



DACA41-02-R-0001

**US Army Corps
of Engineers**
Kansas City District
You Matter - We Care

Westgate Access Road

Fort Leonard Wood, Missouri

Design Build Solicitation

May 2002

**WEST GATE ACCESS ROAD
Request for Proposal
Solicitation No. DACA41-02-R-0001
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SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>	1. SOLICITATION NO.	2. TYPE OF SOLICITATION	3. DATE ISSUED	PAGE OF	PAGES
	DACA41-02-R-0001	<input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)	5/13/2002	1	

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

4.	5. REQUISITION/PURCHASE REQUEST NO.	6. PROJECT NO.
		47501 & 53439
7. ISSUED BY	CODE	8. ADDRESS OFFER TO
U.S. Army Engineer District, Kansas City 760 Federal Building, 601 E. 12th Street Kansas City, Missouri 64106-2896 Tel: (816) 983-3802 Fax: (816) 426-5169		See Item 7
9. FOR INFORMATION CALL:	A. NAME Pamela Wellons	B. TELEPHONE NO. (Include area code) 816-983-3802 Ext. (NO COLLECT CALLS)

SOLICITATION

NOTE: In sealed bid solicitation "offer" and "offeror" mean "bid" and "Bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS (Title, identifying no., date):

DESIGN BUILD CONTRACT FOR WEST GATE ACCESS ROAD, FORT LEONARD WOOD, MISSOURI

11. The Contractor shall begin performance within <u>10</u> calendar days and complete it within <u>880</u> calendar days after receiving <input type="checkbox"/> award <input checked="" type="checkbox"/> notice to proceed. This performance period is <input type="checkbox"/> mandatory, <input checked="" type="checkbox"/> negotiable. ** See Section 00800	
12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? <i>(If "YES", indicate within how many calendar days after award in Item 12B.)</i> <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	12B. CALENDAR DAYS 10
13. ADDITIONAL SOLICITATION REQUIREMENTS:	
A. Sealed offers in original and * <u> </u> copies to perform the work required are due at the place specified in Item 8 by <u> </u> 2:00 p.m. local time <u>6/20/2002</u> (date). If this is a sealed bid solicitation, offers will be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due. *See Section 00110	
B. An offer guarantee <input checked="" type="checkbox"/> is, <input type="checkbox"/> is not required. NOT TO EXCEED 20% OF TOTAL BID AMOUNT	
C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.	
D. Offers providing less than <u>210</u> calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.	

00010-1

OFFER (Must be fully completed by offeror)

14. NAME AND ADDRESS OF OFFEROR (Include ZIP Code) TIN NO. CAGE CODE DUNS NO: CODE FACILITY CODE	15. TELEPHONE NO. (Include area code) (FAX #)
	16. REMITTANCE ADDRESS (Include only if different from Item 14)

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within 210 calendar days after the date offers are due. (Insert any number equal to or greater than the minimum requirement stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)

AMOUNTS: See attached Proposal Schedule.

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

19. ACKNOWLEDGEMENT OF AMENDMENTS

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

AMENDMENT NO.								
DATE								

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

AWARD (To be completed by Government)

21. ITEMS ACCEPTED

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA	
24. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified)	ITEM	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO
26. ADMINISTERED BY CODE		<input type="checkbox"/> 10 U.S.C. 2304(c) () <input type="checkbox"/> 41 U.S.C. 253(c) ()
27. PAYMENT WILL BE MADE BY		

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

<input type="checkbox"/> 28. NEGOTIATED AGREEMENT (Contractor is required to sign this document and return ___ copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all work requirements identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications incorporated by reference in or attached to this contract.	<input type="checkbox"/> 29. AWARD (Contractor is not required to sign this document) Your offer on this solicitation is hereby accepted as to the items listed. This award commutates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.	
30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN (Type of print)	31A. NAME OF CONTRACTING OFFICER (Type or print)	
30B. SIGNATURE	31b. UNITED STATES OF AMERICA	31C. AWARD DATE

SECTION 00010 Solicitation Contract Form

BASE SCHEDULE

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	West Gate Access Road Design FFP - All cost to provide all design-related services to complete the documentation as required by the Scope of Work. Design related services include engineering, design surveys, design quality control and quality assurance and plans/specifications deliverables.	1.00	Lump Sum		
				NET AMT	_____

