difficult requirement shall apply.

The Contractor shall be responsible for providing an independent surveyor to perform its quality control surveys. All contract-required surveys shall be performed by an independent surveyor whose equipment and work force are independent of the Contractor. The independent surveyor shall be required to document and certify in writing that s/he has a valid California professional license to practice surveying or an American Congress on Surveying and Mapping (ACSM) certification as an "Inshore Certified Hydrographic Surveyor" and that s/he has actively engaged in hydrographic survey operations during the past 3 years. The name of the surveyor and samples of previous hydrographic survey work shall be submitted to the Government for review and acceptance. The Contractor shall provide documentation indicating that accuracy standards for electronic horizontal positioning [including a Differential Global Positioning System (DGPS) capability] and depth finding equipment are met or exceeded for the surveys to be performed. Documentation of equipment shall include, as a minimum, the name, model, and year of manufacture of the electronic equipment, the electronic frequencies of the depth finding equipment and the horizontal positioning equipment, and the manufacturer's stated positioning accuracy and capability for the proposed usage. In addition, the contractor shall provide information that a safe and suitable vessel is available for the surveying operations.

Quality control surveys shall be performed a minimum of once weekly during placement operations to verify that the work is being performed in accordance with ER 1180-1-6. The Contractor shall include tracking and resolution of deficiencies in the work as part of his CQC Plan.

Surveys shall be performed at the end of each rock element and shall be accompanied by the Contractor's written certification that the work complies with the contract drawings and, if appropriate, that the project is ready for the subsequent element to be placed.

3. HYDROGRAPHIC SURVEYS All contract-required surveys shall be performed in accordance with the following requirements. Failure to perform, process and submit contract-required surveys in accordance with all contract requirements shall result in rejection of the survey data and nonpayment for the placement work performed until said surveys and submittals thereof comply with contract requirements.

3.1 All contract-required surveys shall be performed using the Hypack For Windows (HFW) files provided to the Contractor by the Government. All geospatial (vertical and horizontal) control shall be as specified in the contract documents. The contractor QC

Plan shall affirmatively identify the use of these files and specified control.

Hydrographic survey procedures, including, but not limited to positioning modes, electronic position system calibration, accuracy requirements, depth measurements calibration, and data reduction, adjustment, processing and plotting shall conform at a minimum to those in the Hydrographic Manual, Corps of Engineers Manual Update, Jan 01, 2002, (EM 1110-2-1003) and as specified herein. Where there is a conflict, the more stringent requirements shall apply.

The HFW files provided to the Contractor for its mandatory use when performing contract-required surveys will conform to the following requirements. Hydrographic sounding lines shall be taken perpendicular to the axis of the structure. Centerline project stationing shall be used at all times throughout the hydrographic survey to label sounding lines. Sounding lines shall be 25-foot stations for the length of the survey as defined by the project .LNW line file.

Contract-required survey soundings shall not deviate more than plus or minus 10 feet off station alignment. The contractor shall conduct additional soundings on the backside of obstructions to complete sounding lines. Obstructions shall be identified (e.g. ships, wrecks, docks). As required to complete lines, soundings shall be taken during high tides. Incomplete lines shall be rerun. The hydrographic survey system shall be capable of performing “field-finish” operations wherein survey data is collected, processed, and edited (cross-sections) in the field. Incomplete and inaccurate data (lines outside survey position limits) shall be resurveyed without delay, preferably on the same survey day. Cross-section data shall be available for immediate review and evaluation by the Contracting Officer Representative (COR) upon request.

3.2 All contract-required surveys shall include simultaneous two channel (dual frequency 20-33 KHz, 200-210 KHz) transducer recording shall be required for qualitative (20-33 KHz) and quantitative (200-210 KHz) evaluation of sediment lenses and density differentials.

3.3 Automatic continuous digital tide gauge recording during all contract-required survey operations shall be required. Tide gauges shall record at a minimum of every five minutes or at an interval that allows no greater than a 0.1-foot change in tide level between measurements, whichever is less. The time and date of all surveys shall be provided on the cross-section plots for correlation with the printed tide record. These plots shall be submitted with the field books. Daily checks of the fixed tide gauge are to be correlated with the automatic system and said checks shall be included in the daily QC reports. The gauge(s) shall be operational during all surveys. The survey system shall have the capability for incorporating the real time tidal records on board the survey vessel if requested by Corps inspectors.

3.4 Squat/settlement curves developed as part of vessel calibration shall be on-board the survey vessel and are to be incorporated into the survey computations software program (HFW).

3.5 Existing fixed navigation markers shall be located by survey as part of the initial contract QC survey. The marker coordinates shall be annotated for each fixed marker in the HFW.tgt files and submitted with the survey.

3.6 The analog recording of echo soundings shall indicate a calibration check (bar check) of the echo sounding at the beginning and end of each analog paper change (if paper record is used) and at such times as necessary to ensure sounding accuracy. Frequency of calibration shall be specified in Contractor's QC Plan.

3.7 The echo sounder shall have a frequency of 200-210 KHz, with a 3.5 degrees cone measured at the 6db point. The top of the return signal trace shall be the point of interpretation of sounding. Bar checks will be taken at a minimum of five-foot intervals. Location/position of bar checks shall be recorded in QC reports.

3.8 Failure to perform adequate calibrations, including documentation/certification thereof, can lead to rejection of the survey and any payment associated with it.

3.9 The contractor shall use survey methods which conform to the following precisions for control:
(1) Horizontal - Primary control shall be established to third order accuracy (1:5,000 ratio of closing error to length of line).
(2) Vertical - Primary vertical controls will close within 0.05 foot. Mean Lower Low Water (MLLW) datum shall be obtained by applying the adjustment for the area. All soundings shall be referenced to MLLW.

3.10 Minimum performance standards for hydrographic surveys shall be in accordance with EM 1110-2-1003, 1 Jan 02, as modified below:

> Resultant elevation/depth accuracy for acoustical systems at all depths (d) shall be $\pm$ 0.5 feet.

3.11 Metadata – The contractor shall provide metadata in accordance with the 1994, the FGDC (Federal Geodetic Data Committee) Geospatial Data Standards for documenting origins and characteristics of geospatial data (EM110-1-2909, 1 Aug 96) addendum 01330-7.

4. COORDINATION, SUBMITTALS AND PROGRESS OF THE WORK

The Contractor shall coordinate all work with the Government. The Contractor shall notify the Contracting Officer not less than three days in advance of each survey. If the Contracting Officer is not available for a survey, the Contracting Officer will authorize the Contractor, in writing, to proceed with the survey alone. No contract-required surveys shall proceed until written authorization is provided by the government, as described below.

4.1 All submittals (hard copy and CD-R format) shall be delivered to:

U. S. Army, Corps of Engineers
San Francisco District
ATTN: Construction Services Branch
Bay Model Building
2100 Bridgeway Avenue
Sausalito, California 94965
Telephone: 415-331-0404

All e-mail format submittals shall be delivered to three (3) each government addresses to be provided.

4.2 A mandatory pre-construction surveying meeting shall be held to review survey control/ equipment/ procedures/ QC program/ safety plan/ placement control/ calibration/ schedule/vessel reports/ submittals and structure configuration. This meeting shall be held prior to commencement of any contract-required surveying or placement. This meeting shall be coordinated with the San Francisco District Construction Services Branch in the Sausalito Resident Office (415-331-0404).

4.3 The following documents shall be submitted a minimum of (1) one week prior to the pre-construction survey meeting and shall be discussed at the meeting.

(1) Survey Schedule of QC surveys within the Section 01320 Project Schedule

Contractor's schedule for all contract-required surveys. At a minimum, the schedule shall reflect the initial vessel-to-vessel calibration survey, the number of typical weekly quality control surveys and the post-placement surveys for each element.

(2) Safety Checklist for Launches, Motorboats and Skiffs. This safety survey must demonstrate full compliance with EM 385-1-1 for floating survey vessels. The checklist is included at the end of this section.

(3) Survey QC Plan within the Section 01451 CQC Plan

The survey component of the project CQC plan shall completely address the quality control of the survey activity and coordination with the placement plant, including but not limited to accuracy and reliability of the equipment and reliability of the CQC plan system. The survey section of the CQC Plan shall identify a proposed survey CQ Manager specifically for survey quality control who shall demonstrate appropriate knowledge and experience in hydrosurveying.

(4) Survey Vessel Inspection Checklist

The Survey Vessel Inspection Checklist shall be completed by the contractor and shall describe the survey equipment installed on the vessel, to include technical descriptions/specifications of all installed hardware/software.

(5) Qualifications of surveyor, vessel operator and other survey personnel

Contractor shall identify the vessel and all surveyor(s) and equipment operator(s) to be used on this project. Contractor shall include information identified in Paragraph 2 of this Section, at a minimum to demonstrate capability and compliance.

4.4 A mandatory Contractor survey vessel to Government survey vessel on-site calibration check shall be performed. Said calibration check shall be performed only after Government acceptance of Paragraph 4.3 Items 1-5 (above). Contractor shall request to perform this check in writing a minimum of three (3) working days prior to proposed date of check. This check shall be satisfactorily completed and accepted by the Government in writing prior to any placement.

This check is to be performed as follows: The vessel to perform Contractor's placement support surveys shall perform surveys on a minimum of 4 Government-selected lines prior to performing contract surveys. Data shall be compared with Government vessel survey data and evaluated for accuracy, completeness, data anomalies, relative errors, vessel velocities, and track line errors. A QC report shall document the results of the vessel comparisons. The Contractor shall provide reports prepared by the survey vessel party chief documenting the results of the calibrations and comparisons of survey data for Government review and acceptance.

4.5 Placement QC surveys.

During placement activity, contract-required QC surveys shall be performed weekly at a minimum. These surveys shall include the areas with placement since the last survey and shall include one line of overlap. The COR may require the Contractor to perform additional QC surveys.

A weekly placement progress work plan shall be prepared and submitted by the Contractor with the relevant QC contract-required survey submittal. This work plan shall show and describe where placement occurred during the previous week and where placement will occur for the next week. The work plan shall be updated/submitted as an AutoCAD document (.DWG) with the project structure contained in the dwg file and placement areas shown on the plan.

A weekly Quality Control survey meeting between the Contractor and the Government will be held during contract placement operations. This meeting will be held after receipt of the weekly QC contract-required survey submittal and weekly placement progress work plan.

4.6 SURVEY DATA IDENTIFICATION PROCEDURES AND REQUIREMENTS

All electronic survey data submitted to the Corps shall contain a string of information in the title that clearly identifies the contents of the data. The information is specific for

each project within the San Francisco District. The identification string is divided into 4 separate fields. The 4 individual data fields shall contain the following information in the specific order as shown by the sample string below:

1. Project SB
2. Surveyor Contractor (Five (5) string to be defined by the government)
3. Type of Survey QC (contract-required survey)
4. Julian Date (3)(2) 3 Characters=Day
2 Characters=Year

A sample data string title would consist of the following information for a compressed data set:
RI_contractor_QC_03203.zip

4.7 Survey Submittals

All contract-required surveys shall be submitted to the Government. Said submittal shall be delivered to the Government within two (2) working days of survey completion, in hard copy, electronic CD-R and email format and shall not be considered until all 3 formats are received. All hard copy information (e.g. photocopies, written reports) shall also submitted as a ".jpg" files.

All Actual-Survey-Data submittals shall include the following:

1. File identification label per Paragraph 4.6.
2. Survey QC logs prepared daily during the course of the survey activity. This mandatory survey QC log shall report, at a minimum, the personnel, craft, equipment, layout, weather/sea conditions, survey lines accomplished and geospatial controls used and shall include copies of all original field notes. Additional information may be required by the government.

Field notes shall include at a minimum:

(a) level line notes, elevation data, benchmarks, temporary benchmarks and location of all control used by the contractor;

(b) the position and identification of all obstructions preventing the collection of soundings.

3. Survey Vessel Inspection Checklist prepared daily during the course of survey activity and demonstrating full compliance with contract documents.

4. HFW survey raw and edited data, including completed HFW file legend.

SAFETY CHECKLIST FOR LAUNCHES, MOTORBOATS AND SKIFFS			
Contract # and title:			
Contractor:	Subcontractor:		
Name of equipment:	Superintendent:		
	Yes	No	N/A
1. Is a qualified crew person assigned to assist with deck duties under the following circumstances: (19.C.01) a. when extended trips(more than 2 hours) are made from the work site? b. when conditions of navigation make it hazardous for an operator to leave the wheel while underway? c. when operation other than tying-in require the handling of lines? d. when operating at night or in inclement weather? e. when towing?			
2. Are all motorboats, launches and skiffs posted with the number of passengers and weight they can carry? (19.C.02)			
3. Is there a PFD available for each passenger and crew member? (19.C.02)			
4. Do all launches and motorboats that are less than 26 feet in length have at least one 1A-10B:C fire extinguisher on board? (19.C.03)			
5. Do all launches and motorboats that are 26 feet or more in length have at least 2 1A-10B:C fire extinguishers on board? (19.C.03)			
6. Do all launches and motorboats that have gasoline or liquid petroleum gas power plants or equipment in cabins, compartments, or confined spaces have built-in automatic CO2 or other equally effective type of fire extinguishing system? (19.C.03)	Yes	No	N/A
7. Remarks: (Enter actions taken for “no” answers.)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAFETY CHECKLISTS FOR FLOATING PLANT, SAD FORM 1437-R AND MOBILE CONSTRUCTION EQUIPMENT, SAD 1666-R

1. Safety Survey Checklist for Floating Plant, General Requirements. A copy of this form is enclosed at Section 1 of this appendix for your reference.

a. A safety survey shall be made of each major piece of floating plant (dredge, derrick boat, fuel barge, tug, etc.) prior to the start of each government hired labor and contractor project when floating plant is used. SAD Form 1437-R, "Safety survey Checklist For Floating Plant", or equivalent checklist will be used and completed by the person(s) making the survey to record this survey before any item of floating plant is placed into use. This survey will be conducted by qualified government employees for hired labor operations. A qualified contractor employee shall complete the survey on contractor operations, but in all cases, the survey will be spot checked by a qualified government representative. Government owned floating plant shall be inspected annually pursuant to paragraph 5.a(2); ER 1125-2-304.

b. A copy of the completed form shall be filed in the government project office and the contractor's project office until the particular project has been completed. Safety deficiencies noted during the check will be corrected before equipment is permitted to start work.

c. In the event that a piece of floating plant is involved in an accident or experiences a breakdown requiring major repairs during the project or contract, another survey shall be made and another SAD Form 1437-R shall be completed for that piece of floating plant.

2. SAD Form 1666-R, (dated Mar 97) Safety Inspection Checklist for Mobile Construction Equipment, General Requirements. A copy of this form is enclosed in Section 2 of this appendix for your reference.

a. A safety inspection shall be made of each major piece of heavy mobile construction equipment (crane, derrick, shovel, dragline, piledriver, paver, scraper, truck, etc.) to include rental equipment, prior to the start of contractor operations, when such piece of equipment is to be used. SAD Form 1666-R, "Safety Inspection Check List for Mobile Construction Equipment", will be used to record the results of this inspection on government-hired labor projects and the government hired labor project engineer shall conduct a spot inspection of contractor equipment. Government-hired labor or maintenance projects shall be inspected annually.

b. An SAD Form 1666-R shall be completed by a qualified contractor employee and provided to the government prior to the use of the equipment. A copy of the completed form shall be maintained in the government project office and in the official contract file. Safety deficiencies noted on the inspection shall be corrected prior to that particular piece of equipment being placed into use and the notation of such correction made on the SAD Form 1666-R.

c. In the event that a piece of mobile heavy equipment is involved in an accident or experiences a breakdown requiring major repairs during the project or contract, another inspection shall be made and the SAD Form 1666-R will be updated for that piece of equipment.

SAFETY CHECKLIST FOR FLOATING PLANT

Contract # and title:	
Contractor:	Subcontractor:
Plant Name:	Owner:
Superintendent:	Captain:
Engineer:	Number in crew:
Contract inspector:	Date inspected:

	Yes	No	N/A
1. Is a copy of the current USCG Form 835 available for plants regulated by USCG? (19.A.01)			
2. Is documentation of an accredited marine surveyor (SAMS or NAMS) available for non USCG inspected plants? (19.A.01)			
3. Do all officers and crew posses an appropriate USCG license or USACE license and certification? (19.A.02)			
4. Are periodic inspections and test records of all floating plant, equipment, and machinery available as part of the official project file? (19.A.01)			
5. Is there a severe weather plan which contains the following available? (19.A.03) a. a description of potential types of severe weather hazards and steps to guard against the hazards? b. the time frame for implementing the plan? c. the name and location of the safe harbor? d. the name of the vessels which will be used to move any non-self propelled plant, and their type, capacity, speed, and availability? e. river gage readings at which floating plant must be moved away from dams, river structures, etc. to safe areas?			

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	Yes	No	N/A
6. Is the station bill conspicuously posted throughout the vessel? (19.A.04)			
7. Has each crew member been given a written description of their emergency duties and are they familiar with them? (19.A.04)			
8. Have the following drills and tests been recorded in the station log? (19.A.04) a. abandon ship drill? b. fire drill? c. man overboard drill? d. pump shell or pipe rupture? e. hull failure? f. emergency power and lighting tests? g. bimonthly emergency power generator tests? h. bimonthly emergency lighting storage batteries tests?			
9. Are material safety data sheets(MSDSs) available for all hazardous materials on board? (06.B.01)			
10. Are employees trained to handle hazardous materials? (06.B.01)			
11. Are at least two employees on each shift certified in CPR and first aid? (03.A.02)			
12. Is there a first aid log at each first aid station? (01.D.04)			
13. Are first aid kits located in a readily accessible location and adequately stocked? (03.B.01 & .02)			
14. Is there an adequate supply of approved, potable drinking water available? (02.A.01)			
15. Are outlets dispensing non-potable water clearly marked Water Unfit For Drinking, Washing or Cooking?(02.A.07)			
16. Are the proper numbers of toilets, washbasins and showers provided? (02.B.06 & .07)			

	Yes	No	N/A
17. Are water, soap, and a means of drying available? (02.C.02)			
18. Is the latest information published by the USCG regarding aids to navigation available on board the vessel? (19.A.11)			
19. Is the vessel equipped with: (19.A.05) a. fenders? b. axes or other emergency cutting equipment? c. an appropriate navigational signal device? d. general alarm system operated from primary electrical system with standby batteries on trickle charge? e. easily accessible emergency controls that are adequately protected against accidental operation? f. explosion-proof lights around gasoline and oil barges or other locations where a fire or explosive hazard exists? g. interconnected emergency alarms? h. smoke alarms in living quarters? i. doors that open from both sides? j. clearly marked emergency exits? k. emergency stops for prime movers operating a dredge pump? l. GFCI protection on grounded 120 or 240 volt systems in toilet/shower spaces, galley, machinery spaces, weather deck, exterior or near any sinks? m. properly maintained and identified water tight compartments?			
20. Fuel systems: (19.A.06) a. Are tanks or lines free of gauge glasses or try cocks? b. Do all fuel tanks have shutoff valves that can be operated outside the compartment in which the tank is located and outside the engine compartment and outside the house bulkheads at or above the weather deck? c. Is there a shut off valve at the engine end of the fuel lines that are 6 feet or more in length and can it be operated from outside the house bulkheads at or above the weather deck? overboard discharge?			

