

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE	PAGE OF PAGES	
			J	1	67
2. AMENDMENT/MODIFICATION NO. 0001	3. EFFECTIVE DATE 28-Nov-2005	4. REQUISITION/PURCHASE REQ. NO. W38XGR-5287-3955		5. PROJECT NO.(If applicable)	
6. ISSUED BY US ARMY ENGINEER DISTRICT, MEMPHIS 167 N MAIN STREET B202 MEMPHIS TN 38103-1894	CODE W912EQ	7. ADMINISTERED BY (If other than item 6) See Item 6		CODE	
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)			X	9A. AMENDMENT OF SOLICITATION NO. W912EQ-06-B-0002	
			X	9B. DATED (SEE ITEM 11) 09-Nov-2005	
				10A. MOD. OF CONTRACT/ORDER NO.	
				10B. DATED (SEE ITEM 13)	
CODE	FACILITY CODE		11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS		
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input checked="" type="checkbox"/> is not extended. Offer 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 _____ 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 <input type="checkbox"/> is not, <input type="checkbox"/> 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.) THIS AMENDMENT WAS ISSUED TO REFLECT THE FOLLOWING CHANGE(S) SEE SUMMARY OF CHANGES					
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)		
			TEL: _____ EMAIL: _____		
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 30-Nov-2005	

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION SF 30 - BLOCK 14 CONTINUATION PAGE

The following have been added by full text:

SUMMARY OF CHANGES

NEW

Section B – Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	ARTICULATED CONCRETE MATTRESS	141,960	Square	_____	_____
0002	PORTLAND CEMENT	340,000	100 LBS Weight	_____	_____
0003	FLY ASH	60,000	Cubic Feet	_____	_____
0004	ENVIRONMENTAL PROTECTION	1	Lump Sum	<u>XXXXXXXX</u>	_____
				Grand Total	_____

1. Delete the Supplies or Services and Prices schedule in its entirety in Section B and add new schedule in Section B.
2. Page F-4, Note 3, line 3, insert "Contract Clause 52.211-16 located in Section I after "and".
3. Page F-4, Note 4, at the end of the last sentence, add "by volume."

SECTION C – DESCRIPTION/ SPECIFICATIONS

4. Page F-6, para. 1.3, last sentence is revised to read, "The following shall be submitted in accordance with SECTION J, EXHIBIT 3 – SUBMITTAL PROCEDURES.:
5. Page F-11, para. 2.1.1, Delete "C<sbs>3/sbs>A" and substitute "TRICALCIUM ALUMINATE" therefor.
6. Page F-20, para. 3.3.3.c, lines 6 and 7, delete "ranging from 65 percent Portland cement and 35 percent fly ash to" and substitute "of" therefor.
7. Delete pages F-29 thru F-33, Wage Determination General Decision in its entirety.

SECTION E – INSPECTION AND ACCEPTANCE

8. Page F4, paras. E-1 and E-2, change "section I" to "at the end of Section E".

SECTION F – DELIVERIES OR PERFORMANCE

9. Page F-39, para. F-1.2.3, lines 3 and 4, change "1000" to "910".
10. Pages F-39 thru F-41, Delete entire Contract Clause 52.211-8 TIME OF DELIVERY.
11. Page F-41, Contract Clause 52.211-16, In para b, delete first "This increase or decrease shall apply to"; in next to last line, change "Item 0001" to "Item 0002".
12. Page F-41, Following Contract Clause 52.211-16, add the following Contract Clauses 52.211-17 and 52.211-18:
 "52.211-17 DELIVERY OF EXCESS QUANTITIES (SEP 1989)

The Contractor is responsible for the delivery of each item quantity within allowable variations, if any. If the Contractor delivers and the Government receives quantities of any item in excess of the quantity called for (after considering any allowable variation in quantity), such excess quantities will be treated as being delivered for the convenience of the Contractor. The Government may retain such excess quantities up to \$250 in value without compensating the Contractor therefor, and the Contractor waives all right, title, or interest therein. Quantities in excess of \$250 will, at the option of the Government, either be returned at the Contractor's expense or retained and paid for by the Government at the contract unit price.

52.211-18 VARIATION IN ESTIMATED QUANTITY (APR 1984)

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

SECTION G – CONTRACT ADMINISTRATION DATA

13 Page F-43, Change para no. “G-2” to ”G-1”

SECTION H – SPECIAL CONTRACT REQUIREMENTS

14. Page F-51, para 1.19, subpara 1, line 2, add “(3NOV 2003)” following “EM 385-1-1”; add at the end of the subpara “EM 385-1-1 is accessible at the following web address:

<http://www.hqusace.army.mil/soh/em385/current/current38511.htm>”

15. Page F-51, para 1.19b, line 6, insert “to be site specific and” following “is”.

16. Page F-51, para 1.19b, lines 8 and 9, delete “The program shall be prepared in the following format;” and substitute therefor “In addition to the Accident Prevention Plan, the following are required;”.

17 Page F-52, para 1.19b(3), delete in its entirety and renumber para “1.19b(4)” to “1.19b(3)”.

18. Page F-52 thru F-55, delete para 1.19c and 1.19i in their entirety and renumber subsequent paragraphs.

19. Page F-56, para 1.23, line 6 from last, change Contract Clause “52.243-4” to “52.243-1”.

20. Page F-57, para 1.25a, lines 2 and 3, delete “Contract Clause entitled “DEFAULT (FIXED-PRICE CONSTRUCTION)” and substitute therefor “Contract Clause 52.249-8 DEFAULT (FIXED-PRICE SUPPLY AND SERVICE)”.

21. Page F-58, para 1.26a, change link to read: <http://155.76.117.11/conops/MVDStoneLST.htm>

22 Page F-58, para 1.28, line 2, delete “SECTION 01355A”; line 3, at end of sentence, add “(EXHIBIT 4)”.

J – LIST OF DOCUMENTS, EXHIBITS AND ATTACHMENTS

23. Page F-144, EXHIBITS, change “(b)” and “(f)” to “(2)” and “(4)”, respectively.

24. Page F-144, EXHIBITS 1 and 2 are added.

SECTION M – EVALUATION FACTORS FOR AWARD

25. Page F-189, Contract Clause 52.232-15, Delete in its entirety.

SECTION B - SUPPLIES OR SERVICES AND PRICES

The following have been modified:

NOTES

NOTE 1: Bidders shall furnish unit prices for all items listed on the schedule of bid items, which require unit prices. If the bidder fails to insert a unit price in the appropriate blank for required items, but does furnish an extended total or an estimated amount for such items, the Government will deem his unit price to be the quotient obtained by dividing the extended estimated amount for that line item by the quantity. IF THE BIDDER OMITTS BOTH THE UNIT PRICE AND THE EXTENDED ESTIMATED AMOUNT FOR ANY ITEM, HIS BID WILL BE DECLARED NONRESPONSIVE.

In the event there is a difference between a unit price and the extended total, the unit price will be held to be the intended bid. If the bidder shows only the total price but fails to enter a unit price, the total

divided by the estimated quantity will be held to be the intended unit price.

Any bid price for items indicated above which are unbalanced as to price may be rejected as non-responsive. An unbalanced bid is one which is based on price significantly less than cost for some work and price which is significantly overstated for other work.

Award will be made as a whole to one bidder.

AC = Acre	CF = Cubic Feet
CY = Cubic Yard	DH = Miles
EA = Each	FC = 1000
Cubic Feet	FT = Foot
HF = 100 Feet	HH = 100 Cubic Feet
HL = 100 Linear Feet	HR= Hours
HS = 100 Square Feet	HY = 100 Yards
LB= Pound	LF = Linear Foot
LH = Labor Hour	LS = Lump Sum
LY = Linear Yard	MO = Months
SB = Square Mile	SF = Square Foot
SQ = Square	SY = Square Yard
TL = 1000 Linear Feet	UN = Unit
YD = Yard	YL = 100 Linear Yards
YM = Cubic Yards Per Mile	CWT = 100 Pounds

All quantities are estimated except where unit is given as "LS" or "EA".

NOTE 2: If a bid or modification to a bid based on unit prices is submitted and provides for a lump sum adjustment to the total estimated cost, the application of the lump sum adjustment to each unit price, including lump sum units, in bid schedule must be stated, or, if it is not stated, the bidder agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the bid schedule.

NOTE 3: Bidders are cautioned to read Contract Clause 252.204-7004 "Required Central Contractor Registration", Contract Clause 52.217-6 "Option for Increased Quantity" located in Section I, and contract clauses 52.211-16 "Variation in Quantity" located in SECTION F.

NOTE 4: For small business concern representative purposes, the end item being procured under this solicitation is completed squares of articulated concrete mattress. Ingredients such as Portland Cement and Fly Ash, etc. are not end items.

NOTE 5: Cement and Fly Ash quantities are based on historical usage, and will be used to evaluate bids. Actual amounts will depend on the various mix designs furnished by the Government during the contract performance period. Fly Ash may vary from 0 to 25 percent of total cementitious materials, by volume.

NOTE 6: SITE VISITS see SECTION L - INSTRUCTIONS, CONDITIONS, AND NOTICES TO BIDDERS

-- End of Document -

SECTION C - DESCRIPTIONS AND SPECIFICATIONS

The following have been modified:

DESCRIPTION AND SPECIFICATION

SECTION C

DESCRIPTION/SPECIFICATIONS

PART 1 GENERAL

1.1 SCOPE

The work to be performed under this contract consists of furnishing all plant, materials (except materials specified herein to be furnished by the Government), equipment, supplies, labor, transportation, including fuel, power, water, and performing all work as required in casting squares of articulated concrete mattress at the location and in the quantity shown below, in strict accordance with the specifications, schedules and drawings, all of which are made a part thereof, and including such detail drawings as may be furnished by the Contracting Officer during the prosecution of the work. The Government may exercise an option to increase the basic quantity not to exceed 15 percent. See Bidding Schedule and the Clause 52.217-6, "Option for Increased Quantity" in Section I.

a. Definition of a "Square": The definition of a "square" of articulated concrete mattress as referred to in these specifications consists of one section, approximately 25 feet x 4 feet x 3 inch, containing 16 blocks, cast on a single unit of fabric.

b. Location: The casting field is located at Richardson Landing, Tennessee, which is along the left descending bank of the Mississippi River (Mile 769 AHP).

1.2 REFERENCES

The publications listed below form a part of this section to the extent referenced:

ASTM INTERNATIONAL (ASTM)

ASTM C 33	(2002a) Concrete Aggregates
ASTM C 94	(1994) Ready-Mixed Concrete
ASTM C 143	(1998) Slump of Hydraulic Cement Concrete
ASTM C 150	(2002a) Portland Cement

ASTM C 172 (1999) Sampling Freshly Mixed Concrete

ASTM C 231 (1997e1) Air Content of Freshly Mixed Concrete by the Pressure Method

ASTM C 260 (2001) Air-Entraining Admixtures for Concrete

ASTM C 494 (1992) Chemical Admixtures for Concrete

ASTM C 618 (2003) Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete

ASTM D 75 (1997) Sampling Aggregates

ASTM D 98 (1998) Calcium Chloride

COMMERCIAL ITEM DESCRIPTIONS (CID)

CID A-A-203 (Rev C) Paper, Kraft, Untreated

CODE OF FEDERAL REGULATIONS

40 CFR 261 Identification and Listing of Hazardous Waste

40 CFR 279 Standards for the Management of Used Oil

U.S. ARMY CORPS OF ENGINEERS (USACE), Handbook for Concrete and Cement (CRD)

COE CRD-C 55 (1992) Test Method for Within-Batch Uniformity of Freshly Mixed Concrete

COE CRD-C 119 (1991) Flat and Elongated Particles in Coarse Aggregates

COE CRD-C 143 (1962) Specifications for Meters for Automatic Indication of Moisture in Fine Aggregate

COE CRD-C 300 (1990) Specifications for Membrane-Forming Compounds for Curing Concrete

COE CRD-C 400 (1963) Requirements for Water for Use in Mixing or Curing Concrete

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

NIST HB 44 (2002) NIST Handbook 44: Specifications, Tolerances, and other Technical Requirements for Weighing and Measuring Devices U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846.3-3 (1999, Third Edition, Update III-A) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with SECTION J, Exhibit 3 " SUBMITTAL PROCEDURES".

SD-01 Preconstruction Submittals

Proposed Plan for furnishing the Roughened Finish

Name, Mailing address, and Physical Location of the Analytical Laboratory

SD-04 Samples

Split Samples for Government Analysis

SD-06 Test Reports

Results of Quantitative Analyses of the Proposed Release Agent

SD-07 Certificates

Calcium Chloride Manufacturer's Mill Certificate; G

Curing Compound Certificates of Compliance

Paper Mill Certificates

Form Release Agent Certification

1.4 MEASUREMENT AND PAYMENT: 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, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.4.1 Environmental Protection

a. Measurement

No measurement will be made for Environmental Protection.

b. Payment

Payment will be made for costs associated with operations necessary for environmental protection as specified in SECTION J Exhibit 4 - ENVIRONMENTAL PROTECTION. This price and payment shall be considered full compensation for furnishing all plant, labor, materials, and equipment and for performing all operations necessary for "Environmental Protection." This price and payment does not include those items covered under "Storm Water Pollution Prevention;" however, it does include items incidental thereto. The Contractor shall be responsible for payment of fees associated with environmental permits, application, and/or notices obtained by the Contractor. The Contractor shall be responsible for payment of all fines/fees for violation or non-compliance with Federal, State, Regional and local laws and regulations.

c. Unit of measure, Lump Sum: LS

1.5 MEASUREMENT AND PAYMENT: UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract for which 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, meeting safety requirements, tests and reports, and for performing all related work required for which separate payment is not otherwise provided.

1.5.1 Articulated Concrete Mattress

a. Measurement for Articulated Concrete Mattress shall be made per square. All materials entering into the concrete shall be mechanically batched and measured by weight except the admixtures which may be batched by volume, and except water may be batched by weight or volume. One gallon of water will be considered as 8.33 pounds in weight.

b. Payment for Articulated Concrete Mattress as specified in this section will be made at the contract unit price per square for Articulated Concrete Mattress, which price and payment shall constitute full compensation for all operations, labor, (including roughening mattress), materials and the adjustment of fabric entering into the completed mattress except (1) those furnished by the Government and listed herein as free issue, (2) all Portland cement entering into the work for which separate payment is provided for, and (3) all fly ash entering into the work for which separate payment is otherwise provided. The contract unit price per square shall include all costs involved in the addition of air-entraining admixture, the addition of a water-reducing admixture, the addition of calcium chloride, if used, relocating old and new forms. The quantity to be paid for Articulated Concrete Mattress will be squares of articulated mattress cast in accordance with these specifications and accepted by the Contracting Officer.

c. Unit of measure: Square: SQ.

1.5.2 Portland Cement

- a. Measurement for Portland Cement shall be made per 100 pounds.
- b. Payment for Portland Cement as specified in this section will be made at the contract unit price per 100 pounds, which price and payment shall include the cost of the cement and all incidental costs such as unloading, handling, hauling, and storage at the site. The quantity of cement to be paid for under Portland Cement will be computed by multiplying the number of squares of accepted mattress by the net volume of concrete contained in the form line of a square (0.837 cu yd) and by multiplying this product by the theoretical cement content of the Government-furnished mix design in use during that portion of casting. Any cement used in excess of the Government mix design, shall be at no additional expense to the Government.
- c. Unit of measure: 100 Pounds: CWT.