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002	West Gate Access Road FFP - All other costs, exclusive of design-related costs required to complete the construction of the West Gate Access Road as required by the Scope of Work. These costs include, but are not limited to, construction surveys, earthwork, roadway paving, signing, delineation, lighting, bridges, drainage structures, hydrology, hydraulics, geotechnical, environmental, quality control and contract administration.	1.00	Lump Sum		
				NET AMT	_____

OPTION SCHEDULE

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003	Project Paving Bonus or Deduct FFP – The \$200,000 is an amount that is established as maximum amount of bonus that will be paid on the project. The bonus or deduct will be paid for under the pavement smoothness and Superpave bonus or deduct criteria as defined in the Missouri Department of Transportation Standard Specifications for Highway Construction and Job Special Provisions. Driving Lane Paving Unit Price for Bonus or Deduct Calculation: \$40/ton for Superpave Asphalt \$36/square yard for Concrete				
				NET AMT	\$200,000.00 NTE

FIELD OFFICE OVERHEAD

NOTICE TO BIDDERS: For your bid to be responsive, you must declare below the single accounting practice that you apply to contracts to calculate field office overhead for all change orders, modifications and requests for equitable adjustment. Pursuant to Federal Acquisition Regulations (FAR) Parts 31.105(d)(3) and 31.203(d)(1), an accounting practice that varies from modification to modification is not allowable. Select one of the following:

1. TIME DISTRIBUTION BASE FOR A PER DIEM RATE
If you use this practice, see Special Clause "Field Office Overhead Per Diem Rate" _____
2. DIRECT COST DISTRUBITION BASE FOR A PERCENTAGE MARKUP
If you use this practice, see Special Clause "Field Office

Overhead Percentage Markup” _____

3. OTHER ACCOUNTING PRACTICE THAT IS ALLOWABLE UNDER THE FAR AND THAT USES A SINGLE DISTRIBUTION BASE. _____

YOU MUST DESCRIBE THE ACCOUNTING PRACTICE IN SUFFICIENT DETAIL BELOW TO ALLOW THE CONTRACTING OFFICER TO DETERMINE WHAT ACCOUNTING PRACTICE IS BEING UTILIZED BY YOUR COMPANY AND THAT IT COMPLIES WITH THE FAR.

FAILURE TO FULLY COMPLY WITH THE ABOVE REQUIREMENT OR, IF ALTERNATIVE 3 IS DECLARED AND YOUR DESCRIPTION DOES NOT CLEARLY STATE OR DESCRIBE A CONSISTENT ACCOUNTING PRACTICE USING A SINGLE DISTRIBUTION BASE, WILL BE CAUSE FOR YOUR BID TO BE REJECTED AS NON-RESPONSIVE.

NOTES:

1. Proposal prices must be entered for all items of the Proposal Schedule. Award will be made as a whole to one Contractor on the basis of price and other factors. Offeror's attention is directed to SECTION 00120 PROPOSAL EVALUATION AND CONTRACT AWARD for further details.
2. If a modification to an offer is submitted which provides for a lump sum adjustment to the total cost, the application of the lump sum adjustment to each price in the Proposal Schedule must be stated. If it is not stated, the offeror agrees that the lump sum adjustment shall be applied on a pro rata basis to every price in the Proposal Schedule.
3. Offeror's attention is directed to SECTION 00100 paragraph titled "Arithmetic Discrepancies" wherein are procedures for correction of errors.
4. Offeror's attention is directed to SECTION 01100: GENERAL for special provisions pertaining to this Solicitation.
5. Offeror's attention is directed to SECTION 01100, paragraph titled "Missouri Sales and Use Tax".
6. The general outline of the principal features of each item as listed does not in any way limit the responsibility of the offeror for making a thorough investigation of the drawings and specifications to determine the scope of work included in each item.
7. Offeror's attention is directed to the CONTRACT CLAUSES wherein the apparent low offeror is required to submit a small business and small disadvantaged business subcontracting plan. The subcontracting plan must meet the requirements listed and may be submitted in the format that appears at the end of SECTION 00110. Submission of the plan is required prior to award. Award will not be made under this solicitation before the Contracting Officer approves the plan.