	Yes	No	N/A
d. Are all carburetors on gasoline engines equipped with a backfire trap or flame arrestor? e. Are all carburetors (except downdraft type) equipped with a drip pan, with flame screen, which is continuously emptied by suction from the intake manifold or if permitted by the overboard discharge? f. Are fuel storage tanks diked or curbed IAW NAVFAC DM-22? If not are portable tanks used IAW USCG requirements in 46CFR Parts 64 and 98.3?			
21. Are cables which cross the waterways between floating plants or between plant and mooring marked? (19.A.07)			
22. Is there a fire and emergency warning system (or an established fire watch) on all vessels where people are quartered? (19.A.07)			
23. Are all floors, decks, and bilge's free of accumulation of fuel and grease? (19.A.07)			
24. Are there holdbacks or rings available to secure equipment during rough weather? (19.A.07)			
25. Are all deck openings, elevated surfaces, and similar locations provided with guardrails, bulwarks, or taut cable guardlines? (19.A.07)			
26. Are all rotating machinery, hot pipes, and moving cables guarded against accidental contact? (16.B.03)			
27. Are hazardous energy control procedures available to insure that machinery will not be operated while greasing or making repairs? (12.A.01 & 16.A.08)			
28. Are decks free of tripping hazards? or adequately marked in yellow? (19.A.07)			
29. Is all deck cargo carried on fuel barges placed on dunnage? (19.A.07)			
30. Are all pieces of floating plants operating as one unit securely fastened together with no openings(or with guarded openings)? (19.A.07)			
31. Is there a list of confined spaces available? (19.A.08)			

32. Are all permitted required confined spaces labeled? (19.A.08)	Yes	No	N/A
33. Are engine spaces housing internal combustion engines having electric spark ignition systems equipped with exhaust fans? (19.A.10)			
34. Are all machinery spaces and non-diesel fuel tanks compartments equipped with at least 2 ventilators, fitted with fans? (19.A.10)			
35. Are the following spaces provided with an adequate natural ventilation system? (19.A.10) a. spaces containing a portable fuel tank? b. living spaces or galley? c. other compartment spaces?			
36. Do vent intakes extend to within 1 foot of the bottom of the compartment? (19.A.10)			
37. Is suitable eye protection provided at battery charging stations? (05.B.01 & .05)			
38. Are eye wash stations provided at battery charging stations? (6.B.02)			
39. Are flammable items such as paint and thinners properly stored? (9.B)			
40. Are gasoline and other flammable liquids properly stored, dispensed, and handled? (09.B.01-.30)			
41. Does all electrical wiring meet requirements of USCG-259, the National Electrical Safety Code and the National Electric Code? (11.A.01)			
42. Are insulated mats provided at locations where machinery has exposed live parts? (11.A.07)			
43. Are switch and transformer banks adequately protected and marked to keep unauthorized personnel out of the danger area? (11.A.02)			
44. Are portable electric tools grounded by a multiconductor cord with an identified conductor and a multicontact polarized plug-in receptacle? (11.C.01)			

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	Yes	No	N/A
45. Are ground fault circuit interrupters provided in locations where portable tools could be used? (11.C.05)			
46. Are flexible cords protected in work area, appropriately secured or suspended and are they used for appropriate useages. (11.A.03 and Table 11-1?)			
47. Are all means of access properly secured, guarded and free of slipping and tripping hazards? (19.B.01)			
48. Are all working decks, stair treads, ship ladders, platforms, catwalks, and walkways, provided with non-slip surfaces? (19.B.01)			
49. Are grab bars provided on the sides of super structure of tugs, tenders, and launches except where railings are present? (19.B.01)			
50. Are double rung or flat tread type Jacob's ladders restricted to use only when no safer form of access is practical? (19.B.01)			
51. Is there a safe means for boarding or leaving the vessel? (19.B.02)			
52. Is there a stairway, ladder, ramp, gangway, or personnel hoist provided at all personnel points of access with breaks of 19 or more in elevation? (19.B.02)			
53. Are gangways and ramps: (19.B.02) a. secured at one end by at least one point on each side with lines or chains to prevent overturning? b. supported at the other end in such a manner as to support them and their normal loads in the event they slid off their supports? c. placed at an angle no greater than that recommended by the manufacturer? d. provided with a standard guardrail?			
54. Are stairs or permanent inclined ladders provided for vertical access between decks? (9.B.03)			

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55. Is there at least 2 feet of clearance on outbord edges used for passageways? (19.B.3)	Yes	No	N/A
56. Is the vessel equipped with at least one portable or permanent ladder with at leastr one portable or permanent ladder with which to rescue a person in the water? (19.B.04)			
57. Are there at least 2 means of escape from all assembly, sleeping and messing areas on the plant? (19.B.04)			
58. Are all means of access maintained safe and functional? (19.B.04)			
59. Are all floating pipelines used as walkways equipped with a walkway which is at least 20 wide and has a handrail on at least one side? (19.B.05)			
60. Are floating pipelines that are not intended as walkways barricaded on both ends?(19B.05)			
61. Are positive measures taken to raise and secure the ladder and to block suction and discharge lines during maintenance on pumps and suction or discharge lines? (19.D.01)			
62. Do floating or trestle supported dredge pipelines display the following lights at night and in periods of restricted visibility: (19.D.02) a. One row of yellow lights that : (1) flash 50-70 times per minute? (2) are visible all around the horizon? (3) are visible for at least 2 miles on a clear night? (4) are between 3-10 feet above the water? (5) are approximately evenly spaced? (6) are not more than 30 feet apart where the pipeline crosses a navigable channel? (7) are sufficient in number to clearly show the pipeline's length and course? b. two red lights at each end of the pipeline (including ends in a channel where the pipeline is separated to allow vessels to pass) that: (1) are visible all around the horizon? (2) are visible for at least 2 miles on a clear dark night? (3) are 3 feet apart in a vertical line with the lower light at the same height above the water as the flashing yellow light?			

	Yes	No	N/A
63. Is the dredge designed such that a failure or rupture of any dredge pump component including the pipe shall not cause the dredge to sink? (19.D.04)			
64. Is submerged pipeline resting on the bottom where it crosses the navigation channel and is it and the anchoring system no higher than the required project depth? (19.D.03)			
65. Is buoyant or semi-buoyant pipeline fully submerged and on the bottom? (19.D.03)			
66. Is raised pipeline adequately marked? (19.D.03)			
67. Is a bilge alarm or shutdown interface available on any dredge with the dredge pump below the waterline? (19.D.07)			
68. Are two positive means available to secure stone boxes when the boxes are under positive pressure? (19.D.08)			
69. Remarks: (Enter actions taken for no answers.)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAD Form 1437a-R Previous editions may be used for contracts
Mar 97 referencing the 1992 edition of EM 385-1-1.

SAFETY CHECKLIST FOR LAUNCHES, MOTORBOATS AND SKIFFS

Contract # and title:	
Contractor:	Subcontractor:
Name of equipment:	Superintendent:

	Yes	No	N/A
1. Is a qualified crew person assigned to assist with deck duties under the following circumstances: (19.C.01) a. when extended trips(more than 2 hours) are made from the work site? b. when conditions of navigation make it hazardous for an operator to leave the wheel while underway? c. when operation other than tying-in require the handling of lines? d. when operating at night or in inclement weather? e. when towing?			
2. Are all motorboats, launches and skiffs posted with the number of passengers and weight they can carry? (19.C.02)			
3. Is there a PFD available for each passenger and crew member? (19.C.02)			
4. Do all launches and motorboats that are less than 26 feet in length have at least one 1A-10B:C fire extinguisher on board? (19.C.03)			
5. Do all launches and motorboats that are 26 feet or more in length have at least 2 1A-10B:C fire extinguishers on board? (19.C.03)			

SAD Form 1437b-R Previous edition may be used for contracts
Mar 97 referencing the 1992 edition of EM 385-1-1.

	Yes	No	N/A
6. Do all launches and motorboats that have gasoline or liquid petroleum gas power plants or equipment in cabins, compartments, or confined spaces have built-in automatic CO2 or other equally effective type of fire extinguishing system? (19.C.03)			
7. Remarks: (Enter actions taken for "no" answers.)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

SAD Form 1437b-R Previous editions may be used for contracts
Mar 97 referencing the 1992 edition of EM 385-1-1.

SAFETY CHECKLIST FOR CRAWLER, TRUCK & WHEEL MOUNTED CRANES

Contract # and title:			
Equipment name & number: owned or leased?			
Contractor:	Subcontractor:		
Contract Inspector:	Date inspected:		
	Yes	No	N/A
1. Unless the manufacturer has specified an on-rubber rating, outriggers will be fully extended and down? (16.D.10)			
2. Are lattice boom cranes equipped with a boom angle indicator, load indicating device, or a load moment indicator? (16.D.01)			
3. Are lattice boom and hydraulic cranes equipped with a means for the operator to visually determine levelness? (16.D.02)			
4. Are lattice boom and hydraulic cranes, except articulating booms cranes, equipped with drum rotation indicators located for use for the operator? (16.D.03)			
5. Are lattice boom and hydraulic mobile cranes equipped with a boom angle or radius indicator within the operator's view? (16.D.04)			
6. Are lattice boom cranes, with exception of duty cycle cranes, equipped with an anti-two blocking device? (16.D.05)			
7. When duty cycle machines are required to make a non-duty lift, is the crane equipped with an international orange warning device and is a signal person present? (16.D 05)			
8. Are the following with the crane at all times: (16.C.02) a. the manufacturer's operating manual? b. the load rating chart? c. the crane's log book documenting use, maintenance, inspections and tests? d. operating manual for crane operator aids used on the crane.			

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	Yes	No	N/A
9. Are the following on the project site: a. completed periodic inspection report prior to initial work? (16.C.12) b. pre-operational checklist used for daily inspection? (16.C.12) c. written reports of the operational performance test? (16.C.13) d. written reports of the load performance test? (16.C.13)			
10. Are all operators physically qualified to perform work? (16.C.05)			
11. Are all operators qualified by written and practical exam or by appropriate licensing agency for the type crane they are to operate? (16.C.05)			
12. Is the crane designed and constructed IAW the standards listed in Table 16-1? (16.C.06)			
13. Is a hazard analysis for set-up and set-down available? (16.C.08)			
14. Are accessible areas within the swing radius of the rear of the crane barricaded? (16.C.09)			
15. Are there at least 3 wraps of cable on the drum? (16.C.10)			
16. Are the hoisting ropes installed IAW the manufacturer's recommendations? (16.C.10)			
17. Are critical lift plans available? (16.C.18)			
18. Are minimum clearance distance for high voltage lines posted at the operator's position? (11.E.04)			
19. Do older lattice boom cranes with anti-two block warning devices in lieu of anti-two block prevention devices have a written exemption? (16.D.05)			
20. Is the slow moving emblem used on all vehicles which by design move at 25 MPH or less on public roads? (08.A.04)			
21. Are all vehicles which will be parked or moving slower than normal traffic on haul roads equipped with a yellow flashing light or flasher visible from all directions? (16.A.13)			

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22. Is all equipment to be operated on public roads provided with: (16A.07) a. headlights? b. brake lights? c. taillights? d. back-up lights? e. front and rear turn signals?	Yes	No	N/A
23. Are seat and seat belts provided for the operator and each rider on equipment? (16.A.07 and 16.B.08)			
24. Is all equipment with windshields equipped with powered wipers and defogging or defrosting devices? (16.A.07)			
25. Is the glass in the windshield or other windows clear and unbroken to provide adequate protection and visiblity for the operator? (16.A.07, 16.B.10)			
26. Is all equipment equipped with adequate service brake system and emergency brake system? (16.A.18)			
27. Are areas on equipment where employees walk or climb equipped with platforms, footwalks, steps, handholds, guardrails, toeboards and non-slip surfaces? (16.B.03)			
28. Is all self propelled equipment equipped with automatic, audible, reverse signal alarms? (16.B.01)			
29. Is there a record of manufacturer's approval of any modification of equipment which affects its capacity or safe operation? (16.A.18)			
30. Are truck and crawler cranes attached to a barge or pontoon by a slack tiedown system? (16.F.06)			
31. Have the following conditions been met for land cranes mounted on barges or pontoons: (16.F.04) a. Have load ratings been modified to reflect the increased loading from list, trim, wave, and wind action? b. Are all deck surfaces above the water? c. Is the entire bottom area of the barge or pontoon submerged? d. Are tie downs available? e. Are cranes blocked and secured?			
32. Are all belts, gears, shafts, spindles, drums, flywheels, or other rotating parts of equipment guarded where is a potential for exposure to workers? (16.B.03)			

	Yes	No	N/A
33. Is the area where the crane is to work level, firm and secured? (16.A.10)			
34. Is a dry chemical or carbon dioxide fire extinguisher rated at least 5-B:C on the crane? (16.A.26)			
35. Are trucks, for truck mounted cranes, equipped with a working reverse signal alarm? (16.B.01)			
36. Is a signal person provided where there is danger from swinging loads, buckets, booms, etc.? (16.B.13)			
37. Is there adequate clearance from overhead structures and electrical sources for the crane to be operated safely? (16.C.09)			
38. Is there adequate lighting for night operations? (16.C.19)			
39. Has the the boom stop test on cable-supported booms been performed? (16.D.06)			
40. Is the boom disenaging device functioning as required? (16.D.06)			
41. Has all rigging and wire rope been inspected? (Section 15)			
Remarks:(Enter actions taken for all “no” answers.)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

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SAFETY CHECKLIST FOR PORTAL, TOWER, AND PILLAR CRANES

Contract # and Title:			
Equipment name & number: owned or leased?			
Contractor:	Subcontractor:		
Contract Inspector:	Date Inspected:		
	Yes	No	N/A
1. Are the following available: (16.E.02) a. written erection instructions? b. listing of the weight of each component? c. an activity hazard analysis for the erection? d. does the activity hazard analysis contain (1.) location of crane and adjacent structures? (2.) foundation design and construction requirements? (3.) clearance and bracing requirements?			
2. Is there a boom angle indicator within the operator's view? (16.E.04)			
3. Are luffing jib cranes equipped with: (16.E.05) a. shock absorbing jib stops? b. jib hoist limit switch? c. jib angle indicator visible to operator?			
4. If used, do rail clamps have slack between the point of attachment to the rail and the end fastened to the crane? (16E.06)			
5. Are the following with the crane at all times: (16.C.02) a. the manufacturer's operating manual? b. the load rating chart? c. the crane's log book documenting use, maintenance, inspections and tests? d. the operating manual for crane operational aids used on the crane?			

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	Yes	No	N/A
6. Are the following on the project site: a. completed periodic inspection report prior to initial work? (16.C.12) b. pre-operational checklist used for daily inspections? (16.C.12) c. written reports of the operational performance tests? (16.C.13) d. written reports of the load performance tests? (16.C.13)			
7. Is every crane operator certified by a physician to be physically qualified to perform work? (16.C.05)			
8. Are all operators qualified by written and practical exam or by appropriate licensing agency for the type crane they are to operate? (16.C.05)			
9. Is the crane designed and constructed IAW the standards listed in Table 16-1? (16.C.05)			
10. Is a hazard analysis for set-up and set-down available? (16.C.08)			
11. Are there at least 3 wraps of cable on the drum? (16.C.10)			
12. Are the hoisting ropes installed IAW the manufacturer's recommendations? (16.C.10)			
13. Is the a record of manufacturer's approval of any modification of equipment which affects its capacity or safe operation? (16.A.07)			
5. Remarks: (Enter actions taken)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

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SAFETY CHECKLIST FOR RIGGING

Contract # and title:	
Equipment name & number: owned or leased?	
Contractor	Subcontractor:
Contractor inspector:	Date inspected:

	Yes	No	N/A
1. Has all defective rigging been removed? (15.A.01)			
2. Is rigging stored properly? (15.A.01)			
3. Are running lines within 6.5' of the ground or working level guarded? (15.A.03)			
4. Are all eye splices made in an approved manner with rope thimbles? (sling eyes excepted) (15.A.04)			
5. Are positive latching devices used to secure loads? (15.A.05)			
6. Are all custom lifting accessories marked to indicate their safe working loads? (15A.07)			
7. Are all custom designed lifting accessories proof-tested to 125% of their rated load? (15.A.07)			
8. Are the following conditions met for wire rope: (15.B.01-09) a. Are they free of rust or broken wires? b. Are defective ropes cut up or marked as unusable? c. Do rope clips attached with U-bolts have the U-bolts on the dead end or short end of the rope? d. Are protruding ends of strands in splices on slings and bridles covered or blunted? e. Except for eye splices in the end of wires and for all endless wire rope slings, are all wire ropes used in hoisting, lowering, or pulling loads one continuous piece, free of knots or splices?			