1.5.3 Fly Ash

- a. Measurement for Fly Ash shall be made per cubic foot.
- b. Payment for Fly Ash as specified in this section will be made at the contract unit price per cubic feet, which price and payment shall include the cost of the fly ash and all other incidental costs thereto, to include unloading, handling, hauling, and storage at the site. The quantity of Fly Ash to be paid for will be computed by multiplying the number of squares of accepted mattress by the net volume of concrete contained within the form line of a square (0.837 cu yd) and by multiplying this product by the theoretical fly ash content (cubic feet solid volume) in the designed concrete mixture and for each increment of change therein.
- c. Unit of measure: cubic feet: CF.

1.6 MEASUREMENT AND PAYMENT: PROGRESS PAYMENTS

- a. As provided by the Contract Clause FAR 52-232-1 Payments (Apr 1989) payments will be made on partial deliveries at monthly intervals. However, if upon the determination of the Contracting Officer the amount due on deliveries warrants it, payments may be made at more frequent intervals. In the preparation of payment estimates, the Contracting Officer may authorize material delivered on the site to be taken into consideration, if the Contractor furnishes satisfactory evidence that he has paid for such material.
- b. All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Government, but this shall not be construed as -
 - (1) Relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or
 - (2) Waiving the right of the Government to require the fulfillment of all of the terms of the contract.

c. In making these progress payments, the Government shall, upon request, reimburse the Contractor for the amount of premiums paid for performance and payment bonds (including coinsurance and reinsurance agreements, when applicable) after the Contractor has furnished evidence of full payment to the surety.

d. In making these progress payments, the Government may adjust payment due to unacceptable performance in accordance with Section F - DELIVERIES OR PERFORMANCE, paragraph COMMENCEMENT, PROSECUTION AND COMPLETION.

1.7 PHYSICAL DATA

1.7.1 Access Roads

State Highway 59 leads west to the casting field from Covington, Tennessee.

1.7.2 Railroads

There is a railroad siding, if needed, in Covington, Tennessee.

1.7.3 Rivers

The casting field is accessible via the Mississippi, River.

1.7.4 Electricity

Electric power service is located at the casting field, and electricity may be procured commercially at the Contractor's expense. The Contractor shall make his own arrangements for power.

1.7.5 Water

Water may be procured commercially at the Contractor's expense, or it may be obtained from the Mississippi River provided it meets the requirements for water as set out in these specifications. The Contractor shall make his own arrangements for water.

1.8 OTHER WORK

The Government may desire to load completed mattress sections or perform other work on the Government premises or in the immediate vicinity either by Government personnel or contract while the Contractor's casting operations are in progress. The Contractor's plant layout or order of work shall be such as to avoid interference with loading operations, storage and transportation of materials, storage of existing mattress, casting of additional mattress, or other work not included in this contract.

1.9 CONTRACT DRAWINGS AND SPECIFICATIONS

Three sets of contract drawings and specifications will be furnished the Contractor without charge except applicable publications incorporated in the specifications by reference. Additional sets will be furnished on request at the cost of reproduction. The work shall conform to the drawings listed

below, all of which form a part of these specifications and are available in the office of the U.S. Army Engineer District, Memphis, Corps of Engineers.

<u>Serial No.</u>	<u>Title</u>	<u>File No.</u>
22060	Articulated Concrete Mattress Typical Layout and Standard Details	74/211.1
21770	Locality Map Mattress Casting Field Richardson Landing, TN	76/371.1
19250	Richardson Landing, TN Casting Field Form Layout	73/878.5
21881	Steel Forms For 16 Block Articulated Concrete Mattress Richardson Landing, TN Casting Field SWPPP Site Map	74/210

1.10 FIELD LAYOUT

The initial casting field layout shall be as shown on Drawing entitled "Richardson Landing, TN; Casting Field; Form Layout". After work is underway, the casting field layout and/or order of work may be altered to avoid hampering or being hampered by mat loading operation. Mattress stacks and rows of standard mattress shall be developed from these layouts in a manner similar to that shown on the Drawing entitled "Articulated Concrete Mattress; Typical Layout And Standard Details".

PART 2 PRODUCTS

2.1 CEMENTITIOUS MATERIALS

2.1.1 Portland Cement

Portland Cement shall conform to [ASTM C 150](#), Type I, including false set requirements, except that the maximum amount of TRICALCIUM ALUMINATE shall be 15 percent.

2.1.2 Fly Ash

Fly ash shall conform to [ASTM C 618](#), Class C or F, including the maximum alkalis, uniformity and multiple factor requirements. The loss on ignition for fly ash shall be limited to a maximum of 6 percent.

2.1.3 Transportation of Bulk Cement and Fly Ash

When bulk cement and/or fly ash is not unloaded from primary carriers directly into weathertight hoppers at the batching plant, transportation from the railhead, mill, or intermediate storage area to the batching plant shall be accomplished in weathertight trucks, conveyors, or other means

which will protect the cement and fly ash completely from exposure to moisture.

2.1.4 Storage

Separate storage facilities shall be provided for cement and fly ash. Immediately upon receipt at the site of the work, cement and fly ash shall be stored in a dry weathertight and properly ventilated structure with adequate provisions for the prevention of absorption of moisture. Charging valves for storage of cement and fly ash shall be clearly marked to prevent inadvertent loading of the wrong material into this structure. All storage facilities shall be subject to approval and shall permit easy access for inspection and identification. In order that cement and fly ash not become unduly aged after delivery, the Contractor shall use any cement or fly ash which has been stored at the site for 60 days or more before using cement or fly ash of lesser age. Fly ash or cement obtained from different sources shall not be stored in the same storage bin. The temperature of the cement and fly ash, as delivered to the site, shall not exceed 150 degrees F.

2.1.5 Quality Control and Quality Assurance

The Contractor shall notify the Contracting Officer of the source from which the cement and fly ash will be obtained within 10 days after award of the contract. Cement and fly ash will be accepted on the basis of a manufacturer's mill certificate of compliance. Unless otherwise authorized, no cement or fly ash shall be used until a satisfactory manufacturer's mill certificate for that cement or fly ash is in the possession of the Contracting Officer at the site of the work and same has been accepted. If the manufacturer's certificate indicates that the cement or fly ash which has been delivered is unsatisfactory, it shall be promptly removed from the site of the work by and at the expense of the Contractor. Fly ash and cement samples will be tested periodically during the casting season, at the Government's expense, to check compliance with the specifications. Cement and/or fly ash which has not been used within 4 months after testing shall be retested at the expense of the Contractor when directed by the Contracting Officer and will be rejected if test results are not satisfactory.

2.2 CALCIUM CHLORIDE

Calcium chloride shall meet the requirements of [ASTM D 98](#), Type S, Grade 1, 2 or 3.

2.2.1 Quality Control and Quality Assurance

Calcium chloride will be accepted on the basis of a [Calcium Chloride Manufacturer's Mill Certificate](#) or certificate of compliance, furnished in duplicate, to the Contracting Officer at the time of delivery.

2.3 AIR-ENTRAINING ADMIXTURE

The air-entraining admixture shall conform to [ASTM C 260](#) and shall consistently entrain the air content in the specified ranges under field conditions. The air-entraining admixture shall be in a solution of suitable viscosity for field use requiring no further dilution.

2.3.1 Quality Control and Quality Assurance

The Contractor shall notify the Contracting Officer of the source from which the admixture will be obtained within 10 days after award of contract. The admixture will be accepted on the basis of mill certificates or certificates of compliance which certify that the admixture meets the specified requirements. The admixture may be tested periodically, at the expense of the Government, to check compliance with the specifications. The Contractor shall provide satisfactory facilities for the procurement of test samples by the Contracting Officer. An air entraining admixture which has been in storage at the project site for longer than 6 months or which has been subjected to freezing shall be retested at the expense of the Contractor when directed by the Contracting Officer and shall be rejected if test results are not satisfactory.

2.4 WATER-REDUCING ADMIXTURE

The water-reducing admixture shall conform to the requirements of [ASTM C 494](#), Type A. The purpose of the admixture is to reduce the quantity of water otherwise required in a similar mixture without this admixture to produce concrete of a given consistency and reduce the cement required by approximately 10 percent of the quantity which would be required without this admixture.

2.4.1 Quality Control and Quality Assurance

The Contractor shall notify the Contracting Officer of the source from which the admixture will be obtained within 10 days after award of the contract. The admixture will be accepted on the basis of mill certificates or certificates of compliance which certify that the admixture meets the specified requirements. The admixture will be tested periodically, at the expense of the Government, to check compliance with the specifications. The Contractor shall provide satisfactory facilities for the procurement of test samples by the Contracting Officer. A water-reducing admixture which has been in storage at the project site for longer than 6 months or which has been subjected to freezing shall be retested at the expense of the Contractor prior to its use and shall be rejected if tests results are not satisfactory.

2.5 AGGREGATE

2.5.1 Composition

Fine aggregate shall consist of natural sand, or a combination of natural and manufactured sands. Coarse aggregate shall consist of gravel, crushed gravel, crushed stone, or a combination thereof. All aggregates used in concrete for casting mats shall be obtained from an approved source as defined in paragraph "Stone Sources" in Section H.

2.5.2 Quality

Aggregate, as delivered to the mixer, shall consist of clean, hard, and uncoated particles. Where required, fines shall be removed from the course aggregates by adequate washing, or another suitable method approved by the Contracting Officer. The quantity of flat and/or elongated particles in the separated size groups of coarse aggregates, as defined and determined by [COE](#)

CRD-C 119, shall not exceed 25 percent. The quality of the aggregates shall conform to ASTM C 33, Class 4M.

2.5.3 Quality Assurance

The Contractor shall notify the Contracting Officer of the sources from which the aggregates will be obtained within 10 days after award of contract. The aggregates will be accepted on the basis of certificates of compliance which certify that the aggregates meet the specified requirements. During construction, aggregate will be sampled in accordance with ASTM D 75, as delivered to the mixer, to determine compliance with the specifications. The Contractor shall provide facilities and labor as may be necessary for the ready procurement of representative test samples. Samples from the weigh batcher shall be obtained when directed by the Contracting Officer and under his supervision. The Government will test such samples at its expense using appropriate Corps of Engineers' and ASTM testing methods. Tests of aggregates at various stages in the casting process and handling operations will be made at the discretion of the Contracting Officer.

2.5.4 Fine Aggregate

Fine aggregate shall be graded from fine to coarse and the gradation shall be within the following limits as delivered to the mixer or as incorporated in the mixed concrete:

<u>Sieve Size</u>	<u>Percent Passing</u>
3/8 inch	100
No. 4	95 - 100
No. 16	45 - 90
No. 50	7 - 30
No. 100	0 - 7
No. 200	0 - 3

Storage of Fine Aggregate: The toe of the fine aggregate stockpile shall never be closer than 40 feet to top bank or either the river or Sugar Creek and not be placed closer than 80 feet to top of bank of either the river or Sugar Creek when the aggregate stockpile is 50 feet high, or closer than 40 feet when the aggregate pile is 30 feet high. When the height of the stockpile is other than 50 feet high or 30 feet high, interpolation shall be used to determine the distance from top bank. For example, if the height of the stockpile is 40 feet high, the toe of the stockpile shall not be closer than 60 feet to top bank. Fine aggregate shall be stored in such a manner as to avoid the inclusion of any foreign materials. The storage piles shall be constructed so as to prevent segregation. The storage of the material in storage piles and its removal therefrom shall be accomplished in such a manner as to result in maintaining uniformity of gradation. All fine aggregate shall remain in the stockpile for at least 96 hours prior to use. Sufficient aggregate shall be maintained at the site at all times to permit continuous placement of concrete at the specified rate. Any unacceptable material that is introduced to the stockpile shall be promptly separated from previously accepted material and removed from the stockpiled area before continuation of casting or within 24 hours if occurring during a period of no casting.

2.5.5 Coarse Aggregate

Coarse aggregate shall conform to the following gradation requirements as delivered to the mixer or as incorporated in the mixed concrete:

<u>Sieve Size</u>	<u>Percent Passing</u>
1-1/2 inch	100
1 inch	90 - 100
1/2 inch	25 - 60
No. 4	0 - 10
No. 8	0 - 5
No. 200	0 - 1

Storage of Coarse Aggregates: The toe of the coarse aggregate stockpile shall never be closer than 40 feet to top bank or either the river or Sugar Creek and shall not be placed closer than 80 feet to top of bank of either the river or Sugar Creek when the aggregate stockpile is 50 feet high, or closer than 40 feet when the aggregate pile is 30 feet high. When the height of the stockpile is other than 50 feet high or 30 feet high, interpolation shall be used to determine the distance from top bank. For example, if the height of the stockpile is 40 feet high, the toe of the stockpile shall not be closer than 60 feet to top bank. Coarse aggregate storage piles shall be built adjacent to the batch plant and in such manner as to avoid the inclusion of any foreign material. Coarse aggregate shall remain in the stockpile for at least 48 hours prior to use. The storage piles shall be constructed so as to prevent segregation and to provide for drainage away from the storage piles. The disposition of the material in storage and its removal therefrom shall be accomplished in such a manner as to result in maintaining the uniformity of the gradation. Sufficient aggregate shall be maintained at the site at all times to permit continuous placement of concrete at the specified rate. Any unacceptable material that is introduced to the stockpile shall be promptly separated from previously accepted material and removed from the stockpiled area before continuation of casting or within 24 hours if occurring during a period of no casting.

2.6 WATER

Water for mixing shall be clean and potable, except that nonpotable water may be used if it meets the requirements of [COE CRD-C 400](#). Water for curing shall not contain any substance that is injurious to the concrete.

2.7 CURING COMPOUNDS

Curing compounds shall be of the surface membrane type, shall be pigmented, and shall comply with the requirements of [COE CRD-C 300](#).

2.7.1 Quality Control and Quality Assurance

The Contractor shall furnish [Curing Compound Certificates of Compliance](#), at or before the time of delivery, in duplicate, to the Contracting Officer which certify that the curing compound meets the specified requirements.

2.8 KRAFT PAPER

The paper used as separators between mattress squares shall be not less than 48 inches wide and not greater than 50 inches in width and shall conform to the maximum requirements set out in [CID A-A-203](#) (Rev C), Style 1, with the exception of the requirements specified herein. The paper basis weight shall be not less than 99 pounds; that is, 500 sheets, 24 by 36 inches shall weigh not less than 99 pounds. The Contractor may, at his option and at no additional cost to the Government, elect to use a heavier weight paper that meets or exceeds the requirements of the Commercial Item Description.

2.8.1 Quality Control and Quality Assurance

The Contractor shall either furnish [Paper Mill Certificates](#) or certificates of compliance, in duplicate, at or before the time of delivery, to the Contracting Officer which certify that the paper meets the specified requirements.

PART 3 EXECUTION

3.1 PLANT REQUIREMENTS

3.1.1 Weight Batchers

The weight batchers shall be arranged to permit the convenient addition or removal of material. The weight batchers shall be so constructed and arranged that the sequence and timing of batcher discharge gates can be controlled to produce a ribboning and mixing of the aggregates, water, and of the cement and fly ash with aggregates as the materials pass through the charging hopper into the mixer. The plant shall include provisions to facilitate the inspection of all operations at all times. Delivery of materials from the batching equipment shall be within the following limits of accuracy:

<u>Material</u>	<u>Percent</u>
Cement and Fly Ash	plus or minus 1
Water	plus or minus 1
Aggregate	plus or minus 2
Admixtures	plus or minus 3

3.1.2 Scales

The batch plant shall include adequate facilities for the accurate measurement and control of each of the materials entering each batch of concrete. The accuracy of weighing equipment shall conform to the applicable requirements of [NIST HB 44](#), except that the accuracy shall be within 0.2 percent of scale capacity. The Contractor shall provide standard test weights and any other auxiliary equipment required for checking the operating performance of each scale or other measuring device. Periodic tests shall be made in the presence of a Contracting Officer in such a manner and at such intervals as may be directed. Upon completion of each check test and before further use of the indicating, recording, or control devices, the Contractor shall make such adjustments, repairs or replacement as may be required for satisfactory performance. Each weighing unit shall include a visible springless dial or electronic indicator which shall indicate the scale load at all stages of the weighing operation or shall include a beam scale with a beam balance indicator which will show the scale

in balance at zero load at any beam setting. The indicator shall have an over and under travel equal to at least 5 percent of the capacity of the beam. The weighing equipment shall be arranged so that the concrete plant operator can conveniently observe the dials or indicators.