8. Determination of the Offeror's total price for the proposed work will be based on the TOTAL of the BASE SCHEDULE. Initial award will be made of the BASE SCHEDULE. The OPTION SCHEDULE includes the Project Paving Bonus or Deduct. The final amount of the Paving Bonus or deduct will be determined in accordance with the Missouri Department of Transportation Standard Specifications. The option for the project paving bonus or deduct will be exercised as soon as practicable after the profilograph testing is completed and verified but in no event after final payment is made. [For surface test information see sections 403.20 (Asphalt) and 502.14 (Concrete). For bonus or deduct calculations see 403.24.4 (Asphalt) and 502.19.5 (Concrete). For Superpave pay factors for density, asphalt content, VMA and air voids see Job Special Provision MSP-96-01V, Bituminous Mixture QC/QA.] The unit prices shown in item no 0003 of the Solicitation Contract Form will be used to determine the amount of project paving bonus or deduct according to the pay factors outlined in the referenced MoDOT Specifications.
9. Offeror's attention is directed to the CONTRACT CLAUSES, FAR 52.223-9, Certification and Estimate of Percentage of Recovered Material Content for EPA-Designated Items. Certification will be required upon contract completion unless the Contracting Officer has approved a waiver. The waiver must be approved prior to contract award.
10. The Government will procure this project through a Best Value competitive acquisition in accordance with the provisions set forth in the Request for Proposal (RFP).
11. At the issuance of this RFP, the government has limited funding available. The contract will be awarded after the government receives sufficient funds to award the total of the base schedule line items. Reference is made to Section 00700, Contract Clauses, 52.232-18, Availability of Funds.

CAUTION!

BEFORE SIGNING AND MAILING THIS PROPOSAL, please take note of the following, as failure to perform any one of these actions may cause your offer to be rejected.

- 1. AMENDMENTS: Have you acknowledged receipt of ALL Amendments? If in doubt as to number of amendments issued, please contact our office.*
- 2. SEALED PROPOSALS: Sealed envelopes containing proposals shall be marked to show the offeror's name and address, the solicitation number, amendments received, and the date and time proposals are due.*
- 3. AMENDED PROPOSAL PAGES: If any of the Amendments furnished amended proposal pages, the amended proposal pages must be used in submitting your proposal.*
- 4. LATE PROPOSALS: In order for a late mailed proposal to be considered, generally it must have been sent by either registered or certified mail not later than 5 calendar days before the receipt of proposals date.*
- 5. PROPOSAL GUARANTEE: Sufficient proposal guarantee in proper form must be furnished with your proposal, if your bid exceeds \$50,000.*
- 6. MISTAKE IN PROPOSAL: Have you reviewed your proposal prices for possible errors in calculations or work left out?*
- 7. TELEGRAPHIC MODIFICATIONS: If you modify your proposal by telegram, be sure to allow sufficient time for the telegram to reach us prior to the time set for receipt of proposals. Any doubt should be resolved in favor of allowing Extra Time.*
- 8. FACSIMILE PROPOSALS, MODIFICATIONS, OR WITHDRAWALS: Will not be considered.*
- 9. SECTION 00600: Must be completed and submitted with your proposal.*
- 10. SUBCONTRACTING PLAN: A Small Business and Small Disadvantaged Business Subcontracting Plan, must be submitted prior to award. Do not submit with proposal.*
- 11. HAND-DELIVERED PROPOSAL: If proposals are hand-delivered, you must be aware of security requirements in effect in the Federal Building. (See Instructions, Conditions and Notices to Offerors, paragraph titled "Submission of Bids".) **NOTICE: A PICTURE IDENTIFICATION IS REQUIRED TO ENTER THE BUILDING, NO EXCEPTIONS ARE MADE.** No additional time will be allowed due to security requirements.*
- 12. BUY AMERICAN ACT: All offerors are cautioned that, prior Government conduct notwithstanding, the Contractor's selection of a domestic construction material (as defined in SECTION 00700) which would require the subsequent selection of a foreign construction material for compatibility is not a justification for waiver of the Buy American Act. It is the Contractor's responsibility to verify, prior to submitting the materials for approval, that each system can be built to meet the contract specifications without the use of foreign construction materials.*

SECTION 00100 Bidding Schedule/Instructions to Bidders

CLAUSES INCORPORATED BY REFERENCE:

52.204-6	Data Universal Numbering System (DUNS) Number	JUN 1999
52.211-7	Alternatives to Government-Unique Standards	NOV 1999
52.214-34	Submission Of Offers In The English Language	APR 1991
52.214-35	Submission Of Offers In U.S. Currency	APR 1991
52.215-1	Instructions to Offerors--Competitive Acquisition	MAY 2001
52.215-20	Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data	OCT 1997

CLAUSES INCORPORATED BY FULL TEXT

BID BOND REQUIREMENTS (DEC 1989) (FAR 28.101-2):

If your bid exceed \$50,000.00, the bid bond shall be in the amount of 20% of the bid price of \$3,000,000, whichever is the lesser amount. (See CONTRACT CLAUSE titled "Bid Guarantee)."