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	Yes	No	N/A
f. Do all eye splices have at least 5 full tucks? g. If used, are wedge sockets fastening attached without attached the dead end of the wire rope to the live rope? h. Are they free of eyes or splices formed by wire rope clips or knots?			
9. Are the following conditions met for chain? (15.C.01-04) a. Are all chains alloyed? b. Do all coupling links or other attachments have rated capacities at least equal to that of the chain. c. Are makeshift fasteners restricted from use?			
10. Are the following conditions met for fiber rope:(15.D.01-07) a. Are all ropes protected from freezing, excessive heat or corrosive materials? b. Are all ropes protected from abrasion? c. Are splices made IAW manufacture's recommendations? d. Do all eye splices in manila rope contain at least 3 full tucks and do all short splices contain at least 6 full tucks(3 on each side of the centerline of the splice)? e. Do all splices in layed synthetic fiber rope contain at least 4 full tucks and do short splices contain at least 8 full tucks (4 on each side of the centerline of the splice)? f. Do the tails of fiber rope splices extend at least 6 rope diameters (for rope 1" diameter or greater) past the last full tuck? g. Are all eye splices large enough to provide an included angle of not greater than 60* at the splice when the eye is placed over the load or support?			
11. Are the following conditions met for all slings:(15.E.01-06) a. Is protection provided between the sling and sharp surfaces? b. Do all rope slings have minimum clear length of 40 times the diameter of component ropes between each end fitting or eye splice? c. Do all braided slings have a minimum clear length of 40 times the diameter of component ropes between each end fitting or eye splice?			

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	Yes	No	N/A
d. Do all welded alloy steel chain slings have affixed permanent identification stating size, grade, rated capacity and manufacturer? e. Is each synthetic web sling marked or coded to identify its manufacturer, rated capacities for each type hitch and the type material?			
12. Are drums, sheaves, and pulley smooth and free of surface defects? (15.F.01)			
13. Is the ratio of the diameter of the rigging and the drum, block sheave or pulley thread diameter such that the rigging will adjust without excessive wear, deformation, or damage? (15F.02)			
14. Have all damaged drums, sheaves and pulleys been removed from service? (15.F.04)			
15. Are all connections, fittings, fastenings, and attachments of good quality, proper size and strength, and installed IAW manufacturer's recommendations? (15.F.05)			
16. Are all shackles and hooks sized properly? (15.F.06 & .07)			
17. Are hoisting hooks rated at 10 tons or greater provided with safe handling means? (15.F.07)			
18. Do all drums have sufficient rope capacity? (15.F.08)			
19. Is the drum end of the rope anchored by a clamp securely attached to the drum in a manner approved by the manufacturer? (15.F.08)			
20. Do grooved drums have the correct groove pitch for the diameter of the rope and is the groove depth correct? (15.F.08)			
21. Do the flanges on grooved drums project beyond the last layer of rope at a distance of either 2" or twice the diameter of the rope, whichever is greater? (15.F.08)			
22. Do the flanges on ungrooved drums project beyond the last layer of rope a distance of either 2.5" or twice the diameter of the rope, which ever is greater.			

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	Yes	No	N/A
23. Are the sheaves compatible with the size of rope used and as specified by the manufacture? (15F.09)			
24. Are sheaves properly aligned, lubricated, and in good condition? (15.F.09)			
25. When rope is subject to riding or jumping off a sheave, are sheaves equipped with cablekeepers? 915.F.09)			
26. Are eye bolts loaded in the plane of the eye and at angles less than 45* to the horizontal? (15.F.10)			
27. Remarks: (Enter actions taken for "no" answers.)			
Contractor inspector signature			
Contractor QC/safety/project manager signature			

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SAFETY CHECKLIST FOR MOTOR VEHICLES , TRAILERS AND TRUCKS

Contract # and title: owned or leased?	
Equipment name & number:	
Contractor:	Subcontractor:
Contractor inspector:	Date inspected:

	Yes	No	N/A
1. Are records of safety inspections of all vehicles available? (18.A.02)			
2. Are all vehicles to be operated between sunset and sunrise equipped with: (18.A.04) a. 2 headlights? b. taillights and brake lights? c. front and back turn signals? d. 3 emergency flares, reflective markers, or equivalent portable warning devices?			
3. Are vehicles, except trailers or semi-trailers having a gross weight of 5000 lbs or less, equipped with service brakes and manually operated parking brakes? (18.A.05)			
4. Are service brakes on trailers and semitrailers controlled from the driver's seat of the prime mover? (18A.06)			
5. Does the vehicle have: (18.A.06) a. a speedometer? b. a fuel gage? c. an audible warning device (horn)? d. a windshield & adequate windshield wiper? e. an operable defroster and defogging device? f. an adequate rearview mirror? g. a cab, cab shield, and other protection to protect the driver from the elements and falling or shifting materials? h. non-slip surfaces on steps? I. a power-operated starting device?			

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	Yes	No	N/A
6. Is all the glass safety glass and is all broken or cracked glass replaced? (18.A.07)			
7. Do trailers meet the following: (18A.08) a. Are all towing devices adequate for the weight drawn? b. Are all towing devices properly mounted? c. Are locking devices or a double safety system provided on every 5th wheel mechanism and tow bar arrangement to prevent accidental separation? d. Are trailers coupled with safety chains or cables to the towing vehicle? e. Are trailers equipped with the power brakes equipped with a break-away device which will lock-up the brakes in the event the trailer separates from the towing vehicle?			
8. Are all dump trucks:(18.A.10) a. equipped with a holding device to prevent accidental lowering of the body? b. equipped with a hoist lever secured to prevent accidental starting or tipping? c. equipped with means to determine (from the operator's position) if the dump box is lowered? d. equipped with trip handles for tailgates that allow the operator to be clear?			
9. Are all buses, trucks and combination of vehicles with a carrying capacity of 1.5 tons or more, to be operated on public roads equipped with: (18.A.11) a. 3 reflective markers? b. 2 wheel chocks for each vehicle? c. at least one 2A:10B:C fire extinguisher? d. at least two properly rated fire extinguishers (for vehicles carrying flammable cargo)? e. a red flag not less than 1 foot square.			
10. Is vehicle exhaust controlled so as not to present a hazard to personnel? (18.A.13)			
11. Are all rubber tired motor vehicles equipped with fenders or with mud flaps if the vehicle is not designed for fenders? (18.A.14)			

	Yes	No	N/A
12. Are all vehicles, except buses, equipped with seat belts? (18.B.02)			

13. Does all self-propelled construction and industrial equipment have a working reverse signal alarm? (16.B.01)			
14. Are all hot surfaces of equipment, including exhaust pipes or other lines, guarded or insulated to prevent injury or fire? (16.B.03)			
15. If an off the road vehicle, is it equipped with rollover protective structures? (16.B.12)			
16. Remarks: (Enter actions taken for no answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

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SAFETY CHECKLIST FOR CRAWLER TRACTORS AND DOZERS

Contract # and title:	
Equipment name & number: owned or leased?	
Contractor:	Subcontractor:
Contractor inspector:	Date inspected:

	Yes	No	N/A
1. Are initial and daily/shift inspection records available? (16.A.01& .02)			
2. Are only qualified operators assigned to operate mechanized equipment? (16.A.04)			
3. Are sufficient lights provided for night operations? (16.A.11)			
4. Is the unit shut down before refueling? (16.A.14)			
5. Does the unit have as a minimum a 5-B:C fire extinguisher? (16.A.26)			
6. Is there an effective, working reverse alarm? (16.B.01)			
7. Are moving parts, shafts, sprockets, belts, etc., guarded? (16.B.03 ,07, and 13)			
8. Is protections against hot surfaces, exhausts, etc., provided? (16.B.03 and .13)			
9. Are fuel tanks located in a manner to prevent spills or overflows from running onto engine exhaust or electrical equipment?			

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	Yes	No	N/A
10. Are exhaust discharges directed so they do not endanger person of obstruct operator vision?(16.B.05)			
11. Are seat belts provided? (16B.08)			
12. Is protection (grills, canopies, screens) provided to shield operator from falling or flying objects? (16.B.10 and .11)			
13. Is roll over protection provided? (16.B.12)			
14. Remarks: (Enter actions taken for no answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

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SAFETY CHECKLIST FOR SCRAPERS, MOTOR GRADERS , AND OTHER MOBILE EQUIPMENT

Contract # and title:			
Equipment name and number: owned or leased?			
Contractor:	Subcontractor:		
Contractor inspector:	Date inspected:		
	Yes	No	N/A
1. Are initial and daily/shift inspection records available? (16.A.01 & .02)			
2. Are only qualified operators assigned to operate equipment? (16.A.04)			
3. Are sufficient lights provided for night operations? (16.A.11)			
4. Does the unit have as a minimum a 5-B:C fire extinguisher? (16.A.26)			
5. Is there an effective working reverse alarm? (16.B.01)			
6. Is the unit shut down for refueling? (16.A.14)			
7. Are moving parts, shafts, sprockets, belts, etc., guarded? (16.B.03, .07 and .13)			
8. Is protection against hot surfaces, exhausts, etc., provided? (16.B.03 and .13)			
9. Are fuel tanks located in a manner to prevent spills or overflow from running onto engine exhaust or electrical equipment? (16.B.04)			
10. Are exhaust discharges directed so they do not endanger persons or obstruct operator vision? (16.B.05)			

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	Yes	No	N/A
11. Are seat belts provided for each person required to ride on the equipment? (16.B.08)			
12. Is protection (grills, canopies, screens) provided to shield operators from falling or flying objects? (16.B.10 and .11)			
13. Is roll over protection provided? (16.B.12)			
14. Is a safe means of access to the cab provided (steps, grab bars, non-slip surfaces)? (16.B.03)_			
15. Are adequate head and tail lights provided? (16.A.07)			
16. Have brakes been tested and found satisfactory? (16.A.07)			
17. Does the unit have an emergency brake which will automatically stop the equipment upon brake failure? Is this system manually operable from the drivers position? (16.A.07)			
18. Is all equipment with windshields equipped with powered wipers and defogging or defrosting system? (16.A.07)			
19. Are all vehicles which will be parked or moving slower than normal traffic on haul roads equipped with a yellow flashing light or flasher visible from all directions? (16.A.13)			
20. Is the slow moving emblem used on all vehicles which by design move at 25 MPH or less on public roads? (08A.04)			

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	Yes	No	N/A
21. Have air tanks been tested and certified? (20.A.01)			
22. Is an air pressure gage in working condition installed on the unit? (20.A.12)			
23. Does the air tank have an accessible drain valve? (20.B.17)			
24. Remarks: (Enter action taken for all no answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager			

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SAFETY CHECKLIST FOR MATERIAL HOISTS

Contract # and title:	
Equipment name & number:	
Contractor:	Subcontractor:
Contract Inspector:	Date inspected:

	Yes	No	N/A
1. Are all hoist towers, masts, guys or braces, counterweights, drive machinery supports, sheave supports, platforms, supporting structures, and accessories designed by a licensed engineer? (16.K.02)			
2. Is a copy of the hoist operating manual available? (16.K.04)			
3. Do all floors and platforms have slip-resistant surfaces? (16.K.08)			
4. Are landings and runways adequately barricaded and is overhead protection provided where needed? (16.K.08)			
5. Are hoisting ropes installed IAW manufacturer's instructions? (16.K.10)			
6. Are operating rules posted at the hoist operator's station? (16.K.14)			
7. Are air powered hoists connected to an air supply of sufficient capacity and pressure to safely operate the hoist? (16.K.15)			
8. Are pneumatic hoses secured by some positive means to prevent accidental disconnection? (16.K.15)			
9. Remarks: (Enter actions taken for all no answers.)			
Contractor inspector signature			
Contractor QC/safety officer/project manager signature			

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SAFETY CHECKLIST FOR EARTH DRILLING EQUIPMENT

Contract # and title:			
Equipment name & number:			
Contractor:	Subcontractor:		
Contractor inspector:	Date inspected:		
	Yes	No	N/A
1. Is a copy of the manual for all drilling equipment available? (16.M.01)			
2. Have all overhead electrical hazards and potential ground hazards been identified in a site layout plan and addressed in an activity hazard analysis? (16.M.02)			
3. Are MSDSs for all drilling fluids available? (16.M.05)			
4. Does the drilling equipment have 2 easily accessible emergency shut down devices (one for the operator and one for the helper)? (16.M.06)			
5. Is the equipment posted with a warning of electrical hazards? (16.M.06)			
6. Is there a spotter or an electrical proximity warning device available to ensure safe distances from power lines are maintained? (16.M.06)			
7. Remarks: (Enter actions taken for no answers)			
Contractor inspector signature			
Contractor QC/safety officer/project manager			

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Date of Inspection:

Contractor or Unit	Contract No. or Activity
Inspected by (Signature)	Witness (Signature)

	TREE WORK, MAINTENANCE OR REMOVAL OPERATIONS **NOTE: Safety and Health Requirements Manual (EM385-1-1) references in parentheses.**	Yes	No	N/A
1	Are all chain saws in sound mechanical condition? (31.A.04.a)			
2	Are saws started more than 10 feet (0.3m) from fuel containers? (13.F.04)			
3	Are saws fueled while running or hot or near open flame? (13.F.04)			
4	Is eye, ear, hand, foot, and leg protection provided? (13.F.03 & 05)			
5	Is the chain saw used to cut above operator's shoulder height? (13.F.06)			
6	Has the area been cleared of brush, felled trees, etc. prior to cutting? (13.D.01)			
7	Do all chain saws have an automatic chain brake or kickback device? (13.F.01)			
8	Is tree removal, trimming, or repair under the supervision of a qualified tree worker? (31.A.01)			
9	Are tree workers tied in with an approved climbing rope and safety saddle when working above ground? (31.B.02)			
10	Are tree workers carrying tools in their hands while climbing? (31.B.07)			
11	Are brush chippers operated and maintained in accordance with manufacturer's recommendations? (31.D.03)			
12	Are climber spurs of the tree-climbing type with gaffs of the type and length suitable for the tree being climbed? (31.B.01.a)			
13	Are pole pruners, pole saws, and other similar tools equipped with wood or nonmetallic poles? (31.E.01.a)			

REMARKS:

Contractor or Unit	Date of Inspection:
Contractor or Unit	Contract No. or Activity
Inspected by (Signature)	Witness (Signature)

	TEMPORARY ELECTRICAL WIRING NOTE: Safety and Health Requirements Manual (EM385-1-1) references in parentheses.	Yes	No	N/A
1	Is the temporary wiring guarded, isolated by elevation, or buried so as to prevent accidental contact? (11.A.02)			
2	Are extension cords of the type listed by Underwriters Laboratories, Inc., for the purpose in which they are used? (11.A.03) See Table 11-1			
3	Are all switch boxes, receptacle boxes, metal cabinets, enclosures around equipment and temporary power lines marked to indicate the maximum operating voltage? (11.A.06)			
4	Are all circuits protected against overload? (11.B.01)			
5	Does each fuse cabinet have close fitting doors that can be locked? (11.B.01.e)			
6	Are disconnect boxes securely fastened to a surface and fitted with a cover? (11.B.02.b)			
7	Is the incoming service or supply circuit readily accessible and provided with a manually-operated switch? (11.B.03.a)			
8	Are all circuit breakers, switches, fuses marked or labeled identifying the circuits or equipment supplied through them? (11.B.04)			
9	Are all switches, circuits breakers, fuse panels, or motor controllers that are located out-of-doors or in wet locations in a weatherproof enclosure or cabinet? (11.B.05)			
10	Are all circuits grounded? In accordance with the NEC. (11.C.01)			
11	Are ground fault circuit interrupters installed in circuits used by portable electric tools? (11.C.05)			
12	Has a sketch been submitted and accepted for the proposed temporary power distribution system? (11.D.01)			
13	Is the vertical clearance above walkways 10-15 feet or more for circuits carrying 600 volts or less? (11.D.03)			
14	Do temporary light strings in outdoor or wet locations have lamp sockets and connecting plugs permanently molded to the hard service cord insulation? (11.D.04.b)			
15	Are all wires insulated from their supports? (11.D.05)			
16	Are guards provided for bulbs on temporary lighting strings and extension cords? (11.D.06.a)			
17	Are exposed empty light sockets or broken bulbs present? (11.D.06.c)			
18	Is portable electric lighting used in confined wet and/or hazardous locations operated at a maximum of 12 volts? (11.D.06.d)			
19	Is a plainly marked switch provided at or near the entrance to tanks or confined spaces where wiring is used? (11.D.07)			
20	Is any floating plant or equipment situated within 20 feet (6m) of an overhead transmission line? (11.E.06)			

REMARKS:

1 Sep 98 | Date of Inspection:
Contractor or Unit | Contract No. or Activity

Inspected by (Signature)	Witness (Signature)

	POWER BENCH TOOLS NOTE: Safety and Health Requirements Manual (EM385-1-1) references in parentheses.	Yes	No	N/A
1	Is eye, foot and other protective equipment, as needed, provided and use enforced? (05.A.08 & 05.B.01)			
2	Are adequate warning signs displayed? (08.A.01)			
3	Is the equipment always shutdown for adjustments and/or maintenance? (11.A.02.a.b)			
4	Is the power switch located so as to prevent accidental starting? (11.B.03.b)			
5	Are switches, fuses, and automatic circuit breakers marked, labelled, or arranged for ready identification of the circuits or equipment which they supply? (11.B.04)			
6	Are the circular rip saws equipped with guards that automatically and completely enclose the cutting edges, anti-kickback devices, and splitters? (13.C.01.a)			
7	Are electric powered tools properly grounded? (11.C.01.b)			
8	Is a copy of manufacturer's instructions and recommendations maintained with the tool? (13.A.02.a)			
9	Have the tools been inspected and tested prior to use? (13.A.02.a.b)			
10	Are the moving parts (shafts, beltdrives, spindles, etc.) safely guarded from accidental contact? (13.A.03.b)			
11	Is personal protective equipment used as outlined in section 6? (13.A.13)			
12	Are tool rests on power grinders more than 1/8" (0.3cm) from the wheel? (13.B.05)			
13	Have grinding wheels been ring-tested before mounting? Are damaged grinding wheels in use? (13.B.06)			
14	Are planer and jointer blades fully guarded? (13.C.01.c)			
15	Are band saws fully enclosed except at point of operation? (13.C.01.d)			
16	Are radial arm power saws equipped with an automatic brake? (13.C.04)			
17	Is a limit stop provided to prevent leading edge of radial and swing saws from traveling beyond the edge of the table? (13.C.06)			
18	Is a block, pushstick or other safe means provided for operations close to cutting edges? (13.C.08.b)			
19	Are brushes provided for removal of sawdust, chips, etc.? (13.C.08.d)			
20	Are lathes, metal saws, drills, etc. left unattended while still running? (13.C.08.e) **NOTE:** This could occur when working with heavy steel plates or large shafts. If so, this is a violation.			
21	Is good housekeeping practiced? (14.C and 14.D.01)			

REMARKS:

CESAJ FORM 1263, JUL 98

Date of Inspection:

Contractor or Unit	Contract No. or Activity

Inspected by (Signature)	Witness (Signature)

PORTABLE ELECTRIC HAND TOOLS NOTE: Safety and Health Requirements Manual (EM385-1-1) references in parentheses.	Yes	No	N/A
1 Is personal protective equipment provided for eyes, hands, feet, etc., and their use enforced? (05.A)			
2 Are flexible cords approved for that location? (11.A.03)			
3 Are flexible cords in continuous lengths without splices? (11.A.03.c.			
4 Are flexible cords patched, cut, frayed, worn or oil soaked? (11.A.03.d.)			
5 Are portable and semi-portable electrical tools and equipment grounded by a multiconductor cord having an identified grounding conductor and multi contact polarized plug-in receptacle? (11.C.01.b)			
6 Are GFCI's provided on all circuits serving portable and semi-portable electric power tools? (11.C.05.a. & b)			
7 Are power hand tools inspected and tested and determined to be in safe operating condition before use? (13.A.02.b.)			
8 Are tools designed to accommodate guards supplied with them? (13.A.03.a.)			
9 When overhead work is being done, are means provided to prevent tools from falling? (13.A.04)			
10 Are only nonsparking tools used in locations where sources of ignition may cause a fire or explosion? (13.A.06)			
11 Safety guards shall be provided for all machines using an abrasive wheel. (13.B.01)			
12 Has a ring test been done on abrasive wheels before mounting? (13.B.06)			
13 Are circular saws equipped with guards that automatically enclose the blade? (13.C.01)			

REMARKS

1 Sep 98	Date of Inspection:
Contractor or Unit	Contract No. or Activity
Inspected by (Signature)	Witness (Signature)

	PORTABLE AIR COMPRESSORS NOTE: Corps of Engineers Safety and Health Requirements Manual (EM385-1-1) references are shown in parentheses.	Yes	No	N/A
1	Has inspection and performance test been completed. (20.A.01)			
2	Have the air tanks been hydrostatically tested and certified? (20.A.02)			
3	Are records of inspection and test available? (20.A.03)			
4	Does discharge from any valve create a hazard? (20.A.10)			
5	Is air pressure gauge in working order? (20.A.12)			
6	Is the tank equipped with a safety relief valve? (20.A.13)			
7	Is equipment that is subject to whipping or rotation, if released, provided with an automatic shut-off or dead-man control? (20.A.15)			
8	Are quick makeup connections secured with safety lashing? (20.A.16)			
9	Will the compressor automatically shut off before discharge pressure exceeds the maximum working pressure? (20.B.08)			
10	Is the compressor located so that flammables, toxic vapors, gases, dust, steam, water or waste will not be blown or drawn into intake? (20.B.09)			
11	No valve shall be installed in the air intake pipe of a compressor with an atmospheric intake. (20.B.10)			
12	Is the discharge piping from the compressor to the receiver as large as the discharge opening on the compressor? (20.B.11)			
13	Is there a convenient stop valve between the air tank and each stationary piece of equipment? (20.B.12)			
14	Are installation and location of air receivers as per 20.B.17?			
15	Does the air tank have an accessible drain valve? (20.B.18)			

16 REMARKS:

CESAJR 385-1-1 APP I 1 Sep 98	Date of Inspection:
Contractor or Unit	Contract No. or Activity
Inspected by (Signature)	Witness (Signature)

	PILE DRIVERS NOTE: Safety and Health Requirements Manual (EM385-1-1) references in parentheses.	Yes	No	N/A
1	Is the width of the hull of floating drivers at least 45% of the height of the leads above water? (16.L.07.a)			
2	If compressed air is used to activate hammer, have the air tanks been tested and certified? (20.C.05) Where steam is used, has the boiler been inspected and certified? (20.C.01-20.C.05)			
3	Are all boilers equipped with approved type water columns, gauge glass, and try cocks? (20.C.05)			
4	Is the boiler equipped with an approved blow-off valve? (20.C.06)			
5	Is insulation or guarding furnished for protection against hot surfaces, pipes, exhausts? (16.B.03.b)			
6	Are safety lashings provided on hose connections to jet pipes, hammers, pile ejectors? (16.L.05)			
7	When driving and handling steel piling, is a closed shackle or other positive means used which will prevent accidental disengagement? (16.L.08)			
8	Is a stop block provided to prevent the hammer from being raised against the head block? (16.L.02.d)			
9	Do the landings (platforms) have toe boards, guard rails? (16.L.02(1) **NOTE:** Landings or leads shall not be used for storage of any kind.			
10	Are swinging leads provided with fixed ladders? (16.L.02.a.(1))			
11	Do "dogs" automatically disengage when load is relieved or drum rotated? (16.L.03) **THIS IS A VIOLATION.**			
12	Are non-slip surfaces provided for work areas, passageways, stairs, etc.? (19.B.01.b.)			
13	Is adequate protection provided against contact with winch drums, gears, cables, and moving parts? (16.B.03.a)			
14	Does the air compressor tank have an accessible drain at its lowest point? (20.B.17.a & 20.B.18			
15	Is the pressure gauge on the air-tank in good working condition? (20.A.12)			
16	Is the air-tank equipped with a sealed safety relief valve? (20.A.13 - 20.A.13.c.)			
17	Does discharge from blow-off valves (steam or air) create a hazard? (20.A.10)			
18	During fueling or servicing of compressor, is the motor stopped? (16.A.08)b)			
19	Is a properly equipped life saving skiff provided for floating driver or where work is over or near water? (05.J.01)			
20	Are sufficient work-vests available and used? (05.I.01)			
21	Are adequate fire extinguishers provided? (16.A.26) **NOTE:** 5-B:C MINIMUM			
22	Do at least two persons in crew hold a valid first-aid certificate? (03.A.02.a)			
23	Are adequate first-aid kits provided? (03.A.03)			
24	Are cables, fittings, etc. in good condition? (15.A.06 and 15.F)			

Date of Inspection:

Contractor or Unit	Contract No. or Activity
Inspected by (Signature)	Witness (Signature)

	PILE DRIVERS NOTE: Safety and Health Requirements Manual (EM385-1-1) references in parentheses.	Yes	No	N/A
25	Are unguarded running lines located within 6'6" of the ground or working level? (15.A.03)			
26	Are only designated qualified operators being assigned to operate mechanized equipment? (16.A.04)			

Remarks:

CESAJ FORM 1266, JUL 98

1 Sep 98		Date of Inspection:		
Contractor or Unit	Contract No. or Activity			
Inspected by (Signature)	Witness (Signature)			
EXCAVATION AND EMBANKMENT OPERATONS NOTE: Safety and Health Requirements Manual (EM385-1-1) references in parentheses.		Yes	No	N/A

1	When operations are near highways; are danger, caution, traffic control signs and/or signal lights provided? (Section 08) See Table 8-1			
2	Are flag and signal persons wearing orange or red warning apparel with reflectorized material? (08.B.08)			
3	Does all moving equipment being operated at night have adequate head and tail lights? (16.A.07.b, 16.A.11 & 18A.04)			
4	Are adequate brakes provided on mobile equipment? (16.A.07.d)			
5	Do hauling units have emergency braking systems that will autmomatically stop the equipment upon failure of the service brake system? (16.A.07.d)			
6	Does maintenance or slow moving equipment have a yellow flashing light or 4-way flashers visible from all directions to warn other traffic? (16.A.13)			
7	Where metal scaffold towers are used, are they properly secured, plumb, rigidly braced, and resting on solid foundations? (21.A.07)			
8	Where traffic or personnel cross pits or excavations do bridges have adequate guard rails? (21.B.01) and 21.F.02)			
9	Are adequate haul roads provided for hauling units? (21.I)			
10	What means are used to control dust? (21.I.10.f)			
11	Are bracing, shoring, cribbing inspected daily and after rains? (25.A.02.a)			
12	Are the sides of excavations guarded by a support system, sloping or benching of the ground, or other equivalent means? (25.A.03.a)			
13	Is ground water and surface water adequately controlled to prevent its entering the excavation? 25.A.06.a)			
14	Is wire netting, rock bolts, fencing, etc. used to prevent rock falls? (25.A.07 (a)			
15	Have all boulders and stumps, or other materials that might slide or roll into an excavation been removed or made safe? (25.A.07.b)			
16	Is excavated material stored and retained at least 2ft. (0.6m) from the excavation's edge? Is it placed at a safe distance so as to prevent excessive loading on the face of the excavation? (25.A.07.c)			
17	Where vehicular or haulage traffic is near excavation, are adequate stop logs or barricades provided so as to prevent equipment from falling into excavation? (25.A.08.a)			
18	Is safe access into excavations provided? (25.B.05) **NOTE:** Ramps, stairs or mechanical man hoists shall be used for depths over 20ft. (0.6m) Properly placed and constructed ladders as well as ramps, stairs, or mechanical man hoists may be used up to 20ft. (0.6m).			
19	Are at least two means of exit provided workers in excavations? (25.B.05.a)			
20	Are vehicle backup alarms functioning? (18.a.02.e(10)			
	REMARKS			

CONTRACTOR PRODUCTION REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE: Enter Date (DD/MMM/YY)

CONTRACT NO: Enter Cnt# Here

TITLE AND LOCATION: Enter Title and Location of Construction Contract Here

REPORT NO: Enter Report # Here

CONTRACTOR: Enter The Contractor's Company Name Here

SUPERINTENDENT: Enter Superintendent's Name Here

AM WEATHER	PM WEATHER	MAX TEMP (F)	MIN TEMP (F)
Enter AM Weather Data Here	Enter PM Weather Data Here	Enter Max Temp Here	Enter Min Temp Here

WORK PERFORMED TODAY

Schedule Activity No.	WORK LOCATION AND DESCRIPTION	EMPLOYER	NUMBER	TRADE	HRS

JOB SAFETY

WAS A JOB SAFETY MEETING HELD THIS DATE? (If YES attach copy of the meeting minutes)	☐ YES	☐ NO	TOTAL WORK HOURS ON JOB SITE, THIS DATE, INCL CON'T SHEETS
WERE THERE ANY LOST TIME ACCIDENTS THIS DATE? (If YES attach copy of completed OSHA report)	☐ YES	☐ NO	CUMULATIVE TOTAL OF WORK HOURS FROM PREVIOUS REPORT
WAS CRANE/MANLIFT/TRENCHING/SCAFFOLD/HV ELEC/HIGH WORK/ HAZMAT WORK DONE? (If YES attach statement or checklist showing inspection performed.)	☐ YES	☐ NO	
WAS HAZARDOUS MATERIAL/WASTE RELEASED INTO THE ENVIRONMENT? (If YES attach description of incident and proposed action.)	☐ YES	☐ NO	TOTAL WORK HOURS FROM START OF CONSTRUCTION

Schedule Activity No.	LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED	☐ SAFETY REQUIREMENTS HAVE BEEN MET.

EQUIPMENT/MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB (INDICATE SCHEDULE ACTIVITY NUMBER)

Schedule Activity No.	Submittal #	Description of Equipment/Material Received

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INDICATE HOURS USED AND SCHEDULE ACTIVITY NUMBER.

Schedule Activity No.	Owner	Description of Construction Equipment Used Today (incl Make and Model)	Hours Used

Schedule Activity No.	REMARKS

CONTRACTOR/SUPERINTENDENT _____ DATE _____

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
Enter Spec Section # Here	Enter Date (DD/MMM/YY)

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.	INDEX #
Enter Cnt# Here	Enter DFOW Here	Enter Sched Act ID Here	Enter Index# Here

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED _____ HOURS IN ADVANCE: YES ☐ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☐ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

ARE ALL MATERIALS ON HAND? YES ☐ NO ☐

IF NO, WHAT ITEMS ARE MISSING?

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS:

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☐ NO ☐

IF NO, WHAT ACTION IS TAKEN?

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS.

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK.

CLARIFY ANY DIFFERENCES.

PRELIMINARY WORK & PERMITS

ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN?

TESTING

IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM.

WHEN REQUIRED?

WHERE REQUIRED?

REVIEW TESTING PLAN.

HAS TEST FACILITIES BEEN APPROVED?

SAFETY

ACTIVITY HAZARD ANALYSIS APPROVED? YES ☐ NO ☐

REVIEW APPLICABLE PORTION OF EM 385-1-1.

MEETING COMMENTS

NAVY/ROICC COMMENTS DURING MEETING.

OTHER ITEMS OR REMARKS

OTHER ITEMS OR REMARKS:

QC MANAGER DATE

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
Enter Spec Section # Here	Enter Date (DD/MMM/YY)

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.	INDEX #
Enter Cnt# Here	Enter DFOW Here	Enter Sched Act ID Here	Enter Index# Here

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED _____ HOURS IN ADVANCE: YES ☐ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT

PROCEDURE COMPLIANCE

IDENTIFIY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS:

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

WORKMANSHIP

ESTABLISH LEVEL OF WORKMANSHIP.

WHERE IS WORK LOCATED?

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☐

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☐

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES.

COMMENTS:

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS:

OTHER

OTHER ITEMS OR REMARKS

QC MANAGER DATE

DEFICIENCIES AND REWORK ITEMS LIST

Contract No. and Title: Enter Contract # and Title Here

Contractor: Enter Contractor's Company Name Here

NUMBER	DATE IDENTIFIED	DESCRIPTION	CONTRACT REQUIREMENT (Spec. Section and Par. No., Drawing No. and Detail No., etc.)	ACTION TAKEN BY QC MANAGER	RESOLUTION	DATE COMPLETED

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES

PART 1 GENERAL

1.1 SUBMITTALS

SD-04 Drawings

Site Plan; GA

1.2 REQUIREMENTS

1.2.1 Site Plan

The Contractor shall prepare a site plan 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.

1.2.2 Identification of Employees

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

1.2.3 Employee Parking

Contractor employees shall park privately owned vehicles in an area designated by the Contracting Officer. This area will be within reasonable walking distance of the construction site. Contractor employee parking shall not interfere with existing and established parking requirements of the Port's installation. The Port View Park shall not be used for Contractor personnel parking.

1.3 AVAILABILITY AND USE OF UTILITY SERVICES

1.3.1 Payment for Utility Services

The Contractor must provide all required utilities. The amount of each utility service consumed shall be paid for by the Contractor.

1.3.2 Meters and Temporary Connections

The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall provide and maintain necessary temporary

connections, distribution lines, meters, and meter bases required to measure the amount of each utility used for the purpose of determining charges.

1.3.3 Sanitation

The Contractor shall provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer. Government toilet facilities will not be available to Contractor's personnel.

1.3.4 Telephone

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

1.4 BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.4.1 Bulletin Board

Immediately upon beginning of work, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Contracting Officer. The bulletin board shall be located at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer. Legible copies of the aforementioned data shall be displayed until work is completed. Upon completion of work the bulletin board shall be removed by and remain the property of the Contractor.

1.4.2 Project and Safety Signs

The requirements for the signs, their content, and location shall be as indicated in section 01005 SUPPLEMENTARY CONDITION. The signs shall be erected within 15 days after receipt of the notice to proceed. The data required by the safety sign shall be corrected daily, with light colored metallic or non-metallic numerals. Upon completion of the project, the signs shall be removed from the site.

1.5 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the 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.

1.5.1 Haul and Access Roads

The Contractor shall use the designated haul and access roads shown on the plans for the work under this contract. Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic in accordance with the Port of Oakland's guidelines.

1.5.2 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.

1.6 CONTRACTOR'S TEMPORARY FACILITIES

1.6.1 Administrative Field Offices

The Contractor shall provide and maintain administrative field office facilities within the construction area at the designated site shown on the plans. Other government office and warehouse facilities will not be available to the Contractor's personnel without prior authorization.

1.6.2 Storage Area

Trailers, materials, or equipment shall not be placed or stored outside the existing fenced area of the designated laydown area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Contracting Officer away from the vicinity of the construction site but within the Port's boundaries. Trailers, equipment, or materials shall not be open to public view with the exception of those items which are in support of ongoing work on any given day. Materials shall not be stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment, shall be parked within the fenced area at the end of each work day. The designated Contractor laydown area is limited and the Contractor is advised to coordinated material deliveries accordingly.

~~1.6.3 Supplemental Storage Area~~

~~Upon Contractor's request, the Contracting Officer will designate another or supplemental area for the Contractor's use and storage of trailers, equipment, and materials. This area may not be in close proximity of the construction site but shall be within the Port's boundaries. Fencing of materials or equipment will not be required at this site; however, the Contractor shall be responsible for cleanliness and orderliness of the area used and for the security of any material or equipment stored in this area. Utilities will not be provided to this area by the Government.~~

1.6.3 Appearance of Trailers

Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on the Port's property.

1.6.4 Maintenance of Storage Area

Fencing shall be kept in a state of good repair and proper alignment. Grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers shall be edged or trimmed neatly.

1.6.5 Security Provisions

Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security of its own equipment; in addition, the Contractor shall notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

1.7 GOVERNMENT FIELD OFFICE

1.7.1 Resident Engineer's Office

The Contractor shall provide and maintain 1000-sq. ft. of secure field office space ashore for exclusive use of Government personnel; including a separate conference room, within the Contractor ~~laydown~~staging area shown on the plans. The Contractor shall provide and maintain this office space as an optional bid item. This space shall be separate from and not adjacent to the Contractor's office; and have locking doors with six (6) sets of keys. As an alternative to providing the Government field office, the Contractor is encouraged to lease available office space from the Port of Oakland for Government use. Such office shall be furnished in advance of the time when work is expected to begin. The Contractor shall coordinate with the Port of Oakland. The office space shall be equipped with ceiling lights and switches, smoke alarm, heat and ventilation, air-conditioning, lockable doors, fire extinguishers as required by Federal, State and local laws, first-aid kit, and an adequate number of phone lines and electrical outlets for six (6) desk lamps, six (6) desk telephones and six (6) desk top computers and other standard office equipment. The office space shall also be equipped with a toilet facility, wash facility and potable water service system. The office shall be conveniently located to Middle Harbor and/or as directed by the Contracting Officer. If located outside the staging area, the field office shall be provided with a secure area and/or within a fenced compound (may be within the Contractor's work/storage area if fenced) providing parking for at least six vehicles. The secure area shall be of sufficient size to permit ease in the parking of vehicles. All fences shall be a minimum of six feet in height, chain-link, plus a one-foot top guard of 3 strands of barbed wire and with a 10-foot wide lockable vehicular gate. The Contractor shall provide exterior security night lighting for the field office and parking area.