3.1.3 Interlocks

Batchers and mixers shall be interlocked so that:

- a. The charging mechanism of each batcher cannot be opened until the scale has returned to zero,
- b. The charging mechanism cannot be opened if the discharge mechanism is opened,
- c. The discharge mechanism cannot be opened if the charging mechanism is open,
- d. The discharge mechanism cannot be opened until the designated weight has been reached within the allowable tolerance,
- e. One admixture is batched automatically with the water,
- f. Each additional admixture is batched automatically with a separate portion of the water or with the fine aggregate, and
- g. The mixers cannot be discharged until the required mixing time has elapsed.

3.1.4 Moisture Control Meter

The plant shall be capable of ready adjustment to compensate for the varying moisture content of the aggregate in order to change the weights of the materials being batched. An electric moisture meter, complying with the provisions of [COE CRD-C 143](#), shall be provided for measurement of moisture in the fine aggregate. The sensing element shall be arranged so that the measurement is made near the batcher charging gate of the sand bin or in the sand batcher.

3.1.5 Recorder

An accurate recorder shall be provided and shall conform to the following requirements:

- a. The recording units shall be completely housed in a single cabinet which shall be capable of being locked.
- b. The recorder shall produce a graphical or digital record on a single visible chart or tape which shall indicate the weight or volume of each material in the batchers at the conclusion of the batching cycle. The record shall be produced prior to the delivery of the materials to the mixer. After the batchers have been discharged, the recorder shall indicate the return of the batcher to the empty condition.

c. The chart or tape shall be so marked that each batch may be permanently identified and so that variations in batch weights of each type of batch can be readily observed.

d. The chart or tape shall show the date and time of day at intervals of not more than 15 minutes. Gradation lines on the cementitious materials chart shall be at intervals of not more than 20 pounds.

e. The recorded chart or tape shall become the property of the Government.

f. The recorder shall be placed in a position convenient for observation by the concrete plant operator and the Contracting Officer, and mounted to prevent excessive vibration which causes inaccurate readings.

g. The recorded weights or volumes, when compared to the weights or volumes actually batched, shall be within plus or minus 2 percent.

3.1.6 Batch Counters

The plant shall include devices for automatically counting the total number of batches of all concrete batched.

3.1.7 Admixture Dispensers

An accurate mechanical system for measuring and dispensing each admixture shall be provided. Each system shall be capable of ready adjustment to permit varying the quantity of admixtures to be batched. Each admixture shall be added to the batch in a separate portion of the mixing water or in a separate portion of the fine aggregate in a manner to ensure uniform distribution of the admixtures throughout the batch. The dispensing systems shall provide a convenient means of visually observing from the control panel the admixture in process of being batched or discharged.

3.1.8 Sampling

The Contractor shall provide suitable facilities and labor for obtaining representative samples of concrete from the mixer or the wet batch hopper for Contractor quality control and Government quality assurance testing. All necessary platforms, tools, and equipment for obtaining samples shall be furnished by the Contractor.

3.1.9 Control Equipment Protection.

The indicating, recording, and control equipment shall be sufficiently protected against exposure to dust, moisture and vibration so there will be no interference with proper operation of the equipment.

3.2 CONCRETE MIXERS

3.2.1 General

Mixers may be stationary mixers, truck mixers, paving mixers, or turbine-type mixers of approved design. The mixers shall have a rated capacity of at least 27 cu. ft. of mixed concrete and shall not be charged in excess of

the capacity recommended by the manufacturer. Mixers shall be capable of combining the materials into a uniform mixture and of discharging this mixture without segregation. Each stationary and paving mixer shall be provided with an acceptable device to lock the discharge mechanism until the required mixing time has elapsed. Truck mixers shall be equipped with accurate revolution counters. The mixers shall be operated at the drum or blade speed designated by the manufacturer on the nameplate. The acceptability of truck mixers will be determined by uniformity tests as required by [ASTM C 94](#). The mixing periods specified herein are predicated on proper control of the speed of rotation of the mixer drum or mixing blades and on proper introduction of the materials into the mixer. The mixing time of stationary or paving mixtures shall be increased when such increase is necessary to secure the required uniformity of the concrete or when test samples of concrete taken from the first, middle and last portions of the mixer discharge is less than any of the following requirements when tested in accordance with the provisions of [COE CRD-C 55](#). When authorized by the Contracting Officer, the mixing time may be reduced to the minimum time required to meet all the following requirements.

<u>Test</u>	Maximum Allowable Variation of Any One Test Value from the <u>Average of Three</u>
Weight per cubic foot of mortars calculated to an air-free basis, lb/ft ³	plus or minus 1.6
	Maximum Allowable Variation of Any One Test Value from the <u>Average of Three</u>
Air content, volume percent of concrete	plus or minus 1.0
Slump, inches	plus or minus 1.0
Coarse aggregate content, portion by weight of each sample retained on No. 4 sieve, percent	plus or minus 6.0
Average compressive strength at 7 days, percent	plus or minus 10.0
Water content, portion by weight of each sample passing No. 4 sieve, percent	plus or minus 1.5

When the Contractor proposes to reduce the mixing time, uniformity tests at reduced mixing time will be made by the Government, at the Contractor's expense, to determine whether the reduced mixing time meets the requirements of the specifications. Excessive over-mixing requiring additions of water will not be permitted. The mixers shall be maintained in satisfactory operating condition, and mixer drums shall be kept free of hardened

concrete. Mixer blades shall be replaced when worn more than 10 percent of their initial depth. Should any mixer at any time produce unsatisfactory results, its use shall be promptly discontinued until it is repaired. Suitable facilities shall be provided for obtaining representative samples of concrete for uniformity tests. All necessary platforms, tools, labor and equipment for obtaining samples shall be furnished by the Contractor.

3.2.2 Stationary Mixers

If no uniformity test data are available, the mixing time for each batch after all solid materials are in the mixer shall be one minute for mixers having a capacity of one cubic yard, provided that all of the mixing water is introduced before one-fourth of the mixing time has elapsed. For mixers of larger capacities, the minimum mixing time shall be increased 15 seconds for each additional cubic yard or fraction thereof of concrete mixed. When a stationary mixer is used for partial mixing of the concrete (shrink-mixing), the mixing time in the stationary mixer may be reduced to the minimum necessary to intermingle the ingredients (about 30 seconds).

3.2.3 Truck Mixers

Truck mixers and the mixing of concrete therein shall conform to the requirements of [ASTM C 94](#). A truck mixer may be used either for complete mixing (transit-mixed) or to finish the partial mixing accomplished in a stationary mixer (shrink-mixed). Each truck shall be equipped with two counters from which can be determined the number of revolutions at mixing speed and the number of revolutions at agitating speed.

3.2.4 Paving Mixers

Paving mixers, if used, shall be used at the site' of the work. Paving mixers may be either single compartment drum or multiple compartment drum type. Multiple compartment drum paving mixers shall be properly synchronized and the mixing time shall be determined by including the time required to transfer the concrete between compartments of the drum. If no uniformity test data are available, the mixing time for each batch, after all solid materials are in the mixer drum shall be one minute for mixers having a capacity of one cubic yard, provided that all the mixing water is introduced before one-fourth of the mixing time has elapsed. For mixers of larger capacities, the minimum mixing time shall be increased 15 seconds for each additional cubic yard or fraction thereof of concrete mixed. Vehicles used in transporting material from the batching plant to the mixers shall have bodies or compartments of adequate capacity to carry the materials and to deliver each batch, separate and intact, to the mixer. Except as otherwise approved by the Contracting Officer, loose cement and fly ash shall be transported from the batching plant to the mixers in separate boxes or compartments which shall be equipped with windproof and rainproof covers.

3.3 ARTICULATED CONCRETE MATTRESS

3.3.1 Scope

The work covered by this section consists of furnishing all materials and equipment except as provided in the section entitled, "SPECIAL CONTRACT REQUIREMENTS", paragraph GOVERNMENT-FURNISHED FACILITIES and paragraph

IDENTIFICATION OF GOVERNMENT-FURNISHED PROPERTY, and performing all labor for the manufacturing, transporting, placing, finishing, and curing of concrete in the articulated concrete mattress.

3.3.2 Composition

Concrete: Concrete for articulated mattress shall be composed of cementitious materials, water, fine and coarse aggregate, air-entraining, and water-reducing admixtures, and at the option of the Contractor, an accelerating admixture (calcium chloride).

3.3.3 Proportioning of Concrete

a. General. The proportion of all material entering into the concrete shall be as directed by the Contracting Officer. The Contractor shall provide all necessary equipment and plant to determine and control the actual quantities of material entering each batch. The proportions will be changed by the Contracting Officer whenever such change is necessary in order to maintain the standard of quality required.

b. Water Content. The water content of all concrete mixtures shall not be more than 65 pounds per hundredweight of cementitious materials.

c. Cementitious Materials Content. The cementitious materials content of the concrete will range from an approximate minimum of 3.0 to an approximate maximum of 5.0 hundredweight per cubic yard, depending on size, type, and gradation of aggregate used, and on the structural requirements as determined by the Contracting Officer. The cementitious material shall consist of a blend of 75 percent Portland cement and 25 percent fly ash by absolute volume of the total. The Contractor may adjust the mix by substituting Portland cement for fly ash in order to accelerate set time. Additional cost resulting from such adjustment shall be at no additional expense to the Government. The Government reserves the right to change the mix design by directing substitution of cement for fly ash. When so directed, payment for theoretical batch weights of cement and fly ash in the new mix will be made at the applicable contract unit price.

d. Aggregate Content. Concrete mixes will be designed to use the maximum quantity of coarse aggregate placeable in the various parts of the form and the aggregate plant shall be designed on this basis.

e. Placability. The concrete mixtures which have been designed and tested in the laboratory will be adjusted in the field from time to time to meet the varying conditions encountered during casting operations. The water content of all concrete mixtures will be the minimum necessary to properly place the mixture being used.

f. Slump. The slump will be stipulated by the Contracting Officer but will generally be in the range of 3 to 4 inches as determined by [ASTM C 143](#). Concrete sampling shall be done in accordance with [ASTM C 172](#).

g. Air-Entraining. An air-entraining admixture shall be added at the mixer to each batch of concrete. The quantity of admixture used shall be such as to control the quantity of entrained air within the concrete to within the limits of 4 to 7 percent as determined by [ASTM C 231](#) when

the concrete is discharged from the mixer. The intent is to maintain the entrained air in the concrete as near as practicable to 5.5 percent while allowing some latitude for individual batches. Concrete sampling shall be done in accordance with [ASTM C 172](#).

h. Calcium Chloride. At the Contractor's option and expense, a solution not exceeding 2 pounds of crystal or pellet calcium chloride per hundredweight of cement may be used in the concrete mixture. The calcium chloride shall be dissolved in water in the ratio of 1 pound of crystals or pellets to 2 pounds of water and the mixing solution used to replace a similar quantity of the mixing water. Should a calcium chloride solution be used, none of the other conditions of the specifications applying to mixing, placing, or curing the concrete will be waived. To facilitate the maintenance of a workable mixture and good project records, the Contractor shall, at the start of casting operations each day, inform the Contracting Officer as to the quantity of calcium chloride to be used. He shall continue such notification approximately 20 minutes in advance of each change in quantity of calcium chloride throughout the day.

3.4 CONCRETE CONVEYING

Concrete shall be conveyed from mixer to forms as rapidly as practicable, by methods which will prevent segregation or loss of ingredients. The concrete mix shall be so controlled that suitable workability at the forms will be obtained at all times without the use of excessive water. Design of the transporting equipment shall be of such a nature as to allow discharge of the concrete into the forms at all heights of the stacks without addition of excessive water. Concrete shall be placed before initial set has occurred and unless otherwise authorized not more than 45 minutes after introduction of water to the cementitious materials.

3.5 TRIAL OPERATION

Not less than 10 days prior to commencement of concrete placing, a test of the batching and mixing plant shall be made in order to check operational efficiency. If the plant is the same as used on the previous contract and has not been moved, testing shall be performed not less than 8 days prior to commencement of placing concrete. The number of full-scale concrete batches required to be produced in trial runs will not exceed 10 and shall be proportioned as directed by the Contracting Officer. During these trial runs, the Government will make cylinders, as necessary, to field adjust the design mix before production of mat begins. All other concrete produced in these tests shall be wasted in low areas of the casting field and incorporated into the field surface. All deficiencies found in plant operation shall be corrected to the satisfaction of the Contracting Officer prior to start of concrete placing operations. No separate payment will be made to the Contractor for plant, labor, or materials, required by the provisions of this paragraph.

3.6 CASTING

Squares of mattress shall be cast in stacks as indicated on the drawings. The stacks shall be neatly aligned vertically and by rows. At the beginning of casting operations, if there are stacks that have not been brought to the required height, the Contractor will be required to complete these stacks

first. When the Contractor approaches completion of the casting operations, he shall schedule concrete placements in order to complete the casting operation with no incomplete stacks. Incomplete stacks will be permissible only if completion cannot be achieved prior to the date established in the contract when casting shall cease. At the conclusion of casting requirements and form cleanup, the steel forms shall be picked up and moved to form storage areas. The forms shall be stored in stacks ten high at locations on the field as directed by the Contracting Officer. The forms shall then be sprayed with an approved type of form release agent. The Contractor shall also spray the forms at intervals not to exceed four (4) months as long as the Contractor has equipment on the field and the contract remains open. No separate payment will be made for spraying forms during non-casting period and all costs in connection therewith will be distributed through existing bid items.

3.7 CASTING PROCEDURE

3.7.1 Paper Installation

One layer of the specified paper shall be placed as a separation beneath the bottom square of each stack and between each successive layer of mattress. Before the paper is spread, preparatory to reassembling the forms, the top surface of the concrete square shall be swept clean of loose gravel and debris. When determined necessary by the Contracting Officer, paper that is wet shall be removed and replaced with dry paper before placing concrete, at no additional cost to the Government.

3.7.2 Form Placement

Forms shall be placed sufficiently in advance of concrete placement to allow time (a minimum of 15 minutes) for inspection and minor adjustments of forms and fabric, if required. Forms shall not be placed upon a previously cast square of mattress until the concrete has obtained sufficient strength to withstand possible damage by the form. Normally this time will be 3 hours or more, depending upon the use of calcium chloride, weather, and temperature conditions. This time could vary considerably. The placement procedure shall be as follows:

The wire fabric shall first be placed on the paper with the cross wires (bracket wires) on top of the longitudinal wires. The forms shall then be placed over the fabric, the fabric drawn up into the notches in the sides and cross pieces of the forms, cross rods driven, and the cams at the end of the forms locked to secure the fabric in its proper position on the central plane of the form section. Cams at both ends of the forms shall be turned simultaneously to secure the fabric equi-distant from each end of the casting form. The central location of the fabric in the form is very important. The Contractor shall use all loose or broken bundles of fabric before opening a new bundle.

Completed mattress squares in which the fabric has sagged too near the bottom surface of the square will be rejected. Adjustments to the fabric such as blocking or crimping of the fabric to secure proper alignment in the form shall be made at no additional expense to the Government.