PLANS AND SPECIFICATIONS

Plans and specifications will be available only on CD-ROM, and will be free of charge. A street address must be provided when requesting a CD-ROM. Requests for the CD-ROM must be made via the Internet at <http://www.nwk.usace.army.mil/contract/contract.html> (Advertised Solicitations).

THE MAGNITUDE OF THIS PROJECT IS REPRESENTED BY THE FOLLOWING ESTIMATED PRICE RANGE (See FAR 36.204):

More than \$10,000,000.00.

FIELD OFFICE OVERHEAD PERCENTAGE MARKUP

If any change to the contract, issued pursuant to the changes Clause or otherwise, for which the Government is responsible, causes an increase or decrease in the Contractor's cost of, of the time required for, performance under the contract, the Contracting Officer shall make an equitable adjustment and modify the contract in writing.

Under such equitable adjustment, no per diem rate for field office overhead shall be allowed if the Contractor has elected a percentage markup in keeping with its standard accounting practices. In such a case, payment of field office overhead shall be allowed for any change on a percentage markup basis regardless of whether the completion of the contract is or is not extended by reason of the change, except for modifications issued pursuant to the Default Clause. The Contractor shall provide a detailed breakdown of its proposed increase or decrease of costs as required by Contract Clause DFARS 252.236-7001 MODIFICATION OF PROPOSALS – PRICE BREAKDOWN.

FIELD OFFICE OVERHEAD PER DIEM RATE

If any change to the contract, issued pursuant to the Changes Clause or otherwise, for which the Government is responsible, causes an increase or decrease in the Contractor's cost of, or the time required for, performance under the contract, the Contracting Officer shall make an equitable adjustment and modify the contract in writing.

Under such equitable adjustment, no payment of field office overhead shall be allowed for any changes when the completion of the contract is not extended by reason of the change, except the Contractor may be reimbursed any

variable expense it incurs due to the change, provided it can substantiate the variables. The Contractor shall be reimbursed for field office overhead on a per diem basis when the completion of the contract is extended by reason of the change issued under any clause except the Default clause. Equitable adjustment shall be made for the costs that are incurred or are to be incurred due to the change. The Contractor shall provide a detailed breakdown of its proposed increase or decrease of costs as required by Contract Clause DFARS 252.236-7001 MODIFICATION OF PROPOSALS – PRICE BREAKDOWN.

52.214-5000 ARITHMETIC DISCREPANCIES (MAR 1995)

(a) For the purpose of initial evaluation of bids, the following will be utilized in resolving arithmetic discrepancies found on the face of the bidding schedule as submitted by the bidder:

- (1) Obviously misplaced decimal points will be corrected;
- (2) Discrepancy between unit price and extended price, the unit price will govern;
- (3) Apparent errors in extension of unit prices will be corrected;
- (4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purpose of bid evaluation, the Government will proceed on the assumption that the bidder intends his bid to be evaluated on the basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid is low.

(End of Statement)

52.216-1 TYPE OF CONTRACT (APR 1984)

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

(End of clause)

52.217-3 EVALUATION EXCLUSIVE OF OPTIONS (APR 1984)

The Government will evaluate offers for award purposes by including only the price for the basic requirement; i.e., options will not be included in the evaluation for award purposes.

(End of provision)

52.219-24 SMALL DISADVANTAGED BUSINESS PARTICIPATION PROGRAM--TARGETS (OCT 2000)

(a) This solicitation contains a source selection factor or subfactor related to the participation of small disadvantaged business (SDB) concerns in the contract. Credit under that evaluation factor or subfactor is not available to an SDB concern that qualifies for a price evaluation adjustment under the clause at FAR 52.219-23, Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns, unless the SDB concern specifically waives the price evaluation adjustment.

(b) In order to receive credit under the source selection factor or subfactor, the offeror must provide, with its offer, targets, expressed as dollars and percentages of total contract value, for SDB participation in any of the North American Industry Classification System (NAICS) Industry Subsectors as determined by the Department of Commerce. The targets may provide for participation by a prime contractor, joint venture partner, teaming arrangement member, or subcontractor; however, the targets for subcontractors must be listed separately.

(End of provision)

52.233-2 SERVICE OF PROTEST (AUG 1996)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from US Army engineering District Kansas City, Attn: CENWK-CT-C/Points, 760 Federal Building, 601 E. 12th Street, Kansas City, MO 64106.