1.7.2 Furnishings

The Contractor shall furnish the office with six (6) lockable office desks, and six (6) desk chairs, one (1) conference table, eight (8) conference chairs, six (6) desk telephones, six (6) desk lamps, seven (7) waste receptacles, one (1) coat rack, four (4) each 4-drawer file cabinets, one (1) microwave oven, one (1) apartment size refrigerator, one (1) fax machine, and one (1) copy machine.

1.7.3 Utilities

The Contractor shall provide such electric power, telephone service, T1 computer lines, water and other utility connections as required to service the field office. The minimum drinking water requirements shall be a hot and cold water cooler with a 5 gallon capacity of bottled potable water in the field office. The Contractor prior to occupancy shall fill the cooler by the Government. The Contractor shall replenish the drinking water supply as needed for the duration of the contract. Janitorial services to keep the field office clean shall be provided by the Contractor at not less than weekly intervals; and such costs, including the cost of janitorial service including bathroom supplies (toilet paper, paper towels), water, garbage, natural gas and electricity (including installation and removal), fax and copy machine service including supplies (toner and copy paper)and repair shall be paid for by the Contractor.

1.8 PLANT COMMUNICATION

Whenever the Contractor has the individual elements of its plant so located that operation by normal voice between these elements is not satisfactory, the Contractor shall install a satisfactory means of communication, such as telephone or other suitable devices. The devices shall be made available for use by Government personnel.

1.9 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, the Contractor shall furnish and erect temporary project safety fencing at the work site. The safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 42 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers, constructed at the approved location. The safety fencing shall be maintained by the Contractor during the life of the contract and, upon completion and acceptance of the work, shall become the property of the Contractor and shall be removed from the work site.

1.10 CLEANUP

Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

1.11 RESTORATION OF STORAGE AREA

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

-- End of Section --

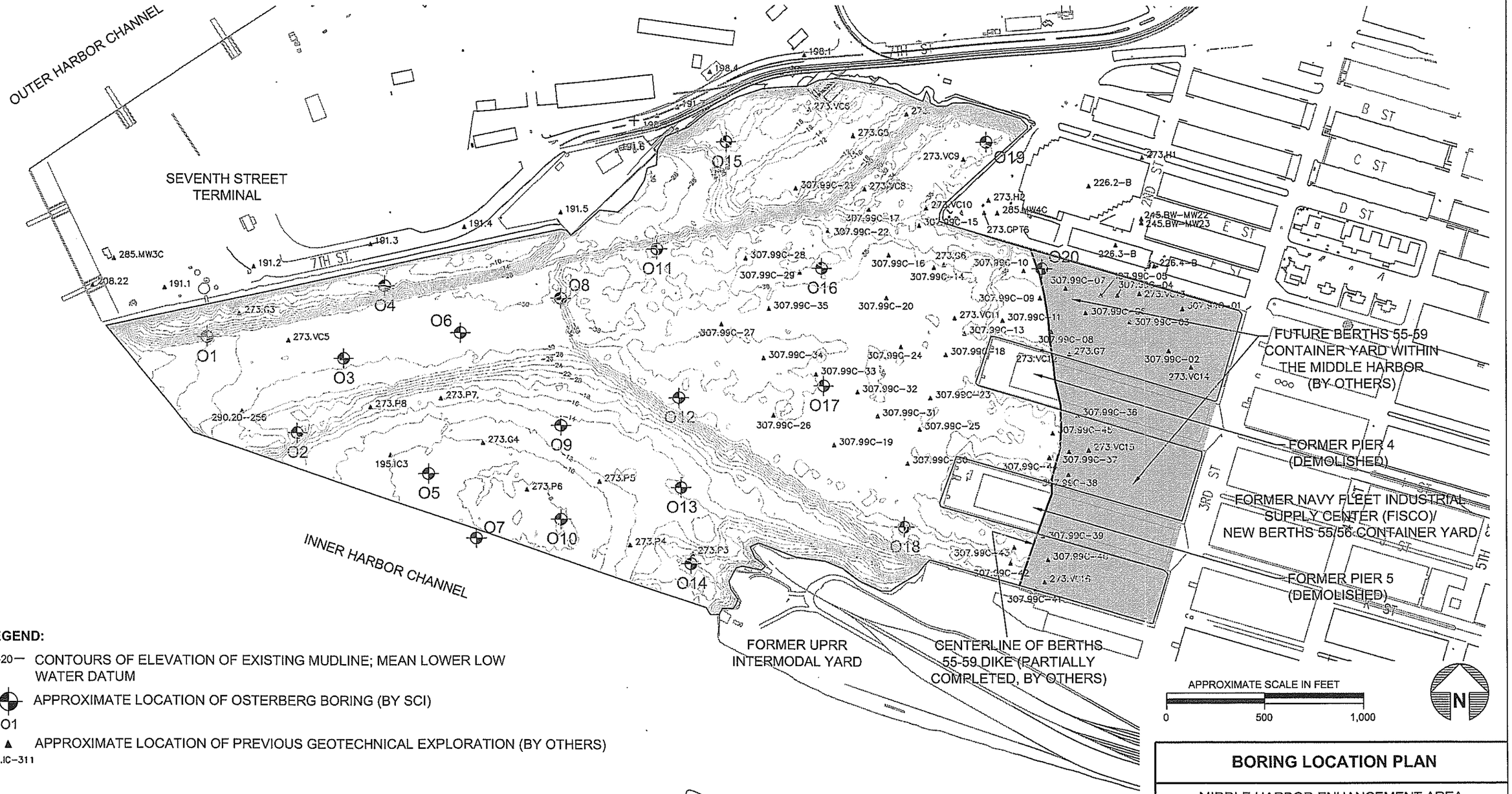
MHEA BORING DATA APPENDIX

The following appendix contains boring information for the Middle Harbor Enhancement Area (MHEA):

Boring Location Plan
Boring 01 Data
Boring 02 Data
Boring 05 Data
Boring 07 Data
Boring 10 Data
Boring 14 Data

This information furnished to the bidders/contractors is for information only. The bidders/contractors shall rely on their own investigations to determine the nature and character of materials in performance of the work.

The bidders/contractors shall refer to FAR clauses 52.236-4 PHYSICAL DATA (APR 1984) and 52.236-3 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (APR 1984) contained in this solicitation for use of this furnished data.



LEGEND:

—20— CONTOURS OF ELEVATION OF EXISTING MUDLINE; MEAN LOWER LOW WATER DATUM

O1 APPROXIMATE LOCATION OF OSTERBERG BORING (BY SCI)

▲ APPROXIMATE LOCATION OF PREVIOUS GEOTECHNICAL EXPLORATION (BY OTHERS)

266.IC–311

NOTES:

1. CONTOURS OF EXISTING MUDLINE WERE TAKEN FROM A BATHYMETRIC DRAWING FROM THE PORT OF OAKLAND TITLED BATH3.DWG, DATED APRIL 1999, AND REPRESENT THE MOST RECENT BATHYMETRY AVAILABLE AT THE TIME OF THE PREPARATION OF THIS REPORT.

Reference:

1. BASEMAP PROVIDED BY WINZLER & KELLY.

BORING LOCATION PLAN

MIDDLE HARBOR ENHANCEMENT AREA
OAKLAND, CALIFORNIA

DRAWN BY:	DATE:
KLC	4/01
JOB NUMBER	FILE NUMBER:
1223.001	B1223.001.03

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

PLATE 3

Project Name & Location: Middle Harbor Enhancement Area Oakland, California	Ground Surface Elevation: -23 feet Elevation Datum: MLLW
Drilling Coordinates: N 2,120,277.0 E 6,030,274.0	Start: Date 10/11/99 Time 08:00 — Finish: Date 10/11/99 Time 08:30
Drilling Company & Driller: Pitcher Drilling, Brian	Drilling Fluid: N/A — Hole Diameter: 3"
Rig Type & Drilling Method: Barge mounted Osterberg / Piston Sampler	Logged By: GYN
Sampler Type(s): A) 3" O.D. Shelby Tube	
Sampling Method(s): A) Hydraulic Push	Backfill Method: N/A — Date:

Depth (feet)	Sampler Type	Blows/6 inches of Pressure	Blows/12 inches	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0	A					SANDY CLAY (CL) dark greenish gray 10Y4/0, very soft, wet (Recent Bay Deposits)			TV = 120
5	A					(practical refusal - San Antonio Formation?)			TV = 90
						Boring was terminated at 7 feet below mudline.			
10									
15									
20									
25									

LOG OF BORING 122..PJ GEO-ENV.GDT 4/13/01

SCI **Subsurface Consultants, Inc.**
Geotechnical & Environmental Engineers

Middle Harbor Enhancement Area
Oakland, California

JOB NUMBER 1223.001 — DATE 4/01

BORING 01

Project Name & Location: Middle Harbor Enhancement Area Oakland, California	Ground Surface Elevation: -28.5 feet Elevation Datum: MLLW
Drilling Coordinates: N 2,119,762.0 E 6,030,722.0	Start: Date 10/11/99 Time 08:50 / Finish: Date 10/11/99 Time 09:30
Drilling Company & Driller: Pitcher Drilling, Brian	Drilling Fluid: N/A / Hole Diameter: 3"
Rig Type & Drilling Method: Barge mounted Osterberg / Piston Sampler	
Sampler Type(s): A) 3" O.D. Shelby Tube	Logged By: GYN
Sampling Method(s): A) Hydraulic Push	Backfill Method: N/A / Date:

Depth (feet)	Sampler Type	Blows/6 inches of Pressure	Blows/12 inches	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0	A					**FAT CLAY (CH)** greenish black 10Y2.5/0, very soft, wet (Recent Bay Deposits/Young Bay Mud)			TV = 80
5	A						114.6	40	PI = 47 TV = 50 LL = 74 Consol
10	A					**FAT CLAY (CH)** greenish black 5GY2.5/0, very soft, wet (Recent Bay Deposits/Young Bay Mud)			TV = 120
15						(practical refusal - San Antonio Formation?)			
						Boring was terminated at 16 feet below mudline.			
20									
25									

LOG OF BORING 122 JPJ GEO-ENV.GDT 4/13/01

Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

Middle Harbor Enhancement Area
Oakland, California

JOB NUMBER 1223.001 | DATE 4/01

BORING 02

Project Name & Location: Middle Harbor Enhancement Area Oakland, California	Ground Surface Elevation: -8.5 feet Elevation Datum: MLLW
Drilling Coordinates: N 2,119,557.0 E 6,031,384.0	Start: Date 10/11/99 Time 10:00 / Finish: Date 10/11/99 Time 10:40
Drilling Company & Driller: Pitcher Drilling, Brian	Drilling Fluid: N/A / Hole Diameter: 3"
Rig Type & Drilling Method: Barge mounted Osterberg / Piston Sampler	
Sampler Type(s): A) 3" O.D. Shelby Tube	Logged By: GYN
Sampling Method(s): A) Hydraulic Push	Backfill Method: N/A / Date:

Depth (feet)	Sampler Type	Blows/6 inches of Pressure	Blows/12 inches	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0	A					FAT CLAY (CH) greenish black 10Y2.5/0, very soft, wet (Recent Bay Deposits/Young Bay Mud)	130.4	37	TV = 40 PI = 37 LL = 65 Consol
5	A								TV = 80
10	A								TV = 60
15	A								TV = 80
						(practical refusal - San Antonio Formation?) Boring was terminated at 18 feet below mudline.			
20									
25									

LOG OF BORING 12.PJ GEO-ENV.GDT 4/13/01

SCI Subsurface Consultants, Inc.
Geotechnical & Environmental Engineers

Middle Harbor Enhancement Area
Oakland, California

JOB NUMBER 1223.001 | DATE 4/01

BORING 05

Project Name & Location: Middle Harbor Enhancement Area Oakland, California	Ground Surface Elevation: -7.5 feet Elevation Datum: MLLW
Drilling Coordinates: N 2,119,208.0 E 6,031,642.0	Start: Date 10/12/99 Time 07:40 / Finish: Date 10/12/99 Time 08:10
Drilling Company & Driller: Pitcher Drilling, Brian	Drilling Fluid: N/A / Hole Diameter: 3"
Rig Type & Drilling Method: Barge mounted Osterberg / Piston Sampler	
Sampler Type(s): A) 3" O.D. Shelby Tube	Logged By: GYN
Sampling Method(s): A) Hydraulic Push	Backfill Method: N/A / Date:

Depth (feet)	Sampler Type	Blows/6 inches of Pressure	Blows/12 inches	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0	A					**FAT CLAY (CH)** greenish black 5GY2.5/0, very soft, wet, (Recent Bay Deposits)	117.1	44	TV = 100 PI = 39 LL = 67 Consol
5	A					**FAT CLAY (CH)** greenish black 10Y2.5/0, very soft, wet, (Recent Bay Deposits/Young Bay Mud)			TV = 100
10	A					**FAT CLAY WITH SAND (CH)** dark greenish gray 10Y3/0, very soft, wet, shells present at 13 feet (Recent Bay Deposits/Young Bay Mud)			
15						(practical refusal - San Antonio Formation?) Boring was terminated at 14 feet below mudline.			
20									
25									

LOG OF BORING 12... .PJ GEO-ENV.GDT 4/13/01

SCI **Subsurface Consultants, Inc.**
Geotechnical & Environmental Engineers

Middle Harbor Enhancement Area
Oakland, California

JOB NUMBER 1223.001 | DATE 4/01

BORING 07

Project Name & Location: Middle Harbor Enhancement Area Oakland, California	Ground Surface Elevation: -8.5 feet Elevation Datum: MLLW
Drilling Coordinates: N 2,119,210.0 E 6,032,562.0	Start: Date 10/12/99 Time 08:30 / Finish: Date 10/12/99 Time 08:55
Drilling Company & Driller: Pitcher Drilling, Brian	Drilling Fluid: N/A / Hole Diameter: 3"
Rig Type & Drilling Method: Barge mounted Osterberg / Piston Sampler	
Sampler Type(s): A) 3" O.D. Shelby Tube	Logged By: GYN
Sampling Method(s): A) Hydraulic Push	Backfill Method: N/A / Date:

Depth (feet)	Sampler Type	Blows/6 inches of Pressure	Blows/12 inches	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0	A					**FAT CLAY (CH)** greenish black 5GY2.5/0, very soft, wet (Recent Bay Deposits/Young Bay Mud)			TV = 60
5									
	A					**FAT CLAY (CH)** greenish black 5GY2.5/0, very soft, wet (Recent Bay Deposits/Young Bay Mud)			TV = 120
10									
15	A						82.9	54	TV = 80
						POORLY GRADED SAND (SP) greenish brown 10Y4/0, medium dense, wet (San Antonio Formation) Boring was terminated at 17 feet below mudline.			
20									
25									

LOG OF BORING 1223-JJ GEO-ENV.GDT 4/13/01

SCI **Subsurface Consultants, Inc.**
Geotechnical & Environmental Engineers

Middle Harbor Enhancement Area
Oakland, California

JOB NUMBER 1223.001 | DATE 4/01

BORING **O10**

Project Name & Location: Middle Harbor Enhancement Area Oakland, California	Ground Surface Elevation: -6.5 feet Elevation Datum: MLLW
Drilling Coordinates: N 2,119,096.0 E 6,032,732.0	Start: Date 10/12/99 Time 09:25 / Finish: Date 10/12/99 Time 00:00
Drilling Company & Driller: Pitcher Drilling, Brian	Drilling Fluid: N/A / Hole Diameter: 3"
Rig Type & Drilling Method: Barge mounted Osterberg / Piston Sampler	
Sampler Type(s): A) 3" O.D. Shelby Tube	Logged By: GYN
Sampling Method(s): A) Hydraulic Push	Backfill Method: N/A / Date:

Depth (feet)	Sampler Type	Blows/6 inches of Pressure	Blows/12 inches	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0	A					**FAT CLAY (CH)** dark greenish gray 5GY3/0, very soft to soft, wet, shells present between -6.5 and -9.5 feet (Recent Bay Mud)			TV = 120 Deposits/Young Bay
5	A					**SILTY SAND (SM)** dark greenish gray 10Y3/0, medium dense, wet, shells present (San Antonio Formation) Boring was terminated at 8 feet below mudline.			
10									
15									
20									
25									

LOG OF BORING 1223.GPJ GEO-ENV.GDT 4/13/01

SCI **Subsurface Consultants, Inc.**
Geotechnical & Environmental Engineers

Middle Harbor Enhancement Area
Oakland, California

JOB NUMBER 1223.001 | DATE 4/01

BORING **O14**

02230

STONE AND RIPRAP

PART 1 GENERAL

1.1 SCOPE

The work under this section consists of furnishing all labor, materials, appliances, tools equipment, transportation, services and supervision for the installation of stone, categorized as follows:

a. 4000 lb. Riprap

b. 500 lb. Riprap

c. Bedding Material

d. Rock fill

1.2 REFERENCES

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 88	(1990) Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C 127	(1988; R 1993) Specific Gravity and Absorption of Course Aggregate
ASTM C 131	(1989) Resistance to degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	(1984a) Sieve Analysis of Fine and Coarse Aggregate
ASTM C 295	(1990) Petrographic Examination of Aggregate for Concrete
ASTM C 535	(1989) Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM D 75	(1987; R 1992) Sampling Aggregates
ASTM D 1141	(1998) Standard Practice for Substitute Ocean Water

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation;

submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Schedules

Stone Work Plan and Schedule; GA

The Contractor shall submit a stone work plan and schedule that describes equipment, quarry operations, loading/unloading, transportation and placement methods and sequences planned to be used in stone placement. This plan and schedule shall be provided for review by the Contracting Officer prior to shipment of stone. Schedule shall be updated monthly to reflect work completed and schedule for work yet remaining. The contractor shall not commence stonework until plan and schedule have been reviewed by the Contracting Officer and incorporated into the overall construction and progress schedule. A list of all major pieces of equipment that are to be used for performing the stone work shall be submitted for the Contracting Officer's review. The Contractor's method of placing each stone type and proposed positioning system to insure placement within the design template and in accordance with all specifications herein shall be submitted for review and approval by the Contracting Officer. The Contractor's proposed method of placing stone in order to displace mud will be submitted for the Contracting Officer's review.