3.8 FORM RELEASE AGENT

After the forms have been completely assembled with fabric in place, they shall be sprayed with an approved form release agent. The form release agent shall be sprayed in sufficient quantity to completely coat the forms, but shall not be used in amounts sufficient to form puddles or excessive accumulations of form release agent on the paper or forms. Any excess form release agent which, in the opinion of the Contracting Officer, is sufficient to damage the concrete shall be removed before the concrete is placed.

3.8.1 Form Release Agent-Commercial Products

a. Nonpetroleum Based. Form release agents shall be manufacturer's standard, nonstaining, nonpetroleum based. The Contractor shall submit to the Contracting Officer for approval, **Form Release Agent Certification** from the manufacturer.

b. Petroleum Based. Form release agents shall be manufacturer's standard, nonstaining, petroleum based. The Contractor shall submit to the Contracting Officer for approval, certification from the manufacturer that the material meets the acceptance criteria described below. Should a shipment of form release agent be delivered to the site without approval of the Contractor's certification or which does not meet the acceptance criteria, the Contracting Officer's Representative may reject the shipment. Any costs associated with the return of the shipment shall be at no expense to the Government

3.8.2 Form Release Agent-Other Than Commercial Products

a. General. If the form release agent proposed for use is other than a commercial product manufactured specifically for this purpose, the Contractor shall provide **Results of Quantitative Analyses of the Proposed Release Agent** for hazardous waste characteristics identified in **40 CFR 279** and **40 CFR 261**, Subpart C; for polychlorinated biphenyls (PCBs); and for total halogens. All analytical results shall be submitted to, and approved by the Contracting Officer.

b. Acceptance Criteria. Materials exhibiting RCRA hazardous characteristics as defined in **40 CFR 261**, Subpart C; materials with the potential to exhibit RCRA hazardous characteristics based on total concentrations; and materials containing listed hazardous waste as defined in **40 CFR 261**, Subpart D are not acceptable for use as form release agents. The Contractor shall certify in writing that the form release agents provided under this contract do not contain and were not derived from any listed hazardous waste(s) identified in 40 CFR 261.31, 261.32, or 261.33. The Contractor shall further certify in writing the form release agents do not exhibit any of the hazardous waste characteristics by the methods identified or referenced in 40 CFR 261.21, 261.22, 261.23 or 261.24. Additionally, the form agents shall not contain PCBs at concentrations equal to or greater than 2 parts per million (ppm) or "Total Halogens" at concentrations equal to or greater than 1,000 ppm. Certification statements and the associated supporting analytical reports shall be submitted to the Contracting Officer's Representative (COR). Review and approval of the Contractor's

certification statement and supportive analytical package shall be required prior to acceptance and delivery of the form release agent to the site.

c. Sampling. The Contractor shall provide the Contracting Officer with the results of the required analyses for all form release agents used on the contract. The number of samples required will depend on the method the Contractor and the form release agent supplier utilize to supply the form release agent for the contract. The minimum number of samples is one, where the supplier agrees to supply the total amount of agent from one "batch". A "batch" is defined as a quantity of agent having uniform and identical chemical composition. Where the total amount of agent is supplied from several batches, analyses will be required on each batch. If any substance is added to the form release agent after samples have been tested and accepted, the form release agent shall be retested for compliance. It is the Contractor's responsibility to coordinate sampling and testing as required, such that ongoing work is not delayed. Sampling shall be coordinated in advance with the Contracting Officer. **Split Samples for Government Analysis** shall be provided by the Contractor to the Government, if required, at no additional cost to the Government.

d. Analysis. The Contractor shall provide to the Contracting Officer the **Name, Mailing address, and Physical Location of the Analytical Laboratory** to be used. All sampling and analysis shall be performed in accordance with methods contained in the current edition of EPA Publication **EPA SW-846.3-3** entitled, "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods." With the exception of the ignitability, corrosivity, and reactivity analyses, any laboratory performing chemical analyses for this project shall be validated by USACE. Laboratories are validated for each environmental matrix and each specific analytical method to be employed on a project specific basis. If the Contractor selects a laboratory which has a current (within 18 months) validation for all project specific methods, analyses and matrices specific to its project, additional evaluation will normally not be necessary. Samples may not be subcontracted to another laboratory unless the second laboratory is validated for the parameters concerned. The time frames typically required for the USACE laboratory validation program is 3-5 months with the renewal of a validation requiring 1 to 2 months.

e. Analytical Requirements. The samples shall be analyzed for the following parameters according to the listed methods/properties:

- (1) Ignitability. A flash point determination shall be made using EPA SW-846 Method 1010.
- (2) Corrosivity. For aqueous materials, a pH determination shall be made utilizing **EPA SW-846.3-3** Method 9045. For purposes of this specification, this parameter is not applicable to non-aqueous materials.
- (3) Reactivity. A reactive cyanide determination shall be made using **EPA SW-846.3-3** Chapter 7, Volume IC, Section 7.3. A reactive sulfide determination shall be made using EPA SW-846 Chapter 7, Volume IC, Section 7.3.

(4) Toxicity. Total concentration of mercury shall be determined utilizing EPA SW-846.3-3 Method 7470. Total concentrations of arsenic and selenium shall be determined utilizing atomic adsorption spectrometry, methods 7060 and 7740 respectively. Barium, cadmium, chromium, lead, and silver concentrations shall be determined utilizing inductively-coupled plasma spectrophotometry, Method 6010. Benzene; carbon tetrachloride; chlordane; chlorobenzene; chloroform; m-cresol; o-cresol; p-cresol; 2,4-D; 1,4-dichlorobenzene; 1,2 dichloroethane; 1,1-dichloroethylene; 2,4-dinitrotoluene; endrin; heptachlor; hexachlorobenzene; hexachlorobutadiene; hexachloroethane; lindane; methoxychlor, methyl ethyl ketone; nitrobenzene; pentachlorophenol; pyridine; tetrachloroethylene, toxaphene; trichloroethylene; 2,4,5-trichlorophenol; 2,4,6 trichlorophenol; 2,4,5-TP; and vinyl chloride shall be determined utilizing Method 8260 for the volatile organics, Method 8270 for the semi-volatile organics, and Method 8081 for the pesticides. For the purpose of determining whether or not the material meets the Toxicity Characterization Leaching Procedure (TCLP) acceptance criteria, the results of total concentrations shall be utilized to calculate maximum leachable concentrations of constituents. Detection methods shall be at or below regulatory levels specified in 40 CFR 261.24, Table 1.

(5) PCBs. PCB concentrations shall be determined utilizing method 8081. Detection limits shall be at or below 2ppm.

(6) Total Halogens. Total halogen concentration shall be determined utilizing method 9075.

3.9 FORM RELEASE AGENT - DISPOSAL PROHIBITION

The disposal of form release agents at the jobsite is prohibited. Also, all release agents remaining in storage at the time of physical contract completion shall be removed by the Contractor.

3.10 CONCRETE PLACEMENT

Concrete shall be compacted to the depth of the form by the use of vibrators or other approved methods. Vibrating equipment shall be capable of a minimum of 6,500 vpm. The concrete shall be properly consolidated with no rock pockets, excessive voids or honeycombs visible on the mat surface. The concrete shall be struck flush with the top of the forms and given a uniform surface finish and uniform thickness. After passage of the vibrator and/or finishing machine, additional concrete shall be placed in those individual blocks which are noticeably hollowed, dished out, or deficient in concrete, and finished by handwork to a uniform surface flush with the top of the forms. The complete finishing of concrete shall be kept as near the placing operations as practicable and the placing of concrete shall never precede final finishing operations by more than 50 squares. All concrete placing equipment and methods shall be subject to approval of the Contracting Officer. Excessive thickness of individual squares shall not exceed 3/8 inch, and the height of the finished stacks shall not be in excess of 42 inches. Any squares in which the surface of the concrete is not finished flush with the top of the forms, resulting in "dished" tops or in excess of the allowable overbuild, will be rejected. The top of the completed stack

shall be relatively straight and level, and the height of the center of the stack shall not be greater than 1-1/2 inches higher or lower than the ends of the stack. Finished stacks shall not be out of plumb on the ends or sides by more than 2 inches. The maximum allowable offset between successive squares shall not exceed 1/4 inch on the ends or sides.

3.11 ROUGHENED FINISH

The mat surface shall be roughened to provide indentations of approximately 1/4 inch in depth and 1/8 inch (or the size of a brush wire as approved by the Contracting Officer) in width. The depth shall in no way reduce the 3 inch required thickness of mat by more than 1/4 inch. The indentations shall be spaced no greater than 1 inch apart for the maximum width or no less than 1/2 inch apart for the minimum width. The roughening shall be performed by the final dressing machine and at a time which will provide indentations that meet the minimum width specified above. The indentations shall be installed in the longitudinal direction of the full 4 foot width of mat so they are transverse to the river flow after placement as revetment. A trial section consisting of 4 to 5 rows shall be run to verify performance of equipment function. Equipment shall be modified and adjustments made by the Contractor, as necessary, to develop satisfactory performance as determined by the Contracting Officer. A steel brush may give an acceptable product, however, adjustments may be required to such equipment to produce acceptable results as determined by the Contracting Officer. The Contractor's Proposed Plan for furnishing the Roughened Finish shall be submitted a minimum of 30 days prior to commencement of casting for review by the Contracting Officer. No separate payment will be made for roughening the mat. All costs, therefore, shall be included in the contract unit price for "Casting Mattress."

3.12 FORM STRIPPING

Forms shall be stripped from the squares as soon as this can be accomplished without damage to the concrete, usually after the concrete has set for 2 to 3 hours. Cracks in the concrete caused by failure to properly release the fabric, or from any other cause shall be repaired immediately after form removal. Forms shall be removed from the stacks and placed gently on the ground in such a manner as to avoid bending or breaking the forms. In removing the forms, equal force shall be applied at points equally spaced around the entire perimeter of the forms. The forms shall not be removed by applying forces only at the ends of the forms. Fabric that is bent or distorted during form removal shall be cause for rejection of the block or blocks in which it is embedded and the fabric shall be straightened to its original state prior to recasting the block or blocks. Promptly upon removal of the forms, the top surface of the concrete squares shall be swept clean of loose gravel and debris. Concrete extruded more than 1/4 inch beyond the neat (inside) lines of the forms shall be removed. Spillage accumulating in the end loop and side bracket wire recesses or on any part of previously cast mattresses shall be promptly removed.

3.13 FORM CLEANUP

After removal from the new mattress and placed on level ground, the forms shall be thoroughly chipped and brushed clean of all concrete prior to reuse. Use of equipment that causes damage to forms will not be allowed.

Upon completion of any casting period, the cleaned forms shall be oiled and any damaged forms shall be straightened and repaired as necessary.

3.14 CURING AND PROTECTION

3.14.1 Warm Weather

a. Ambient Temperature 40 to 70 Degrees F and Above. The following criteria apply when the ambient temperature of the field is 40 degrees F or higher but less than 70 degrees F, and concrete placing operations are discontinued for 4 hours or more or as the stacks of squares are topped out. The Contractor shall keep the surface of the top of the rows or stacks that are being cured continuously wet by sprinkling with water during the remaining daylight hours on the day the concrete was cast and for the following seven successive days during daylight hours or until casting on those stacks is resumed, whichever is earlier.

b. Ambient Temperature Above 70 Degrees F. When the ambient temperature of the field is 70 degrees F, or higher, and the concrete placing operations are to be discontinued for 4 hours or more or as the stacks of squares are topped out, the Contractor shall keep the surface of the top of the rows of the stacks that are being cured continuously wet by sprinkling with water for seven successive 24-hour days or until casting on those stacks is resumed, whichever is earlier.

c. Curing Compound. In lieu of keeping squares of mattress continuously wet as specified above, membrane curing compound meeting the requirements of this specification may be used. The curing compound shall be applied to the exposed surfaces of the squares immediately after removal of the forms, final cleanup of loose gravel and debris, and as soon as free water has disappeared, and applied in accordance with the manufacturer's recommendations. Should heavy rainfall occur within 3 hours after the curing compound has been applied, and the squares have not been rejected under other provisions of these specifications, the curing compound shall be reapplied as specified above. All surfaces on which the curing compound has been applied shall be adequately protected from any cause which will disrupt the effectiveness of the curing compound during the entire 7-day curing period.

3.14.2 Cold Weather

Concrete shall not be placed when the ambient temperature is below 40 degrees F unless approved by the Contracting Officer. When the ambient temperature at the field is 40 degrees F and falling, freshly placed concrete shall be covered with tarpaulins or cotton quilts with air space between the concrete and the cover or the Contractor shall provide another approved means of protecting the concrete from freezing at no additional cost to the Government. The temperature of the air in contact with the freshly placed concrete shall not be allowed to fall below 40 degrees F for at least 72 hours after placement. When the ambient temperature is forecast to fall below 40 degrees F, the materials and equipment necessary to ensure maintenance of required curing temperatures and protection of the concrete from freezing shall be on the casting site before concrete is placed. Any concrete which has been allowed to freeze before its final set will be rejected.

3.14.3 Rainy Weather

The Contractor shall take such steps as may be necessary to protect green concrete from rain damage. Any mattress which is damaged due to lack of protection from rain damage will be rejected.

3.15 EXCESS PAPER

Prior to final inspection of the mattress, all paper extending more than 1/2 inch outside the straight lines of the completed mattress shall be removed by tearing and/or burning. The following restrictions apply when burning is used as a means of removing the paper:

- a. Burning will not be permitted in violation of city, State or Federal Air Pollution laws.
- b. Burning will not be permitted if the concrete in the completed stack and adjacent stack is less than 14 days old.
- c. Burning agents such as gasoline or other highly volatile liquids will not be permitted. Diesel fuel, propane and kerosene are acceptable for use as burning agents. The amounts of burning agent used should be the minimum required to remove the excess paper. If the Contracting Officer determines that excessive amounts of burning agent are being used, the Contractor shall decrease the amount to an acceptable level.

3.16 REPLACING DEFICIENT MATTRESS

Mattress or blocks within a mattress that are rejected because of cracks or any deficiency shall be broken out and replaced upon notice of rejection. Every effort shall be made to salvage the fabric from rejected mattress without damaging the fabric. Any fabric damaged beyond use shall be paid for by the Contractor at the rate of \$16.70/square specified in Section H - SPECIAL CONTRACT REQUIREMENTS, paragraph IDENTIFICATION OF GOVERNMENT PROPERTY, subparagraph FABRIC. Rejected mattress or rejected blocks shall be replaced using the procedure outlined in these specifications for casting mattress, except a hand-held vibrator, or other method approved by the Contracting Officer, shall be used for concrete consolidation. Failure to comply with all casting requirements will be caused for rejecting the repaired mattress or blocks. Replacement of rejected mat shall be accomplished in such a time frame and at such a pace that the levels of mat on the affected row shall not differ by more than two squares from adjacent stacks.

3.17 FIELD CONDITIONS

3.17.1 Field Maintenance

As soon as a row of stacks is completed and before construction on another row of stacks is started, these work areas shall be lightly bladed and waste material incorporated into the field surface. Pieces of concrete 3 inches or larger shall be removed from the field and wasted in areas designated by the Contracting Officer. The surface area located within a minimum of 18 inches adjacent to the sides of each stack shall be smoothly graded or

cleared to an elevation no higher than the bottom of the first square of mattress in the stack. As soon as the aisle between two completed rows of mattress and the end spaces between the stacks have been satisfactorily cleaned and graded, these areas will be accepted and no further cleaning and grading will be required in such areas except that any waste material subsequently deposited by the Contractor in an accepted area shall be removed by the Contractor at his expense prior to final acceptance of work under this contract.

3.17.2 Wet Field Conditions

The concrete placing and stockpiling equipment shall not operate on the field during such periods when, in the opinion of the Contracting Officer, the operation of the equipment would cause undue damage to the field or roadways.