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

(End of provision)

52.236-27 SITE VISIT (CONSTRUCTION) (FEB 1995) – ALTERNATE I (FEB 1995)

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

(b) An organized preproposal conference and site visit has been scheduled for –

Wednesday, May 29, 2002 at 1000

(c) Participants will meet at –

Regimental Room
Museum Complex, Bldg. 1607
Intersection of Nebraska and South Dakota
Fort Leonard Wood, Missouri

(d) Site visits may be arranged during normal duty hours during the limited period of 28 – 31 May 2002 by contacting:

Name: Jesse Vance
Address: P. O. Box 200, Fort Leonard Wood, MO 65473
Telephone: (573) 596-0081

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

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

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

(1) Lump sum price;

(2) Alternate prices;

(3) Units of construction; or

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

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

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

(End of provision)

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

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):

<http://www.arnet.gov/far/>

<http://www.acq.osd.mil/dp/dars/dfars/dfars.html>

SECTION 00110**SUBMISSION REQUIREMENTS AND INSTRUCTIONS****1. PROPOSALS**

Proposals for the work described herein, will be received until the date and time indicated on Standard Form 1442 in Section 00010, at the following address:

U.S. Army Engineer District, Kansas City
760 Federal Building
601 East 12th Street
ATTN: CENWK-CT-C/Wellons
Kansas City, Missouri 64106-2896

2. PROPOSAL FORMAT

a. The proposals (originals) shall be no more than 200 pages total all volumes, in the following format:

Proposal Document		Original	Copies	Electronic (CD) Copy*
VOLUME 1, Part 1	- Past Performance	1	6	1
VOLUME 1, Part 2	- Experience	1	6	1
VOLUME 1, Part 3	- Pavement Design	1	6	1
VOLUME 1, Part 4	- Schedule	1	6	1
VOLUME 1, Part 5	- Personnel Qualifications	1	6	1
VOLUME 2	- Price	1	4	1

* Electronic Copy may combine all volumes on one CD or multiple 3.5 disks. Documents must be readable by Acrobat Reader 5.0 or Microsoft Office (PC) products. A certificate that the contents of the CD match exactly that which is provided on the original provided on paper will accompany the electronic copy. The electronic copy must be received within five (5) business days of the proposal due date.

The information required by paragraph: INSTRUCTIONS TO OFFERORS--COMPETITIVE ACQUISITION, subparagraph (c)(2), shall be included in Volume 1, before Part 1.

b. Proposal Characteristics.

(1) All text must be legible and easily read. The page size of the offeror's proposal shall not exceed 8-1/2 inch by 11 inch. Diagrams, charts and tables shall conform to the paper size. All text shall be typed single-spaced. Margins (1-inch) shall be clean and clear. If fold-out charts are unavoidable and are to be utilized, all sheets shall be reproduced on 11 inch by 17 inch, and folded to 8-1/2 inch by 11 inch sheet size with title clearly visible at bottom right corner. Volume 1 shall be contained within a 3-ring binder (no heat or spiral bound volumes). Volume 2 may be in a separate 3-ring binder or stapled and provided in separate envelope.

(2) All proposals shall contain the requirements stated herein and every volume shall be identified by the volume number and name, address, and telephone number of the prime on the cover sheet. Each volume shall also contain a Table of Contents, List of Tables, List of Figures, List of Appendices, List of Acronyms and at the bottom left side of each page the volume number shall be included. (See page number requirements in paragraph (6).) The list of acronyms should include all acronyms appearing in the volume. The offeror's name, address, signature, and telephone number shall appear on any document to be evaluated.

(3) Proposal clarity, organization (as requested in this solicitation) and cross referencing is mandatory. No material shall be incorporated by reference. General cross references or cross referencing guides will not be considered as appropriate cross references. In order for the proposal to receive an in-depth evaluation, it is necessary that the proposal be presented in a manner that will provide clarity, organization and cross referencing as required.

(4) Each evaluation factor and subfactor in Volume 1 shall be described in a separate section, appropriately tabbed in a report form. The information in all volumes shall be concise. Elaborate presentations are not necessary or desirable.

(5) The offeror shall submit Section 00010 (including Standard Form 1442) of this solicitation with his prices. Offerors may be required to provide complete cost and pricing data and certification or information other than cost or pricing data at a later date if needed to adequately evaluate price proposals.