SD-09 Reports

Stone Test Data; GA

The Contractor shall submit for review by the Contracting Officer test data to demonstrate stone materials to be provided for work complies with Specifications. Evidence of conformance to the referenced standards shall be submitted for the following materials:

a. 4000 lb. Riprap

b. 500 lb. Riprap

c. Bedding Material

d. Rock fill

Gradation Tests; GA

The Contractor shall submit all gradation test reports and records as described in Paragraphs 3.4.4 GRADATION TESTS FOR STONE.

Evaluation Tests; GA

Quality tests on the stone in accordance with Paragraph 2.3 QUALITY COMPLIANCE TESTING shall be the responsibility of the Contractor. Thirty days 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.

1.4 MEASUREMENT AND PAYMENT

1.4.1 Payment

Payment for Rock Fill, Bedding Material and Riprap stone will be made at the applicable contract unit prices for Rock Fill, Bedding Material and Riprap stone. Price(s) and payment(s) shall include all costs of furnishing, hauling, placing and maintaining the Bedding material and/or Rock Fill material until placement of the Riprap cover is completed and accepted. No payment will be made for excess thickness of Rock Fill, Bedding Material and Riprap stone. No payment will be made for stone required to replace Rock Fill lost to erosion or wave action during Bedding Material and Riprap placement after Rock Fill has been accepted by the Contracting Officer.

1.4.2 Measurement

All stone will be measured for payment by the ton as determined by barge displacement.

1.4.2.1 Barge Load

All stone will be measured for payment by the Contracting Officer by weight determined by barge displacement. The Contractor shall furnish the Contracting Officer a barge displacement table not less than 10 work days prior to unloading the stone from any barge. Each table submitted shall show the name and/or number of the barge owner, the name of the fabricator, and the certification and date of certification of the person or firm preparing the table. All barge displacement tables shall be prepared for measuring barges displacing salt water. The Contractor shall furnish with the barge displacement tables a drawing or sketch of each barge, dimensioned in sufficient detail to permit checking of the tables. The drawings shall show, as a minimum, the length, width, depth of the barge, and dimensions of the rake or rakes. Each such table shall have its accuracy certified by a person or firm, other than the Contractor, customarily performing this service. Each table submitted shall contain, in parallel columns, the freeboard of the barge in feet and tenths from zero to the full depth of the barge and the corresponding gross displacement to the nearest ton. Each barge shall be suitably marked with two displacement-gaging locations on each side near each end of the barge. Each gaging location shall be marked by a line perpendicular to the edge of the barge, 4 inches wide and 1 foot long, on both the deck and side of the barge. Barges with rakes shall have the displacement gaging lines placed at each corner of the box section between the rakes. If a barge has a box end or ends, the gaging locations shall be placed approximately 4 feet from the box end(s). The freeboard will be measured at the four gaging locations and the displacement determined by the use of "STANDARD BARGE TABLES" from the average of these measurements. The displacement will be determined before and after being unloaded and the difference between these values shall be the quantity delivered. Barges shall be loaded so that the readings taken at the gaging locations do not vary more than 1.5 feet port to starboard. If such is not the case, the Contractor shall trim the carrier by shifting the stone until this limit is reached, before the measurement will be accepted. The draft shall be determined from the average of all four readings. All carriers used in transporting stone shall be free of leaks such as would render accurate gauging difficult. Facilities for inspecting the hold of each carrier to determine whether leakage is occurring shall be provided. Each carrier shall also be provided with adequate pumping facilities, and if water is found to be

accumulating in the hold, the carrier shall be pumped dry before each gaging, both before and after unloading. Lightening by pumping or by transfer of crew or supplies will not be permitted while stone is being transferred. Rejected stone and unacceptable material shall be left aboard the barge until after the final readings have been taken. All Barge Load measurements shall be made in the presence of the Contracting Officer.

1.4.2.2 Determination of Excess Stone

All stone outside the limits and tolerances of the cross sections of the structure, except variations so minor as not to be measurable, will be deducted from the quantity of new stone for which payment is to be made. Only the stone that is above the post-displacement mudline will be measured for compliance with Paragraph 1.6 CONSTRUCTION TOLERANCES. Weight of excess stone will be determined from the cross sections obtained by the method provided for in Paragraph 1.4.2.4 SURVEYS, on the basis that the cubic yard of volume (including voids) for each type of stone, as listed in the Table in Paragraph 1.5.1 FACTORS USED FOR CONVERTING IN PLACE VOLUME TO WEIGHT, is equal to one ton or 2,000 pounds for the bulk specific gravity and percentage of voids shown. If the bulk specific gravity of the stone furnished or the percentage of voids is other than as listed below, the cubic yard of volume equaling 2,000 pounds shall be recomputed as described in Paragraph 1.5.1.1 REVISIONS OF BIDDING SCHEDULE QUANTITIES. Should any excess stone be disclosed above the tolerance line as defined in Paragraph 1.6 CONSTRUCTION TOLERANCES, its volume will be computed by the average end area method, based upon the cross section in the following manner. The average end area of excess stone above the tolerance line for two (2) successive cross sections, multiplied by the distance between the cross sections will be accepted as the volume. The Contractor may not be required to remove such excess stone but deductions for the weights thereof will be made from contract payments for new stone. In addition to the above, stone, which has been delivered to the site and has been lost or wasted or otherwise not properly incorporated into the final required work, shall be deducted from the quantity for which payment is to be made.

1.4.2.3 Stone Lost to Displacing Mud

The Contract shall be required to submit an operation plan that delineates his/her means and methods of displacing mud and placing Rock Fill, Bedding Material and Riprap within the lines and grades shown on the drawings. The Contractor shall provide daily QC reports describing all Rock Fill, Bedding Material and Riprap placement barge and scow locations and activates during placement. Sample Contractor daily QC reports shall be submitted prior to the start of work for review and approval by the Contracting Officer. The Contractor will be paid for any Rock Fill and Bedding Material placed inside the design template that migrates into any resulting mud wave as shown by the Contractors daily QC reports, upon review and approval by the Contracting Officer. Stone placed outside of the design template will be considered misplaced material per Paragraph 3.1.3 MISPLACED MATERIAL or as excess stone as described by Paragraph 1.4.2.2 DETERMINATION OF EXCESS STONE. All Riprap migrating outside of the design template, regardless of how and where placed, will not be paid for, and will be considered misplaced material and/or excess stone.

1.4.2.4 Surveys

Survey work to establish compliance with the contract drawings and to provide measurements required for determination of excess volume computations for stone materials shall be performed by the Contractor's

independent and licensed third party surveyor in the presence of the Contracting Officer before and at the completion of each stone element placement for Rock Fill, Bedding material and Riprap. ~~At a minimum, surveys shall include Class I Hydrographic Surveys per the Hydrographic Survey Manual, 2002 (EM 1110-2-1003).~~ Hydrographic Surveys shall be performed in accordance with Section 01360 HYDROGRAPHIC SURVEYS." Delete the 5th, 6th, 7th, 8th, and 9th sentences. The Contracting Officer may also require the Contractor to employ divers, take probings and/or employ other approved methods to distinguish mud from stone. Post-placement surveys of previous stone placement elements shall be the basis of proceeding to the subsequent stone element. The Contractor shall notify the Contracting Officer not less than 3 days in advance of each survey. In the event of unavailability of the Contracting Officer, the Contractor shall perform the survey and certify to the Contracting Officer that it complies with the specifications. Cross section surveys shall be taken perpendicular to the axis of the structures. Elevations and soundings shall be taken on lines 50 feet apart measuring along the structure reference line, plus a longitudinal centerline profile, with readings at 5-foot intervals and at breaks in the grade along the line. Other survey intervals and readings may be used if deemed appropriate or advisable by the Government's on-site representative and having once been made, will not reopen, except on evidence of collusion, fraud or obvious error. Prior to performing any work under this Section, the Contractor shall coordinate all operations with the Government's on-site representative so that surveys will be made at the appropriate time. Stone quantity computations shall be based entirely upon weights of new stone as determined from carrier displacement.

1.4.2.5 Unit of Measure

Unit of measure: ton.

1.4.2.6 Continuous Draft Measurements

The Contractor shall provide continuous draft measurements of the stone barges. Each delivered barge shall be instrumented with transducer equipment to continuously record barge draft values at 15 minute intervals (minimum) throughout the loading, transport and unloading cycles. Resultant electronic draft values shall be provide to the Contracting Officer Representative (COR) on a weekly basis.

1.5 DESIGN REQUIREMENTS

1.5.1 Factors Used for Converting In-Place Volume to Weights

The following factors were used in converting the in-place volume to the quantities shown in the BIDDING SCHEDULE.

STONE MATERIAL	BULK SPECIFIC GRAVITY (SSD)	PERCENT VOIDS	TONS PER CUBIC YARD INCLUDING COMPENSATION FOR VOIDS (For Excess Quantity Calculations)
Rock Fill	2.5	30	1.47
Bedding Material	2.6	30	1.53
Riprap	2.6	30	1.53

STONE MATERIAL	BULK SPECIFIC GRAVITY (SSD)	PERCENT VOIDS	TONS PER CUBIC YARD INCLUDING COMPENSATION FOR VOIDS (For Excess Quantity Calculations)

1.5.1.1 Revision of Bidding Schedule Quantities

The estimated quantities of stone listed in the BIDDING SCHEDULE were computed on the basis of stone having a percentage of voids and a bulk specific gravity (saturated surface dry (SSD) basis) as shown in the above table based on water having a unit weight of 62.4 pounds per cubic foot. When the bulk specific gravity (SSD) of the stone to be used in the work is greater than that shown in the above table, the estimated quantities will be recalculated based on the bulk specific gravity (SSD) of the stone furnished and maintaining the value shown in the above table for the percentage of voids. The Contracting Officer will issue a modification to the contract in accordance with the Contract Clause, CHANGES, in Section 0700 CONTRACT CLAUSES to adjust the estimated quantities in the BIDDING SCHEDULE. The revised quantities will then be the quantities from which the allowable fifteen percent (15%) variation in estimated quantity, for payment purposes, will be determined as defined in Contract Clause, VARIATION IN ESTIMATED QUANTITES, in Section 00700 CONTRACT CLAUSES.

1.6 CONSTRUCTION TOLERANCES

The finished surface and stone layer thickness shall not deviate from the lines and grades shown by more than the tolerances listed below. Tolerances are measured perpendicular to the indicated neatlines. Extreme limits of the tolerances given shall not be continuous in any direction for more than five (5) times the nominal stone dimensions nor for an area greater than 200 square feet of the structure surface.

NEATLINE TOLERANCES

STONE	ABOVE NEATLINE (Inches)	BELOW NEATLINE (Inches)
Rock Fill	12	12
Bedding Material	12	12
Riprap	12	12

The intention is that the work shall be built generally to the required elevations, slope and grade and that the outer surfaces shall be even. Placed material not meeting these limits shall be removed or reworked as directed by the Contracting Officer. Payment will not be made for excess material that the Contracting Officer permits to remain in place.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Definitions

a. Riprap. Stone that is quarried and obtained from bedrock deposits and is angular in shape. Riprap shall be durable stones for crest and slope protection of a suitable quality to insure permanence in the levee structure and in the climate in which it is to be used.

Stone shall be free from laminations, open fractures, open joints, weak cleavages or undesirable weathering, and be of such character that it will not disintegrate from the action of the water or the conditions to be met in handling and placing.

b. Bedding Material. Stone that is quarried and obtained from bedrock deposits and is angular in shape (not rounded or sub-rounded river run). Bedding Material shall be durable stones for Riprap underlayment and slope protection of a suitable quality to insure permanence in the levee structure and in the climate in which it is to be used. Stone shall be free from laminations, open fractures, open joints, weak cleavages or undesirable weathering, and be of such character that it will not disintegrate from the action of the water or the conditions to be met in handling and placing.

c. Rock Fill. Stone that is quarried and obtained from bedrock deposits and is angular in shape (not rounded or sub-rounded river run). Each load of stone shall have uniform grading from fine to coarse particles to achieve the lines and grades on the drawings. The intent of the design is to use well-graded Rock Fill stone to retain fine-grained dredged materials placed behind the jetty structures.

2.1.2 General

The Contractor shall make all arrangements, pay all royalties, and secure all permits for the procurement, furnishing and transporting of stone. The Contractor shall vary the quarrying, processing, loading and placing operations to produce the sizes and quality of stone specified. If the stone being furnished by the Contractor does not fully meet all the requirements of these specifications, the Contractor shall furnish, at no additional cost to the Government, other stone meeting the requirement of those specifications.

2.2 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. 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.

2.2.1 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.

2.2.2 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 2.3 QUALITY COMPLIANCE

TESTING. In special cases, however, the Contracting Officer may elect to use either past Corps of Engineers test results or a combination of service records along with Corps approved test results from other agencies or private laboratories that have been inspected and approved by the SPD Laboratory or the Contracting Officer. 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.

2.3 QUALITY COMPLIANCE TESTING

2.3.1 Samples

If the Contractor proposes to furnish stone form a source that has not been tested in 10 years, or for which there are no service records as defined in Paragraph 2.2.2 SOURCE DOCUMENTATION, that Contractor shall have evaluation tests performed on stone samples collected form the proposed source. Samples of stone from a proposed source shall be taken at the quarry by the Contracting Officer's Representative, the Superintendent of the quarry, the Contractor and a geologist from the San Francisco District. The samples shall consist of at least 250 pounds of stone. The quarry faces and the stockpiles to be used shall be examined and sampled. The Contractor will then ship the samples at the Contractor's expense to a licensed testing laboratory that has been approved by the Contracting Officer's Representative. The laboratory will be under the direct supervision of a state licensed Civil Engineer, Geotechnical Engineer, Geologist or Engineering Geologist. The results of the tests shall be delivered to the Contracting Officer's Representative as soon as they are received from the laboratory.

2.4 STONE QUALITY

Stone shall meet the following test requirements.

TEST	TEST METHOD	REQUIREMENT
Specific Gravity (Bulk SSD) Rock Fill	ASTM C 127	(2.50) minimum
Specific Gravity Bedding Material, 4,000 lb. Riprap, 500 lb. Riprap	ASTM C 127	(2.60) minimum
Absorption	ASTM C 127	(2.0%) maximum
Wetting and Drying	SPD Test Procedure(1)	No fracturing(3)
Sulfate Soundness	ASTM C 88(2)	(10%) max. loss(4)
Abrasion Loss	ASTM C 131, ASTM C 535	(50%) max. loss

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 (5). The stone must not contain any expansive clays.

NOTE: (1): Test procedure wetting-and-drying tests. The initial step of the test is the careful examination of the entire sample and the selection of representative test specimens. The piece should be large enough to produce two cut slabs, 1 inch thick (± ¼ inch) with a minimum surface area

of 30 square inches on one side. Two chunks approximately 3 by 4 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 8 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 subjected to 15 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 16 hours at room temperature and then drying in an oven for 8 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 matrix material and any other evidence of weakness developing in the stone. The cycle in which any of these actions occurs is recorded. After 15 cycles, the slabs and chunks are again carefully examined and all changes in the stones are noted and recorded. The test specimens together with all flakes or particles which come off during the test are oven dried, weighed and photographed.

NOTE: (2): 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): Test procedure for Petrographic and X-Ray Diffraction is performed according to ASTM C 295, except for the following:

a. A colored microscope photograph shall be made of each stone type (whether igneous, sedimentary and/or metamorphic) and the individual minerals within the stone type 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 the entire 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 Riprap stone based on the Petrographic and X-ray tests and the abrasion loss (L.A. Rattler) shall be presented in the final laboratory report on stone quality.

2.5 SHAPE

All new Riprap and Bedding Material shall be angular quarried material with a shape that assures interlocking with adjacent stone.

2.6 STONE ACCEPTANCE

Prior to placement, all stone shall be subject to acceptance by the Contracting Officer's Representative. Acceptance of any stone shall not

constitute acceptance of all stone from a source. All accepted stone shall be:

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;

d. clean and free from earth, clay, refuse, or adherent coatings;

e. angular quarried material with a shape that assures interlocking with adjacent stone, and with the greatest dimension of each piece not greater than 3 times the least dimension.

2.7 REJECTED STONE

Stone of unsuitable quality and/or size distribution as required by these specifications will be rejected and shall be promptly removed from the project at no expense to the Government. Any portions of the work covered by these specifications containing rejected stone will be considered incomplete.

2.8 STONE GRADATION

The gradation of the stone shall be as follows:

4000 lbs. Riprap

Riprap Stone Weight (lb.)	Cumulative % Larger
6000	0 - 5
4000	50 - 100
1000	75 - 100
500	90 - 100

500 lbs. Riprap

Riprap Stone Weight (lb.)	Cumulative % Smaller
1000	95 - 100
500	50 - 80
250	25 - 60
100	0 - 25

Bedding Material

Bedding Material Stone Weight (lb.)	Cumulative % Smaller
500	95 - 100
250	30 - 60
125	0 - 30

Rock Fill

Rock Fill Stone Weight (lb.)	Cumulative % Smaller
200	90 - 100
160	80 - 90
50	50% maximum
N.M. (#4 sieve)	5 - 15

PART 3 EXECUTION

3.1 PLACEMENT

3.1.1 General

Except as otherwise specified, the limits of the stone in place shall follow with reasonable variation the indicated lines and slopes without continuous under or over building and shall be in accordance with Paragraph 1.6 CONSTRUCTION TOLERANCES. Surveyed sections shall be taken at adequate intervals, as determined by the Contracting Officer, to accurately delineate the surfaces of the jetty. The stonework shall be finished smooth to a surface even with the existing work. For all stonework, the Contractor shall submit the method of placement and equipment positioning systems to the Contracting Officer for approval before commencement of placing operations. Each load of stone arriving at the site from the quarry shall be well graded per Paragraph 2.8 STONE GRADATION and will be subject to approval by the Contracting Officer. Deliveries of Riprap, Bedding Material and Rock Fill, which in the judgment of the Contracting Officer, do not meet specifications shall be held for testing before their acceptance will be granted.

3.1.2 Tolerances

Stonework shall be carried to lines and grades shown on the Drawings, and tolerances as specified in Paragraph 1.6 CONSTRUCTION TOLERANCES, and as directed by the Contracting Officer. Final surface of each finished course shall follow with reasonable variation the indicated lines and grades without continuous under or overbuilding. The Contracting Officer may change lines and grades shown on Drawings. If changes increase or decrease the quantity of stone to be placed, revised quantities shall be used as basis of payment under unit price for the stonework element involved.