3.17.3 Casting Field Flooding

The casting is subject to flooding at high river stages; therefore, the casting operations will not be permitted when, in the opinion of the Contracting Officer, river stages are such that casting operations cannot be performed. The contract time will be extended the number of days equivalent to the time lost by reason of the prevention of casting operations pursuant to the provisions of this paragraph. No adjustment in contract price will be made as a result of any time extension resulting from field flooding.

3.18 RECORDS

A copy of the Contractor's inspection tests and records, as well as records of corrective action taken, shall be furnished the Government daily.

-- End of Section --

The following have been deleted:

WAGE DETERMINATION

SECTION E - INSPECTION AND ACCEPTANCE

The following have been added by full text:

INSPECTION

SECTION E

INSPECTION AND ACCEPTANCE

E-1 See clause 52.246-2, "INSPECTION OF SUPPLIES--FIXED-PRICE (AUG 1996)" at the end of Section E.

E-2 See clause 52.246-16, "RESPONSIBILITY FOR SUPPLIES(APR 1984)" at the end of Section E.

E-3 INSPECTION.

E-3.1 Scope. The work shall be conducted under the general direction of the Contracting Officer and is subject to inspection by his appointed representatives to ensure strict compliance with the terms of the contract. No representative is authorized to change any provision of the specifications without written authorization of the Contracting Officer, nor shall the presence or absence of a Government representative relieve the Contractor from any requirements of the contract.

E-3.2 Quality Assurance. Except as specified in this section and in Section C, all expenses of quality assurance inspection will be borne by the Government.

E-3.3 Contractor Responsibilities. The Contractor shall furnish, on request of the Contracting Officer or his field representative, laborers and material as may be reasonably necessary in laying out the field, inspecting and supervising the work and verifying the field layout of forms prior to casting new stacks of mat. This shall be documented.

E-4 CONTRACTOR INSPECTION SYSTEM.

E-4.1 General. The Contractor, at his expense, shall establish and maintain inspection of the casting of articulated concrete mattress to assure compliance with the contract requirements and maintain records of all operations including, but not limited, to the following:

(1) Production sampling and testing which includes the following tests, procedures and minimum frequency of testing:

(a) Fine Aggregate - Sieve Analysis - CRD-C 103, Three tests during each shift when stockpiling and at least one test during each 8-hour period when concrete plant is operating.

(b) Fine Aggregate - Fineness Modulus - CRD-C 104, Three tests during each 8-hour period when stockpiling and at least one test during each 8-hour period when concrete plant is operating.

(c) Fine Aggregate - Moisture Content - CRD-C 111, CRD-C 112, and CRD-C 113, At least one test during each 8-hour period of concrete production. When, in the opinion of the Government Inspector, the electric moisture meter is not operating satisfactorily, at least four tests during each 8 hour period will be required. The results of the moisture content tests will be used to adjust the added water in the mix.

(d) Coarse Aggregate - Sieve Analysis - CRD-C 103, Three tests during each shift when stockpiling and at least one test during each 8-hour period when concrete plant is operating.

(e) Coarse Aggregate - Moisture Content - CRD-C 112 and CRD-C 113, Two tests during each 8-hour period of concrete production.

(f) Particle Shape. When, in the opinion of the Contracting Officer, a problem exists in connection with aggregate particles shape, tests shall be made in accordance with CRD-C 119. Testing frequency shall be not less than one test per day.

(g) Deleterious Substances. When, in the opinion of the Contracting Officer, a problem exists in connection with deleterious substances in the coarse or fine aggregate as listed in Table 1 or Table 3 of ASTM C 33, tests shall be made in accordance with the appropriate ASTM test method. Testing frequency shall be not less than one test per day.

(h) The Contractor shall perform a slump test (Slump Test C143-98, CRD-C5, Slump of Hydraulic Cement Concrete) and an air test (Air Test C231-916, CRD-C41, Air Content of Freshly Mixed Concrete by the Pressure Method) for every 250 cubic yards cast and as needed for control during a 10-hour workday.

(2) All aggregates barged to the jobsite shall be sampled and tested prior to unloading. When test results indicate that materials do not conform to the specified requirements, corrective action shall be taken promptly and material not meeting the specifications shall be promptly removed from the site.

(3) Weighing Accuracy. The accuracy of the scales shall be checked by test weights at least once a month for conformance with the applicable requirements of Section C, paragraph 3.1.2, "Scales". Such tests shall also be made whenever there are variations in properties of the fresh concrete that could result from batching errors.

(4) Installing Fabric and Placing Concrete. The Contractor shall delineate the forms which contain the first and last pieces of fabric in each bundle used. The Contractor shall report on the daily report the bundle numbers, pieces of fabric contained therein and any differences in quantities of fabric from the count shown on the bundle.

(5) Check cleanout and tolerances in stacks of mattress once during each day's operation.

(6) The Contractor shall perform a daily safety inspection of the jobsite, equipment, or separate segments thereof. The inspection shall be performed by the Contractor's job supervisory staff, a company safety specialist, a safety consultant, or a safety representative of the compensation insurance carrier. The results shall be documented, along with any corrective action taken, on the daily report.

(7) The Contractor shall inspect the site daily for all housekeeping requirements and document findings. A responsible person must be delegated in writing by the Contractor for assuring compliance with housekeeping requirements of EM 385-1-1, (dated 3 November 2003), Section 14.C.

E-5 ACCEPTANCE.

E-5.1 General. The Government will perform all assurance testing of aggregates and concrete. Assurance testing of aggregates will consist of the same tests listed above as well as other quality tests. Assurance testing of concrete will consist of slump, air content, unit weight, compressive strength tests and other tests as deemed necessary.

E-5.2 Reports. The Contractor shall furnish daily three copies of daily reports which shall include but not be limited to the following: number of squares cast; deficiencies found by the Contractor and corrective action taken; instructions given by the Government Representative; safety inspection deficiencies and corrective action taken; employees on the job and total man-hours; materials used, including cement calculated to the nearest pound, fly ash calculated to the nearest cubic foot, and number of pieces of fabric used; calcium chloride calculated to the nearest

pound; etc. The report shall show all materials received that day and to date, all materials used that day and to date, and all materials on hand.

E-5.3 Squares. As soon as each square of mattress has been cast, the forms removed, damage repaired in accordance with these specifications and curing completed, it shall be accepted or rejected in accordance with terms of the specifications. Acceptance of individual squares will not relieve the Contractor of the responsibility of complying with all provisions of these specifications for completed stacks of mat. After the top square of each stack has been cast, the Contractor shall comply with all provisions of Section C before any squares cast in adjoining stacks will be accepted.

E-5.4 Stacks. After each stack of mattress has been completed, the Contractor will be permitted to repair any damage or correct any deficiencies in the completed stack. The completed stack of mattress will then be accepted or rejected in accordance with the terms of these specifications. After a completed stack of mattress is accepted, all responsibility for such mattress shall pass to the Government except that the Contractor shall be responsible for any damage to the mattress due to his fault or negligence which occurs prior to final acceptance of all work under this contract. Such acceptance will not be made until the specified cleanup is satisfactorily accomplished.

(End of Section E)

SECTION F - DELIVERIES OR PERFORMANCE

The following have been added by full text:

DELIVERY PERFORMANCE

SECTION F

DELIVERIES AND PERFORMANCE

F-1 COMMENCEMENT, PROSECUTION AND COMPLETION.

F-1.1 Commencement. Upon receipt of Notice of Award, the Contractor shall proceed with preparations for performance of the contract which do not interfere with the removal of the previous Contractor's equipment, such as making arrangements for the procurement of materials and supplies required for the work. The Contractor shall furnish his proposed sources of concrete aggregates and a plan for batch plant erection, including but not limited to type of plant and proposed location on the field, within 10 days after receipt of Notice of Award. Upon receipt of the Notice to Mobilize, the Contractor will have unrestricted access to the field to assemble and make ready for operation all necessary plant and equipment. The Contractor

shall maintain the field in accordance with Paragraph 1.8.2, "Casting Field" in Section H. Any aggregate delivered to the site of the work shall not be removed therefrom without the written consent of the Contracting Officer. The Notice to Proceed for Casting will not be issued prior to 15 days after the Contractor receives Notice to Mobilize unless mutually agreed upon by the parties. The Contractor shall commence casting operations within 15 calendar days after the date of receipt by him of the Notice to Proceed for Casting. It is anticipated that the Notice to Proceed for Casting will be issued about 15 March 2006.

F-1.2 Prosecution and Completion.

F-1.2.1 The Contractor shall prosecute the work at an average rate of not less than 910 squares per calendar day during the payment period. Prior to determining the average, the number of calendar days during the period shall be reduced by the number of days of excusable delays which occurred during that period. Excusable delays for weather do not occur until the number of actual days of delay exceed that shown in Section H, paragraph 1.25, "Time Extensions for Unusually Severe Weather. The Contractor shall cast at no less than the minimum rate until the entire quantity (basic and option) has been delivered.

F-1.2.2 For purposes of assessing retainages, the average calendar day rate shall be computed at the end of each pay cycle over the preceding pay period. The production days will be computed using the calendar days in that period reduced by the number of excusable delay days. The average production shall be determined by dividing the number of acceptable squares cast during the period by the number of production days. If the Contracting Officer finds that satisfactory progress was achieved during the period, the Contracting Officer shall authorize payment to be made in full. However, if satisfactory progress has not been made during the period, the Contracting Officer may retain a maximum of 10 percent of the amount of the payment. When the work is substantially complete, the Contracting Officer may retain from previously withheld funds and future progress payments that amount the Contracting Officer considers adequate for protection of the Government and shall release to the Contractor all the remaining withheld funds.

F-1.2.3 For purposes of computing liquidated damages (see paragraph F-2), a calendar day of delay shall be determined by subtracting the actual number of acceptable mat cast during the contract from the theoretical minimum (i.e. 910 squares per day times the number of production days to date in the contract) divided by 910 squares per day. Computation shall be made to the nearest whole day.

52.211-17 DELIVERY OF EXCESS QUANTITIES (SEP 1989)

The Contractor is responsible for the delivery of each item quantity within allowable variations, if any. If the Contractor delivers and the Government receives quantities of any item in excess of the quantity called for (after considering any allowable variation in quantity), such excess quantities will be treated as being delivered for the convenience of the Contractor. The Government may retain such excess quantities up to \$250 in value without compensating the Contractor therefor, and the Contractor waives all right, title, or interests therein. Quantities in excess of \$250 will, at the option of the Government, either be returned at the Contractor's expense or retained and paid for by the Government at the contract unit price.

52.211-18 VARIATION IN ESTIMATED QUANTITY (APR 1984)

If the quantity of a unit-priced item in this contract is an estimated quantity and the actual quantity of the unit-priced item varies more than 15 percent above or below the estimated quantity, an equitable adjustment in the contract

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

The following have been modified:

52.211-16 VARIATION IN QUANTITY (APR 1984)

(a) A variation in the quantity of any item called for by this contract will not be accepted unless the variation has been caused by conditions of loading, shipping, or packing, or allowances in manufacturing processes, and then only to the extent, if any, specified in paragraph (b) below.

(b) The permissible variation shall be limited to:

15 Percent increase

15 Percent decrease

The increase or decrease shall apply to Items 0002 and 0003 of the bid schedule (FAR 52.211-16).

(End of clause)

The following have been deleted:

52.211-8 Time of Delivery

JUN 1997

SECTION G - CONTRACT ADMINISTRATION DATA

The following have been modified:

CONTRACT ADMINISTRATION

G-1 INVOICES.

Submit original and two (2) copies of invoice to the Area Engineer at the following address:

Wynne Area Office

1932 N. Falls Blvd.
P.O. Box 729
Wynne, Arkansas 72396-0729

(End of Section G)

SECTION H - SPECIAL CONTRACT REQUIREMENTS

The following have been modified:

SPECIAL CONTRACT REQUIREMENTS

SECTION H

SPECIAL CONTRACT REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this section to the extent referenced:

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2003) Safety -- Safety and Health Requirements
EP 310-1-6	Sign Standard Manual
ER 415-1-15	CONSTRUCTION TIME EXTENSIONS FOR WEATHER

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with SUBMITTAL PROCEDURES, which can be found in SECTION J Exhibit 3:

SD-01 Preconstruction Submittals

Activity Hazard Analysis

Accident Prevention Program

Hazard Communication Program

Stone Source

SD-03 Product Data

Material Safety Data Sheets of Each Substance

1.3 SCHEDULES

The Contractor shall, within 10 days after award of the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval, three copies of a practicable schedule. The schedule shall show the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate approximately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule.

1.4 NOTIFICATION OF AREA ENGINEER BEFORE BEGINNING WORK

At least seven days before beginning work, the Contractor shall notify Mr. Donald R. Tutor, Area Engineer, Wynne Area Office, 1932 N. Falls Boulevard, P.O. Box 729, Wynne, Arkansas 72396-0729, Telephone No. (901) 544-3856 or (870) 238-7983. COLLECT CALLS WILL NOT BE ACCEPTED.

1.5 SUNDAY, HOLIDAY AND NIGHT WORK

Sunday and Holiday work will be at the option of the Contractor, but night work will not be permitted unless otherwise authorized by the Contracting Officer.

1.6 CONTRACT PROGRESS

If, in the opinion of the Contracting Officer, the Contractor falls behind the production required in Section F - DELIVERIES AND PERFORMANCE, the Contractor shall take necessary action to improve progress, including any action that may be required by the Contracting Officer, without additional cost to the Government. The Contracting Officer may require the Contractor to increase the number of shifts, initiate overtime operations, increase the number of days of work per week, and/or the amount of construction plant. The Contractor may be required to submit for approval any supplementary schedule or schedules, in chart form, as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained. Failure of the Contractor to comply with these requirements will be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of this contract.

1.7 CONTRACTOR-FURNISHED EQUIPMENT

The Contractor shall have equipment designated for use on this contract readily available for locating on the casting field. The equipment shall be in good operating condition and ready for immediate use. The Government reserves the right, prior to awarding the contract, to verify that the major items of equipment are satisfactory and presently available for performing the work required on this contract and are in good operating condition. As a minimum, items of specialized equipment that are considered essential to performing the contract requirements and included in the Government's inspection and verification are listed as follows:

Two (2) - Spreaders and one (1) - standby

One (1) - Transverse Finisher/Rotary Finisher/Vibrator Machine and one (1) - standby machine(s). This may be three separate machines or the three operations may be combined in one or two machines.

Three (3) - Form Lifter/Setter Machines

One (1) - Mat Sweeper

Seven (7) - Concrete Batch Trucks with hoppers mounted (6 cy minimum).

One (1) - Paper Machine

One (1) - Motor Grader

Two (2) - Water Trucks

1.8 GOVERNMENT-FURNISHED FACILITIES

The Government will provide the following facilities for use in performance of the work:

1.8.1 Buildings

The Contractor will be required to maintain for the duration of the contract the building(s) and facilities at no additional expense to the Government. The Contractor shall furnish at no additional expense to the Government all janitorial services required in the building, including the Government laboratory and office, until final acceptance of the contract. Government equipment needed for aggregate moisture and gradation testing may be used for Contractor Quality Control.

1.8.2 Casting Field

Upon receipt by the Contractor of the Notice to Mobilize, those portions of the casting field which are to be used for casting operations will be made available to the Contractor as indicated on the drawings. The casting field and access roads will be turned over to the Contractor in good condition insofar as grading and drainage are concerned, except that some dressing to eliminate minor surface irregularities such as scours and shallow ruts may be necessary. In the event such dressing is necessary, this shall be performed by the Contractor at his expense, except that grading and dressing required to remove heavy deposits of sediment and debris caused by flood

which cannot reasonably be removed by the Contractor's normal field maintenance equipment will be removed by the Government at its expense. The Government is not responsible for any demobilization or remobilization of the Contractor's equipment required due to floods. During the life of the contract, or until all of the Contractor's plant and equipment is removed, the Contractor will be required, at no additional expense to the Government, to:

a. Within the Government rights-of-way, remove debris, and clean and keep open at all times all existing drainage ditches and culverts and perform other minor ditching as may be required to maintain complete surface drainage of the casting field at all times. The Contractor will also be required to maintain in a like manner all other drainage canals and ditches within the Government rights-of-way.

b. Maintain the casting field and all roads and drainage features in good condition. Maintenance work shall include sprinkling the field in such manner and at such intervals as may be directed in order to positively and effectively control all dust caused by the Contractor's equipment and, insofar as practicable, be of a type that will improve the surface of the field. Waste material (concrete, gravel, and spalls) shall be incorporated therein. Effluent from gravel washers and residue from washing mixers of materials carrying trucks shall be discharged in an authorized location. Ruts and depressions which interrupt drainage shall be immediately filled and dressed. Leaking of water lines or the digging of trenches will not be permitted on the field. Blade work in connection with maintaining the surface of the field shall be done with rubber-tired equipment. In the event that the Contractor requires additional roads for his operations, such roads shall be provided or constructed and maintained at no additional expense to the Government.

c. Cut or mow all grass, weeds, tree growth, and other vegetation around the perimeter of the casting field, buildings and parking areas to a neat and orderly appearance as directed by the Contracting Officer's Representative.

1.8.3 Plant, Equipment and Materials

Plant, equipment and materials, not the property of the Government, presently stored on the casting field, will be removed by others prior to issuance of notice to mobilize. The existing batch plant slab from the previous contract will remain. It is the Contractor's responsibility to determine if the slab is suitable for his use. The Government reserves the right to use the access roads, casting field and casting field roads to the extent necessary to permit hauling of mattress from the field for loading on barges anchored alongside or adjacent to the casting field and for other incidental purposes. The Contractor will be required to maintain all joint-use roads and the casting field at no additional expense to the Government during the periods the Contractor is performing casting operations on the casting field. The Contractor will not be required to build or maintain any roads needed for the exclusive use of the Government. Unless specifically authorized, no operations shall be conducted on the casting field by the Contractor other than those required in performance of this contract.

1.9 IDENTIFICATION OF GOVERNMENT-FURNISHED PROPERTY

1.9.1 General

The Government will furnish to the Contractor as free issue the following property to be incorporated or installed in the work or used in its performance. Any property so furnished which is excess upon the completion of the work shall remain the property of the Government. The Contractor shall check the quantity and condition of such property when delivered to him and acknowledge receipt thereof in writing to the Contracting Officer and in case of damage to, or shortage of, such property, he shall within 24 hours, report in writing such damage and/or shortage to the Contracting Officer.

a. Steel Forms. Steel forms having a value of \$557.00 each will be furnished by the Government. The Contractor shall, during casting operations, maintain in good repair all steel forms furnished by the Government. Upon completion of casting operations, the Contractor shall clean and repair all steel forms as may be necessary to place them in as good condition as when received from the Government less fair wear and tear. The steel forms shall be stored in stacks not to exceed five feet high, supported by dunnage and located at the mat casting field as directed by the Contracting Officer. Repairs to the steel forms shall be made at no additional expense to the Government, and shall include replacement of all parts lost or broken during casting operations. The forms to be furnished by the Government are located at the casting field and are available for inspection by the Contractor. A total number of steel forms in excess of 1,000 are presently available for use on the casting field. Welding procedure and welding material for form repairs will be approved by the Contracting Officer.

b. Fabric. A sufficient quantity of fabric will be furnished to produce the required quantity of mattress. The fabric will conform to that shown on Drawing entitled "ARTICULATED CONCRETE MATTRESS, TYPICAL LAYOUT AND STANDARD DETAILS". All fabric required for prosecution of the contract will be stored on the field or adjacent thereto by the Government in time to meet the required casting rate. Should the Contractor lose or damage any fabric, he shall reimburse the Government for the same at the rate of \$16.70 per square.

1.9.2 Requisition

The Contractor will be required to requisition the Government property specified herein to be furnished as free issue for use in the work to be performed under the Contract. Corps of Engineers Form 4900 will be furnished the Contractor without cost for the purpose of making requisition for such property. Subject to the provisions of this paragraph, Government property will be delivered or made available to the Contractor not later than five calendar days after the receipt of the Contractor's properly executed requisition. Delays to the work as a result of the Contractor's failure to submit requisitions in sufficient time to allow for delivery of the property as stated above will not be made the basis of any claim for an increase in costs or time of performance of the work.

1.9.3 Indemnification

The Contractor shall indemnify, hold harmless and defend the Government against any and all claims, demands, or liabilities against the Government

arising out of the use and operation of Government-furnished property during the period such property is in possession and under the control of the Contractor excepting only claim for injuries to Government employees not due to the fault or negligence of the Contractor.

1.10 RECORD OF GOVERNMENT PROPERTY

The Accountable Property Officer, U.S. Army Engineer District, Memphis is designated as the Officer to maintain the necessary property records in connection with this contract.

1.11 CLEANUP

The Contractor shall at all times keep the construction area, including storage areas used by him, free from accumulations of waste material or rubbish. When the Contractor has completed casting operations at the field, he shall within 15 calendar days, unless otherwise authorized, deliver all Government property not incorporated into the mattress to the Government as herein before specified, and cleanup the site by removing, distributing or destroying all objectionable foreign matter and debris in a manner satisfactory and acceptable to the Contracting Officer. The Contractor shall remove any rubbish and all tools, equipment, and materials, not the property of the Government, and leave the surface of the field equal to the condition as when received. In the event of failure of the Contractor to cleanup the site as indicated above, the Contracting Officer may proceed to have this work done and deduct the cost thereof from amounts due or to become due the Contractor.

1.12 JANITOR SERVICES

The Contractor shall furnish daily janitorial services for all Government- and Contractor-furnished offices, shops, laboratories, or other buildings being used by the Contractor or Government employees and perform any required maintenance of the facilities and grounds during the life of the contract. Toilet facilities shall be kept clean and sanitary at all times. Services shall be performed at such a time and in such a manner to least interfere with operations but shall be accomplished only when the buildings are in daily use. The Contractor shall also provide daily trash collection and cleanup of the buildings and adjacent outside areas, snow removal as required, and shall dispose of all discarded debris, aggregate samples and concrete test samples in a manner approved by the Contracting Officer.

1.13 PROTECTION OF MATERIALS AND WORK

The Contractor shall at all times protect and preserve all materials, supplies, and equipment of every description (including property which may be Government-furnished or owned) and all work performed. All reasonable requests of the Contracting Officer to enclose or specially protect such property shall be complied with without delay. If, as determined by the Contracting Officer, material, equipment, supplies, and work performed are not adequately protected by the Contractor, such property may be protected by the Government and the cost thereof may be charged to the Contractor or deducted from any payments due to him.

1.14 STORAGE OF CONTRACTOR'S EQUIPMENT

1.14.1 General

The Contractor may store his equipment, facilities and surplus materials on the field until 15 calendar days after Notice of Award of a new casting contract on the field. The Contractor shall indemnify, hold harmless and defend the Government against any and all claims, demands or liabilities arising out of the storage of the said property on Government premises. In the event of failure of the Contractor to remove his equipment, facilities and surplus materials by the time specified, the Contracting Officer may proceed to have this work done and deduct the cost thereof from amounts due or to become due the Contractor.

1.14.2 Government Obligation

The Government will assume no obligations for the Contractor's plant, facilities, surplus materials, and/or equipment when stored on the field. Increase of surplus materials, and/or movement of additional plant or equipment on the site will not be permitted after completion of casting operations. Failure to comply with these requirements shall be cause for revoking this storing privilege. The Government will withhold payment for the final 600 squares of mattress, not including cement or fly ash, pending final cleanup specified in paragraph CLEANUP, and removal of the Contractor's equipment from Government property as specified above.

1.15 SECURITY

1.15.1 General

a. No later than 10 days prior to commencement of work under this contract, the Contractor shall submit to Mr. James N. Sanders, who is the Contracting Officer's Chief of Security, a list of all personnel, vehicles and equipment that may be used during the construction of work under this contract. Contractor personnel using privately owned vehicles will be required to show vehicle registration, valid driver licenses, and proof of automobile liability insurance. Mr. Sander's office is located in Room 607 of the Clifford Davis Federal Building, Memphis, Tennessee 38103-1894, Telephone (901) 544-4007. COLLECT CALLS WILL NOT BE ACCEPTED.

b. The Contractor shall be responsible for providing reasonable security for Government-furnished property. The Contractor shall be required to install his lock on the gate and when he has no employees at the site, shall lock the gate.

1.15.2 Reporting

a. The Contractor shall immediately notify by telephone, the Memphis District Security Office as well as the Contracting Officer when a theft of Government property has occurred.

b. The Contractor shall complete ENG Form 4337 within 48 hours of a theft of Government property and forward it to the Memphis District Security Office.

c. The Contractor shall inform the Memphis District Security Office as well as the Contracting Officer of all incidents at the facility involving the local law enforcement authorities.

1.16 REQUIRED INSURANCE

1.16.1 General

The Contractor shall procure and maintain during the entire period of his performance under this contract the following minimum insurance.

1.16.2 Workman's Compensation and Employer's Liability Insurance

Compliance with applicable workman compensation and occupational disease statutes will be required. In jurisdictions where all occupational diseases are not compensable under applicable law, insurance for occupational disease will be required under the employer's liability section of the insurance policy; however, such additional insurance will not be required where contract operations are commingled with the Contractor's commercial operations so that it would be impracticable to require such coverage. Employer's liability coverage in the minimum amount of \$100,000 will be required.

1.16.3 General Liability Insurance

Bodily injury liability insurance in the minimum limits of \$500,000 per occurrence will be required on the comprehensive form of policy; however, property damage liability insurance ordinarily will not be required.

1.16.4 Automotive Liability Insurance

This insurance shall be provided on the comprehensive form of policy and shall provide injury liability and property damage liability covering the operation of all automobiles used in connection with the performance of the contract. At least the minimum limit of \$200,000 per person and \$500,000 per occurrence for bodily injury and \$100,000 per occurrence for property damage shall be provided. Prior to the commencement of work hereunder, the Contractor shall furnish to the Contracting Officer a certificate or written statement of the above-required insurance. The policies evidencing required insurance shall contain an endorsement to the effect that cancellation or any material change in the policies adversely affecting the interests of the Government in such insurance shall not be effective for such period as may be prescribed by the laws of the State in which this contract is to be performed and in no event less than thirty (30) days after written notice thereof to the Contracting Officer. The Contractor agrees to insert the substance of this clause, including this paragraph, in all subcontracts hereunder.

1.17 LICENSES AND PERMITS

The Contractor shall, without additional expense to the Government, be responsible for obtaining any and all necessary licenses and permits, and for complying with any applicable Federal, State, and municipal laws, codes and regulations applicable to the performance of the work.

1.18 MOORING PERMITS

Temporary permits for mooring will be issued upon request for such floating equipment as may be essential in supplying sand, gravel and cement. The

plant shall be properly moored with a minimum of four bank lines, one stern, one head and two spring lines. The dock or crane barge shall be equipped with permanent marine deck fitting of sufficient size and number to adequately moor the plant and to secure and maneuver the supply barges. Mooring lines shall be fixed to bank anchorage of sufficient size and number for the purpose. The plant shall be equipped with stop logs or bumpers to prevent equipment from rolling overboard, and an approach ramp or bridge of sufficient size and strength to safely carry the loaded gravel and/or sand and/or cement hauling equipment to be used. All mooring and methods of operation will be subject to inspection and approval by the Contracting Officer. Permits may be revoked at any time the unloading operation is considered a hazard to men employed on it or to other plant and equipment moored in the vicinity.

1.19 SAFETY RELATED SPECIAL REQUIREMENTS

ALL WORK UNDER THIS CONTRACT SHALL COMPLY WITH THE LATEST VERSION OF U.S. ARMY CORPS OF ENGINEERS SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1 (3 Nov 2003), AND OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) STANDARDS IN EFFECT ON THE DATE OF THE SOLICITATION. NO SEPARATE PAYMENT WILL BE MADE FOR COMPLIANCE WITH EM 385-1-1, NOR FOR COMPLIANCE WITH ANY OF THE OTHER SAFETY-RELATED SPECIAL REQUIREMENTS.

“EM 385-1-1 is accessible at the following web address:

<http://www.hqusace.army.mil/soh/em385/current/current38511.htm>”

a. Accident Investigations and Reporting. Accidents shall be investigated and reports completed by the immediate supervisor of the employee(s) involved and reported to the Contracting Officer or his representative immediately after the accident occurs. A report of all mishaps occurring on the project shall be submitted to the Contracting Officer on ENG Form 3394 within two working days following the incident. All data reported must be complete, timely, and accurate. A follow-up report shall be submitted when the estimated lost time days differ from actual lost time days. When a job related injury occurs which requires medical treatment, a supervisor of the injured employee shall accompany the injured employee to the treatment facility and explain the employee's regular duties and the availability of "Light Duty" so the injured employee can return to work as soon as medically possible.

b. Accident Prevention Program. Refer to the Contract Clause 52.236-13, "ACCIDENT PREVENTION (ALTERNATE I)". Within 15 calendar days after receipt of Notice of Award of the contract, and at least seven days prior to the prework conference, four copies of the Accident Prevention Program shall be submitted to the Contracting Officer for review and approval. The accident prevention program is to be site specific and to conform to Appendix A (Minimum Basic Outline for Accident Prevention Plan) of the U.S. Army, Corps of Engineers, Safety and Health Requirements Manual, EM 385-1-1, dated November 2003. “In addition to the Accident Prevention Plan, the following are required:”

(1) An executed LMV Form 358R, Administrative Plan (available upon request).

(2) An executed LMV Form 359R, Activity Hazard Analysis (available upon request).

(3) When marine plant and equipment are in use under a contract, the method of fuel oil transfer shall be submitted on LMV Form 414R, Fuel Oil Transfer (available upon request). (Refer to 33 CFR 156.)

The Contractor shall not commence physical work at the site until the program has been approved by the Contracting Officer, or his authorized representative. At the Contracting Officer's discretion, the Contractor may submit his **Activity Hazard Analysis** for only the first phase of construction provided that it is accompanied by an outline of the remaining phases of construction. All remaining phases shall be submitted and accepted prior to the beginning of work in each phase. Also refer to Section 1 of **EM 385-1-1**.

c. Daily Inspections. The Contractor shall perform daily safety inspections and record them on the forms approved by the Contracting Officer. Reports of daily inspections shall be maintained at the jobsite. The reports shall be records of the daily inspections and resulting actions. Each report will include, as a minimum, the following:

- (1) Phase(s) of construction underway during the inspection.
- (2) Locations or areas inspections were made.
- (3) Results of inspection, including nature of deficiencies observed and corrective actions taken, or to be taken, date, and signature of the person responsible for its contents.

d. Machinery and Mechanized Equipment. All equipment shall be inspected prior to use on this contract. All equipment shall be reinspected prior to use any time it is removed and subsequently returned to the contract site for use. Documentation of equipment inspections shall be made available to the Contracting Officer upon request. Tractors, in addition to trucks, will be equipped with a first aid kit. Machinery and mechanized equipment used under this contract shall comply with the following:

- (1) All equipment shall be properly guarded
- (2) When mechanized equipment is operated on floating plant, the Contractor shall provide positive and acceptable means of preventing this equipment from moving or falling into the water. The type of equipment addressed by this clause includes front-end loaders, bulldozers, trucks (both on-road and off-road), backhoes, track hoes, and similar equipment. If the Contractor plans to use such equipment on floating plant, an activity hazard analysis must be developed for this feature of work. The plan must include a detailed explanation of the type or types of physical barriers, curbs, structures, etc., which will be incorporated to protect the operator and prevent the equipment from entering the water. Nonstructural warning devices may be considered for situations where the use of structural barriers is determined to be impracticable. The activity hazard analysis must thoroughly address the procedure and be submitted to the Corps of Engineers for review and acceptance prior to start of this feature of work.
- (3) The stability of crawler, truck, and wheel-mounted cranes shall be assured.