3.1.3 Misplaced Material

Any material that escapes or is lost at any time while loading, transporting or placing stone, or which is deposited other than in area designated on the Drawings, or change approved in writing by Contracting Officer, shall be removed and redeposited where directed by the Contracting Officer, at Contractor's expense.

3.1.4 Misplaced Equipment

Should Contractor (during process of work) lose, dump, throw overboard, sink, or misplace any material, plant machinery or appliance that may be dangerous to, or interfere with uses of waterway, or cause pollution of waters, Contractor shall give immediate notice to Contracting Officer, with description and location of such obstructions. When required, Contractor shall mark, boom, or buoy such obstructions until they are removed. Should Contractor refuse, neglect or delay compliance with above requirements, the

cost of such removal may be deducted from any money due or to become due to Contractor.

3.1.5 Sequence of Rock Fill Placement

Rock Fill shall be placed in minimum 6' and maximum 10' lifts. Each lift will be completed along the entire jetty length before subsequent lifts are placed. ~~Rock Fill shall be placed in one uninterrupted operation between Stations 1+57 to 10+43 and 29+10 to 36+50 taken at crest of Rock Fill to the lines and grades for Rock Fill as shown on the Contract Drawings.~~The Rock Fill lifts shall be placed between Station 1+57 to 10+43 and 29+10 to 36+50 (as measured at the crest of Rock Fill) to obtain the lines and grades shown for Rock Fill on the contract drawings, before any other stone material (bedding or riprap) is placed. Surveys shall be conducted in accordance with Paragraph 1.4.2.4 SURVEYS to verify that the stone has been placed to lines and grades. The terms and conditions of Paragraph 1.4.2.2 DETERMINATION OF EXCESS STONE will apply. Following completion of the Rock Fill placement, the Contractor shall wait 6 months or after the entire sheet pile wall is constructed and accepted, whichever occurs later. Surveys will then be conducted to assess the amount of Rock Fill settlement, if any. The Contractor shall then place more Rock Fill, as required, to bring the entire length of jetty to the lines and grades as shown on the drawings, including those areas to be tied-in with the sheet pile wall as described in Paragraph 3.18 TIE-IN WITH SHEET PILE WALL. The Rock Fill portion of the jetty will then be surveyed in accordance with Paragraph 1.4.2.4 SURVEYS and accepted finally by the Contracting Officer before either Bedding Material or 500 Lb. Riprap is placed. The Contractor shall be paid for all Rock Fill placed before final acceptance in accordance with Paragraph 1.4 MEASUREMENT AND PAYMENT and associated subparagraphs.

3.1.6 Maintenance of Rock Fill

Exposed Rock Fill surfaces are vulnerable to damage until all Rock Fill lifts have been placed, Bedding Material and/or Riprap is in place and jetty has been accepted. Contractor shall be responsible for care and maintenance of Rock Fill slopes after acceptance of Rock Fill to lines and grades and until final acceptance by the Contracting Officer (of the entire jetty, including placement of Bedding Material, 500 lb. Riprap and 4000 lb. Riprap). Damage to Rock Fill slopes due to any cause after final acceptance in accordance with Paragraph 3.1.5 SEQUENCE OF ROCK FILL PLACEMENT and before acceptance of entire jetty shall be repaired, at Contractor's expense.

3.1.7 Mud Displacement

At each station, except between Stations 10+94 and 11+73 and between Stations 28+22 and the east end of the sheet pile wall, stone shall be placed first on the outboard (southwestern) slope of the prism and then placed progressively to the inboard (northeastern)slope of the prism such as to cause any mud wave created by the stone placement to be pushed to the northeast only. For Stations 10+94 to 11+73 and 28+22 to the east end of the sheet pile wall, stone shall be placed first against either side of the sheet pile wall and then placed progressively towards the daylight line.

3.1.8 Tie-in with Sheetpile Wall

Along reaches as shown on the Drawings where the Jetty abuts and ties-in with the sheet pile wall, the wall shall be constructed first and then the

stone placed around the wall so as to completely encase the wall within the jetty lines and grades. Along the sheet pile wall the differential in height during stone placement on either side of the wall shall not be greater than 15'. Piles shall be protected from damage during Rock Fill, Bedding Material and Riprap placement.

3.1.9 Stone Replacement

Benches shall be formed in the various stone materials as shown on the Drawings to provide for retention for stone material placed above the bench. Placement shall proceed from the bottom of the slope upwards, except for Stations 10+94 to 11+73 and 28+22 to the east end of the sheet pile wall, which shall be in accordance with Paragraph 3.1.7 MUD DISPLACEMENT. Reasonable care shall be exercised to prevent stone size segregation.

3.2 RIPRAP AND BEDDING MATERIAL PLACEMENT

3.2.1 Placement

The Riprap and Bedding Material shall be placed so that a reasonably well-graded mass is produced with a minimum practicable percentage of voids. Riprap and Bedding Material shall be constructed to lines and grades indicated on Drawings. Riprap and Bedding Material shall be placed to its full course thickness in one operation and in a manner that will avoid displacing underlying layers of stone. Stone shall be allowed to fall no more than 3 feet from bottom of clam or other bucket and top surface of stonework for work within 3 feet of water level. For underwater work, where work surface is more than 5 feet below water level, maximum drop shall be 5 feet. The above notwithstanding, an otherwise allowable height using Contractor's approved placement method will not be permitted if it is shown to cause segregation of stone sizes, or breakage of individual stones. In those cases, allowable drop heights will be developed on-site, between Contracting Officer and Contractor, based on actual performance. Contractor shall maintain Riprap and Bedding Materials until accepted and any material displaced, or with damage to surface by any cause, shall be replaced to indicated lines and grades, at Contractor's expense. Placing Riprap and Bedding Material by dumping into chutes or similar methods will not be permitted. Placing shall begin at the bottom of the area to be covered and continued up slope, except between Stations 10+94 and 11+73 and also 28+22 and the east end of the sheet pile wall. Subsequent loads of material shall be placed against previously placed material in such a manner as to ensure a relatively homogenous mass. 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 at the top of the slope and pushing it down the slope shall not be permitted. The desired distribution of the various sizes of stones throughout the mass shall be obtained by selective loading of the material at the quarry; by controlled dumping of successive loads during final placing; or by other methods of placement that will produce the specified results.

3.3 ROCK FILL

3.3.1 General

Rock Fill stone shall be placed by any method desired by Contractor subject to review and approval by Contracting Officer.

3.3.2 Handling

Rock Fill materials shall be placed uniformly on bottom, to neat lines indicated on Drawings. Placing Rock Fill material by methods that would tend to cause segregation by particle sizes will not be permitted.

3.4 TESTS AND INSPECTIONS

3.4.1 Pre-Production

3.4.1.1 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 selection 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 proposed to utilize for each gradation range of stone. Tests shall be performed at a Government approved testing laboratory. The testing results shall be submitted in accordance with Paragraph 1.3 SUBMITTALS. Test results that 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 sources which have been acceptably tested in accordance with Paragraph 2.2.2 SOURCE DOCUEMNTATION, and the material is of an acceptable quality and bulk specific gravity, the Contracting Officer may waive the requirement for bulk specific gravity testing.

3.4.1.2 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 Part 2 PRODUCTS, including its respective subparagraphs.

3.4.1.3 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 laboratory for testing in accordance with Paragraph 2.4 STONE QUALITY. Where specified sizes are in excess of 2,000 pounds, the Contractor shall cut or break a representative piece, weighing approximately 2,000 pounds each, off of the selected stones. For specified stone sizes of less than 2,000 pounds but more than 500 pounds, individual samples shall be the size of the largest stone specified for the size range. Samples of stone groupings with a maximum size less that 500 pounds shall contain at least two (2) stones representative of the higher limit of the stone weights specified and the minimum weight of the total sample shall not be less than 500 pounds. 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 2.3 QUALITY COMPLIANCE TESTING. 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.

3.4.1.4 Demonstration Stockpile at Source

Following submittal of the Contractor's Quality Control (CQC) Plan and the Contractor's selection of a source, but prior to the Government's approval of a source and the CQC Plan, the Contractor shall make arrangements to provide a pre-production demonstration stockpile for each of the stone size ranges for the project. The stockpiles shall be located at the source of the stone and be shaped in windrow fashion. The stones with a size range greater than 2 tons shall be placed in a single layer with 1-foot of clear space around each stone. Stones under 2 tons in weight shall not be stacked higher than 4 feet. The stones placed in the demonstration stockpiles shall be representative of the overall quality of materials in the source and shall not consist of the best specimens unless it is reasonable to determine that the source will provide the required amount of stone of the applicable size range with a degree of quality no less than that existent in the demonstration stockpile. The quantity of stone in each demonstration stockpile shall be dependent upon the gradation size range to be produced for the project. The following parameters shall apply:

SIZE OF INDIVIDUAL STONES WITHIN A RANGE	DEMONSTRATION STOCKPILE QUANTITY BASED ON PROJECT QUANTITY FOR SIZE RANGE
500 to 6000 pounds	not less than 20 tons
100 to 1000 pounds	not less than 20 tons
125 to 500 pounds	not less than 10 tons

The stones placed in the stockpile shall have been preselected by the Contractor's Quality Control Plan (CQCP) inspector or supervisor and acceptable stones over 500 pounds in size shall have been marked with spray paint on three mutually perpendicular sides with a coded mark to denote acceptability for a certain size range. A stockpile of representative reject stones marked with a red "X" shall also be maintained at the site as examples of unacceptable materials or shapes.

3.4.1.5 Evaluation of Demonstration Stockpile at Source

The Contractor shall notify the Contracting Officer when stockpiles are ready for evaluation. The Contractor's approved Quality Control Plan (QCP) supervisor and all QCP inspectors shall accompany the Contracting Officer's Representative (COR) during the Government's evaluation of the demonstration stockpiles. The Contractor shall arrange to have individual stones turned as necessary to accommodate the COR's evaluation. The COR will mark rejected stones with a red "X" and such stones shall be removed to the reject stockpile or to a crusher if one is available. If more than 2 unacceptable stones are found within a stockpile, the entire stockpile will be rejected by the Government and a replacement stockpile will be created for re-evaluation. If the third demonstration stockpile for a particular size range at a single source is found unacceptable, the source will be disapproved for such size range and a new source shall be submitted for approval. In addition the Contractor shall submit the name and qualifications for a person to replace the QCP supervisor. The Contractor may, of its own accord, choose a replacement source at the time a first or second demonstration stockpile is found unacceptable. The replacement of demonstration stockpiles or stone sources shall be at no additional cost to the Government and with no change in the time of completion.

3.4.1.6 Approval of Demonstration Stockpile at Source

At the time the COR finds the content of a demonstration stockpile to be acceptable, either through visual examination or through laboratory

testing, the Contractor will be notified in writing that the source, the QCP plan and the QCP staff are approved, whereupon the Contractor may proceed with production of materials for the project provided they are consistent with demonstration stockpiles.

3.4.1.7 Duration of Demonstration Stockpile at Source

Other than for being shipped as the final quantities of materials to be placed in the work, each demonstration stockpile shall remain unchanged at the source until all other required material of the size range represented by the stockpile has been shipped from the source.

3.4.1.8 Placement Control

The Contractor shall establish and maintain quality control for all work performed at the job site under this section to assure compliance with contract requirements. He shall maintain records of his quality control tests, inspections and corrective actions. Quality control measures shall cover all construction operations including, but not limited to, the placement of all materials to the slope and grade lines shown and in accordance with this section.

3.4.2 Bedding Material and Rock Fill

3.4.2.1 General

The Contractor shall perform gradation tests to assure compliance with contract requirements and shall maintain detailed records. The Bedding Material, and Rock Fill shall be sampled in accordance with ASTM D 75 and tested in accordance with ASTM C 136. The Contractor shall perform the tests before and after surveys of each layer of stone protection material is placed.

3.4.2.2 Reporting

Reporting shall be in accordance with Paragraph 3.4.4 GRADATION TESTS FOR STONE.

3.4.3 Stone Jetty

The Contractor shall establish and maintain quality control for all stone jetty operations to assure compliance with contract requirements and shall maintain and submit in accordance with Paragraph 1.3 SUBMITTALS detailed daily QC reports of this quality control for all construction operations, including, but not limited to, the following:

a. Placement and alignment of stone in the jetty.

b. Periodic fathometer surveys, probings and/or diving records as directed by the Contracting Officer.

c. Record of the tonnage of stone placed in each station, including records of displacement of each barge before and after off-loading stone.

3.4.4 Gradation Tests for Stone

3.4.4.1 Standard Test Method for Gradation of Rock Fill

a. Select a representative sample (Note No. 1), weigh and dump on hard stand.

b. Select specific sizes (see example) on which to run "individual weight larger than" test. (See Note No. 2). Procedure is similar to the standard aggregate gradation test for "individual weight retained."

c. Determine the largest size stone in the sample. (100 percent size)

d. Separate by "size larger than" the selected weights, starting with the larger sizes. Use reference stones, with identified weights, for visual comparison in separating the obviously "larger than" stones. Stones that appear close to the specific weigh must be individually weighed to determine size grouping. Weigh each size group, either individually or cumulatively.

e. Paragraph d will result in "individual weight retained" figures. Calculate individual percent retained (heavier than), cumulative percent retained, and cumulative percent passing (lighter than).

NOTE NO. 1: Sample Selection: The most important part of the test and the least precise is the selection of a representative sample. No "standard" can be devised; larger Rock Fill stone is best sampled at the shot or stockpile by given direction to the loader; small graded stone is best sampled by random selection from the transporting vehicles. If possible, all parties should take part in the sample selection and agree before the sample is run that the sample is representative.

NOTE NO. 2: Selection of Size for Separation: For these types of stone gradations the separation points need to be selected as the smallest size stone at each break in the gradation specified.

EXAMPLE GRADATION SPECIFICATIONS

INDIVIDUAL PERCENT RETAINED	STONE WEIGHT in LBS
10 Max.	75 - 125
40-60	25 - 75
20-40	6 - 25
15 Max.	0 - 6

EXAMPLE WORKSHEET

LBS	STONE SIZE WT. RETAINED	INDIVIDUAL PERCENT RETAINED	INDIVIDUAL SPECIFICATIONS
Greater than 125	0	0	0
75 - 125	2,600	8	10 Max.
25 - 75	16,200	50	40-60
6 - 25	10,000	32	20-40
0 - 6	3,200	10	15 Max.

EXAMPLE WORKSHEET

TOTAL: 32,000 pounds

NOTE: Largest stone 150 pounds.

3.4.4.2 Standard Test Method for Gradation of Riprap and Bedding Material

a. Select a representative sample (Note No. 1), weigh and dump on hard stand.

b. Select specific sizes (see example) on which to run "individual weight larger than" test. (See Note No. 2). Procedure is similar to the standard aggregate gradation test for "individual weight retained."

c. Determine the largest size stone in the sample. (100 percent size)

d. Separate by "size larger than" the selected weights, starting with the larger sizes. Use reference stones, with identified weights, for visual comparison in separating the obviously "larger than" stones. Stones that appear close to the specific weigh must be individually weighed to determine size grouping. Weigh each size group, either individually or cumulatively.

e. Paragraph d will result in "individual weight retained" figures. Calculate individual percent retained (heavier than), cumulative percent retained, and cumulative percent passing (lighter than).

NOTE NO. 1: Sample Selection: The most important part of the test and the least precise is the selection of a representative sample. No "standard" can be devised; larger stone is best sampled at the shot or stockpile by given direction to the loader; small graded stone is best sampled by random selection from the transporting vehicles. If possible, all parties should take part in the sample selection and agree before the sample is run that the sample is representative.

NOTE NO. 2: Selection of Size for Separation: It is quite possible and accurate to run a gradation using any convenient sizes for the separation, without reference to the specifications. After the test is plotted on a curve, then the gradation limits may be plotted. Overlapping gradations with this method are no problem.

However, it is usually more convenient to select points from the gradation limits, such as the minimum 50 percent size, the minimum 15 percent size, and one or two others, as separation points. For these types of stone gradations the separation points need to be selected as the smallest size stone at each break in the gradation specified.

F O R E X A M P L E O N L Y

EXAMPLE GRADATION SPECIFICATIONS

PERCENT LIGHTER BY WEIGHT	STONE WEIGHT IN LBS.
100	397 - 165
50	165 - 77
15	77 - 33

EXAMPLE WORKSHEET

STONE SIZE LBS.	INDIVIDUAL WT. RETAINED	INDIVIDUAL PERCENT RETAINED	CUMULATIVE RETAINED	PERCENT PASSING
Greater than 397	0	0	0	100
165-397	9,599	30	30	70
77-165	11,199	35	65	35
33-77	8,000	25	90	10
0-33	3,199	10	100	-

TOTAL: 31,997 pounds

NOTE: Largest stone 251 pounds

F O R E X A M P L E O N L Y

G R A D A T I O N T E S T D A T A S H E E T

Type of Quarry _____ Stone Tested _____

Date of Test _____ Testing Rate _____

T E S T R E P R E S E N T S

Contract No.	District	Tons
	TOTAL	

G R A D A T I O N

Stone Size (lbs)	Weight Retained	Individual % Retained	Cumulative % Ret.	Cumulative % Pass	Specification % Finer by wt

Total Weight _____

Max Size Stone _____

Remarks: _____

I certify that the above stone sample is representative of the total tonnage covered by this test report.

Contractor Representative _____
Government Representative _____

F O R E X A M P L E O N L Y

STONE SOURCES

LATITUDE/ LONGITUDE	QUARRY LOCATION, ADDRESS, & TELEPHONE NUMBER [STATE]	MAIN OFFICE ADDRESS & TELEPHONE NUMBER
[_____]	[_____]	[_____]
	[_____]	[_____]
	[_____]	[_____]
	[_____]	[_____]
[_____]	[_____]	[_____]
	[_____]	[_____]
	[_____]	[_____]
	[_____]	[_____]
	[STATE]	
[_____]	[_____]	[_____]
	[_____]	[_____]
	[_____]	[_____]
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[_____]	[_____]	[_____]
	[_____]	[_____]
	[_____]	[_____]
	[_____]	[_____]

-- End of Section --

SECTION 02464

STEEL SHEET PILING

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 6/A 6M	(2000) General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling
ASTM A 572/A 572M	(2000) High-Strength Low-Alloy Columbium-Vanadium Structural Steel

1.2 UNIT PRICES

1.2.1 Steel Sheet Piling

1.2.1.1 Payment

Payment for sheet piling quantities will be made at the applicable contract price per linear foot for furnished and installed sheet piling. Payment shall cover all cost of furnishing, handling, storing and installing piling including placing, driving, coating, cutting holes and other materials and work incident thereto.