(a) The manufacturer's load rating chart may be used to determine the maximum allowable working load for each particular crane's boom angle provided a test load, with a boom angle of 20 degrees, conforms the manufacturer's load rating table.

(b) Stability tests are required if:

(i) There is no manufacturer's load-rating chart securely fixed to the operator's cab;

(ii) There has been a change in the boom or other structural members; or

(iii) There has been a change in the counterweight.

The test shall consist of lifting a load with the boom in the least stable undercarriage position and at an angle of 20 degrees above the horizontal. The test shall be conducted under close supervision on a firm, level surface. The load that tilts the machine shall be identified as the test load. The test load moment (in ft lbs) shall then be calculated by multiplying the horizontal distance (in ft) from the center of rotation of the machine to the test load, times the test load (in lbs). Three fourths of this test -load moment shall then be used to compute the maximum allowable operating loads for the boom at 20, 40, 60, and 80 degrees above horizontal. From these maximum allowable operating loads, a curve shall be plotted and posted in the cab of the machine in sight of the operator. These values shall not be exceeded except in the performance test described below. The test load shall never exceed 110 percent of the manufacturer's maximum rated capacity.

(c) In lieu of the test and computations above, the crane may be load tested for stability at each of the four boom positions listed above.

(4) Performance tests shall be performed in accordance with Section 16 of EM 385-1-1. Performance tests shall demonstrate the strength, capability, and adequacy of power, brakes, clutches, and controls to safely maneuver 125 percent of the maximum allowable load as determined above for the 80-degree position or the manufacturer's rated load for the 80-degree position, whichever is applicable. Performance tests shall be conducted after each stability test, when the crane is placed in service on a project, and at least every 12 months.

(5) Inspections shall be made which will ensure a safe and economical operation of both cranes and draglines. Specific inspections and their frequencies are listed on the appropriate check lists noted below. Results of inspections and tests for cranes shall be recorded on the Safety Inspection Check List, LMV Form 326R (available upon request), and inspection results for draglines shall be recorded on LMV Form 373R (available upon request). Copies of the inspections and tests shall be available at the jobsite for review. All stability and performance tests on cranes and all complete dragline inspections shall be witnessed by the Contracting Officer or his authorized representative.

(6) A complete dragline inspection shall be made:

(a) At least annually;

(b) Prior to the dragline being placed in operation; and

(c) After the dragline has been out of service for more than six months.

(d) After the dragline has been removed and subsequently returned to the contract site for use on this contract.

e. Crane Documentation and Equipment

(1) Crane Documentation. Every crane shall have the following documentation at the time of operation;

(a) a copy of the operating manual developed by the manufacturer for the specific make and model of the crane;

(b) a copy of the operating manual for any crane operator aids with which the crane is equipped;

(c) the load rating chart for the crane which include: (i)the crane make and model, serial number, and year of manufacture, (ii)load ratings for all crane operating configurations including optional equipment, (iii)recommended reeving for the hoist line, and (iv)operating limits in windy or cold weather conditions;

(d) the cranes log book which shall be used to record operating hours and all crane inspections, tests, maintenance and repairs.

(2) Crane Equipment. Every crane shall have the following equipment at the time of operation:

(a) a boom angle indicator and a load indicating device, or a load moment indicator/rated capacity indicator (exempt articulating boom cranes and those cranes used for duty cycle operations);

(b) a means for the crane operator visually to determine the levelness of the crane;

(c) drum rotation indicators to afford sensing by the operator(exempt articulating boom cranes);

(d) a boom angle or radius indicator located within the operator's view (exempt articulating boom cranes);

(e) anti-two block devices (exempt articulating boom cranes and those used for duty cycle operations).

f. Safety Sign. The Contractor shall furnish, erect, and maintain a safety sign at the site, as located by the Contracting Officer. The sign shall conform to the requirements of this paragraph and the drawing entitled "SAFETY SIGN," found at the following website:

<URL><http://www.mvm.usace.army.mil/contracting/forms/forms.htm></URL>. The lettering shall be black and the background white. When placed on floating plant, the sign may be half size. Upon request, the Government will furnish decal(s) of the Engineer Castle. The sign shall be erected as soon as practicable, but not later than 15 calendar days after the date established for commencement of work. The data required shall be current. The Safety Sign shall meet the requirements specified in the U.S. Army Corps of Engineers Sign (USACES) Standards Manual, EP 310-1-6a and EP 310-1-6b. The Contractor may purchase the USACES standard manual from:

Corps of Engineers Publications Department
2803 52nd Avenue
Hyattsville, Maryland 20781

The publications department may be reached at telephone number (301) 436-2065.

g. Ground Fault Protection. Electrical equipment used on this contract shall be equipped with ground fault circuit interrupters in accordance with [EM 385-1-1](#), Section 11.C.05.

1.20 FIRST AID/CPR REQUIREMENTS

Two employees per shift/per site shall be certified in first aid and CPR.

1.21 CERTIFICATES OF COMPLIANCE

Any certificates required for demonstrating proof of compliance of material with specification requirements shall be executed in four copies. Each certificate shall be signed by an official authorized to certify on behalf of the manufacturing company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the test to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if, after tests are performed on selected samples, the material is found not to meet the specific requirements.

1.22 CONTRACTOR'S CERTIFICATE

Each submittal of shop drawings and materials data shall be accompanied by a certificate, signed by the head of the Quality Control Organization of the prime Contractor, that the prime Contractor has reviewed in detail all shop drawings and materials contained in the submittal and that they are correct and in strict conformance with the contract drawings and specifications except as may be otherwise explicitly stated. The Government will first check for the Contractor's certificate and then review and render approval action or indicate disapproval in those cases where contract requirements are not fulfilled.

1.23 DAMAGE TO WORK

The responsibility for damage to any part of the permanent work shall be as set forth in the Contract Clause 52.236-7 "PERMITS AND RESPONSIBILITIES". However, if, in the judgment of the Contracting Officer, any part of the permanent work performed by the Contractor is damaged by flood, tornado, or earthquake, which damage is not due to the failure of the Contractor to take reasonable precautions or to exercise sound engineering and construction practices in the conduct of the work, the Contractor shall make the repairs as ordered by the Contracting Officer and full compensation for such repairs will be made at the applicable contract unit or lump sum prices as fixed and

established in the contract. If, in the opinion of the Contracting Officer, there are no contract unit or lump sum prices applicable to any part of such work, an equitable adjustment pursuant to the Contract Clause 52.243-1 "CHANGES" will be made as full compensation for the repairs of that part of the permanent work for which there are no applicable contract unit or lump sum prices. Except as herein provided, damage to all work (including temporary construction), utilities, materials, equipment and plant shall be repaired to the satisfaction of the Contracting Officer at the Contractor's expense regardless of the cause of such damage.

1.24 HAUL ROADS

Whenever practical, one way haul roads shall be used on this contract. Haul roads built and maintained for this work shall comply with the following:

- a. One way haul roads for off the road equipment; e.g., belly dumps, scrapers, and off the road trucks shall have a minimum usable width of 25 feet. One way haul roads for over the road haulage equipment only (e.g., dump trucks, etc.) may be reduced to a usable width of 15 feet. When the Contracting Officer determines that it is impractical to obtain the required width for one way haul roads (e.g., a road on top of a levee), a usable width of not less than 10 feet may be approved by the Contracting Officer, provided a positive means of traffic control is implemented. Such positive means shall be signs, signals, and/or signalman, and an effective means of speed control.
- b. Two way haul roads for off the road haulage equipment shall have a usable width of 60 feet. Two way haul roads for over-the-road haulage equipment only may be reduced to a usable width of 30 feet.
- c. Haul roads shall be graded and otherwise maintained to keep the surface free from potholes, ruts, and similar conditions that could result in unsafe operation.
- d. Grades and curves shall allow a minimum sight distance of 200 feet for one way roads and 300 feet for two way roads. Sight distance is defined as the centerline distance an equipment operator (4.5 feet above the road surface) can see an object 4.5 feet above the road surface. When conditions make it impractical to obtain the required sight distance (e.g., ramps over levees), a positive means of traffic control shall be implemented.
- e. Dust abatement shall permit observation of objects on the roadway at a minimum distance of 300 feet.
- f. Haul roads shall have the edges of the usable portion marked with posts at intervals of 50 feet on curves and 200 feet maximum elsewhere. Such markers shall extend six-feet above the road surface and for nighttime haulage be provided with reflectors in both directions. However, nighttime haulage will not be allowed under this contract unless otherwise authorized by the Contracting Officer.

1.25 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (31 OCT 1989)

- a. This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the contract clause 52.249-8 entitled "DEFAULT (FIXED-PRICE SUPPLY AND SERVICES)". In

order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

b. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the baseline for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORK DAYS BASED ON (6) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10	7	5	5	4	4	3	2	2	3	5	9

c. Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled workday. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), shall be calculated chronologically from the first to the last day of each month, and shall be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph b, above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair-weather workdays, and issue a modification in accordance with the contract clause entitled "DEFAULT (FIXED-PRICE CONSTRUCTION)". (ER 415-1-15, Appendix A)

1.26 STONE SOURCES

a. For a list of quarries that have produced stone that meet the requirements of these specifications, view the website listed below. If a stone source is designated as "New Source," then that source has been tested and the results of those tests have indicated that the stone will meet the material quality requirements. However, the "New Sources" may not have been used; therefore, the stone gradation and quarry production capability may not have been verified. <http://155.76.117.11/conops/MVDStoneLST.htm>

b. Stone may be furnished either from any of the sources posted at the above website, or from any other sources designated by the Contractor and accepted by the Contracting Officer, subject to the conditions hereinafter stated. Within 10 days after award of this contract, the Contractor shall submit the proposed **Stone Source**.

c. After the award of the contract, the Contractor shall designate in writing only one source or one combination of sources from which he proposes to furnish stone. If the Contractor proposes to furnish stone from a source or sources not posted at the above website, he may designate only a single source for stone. Samples for acceptance testing shall be provided as required in the Technical Specifications. If the Contracting Officer does not accept a source for stone, so designated by the Contractor, the Contractor may not propose other sources but shall furnish the stone from a posted source at no additional cost to the Government.

d. In the event that the Contractor proposes to furnish stone from a posted source, and that posted source fails to meet the material quality requirements as set forth in the technical specifications, the Contractor shall identify the reason for the deficiency and shall either rectify the situation or procure stone at another posted quarry. At no time shall stone be accepted that does not fulfill the requirements as described in the technical specifications.

e. Acceptance of a source of stone shall not be construed as acceptance of all material from that source. The right is reserved to reject materials from certain localized areas, zones, strata, or channels, when such materials are unsuitable for stone as determined by the Contracting Officer. Materials produced from a posted source shall meet all the requirements of the Technical Specifications.

1.27 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) IN COMPLIANCE WITH THE GENERAL PERMIT OF THE NPDES, THE CONTRACTING OFFICER WILL FILE A NOTICE OF INTENT (NOI) WITH THE STATE OR STATES IN WHICH THE WORK IS BEING PERFORMED. IN ADDITION, THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIRED BY THE GENERAL PERMIT HAS BEEN PREPARED AND IS INCLUDED AT THE END OF THESE SPECIAL CLAUSES CONTRACT REQUIREMENTS. THE CONTRACTOR SHALL ADHERE STRICTLY TO THE EROSION CONTROL PROVISIONS OF STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND THE ENVIRONMENTAL PROTECTION PLAN, BOTH IN SECTION J, TO MINIMIZE SEDIMENT DISCHARGE INTO NEARBY WATER COURSES TO THE MAXIMUM EXTENT PRACTICABLE. FURTHERMORE, THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL SIGN THE CERTIFICATION CONTAINED IN THE SWPPP. THE CONTRACTOR SHALL MAINTAIN THE SWPPP ON THE CONSTRUCTION SITE AT ALL TIMES. THE SWPPP SHALL TAKE PRECEDENCE OVER THE TECHNICAL SPECIFICATIONS.

1.28 ENVIRONMENTAL PROTECTION

See SECTION J - LIST OF ATTACHMENTS for-ENVIRONMENTAL PROTECTION "(Exhibit 4)".

1.29 DESIGNATED BILLING OFFICE THE DESIGNATED BILLING OFFICE FOR THIS CONTRACT SHALL BE THE WYNNE AREA OFFICE, 1932 N. FALLS BOULEVARD, P.O. BOX 729, WYNNE, ARKANSAS 72396-0729.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

SECTION I - CONTRACT CLAUSES

The following have been added by full text:

52.236-2 DIFFERING SITE CONDITIONS (APR 1984)

As prescribed in 36.502, insert the following clause in solicitations and contracts when a fixed-price construction contract or a fixed-price dismantling, demolition, or removal of improvements contract is contemplated and the contract amount is expected to exceed the small purchase limitation. The Contracting Officer may insert the clause in solicitations and contracts when a fixed-price construction or a fixed-price contract for dismantling, demolition, or removal of improvements is contemplated and the contract amount is expected to be within the small purchase limitation.