1.2.1.2 Measurement

The length of sheet piling installed will be measured to the nearest tenth of a linear foot. For installed pilings directed to be cut off before reaching the penetration depth shown, the portion cut off will be measured for payment as the difference between the total length of piling shown on the plans for that location and the length of piling installed below the point of cut-off.

1.2.1.3 Unit of Measure

Unit of measure: linear foot.

1.2.2 Pulled Pilings

1.2.2.1 Payment

The Contractor furnished pilings which have been installed and are pulled at the direction of the Contracting Officer and found to be in good condition will be paid for at the applicable contract unit price for furnishing and installing the pilings in their initial position plus the contract unit pricing for pulling the piles.

1.2.2.2 Measurement

When such pulled pilings are redriven, an additional amount equal to 50 percent of the applicable contract unit price for furnishing and driving the pilings will be paid for redriving the pilings. This additional price constitutes payment for redriving only. The cost of furnishing, initial driving, and pulling the pilings is to be paid for as specified.

a. When pilings are pulled and found to be damaged no payment will be made for the initial furnishing and driving or for the pulling of such pilings. Pilings replacing damaged pilings will be paid for a t the applicable contract unit prices.

1.2.2.3 Unit of Measure

Unit of measure: vertical linear feet.

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "F10" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Steel Sheet Piling; GA

Detail drawings for sheet piling including fabricated sections shall show complete piling dimensions and details, driving sequence and location of installed piling. Detail drawings shall include details and dimensions of templates and other temporary guide structures for installing piling. Detail drawings shall provide details of the method of handling piling to prevent permanent deflection, distortion or damage to piling interlocks.

SD-07 Schedules

Pile Driving Equipment; GA.

Complete descriptions of sheet piling driving equipment including hammers, jetting equipment, extractors, protection caps and other installation appurtenances shall be submitted for approval prior to commencement of work.

SD-08 Statements

Pulling and Redriving; GA.

The proposed method of pulling sheet piling shall be submitted and approved prior to pulling any piling.

SD-09 Reports

Interlocked Joint Strength in Tension Test; GA.

The procedure for testing sheet piling interlocked joint strength in tension shall be submitted and approved prior to testing piling.

Materials Tests; GA.

Certified materials tests reports showing that sheet piling and appurtenant metal materials meet the specified requirements shall be submitted for each shipment and identified with specific lots prior to installing materials. Material test reports shall meet the requirements of ASTM A 6/A 6M.

SD-18 Records

Driving; FIO.

Records of the sheet piling driving operations shall be submitted after driving is completed. These records shall provide a system of identification which shows the disposition of approved piling in the work, driving equipment performance data, piling penetration rate data, piling dimensions and top and bottom elevations of installed piling. The format for driving records shall be as directed by the Contracting Officer.

1.4 DELIVERY, STORAGE AND HANDLING

Materials delivered to the site shall be new and undamaged and shall be accompanied by certified test reports. The manufacturer's logo and mill identification mark shall be provided on the sheet piling as required by the referenced specifications. Sheet piling shall be stored and handled in the manner recommended by the manufacturer to prevent permanent deflection, distortion or damage to the interlocks. Storage of sheet piling should also facilitate required inspection activities. Sheet piling over 80 feet in length shall be handled using a minimum of two pickup points.

PART 2 PRODUCTS

2.1 STEEL SHEET PILING

2.1.1 Z SECTIONS

AZ series sheet pilings shall be ASTM A 572/A 572M Grade 50 steel. The interlocks of sheet piling shall be free-sliding, provide a swing angle suitable for the intended installation but not less than five degrees when interlocked, and maintain continuous interlocking when installed. Sheet piling shall be provided with standard pulling holes.

2.1.2 DEEP U BOX PILE SECTIONS

Deep U Box sheet pilings sections shall be ASTM A 572/A 572M Grade 50 steel. The interlocks of sheet piling shall be free-sliding, provide a swing angle suitable for the intended installation but not less than five degrees when interlocked, and maintain continuous interlocking when installed. Sheet piling shall be provided with standard pulling holes.

2.1.3 U SECTIONS

U section sheet pilings shall be ASTM A 572/A 572M Grade 50 steel. The interlocks of sheet piling shall be free-sliding, provide a swing angle suitable for the intended installation but not less than five degrees when interlocked, and maintain continuous interlocking when installed. Sheet piling shall be provided with standard pulling holes.

2.1.4 Sheet Pile Substitution

The Contractor may provide alternate sheet pile sections than those shown on the plans if the substituted sections have overall properties described in Table 1 below. The substituted sections and subsequent arrangement must be submitted for Government review and approval prior to placing any orders.

Table 1 Sheet Pile Wall Section Properties

Station	Sectional Area (in2)	Moment of Inertia (in4)	Section Modulus (in3)	Radius of Gyration (in)	
10+94 to 12+80	67.60	17,202.9	795.1	-	<-- per pile
12+80 to 13+50	59.50	13,946.5	645.6	-	<-- per pile
13+50 to 15+50	14.48	847.1	89.3	7.65	<-- per lineal foot of wall
15+50 to 18+00	11.67	606.3	67.0	7.20	<-- per lineal foot of wall
18+00 to 19+50	7.09	250.4	33.5	5.93	<-- per lineal foot of wall
19+50 to 28+76	6.47	144.3	24.2	4.72	<-- per lineal foot of wall

2.2 APPURTENANT METAL MATERIALS

Metal plates, shapes, bolts, nuts, rivets and other appurtenant fabrication and installation materials shall conform to manufacturer's standards and to the requirements specified in the respective sheet piling standards.

2.3 TESTS, INSPECTIONS, AND VERIFICATIONS

Requirements for material tests, workmanship and other measures for quality assurance shall be as specified and in Section 01451 CONTRACTOR QUALITY CONTROL.

2.3.1 Materials Tests

Materials tests shall conform to the following requirements. Sheet piling and appurtenant materials shall be tested and certified by the manufacturer to meet the specified chemical, mechanical and section property requirements prior to delivery to the site. Testing of sheet piling for mechanical properties shall be performed after the completion of all rolling and forming operations. Testing of sheet piling shall meet the requirements of ASTM A 6/A 6M.

2.3.2 Interlocked Joint Strength in Tension Test

The interlocked joint strength in tension test shall conform to the piling manufacturer's standard test, include testing at least two 3 inch long coupons taken randomly from different as-produced pilings of each ~~heat~~sheet ~~and must be approved~~.

2.4 COATINGS

~~Sheet pile coating shall be glass filled epoxy-coal tar. Surface preparation requires blasting to "near white" grade per SSPC-SP 10.~~All sheet pile, including deep U box pile sections, shall be coated with a coal tar epoxy polyamide coating meeting SSPC Paint No. 16 or Corps of Engineers C-200 coating. High pressure water blasting should be used as required. Application shall be two 8 mil coats (dry thickness).

2.5 COATING REPAIR

Coating repair to be applied after installation shall be epoxy polyamide splash zone mastic. Surface preparation consists of contaminant removal by high pressure water blasting. Application consists of an 1/8-inch coat(dry).

2.6 LEAN CONCRETE FILL

See specification Section 03307 LEAN CONCRETE FOR FILL.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Pile Driving Equipment

Pile driving equipment shall conform to the following requirements.

3.1.1.1 Driving Hammers

Hammers shall be steam, air, or diesel drop, single-acting, double-acting, differential-acting, or vibratory type. The driving energy of the hammers shall be as recommended by the manufacturer for the piling weights and subsurface materials to be encountered.

3.1.1.2 Jetting

Jetting is not allowed for installation of piles.

3.1.2 Placing and Driving

3.1.2.1 Placing

Pilings shall be placed plumb with out-of-plumbness not exceeding 1/8 inch per foot of length and true to line. Temporary wales, templates, master pilings, current deflectors or guide structures shall be provided to insure that the pilings are placed and driven to the correct alignment. Pilings properly placed and driven shall be interlocked throughout their length with adjacent pilings to form a continuous diaphragm throughout the length or run of piling wall.

3.1.2.2 Driving

Pilings shall be driven with the proper size hammer and by approved methods so as not to subject the pilings to damage and to ensure proper interlocking throughout their lengths. Driving hammers shall be maintained in proper alignment during driving operations by use of leads or guides attached to the hammer. Caution shall be taken in the sustained use of vibratory hammers when a hard driving condition is encountered to avoid interlock-melt or damages. The use of vibratory hammers should be discontinued and impact hammers employed when the penetration rate due to

vibratory loading is one foot or less per minute. A protecting cap shall be employed in driving when using impact hammers to prevent damage to the tops of pilings. If obstructions restrict driving a piling to the specified penetration, the obstructions shall be removed or penetrated with a chisel beam. Pilings damaged during driving or driven out of interlock shall be removed and replaced at the Contractor's expense. Adequate precautions shall be taken to insure that pilings are driven plumb. If at any time the forward or leading edge of the piling wall is found to be out-of-plumb in the plane of the wall the piling being driven shall be driven to the required depth and tapered pilings shall be provided and driven to interlock with the out-of-plumb leading edge or other approved corrective measures shall be taken to insure the plumbness of succeeding pilings. The maximum permissible taper for any tapered piling shall be 1/8 inch per foot of length. Pilings in each run or continuous length of piling wall shall be driven alternately in increments of depth to the required depth or elevation. No piling shall be driven to a lower elevation than those behind it in the same run.

3.1.3 Inspection of Driven Piling

The Contractor shall inspect the interlocked joints of driven pilings extending above ELEV +0.0 (MLLW). Pilings found to be out of interlock shall be removed and replaced at the Contractor's expense.

3.1.4 Pulling and Redriving

In the pulling and redriving of piles as directed, the Contractor shall pull selected pilings after driving to determine the condition of the underground portions of pilings. Any piling so pulled and found to be damaged to the extent that its usefulness in the structure is impaired shall be removed and replaced at the Contractor's expense. Pilings pulled and found to be in satisfactory condition shall be redriven when directed.

3.1.5 Concrete Fill Placement

Placement of concrete fill shall be performed after acceptable installation of Deep U Box piles. See specification Section 03307 for LEAN CONCRETE FOR FILL requirements.

3.2 QUANTITIES

The estimated quantities of sheet piling listed in the unit price schedule of the contract as to be furnished by the Contractor are given for bidding purposes only. Sheet piling quantities for payment shall consist of the linear feet of piling acceptably installed. Installed quantities shall consist of all piling including fabricated sections driven between the required top and bottom elevations of pilings plus any additions thereto resulting from changes in design or alignment as provided in paragraph DRIVING. ~~Removed quantities shall consist of the lengths of piling pulled from below the ground level.~~

-- End of Section --

SECTION 03307

LEAN CONCRETE FOR FILL

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 301	(1996) Standard Specifications for Structural Concrete
ACI 304.2R	(1996) Placing Concrete by Pumping Methods
ACI 308	(1992) Standard Practice for Curing Concrete
ACI 318/318R	(1992) Building Code Requirements for Reinforced Concrete

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 31	(1991) Making and Curing Concrete Test Specimens in the Field
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 260	(1994) Air-Entraining Admixtures for Concrete
ASTM C 309	(1994) Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 494	(1992) Chemical Admixtures for Concrete
ASTM C 685	(1994) Concrete Made by Volumetric Batching and Continuous Mixing

ASTM D 75 (1987; R 1992) Sampling Aggregates

CALIFORNIA DEPARTMENT OF TRANSPORTATION (CDT)

1995 Std Specs (1995) Standard Specifications

CORPS OF ENGINEERS (COE)

COE CRD-C 400 (1963) Requirements for Water for Use in Mixing or Curing Concrete

1.2 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 from each class of concrete required. A minimum of three specimens will be made from each sample; two will be tested at 28 days for acceptance, and one will be tested at 7 days for information.

1.2.1 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 500 psi.

1.2.2 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 2500 psi at 28 days. The maximum nominal size coarse aggregate shall be 3/4 inch, in accordance with ACI 318/318R. The air content shall be between 4 and 5 percent. The slump shall be between 2 and 5 inches. The maximum water cement ratio shall be 0.50.

1.3 SUBMITTALS

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

SD-01 Data

Air-Entraining Admixture; GA.

Water-Reducing or Retarding Admixture; GA.

Curing Materials; GA.

Manufacturer's literature is available from suppliers which demonstrates compliance with applicable specifications for the above materials.

Batching and Mixing Equipment; GA.

Batching and mixing equipment will be accepted on the basis of manufacturer's data which demonstrates compliance with the applicable specifications.

Conveying and Placing Concrete; GA.

The methods and equipment for transporting, handling, depositing, and consolidating the concrete shall be submitted prior to the first concrete placement.

SD-09 Reports

Aggregates; GA.

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; GA.

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-13 Certificates

Cementitious Materials; GA.

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; GA.

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.

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.

2.1.2 Aggregates

Aggregates shall meet the quality and grading requirements of Caltrans 1995 Std Specs.

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 Air-Entraining Admixture

Air-entraining admixture shall meet the requirements of ASTM C 260.

2.1.3.2 Water-Reducing or Retarding Admixture

Water-reducing or retarding admixture shall meet the requirements of ASTM C 494, Type A, B, or D. High-range water reducing admixture Type F or G may be used only when approved, approval being contingent upon particular placement requirements as described in the Contractor's Quality Control Plan.

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 Curing Materials

Curing materials shall conform to the following requirements.

2.1.5.1 Impervious Sheet Materials

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 1-D or 2, Class A B.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 General

Construction joints shall be prepared to expose coarse aggregate, and the surface shall be clean, damp, and free of laitance. Prior to placement all loose particles, debris, and foreign matter shall have been removed from within the box piles. Spare vibrators shall be available. The entire preparation shall be accepted by the Government prior to placing.

3.1.2 Production of Concrete

3.1.2.1 Ready-Mixed Concrete

Ready-mixed concrete shall conform to ASTM C 94 except as otherwise specified.

3.1.2.2 Concrete Made by Volumetric Batching and Continuous Mixing

Concrete made by volumetric batching and continuous mixing shall conform to ASTM C 685.

3.1.2.3 Batching and Mixing Equipment

The contractor shall have the option of using an on-site batching and mixing facility. The facility shall provide sufficient batching and mixing equipment capacity to prevent cold joints. The method of measuring materials, batching operation, and mixer shall be submitted for review. On-site plant shall conform to the requirements of either ASTM C 94 or ASTM C 685.

3.2 CONVEYING AND PLACING CONCRETE

Conveying and placing concrete shall conform to the following requirements.

3.2.1 General

The entire cell cavity in the deep U box pile sections shall be filled as shown on the plans. 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 or 45 minutes when the placing temperature is 85 degrees F or greater. Concrete shall be conveyed from the mixer to the forms as rapidly as practicable by methods which prevent segregation or loss of ingredients. Any concrete transferred from one conveying device to another shall be passed through a hopper that is conical in shape and shall not be dropped vertically more than 5 feet, except where suitable equipment is provided to prevent segregation and where specifically authorized. ~~Concrete shall be deposited as close as possible to its final position in the box piles and be so regulated that it may be effectively consolidated in horizontal layers 8 inches or less in thickness with a minimum of lateral movement.~~Concrete shall be deposited as close as possible to its final position in the box piles and be so regulated that it may be effectively consolidated 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 Pumping

Placement by pumping methods shall confirm to ACI 304.2R. Pumping shall not result in separation or loss of materials nor cause interruptions sufficient to permit loss of plasticity between successive increments. Loss of slump in pumping equipment shall not exceed 2 inches. Do not use pipe made of aluminum or aluminum alloy. Avoid rapid changes in pipe sizes. Limit maximum size of coarse aggregate to 33 percent of the diameter of the pipe. Maximum size of well rounded aggregate shall be limited to 40 percent of the pipe diameter. Take samples for testing at both the point of delivery to the pump and at the discharge end.

3.2.3 Consolidation

Each layer of concrete shall be consolidated by rodding, spading, or internal vibrating equipment. External vibrating equipment may be used when authorized. 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 a few inches. The vibrator shall penetrate rapidly to the bottom of the layer and at least 6 inches 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 3 inches per second.

3.2.4 Cold-Weather Requirements

No concrete placement shall be made when the ambient temperature is below 35 degrees F or if the ambient temperature is below 40 degrees F and falling. Suitable covering and other means as approved shall be provided for maintaining the concrete at a temperature of at least 50 degrees F 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.

3.2.5 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 0.2 pound per square foot 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.

3.2.6 Depositing Underwater

ACI 301 methods and equipment used shall prevent the washing of the cement from the mixture, minimize the formation of laitance, prevent the flow of water through the concrete before it has hardened, and minimize disturbance to the previously placed concrete. Do not deposit concrete in running seawater or in water temperatures below 2 degrees C 35 degrees F. Tremies, if used, shall be watertight and sufficiently large to permit a free flow of concrete. Keep the discharge end continuously submerged in fresh concrete. Keep the shaft full of concrete to a level well above the water surface. Discharge and spread the concrete by raising the tremie to maintain a uniform flow. Place concrete without interruption until the top

of the fresh concrete is at the required height.

3.3 CURING AND PROTECTION

Beginning immediately after placement and continuing for at least 7 days, except for concrete made with Type III cement, at least 3 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 box piles shall be accomplished by one of the following methods:

a. Application of impervious sheet material conforming to ASTM C 171.

b. 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.

3.4 TESTS AND INSPECTIONS

3.4.1 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.

3.4.2 Inspection Details and Frequency of Testing

3.4.2.1 Air Content

Air content shall be checked at least once per day during concrete placement. Samples shall be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 231.

3.4.2.2 Slump

Slump shall be checked once per day during concrete placed. Samples shall be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 143.

3.4.2.3 Consolidation and Protection

The Contractor shall ensure that the concrete is properly consolidated, finished, protected, and cured.

3.4.3 Action Required

3.4.3.1 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.

3.4.3.2 Air Content

Whenever a test result is outside the specification limits, the concrete shall not be delivered to the box piles and an adjustment shall be made to the dosage of the air-entrainment admixture.

3.4.3.3 Slump

Whenever a test result is outside the specification limits, the concrete shall not be delivered to the box piles 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.

3.4.4 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 --