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of

(1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or

(2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, an equitable adjustment shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

(End of clause)

SECTION J - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

The following have been added by full text:

EXHIBITS 1 & 2

LIST OF DOCUMENTS, EXHIBITS AND ATTACHMENTS

DOCUMENTS (Available from the Government upon award)

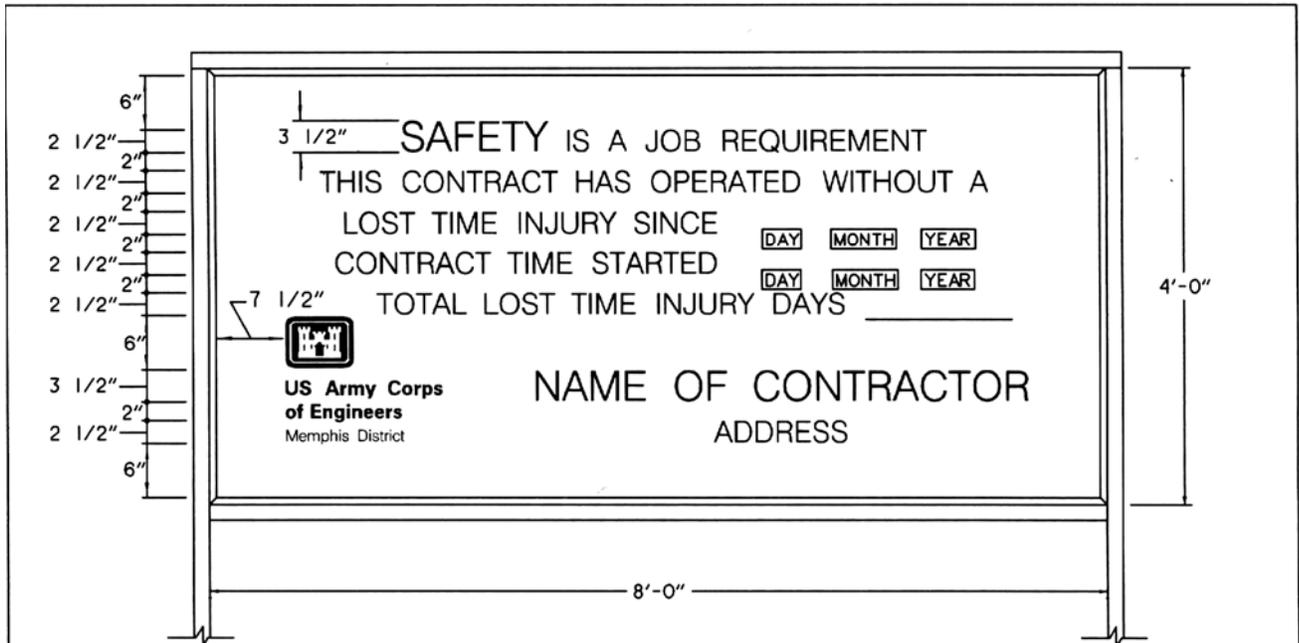
Tennessee General Permit to Discharge Storm Water
Submittal Register (Eng. Form 4288-R)
Accident Prevention Program
Administrative Plan (LMV Form 358R)
Accident Prevention Program

Job Hazard Analysis (LMV Form 359R)
Accident Prevention Program
Fuel Oil Transfer-Floating Plant(LMV Form 414R)
Transmittal of Shop Drawings, Equipment
Data, Material Samples, or Manufacturer's
Certificates of Compliance (ENG. Form 4025R)
Safety and Health Requirements Manual (EM 385-1-1, NOV 03)

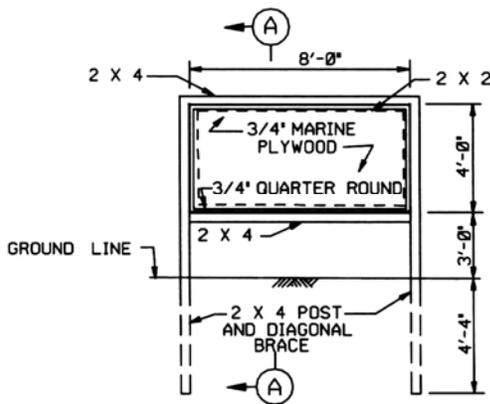
EXHIBITS (End of Section J)

1. Safety Sign
2. Stormwater Pollution Prevention Plan
3. Submittal Procedures
4. Enviromental Protection

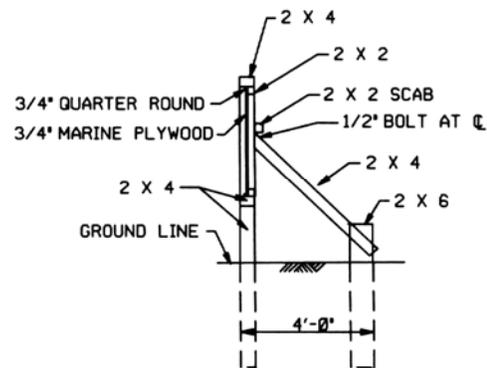
Attachments (NONE)



ELEVATION



ELEVATION



SECTION A-A

NOTES:

1. CONTRACTOR SHALL CONSTRUCT AND MAINTAIN A DURABLE SIGN AS SHOWN.
2. WOOD IN CONTACT WITH GROUND SHALL BE TREATED LUMBER.
3. ALL EXPOSED SURFACES SHALL BE WHITE HOUSE PAINT.
4. LETTERING SHALL BE BLACK.
5. ENGINEER CASTLE DECAL FURNISHED BY GOVERNMENT.
6. 22 GA. SHEET METAL MAY BE USED IN LIEU OF PLYWOOD.



**US Army Corps
of Engineers**
Memphis District

ENGINEER CASTLE DETAIL

SCALE: NONE

MARCH 1995

U.S. ARMY ENGINEER DISTRICT, MEMPHIS
CORPS OF ENGINEERS
MEMPHIS, TENNESSEE

SAFETY SIGN

STORMWATER POLLUTION PREVENTION PLAN

RICHARDSON LANDING CASTING FIELD, TENNESSEE

U.S. ARMY CORPS OF ENGINEERS, MEMPHIS DISTRICT

AUGUST 21, 2002

STORMWATER POLLUTION PREVENTION PLAN FOR RICHARDSON LANDING CASTING FIELD TENNESSEE

U. S. Army Corps of Engineers, Memphis District

1. PURPOSE AND OBJECTIVES

The purpose of this stormwater pollution prevention plan is to facilitate and document a thorough process for evaluating and preventing potential pollution impacts on the Richardson Landing Casting Field. The pollution prevention approach reflected in this plan focuses on two major objectives: (1) to identify sources of pollution which might affect the quality of stormwater discharges at this site, and (2) to describe and ensure that practices are implemented to minimize and control pollutants in stormwater discharges, thus ensuring compliance with the terms and conditions of the NPDES General Permit.

2. FACILITY DESCRIPTION

a. Location. The Richardson Landing Casting Field is located on 97.3 acres adjacent to the Mississippi River approximately 18 miles west of Covington, TN. It is located at the downstream limit of Chickasaw Bluff Number 2 at river mile 768.8.

b. Nature of Industrial Activity. The Richardson Landing Casting Field is used for the seasonal casting and year-round storage of articulated concrete mattress (ACM). ACM is used to construct revetments on the Mississippi River to protect the bank and prevent erosion. There is usually no activity on the field for about six to nine months of the year. Casting operations are performed by contract, require about three to four months to complete, and occur approximately every other year. During years when casting operations are performed, this work is usually done between May and September, but may occur later in the year. The casting operation itself consists of mixing the concrete, batching it, placing it in steel forms, and allowing it to cure. Operations to load the mat onto barges for transport to work sites are performed by Government labor and occur each year from about July to August.

c. Receiving Water. The receiving water is the Mississippi River, which runs along the north edge of the casting field. Sugar Creek runs along the eastern edge of the field, but a topographic survey indicates that little drainage is discharged into it. The field is also subject to flooding during unusually high Mississippi River stages.

3. POLLUTION PREVENTION TEAM

The pollution prevention team for the Richardson Landing Casting Field shall consist of (1) Don Tutor, the Wynne Area Engineer, (2) Gary Hamlett, the on-site construction inspector, (3) Darian Chasteen, the design engineer, (4) Mike Jones, district environmental compliance coordinator, (5) Loy Hamilton, the Wynne Area environmental compliance coordinator, and (5) the Contractor's on-site representative (during casting operations).

This team shall meet prior to each casting contract (during the pre-work conference) and as required during the contract and non-casting periods.

4. POTENTIAL POLLUTANT SOURCES

a. Drainage. Drainage occurs primarily as sheet flow diagonally across the site and into the Mississippi River. The attached site map depicts the location of stormwater runoff control structures.

b. Inventory of Exposed Materials. The only materials exposed to stormwater on the site are:

- (1) Stacks of ACM (concrete)
- (2) Stainless steel ACM fabric
- (3) Steel forms for casting ACM
- (4) Fine Aggregate (Sand)
- (5) Coarse Aggregate (Crushed Limestone)

c. Spills and Leaks. During the last six years, there have been no significant spills or leaks of toxic or hazardous pollutants that have occurred in areas exposed to precipitation or that otherwise drain to a stormwater conveyance on the site.

d. Sampling Data. Sampling of stormwater discharges will be conducted at least quarterly each year that ACM is cast. The parameters to be measured include oil and grease, pH level, biochemical oxygen demand, total suspended solids, nitrogen, ammonia, and total recoverable iron. Also recorded will be (1) the date and duration (hours) of the storm event sampled; (2) rainfall measurements or estimates (in inches) of the storm event which generated the sampled runoff; (3) the duration between the storm event sampled and the end of the previous measurable storm event; and (4) an estimate of the total volume (in gallons) of the discharge sampled.

e. Risk Identification and Summary of Potential Pollutant Sources. The materials permanently exposed to stormwater are relatively inert and not subject to erosion or transport by stormwater. Casting operations require the use of mechanized and motorized equipment which call for the on-site presence of fuels, oils, and lubricants. In addition, the forms in which the ACM is cast are lightly sprayed with oil to assist in pulling the forms without damaging the concrete. Oils that exhibit RCRA hazardous materials are not acceptable. Portland cement and fly ash are also required during the casting process, as are additives such as air-entraining admixture, water-reducing admixture, and calcium chloride.

5. MEASURES AND CONTROLS

a. Good Housekeeping. The Contractor shall at all times keep the field free from accumulations of waste material or debris, including those that might be exposed to stormwater. The contractor is also required to maintain the casting field, including any drainage and erosion control features, in good condition. This includes sprinkling the field as required to control dust and improve the surface of the field. Concrete, gravel, and spalls shall be incorporated into the field surface. Effluent from gravel washers and residue from washing material mixers shall be discharged at an authorized location. Ruts and depressions which might interrupt drainage shall be immediately filled and dressed. Leaking water lines or the digging of trenches shall not be permitted on the field. All blade work done in connection with maintaining the field surface shall be done with rubber-tired equipment.

b. Preventive Maintenance. During the life of a casting contract, the Contractor is required to maintain all measures constructed for pollution

control under that contract as long as the operations creating that particular potential pollutant are being carried out.

c. Spill Prevention and Response Procedures. Good housekeeping and preventive maintenance measures will be taken to prevent spills and minimize adverse environmental impacts. Should a Contractor experience a spill or other activity which results in an adverse impact on the environment, he will take immediate action to contain and cleanup the spill in accordance with all applicable laws and requirements. If the Contractor fails or refuses to comply promptly, an order will be issued which stops all or part of the work until corrective action is taken. The contractor shall submit a plan outlining his response and procedures before beginning work.

d. Inspections. The on-site construction inspector will constantly monitor all activities at the casting field and will take immediate action should any event occur which could have an adverse impact on the environment. Qualified personnel shall conduct compliance inspections and evaluations of the casting field operations, Contractor adherence to the stormwater plan, and stormwater control measures at a minimum of once every six months.

e. Employee Training. Early in the casting operation, the Contractor is required to conduct a training course that will emphasize all phases of environmental protection.

f. Recordkeeping and Internal Reporting Procedures. All activities are logged on a daily basis by the on-site inspector during casting operations. Any activities which might have an adverse environmental impact shall be reported immediately to the area engineer.

g. Non-Stormwater Discharges. Any harmful discharges or effluent, including water used in aggregate processing, concrete curing, oils, chemicals, etc., shall be contained and not allowed to enter any waterway or be exposed to stormwater.

h. Sediment and Erosion Control. Surface drainage areas within the casting field limits have been graded and are maintained to control and eliminate erosion. Silt fences, check dams, mulch, silt detention basins, and other such measures are specified and shall be utilized in the event of intense periods of rainfall. The Contractor shall perform maintenance as necessary to insure that all erosion control measures are operating correctly. See site map at the end of this plan.

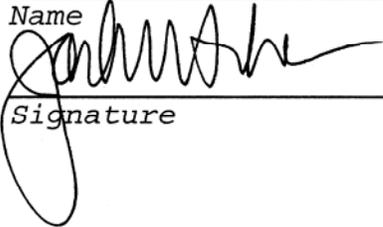
i. Management of Runoff. Before beginning work, the Contractor shall submit in writing his proposals for controlling environmental pollution at the site, including his plans for debris disposal and managing stormwater discharge. These proposals are complemented by a required meeting with the Corps to develop a mutual understanding relative to environmental compliance and administration of his pollution control program.

6. SCHEDULE OF SWPPP SUPPLEMENTS AND UPDATES

Supplements and updates to this stormwater pollution prevention plan will be prepared as monitoring progresses and when events require.

7. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

JACK V. SCHERER
Name

Signature

Colonel, CE
District Engineer
Title

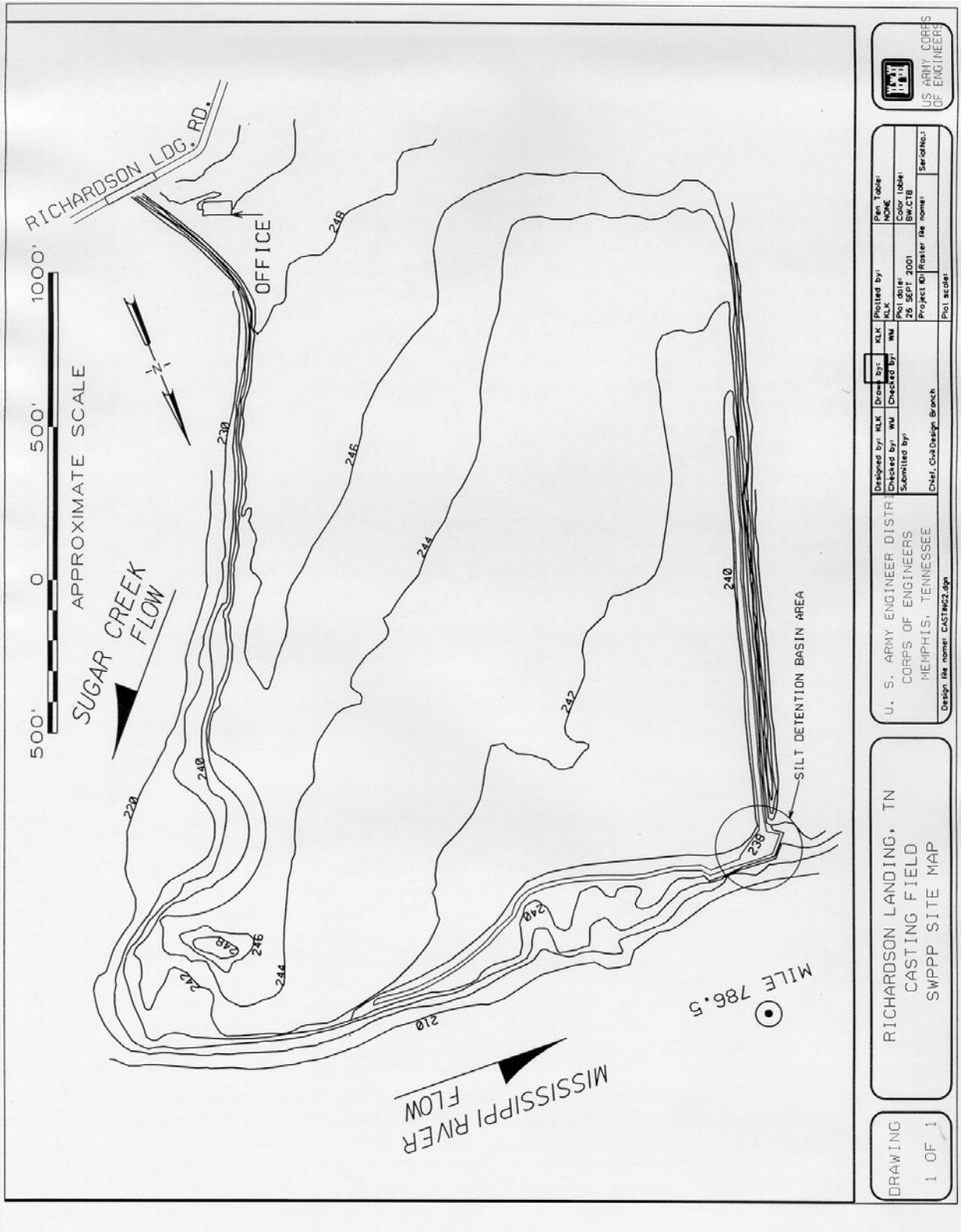
23 Aug 2002
Date Signed

Name

Signature

Contractor's Representative
Title

Date Signed



RICHARDSON LANDING, TN
 CASTING FIELD
 SWPPP SITE MAP

DRAWING
 1 OF 1

U. S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 MEMPHIS, TENNESSEE
 Design file name: CASTING2.dgn

U. S. ARMY CORPS OF ENGINEERS

The following have been deleted:

LIST OF DOCUMENTS, EXHIBITS

SECTION M - EVALUATION FACTORS FOR AWARD

The following have been deleted:

52.232-15

Progress Payments Not Included

APR 1984

(End of Summary of Changes)