(6) Page Limitation – The following pages do not count toward the page limitation: Cover Letter, Table of Contents, Tabs, List of Tables, List of Figures, List of Appendices, List of Acronyms, Bid Bond, Representations and Certifications, completed SF 1442 and completed bid schedule. Each page subject to the page limitation will be numbered sequentially in the lower right hand corner of the page. Fold out sheets will be counted as two pages. If the offeror's proposal exceeds 200 pages in all volumes, the excess pages will be removed from the back of Volume I and will not be evaluated.

3. PROPOSAL CONTENT

a. The Government may award a contract based on initial proposals received, without discussion of such proposals, to the offeror providing the best value to the government as evaluated using applicable factors. Accordingly, each initial proposal should be submitted on the most favorable terms from a price and technical standpoint that the offeror can submit to the Government. However, the Government may request additional information from offerors of proposals, which clarifies, supplements and/or changes, any proposal as submitted.

b. Each offeror's ability to perform the work set forth in this solicitation will be evaluated on the basis of his knowledge and understanding of the work, the quality provided by his total proposal and his capability and responsibility to accomplish the project. The evaluation will be based on the offeror's proposals. The proposals shall present a comprehensive, straightforward analysis of the resources and expertise required to perform the work. While knowledge of the RFP requirements is a prerequisite to preparing proposals, restatement of the RFP requirements shall be avoided. Proposals shall emphasize knowledge and understanding of work performance, not work identification.

c. The following factors and subfactors will be used to evaluate each proposal.

FACTOR 1. Past Performance. Past performance will be evaluated in the areas indicated in the subfactors shown. Past performance information may be obtained from other than the sources identified by the offeror, to include past performance evaluations in the Construction Contractors Appraisal Support System (CCASS) and Architect Contractors Appraisal Support System (ACASS).

Provide a Performance Evaluation for recent government or private contracts that have been completed or are currently on-going but the original completion date is past that were executed by the offeror as a prime contractor. If the offeror's team is made up of separate design and construction firms, then separate evaluations must be provided for both. If the offeror's team is an established design build team or firm, then evaluations must be provided for the team. Request performance evaluations from the ten most recent relevant projects that are or should have been completed. The Past Performance Evaluation Questionnaire, along with a sample transmittal letter, are located at the end of this section and must be completed by personnel for whom the offeror has performed work. A Microsoft Word version of this evaluation is provided on the CD. These Performance Evaluations must be provided by the offeror to persons who have knowledge of this information on past performance. Once completed,

these evaluations must be sent directly to the address in paragraph: PROPOSALS, above, by the persons completing these evaluations. The offeror may also e-mail the questionnaires to the references for the past/current contract. References may then electronically complete the questionnaire and e-mail it to Pamela Wellons, Contract Specialist, Pamela.S.Wellons@nwk02.usace.army.mil. E-mailed or mailed questionnaires must be received by the Government no later than the closing date and time of the RFP. Questionnaires received after the closing date and time of the RFP will be discarded and will not be evaluated.

The offeror shall not review the Performance Evaluations after they have been completed, and the persons completing these evaluations shall be informed that their names will be held confidential by the Government. At no time during the evaluation process, debriefings or after award, will the names of the individuals providing reference information about an offeror's past performance be revealed to the offeror or to any other party.

The Performance Evaluations should clearly identify the offeror's identity and the project or portion of a project being evaluated. It is helpful to give your evaluators a short synopsis of the project or portion of a project that you wish them to evaluate. It is also helpful to include an SASE or overnight delivery envelope addressed to the address found in paragraph: PROPOSALS, and inform the evaluators to forward the evaluation in a timely manner. It is the offeror's responsibility to ensure that evaluators have completed and forwarded the evaluation in a timely manner. Those Performance Evaluations not received in a timely manner will be discarded and will not be evaluated.

In addition, the offeror will provide the following information in the proposal, Volume 1, about these ten projects:

- (a) Title, location and contract number.
- (b) Dates of contract execution (start and completion).
- (c) Contracting agency.
- (d) At least two current points of contact (names, current phone and fax numbers).
- (e) Utilization of Small, Small Disadvantaged and Women-Owned Businesses Information – Provide filed SF 294s for each of the projects, where available. If the project was done for a non-federal organization, information normally provided on a SF 294 shall be provided in letter format. Include any mentor/protégé relationships. This information will be used to evaluate the extent of subcontracting to these groups.
- (f) Brief description of the circumstances surrounding the following as they apply and any corrective action taken to preclude recurrence:
 - (i) Contract termination, in whole or in part.
 - (ii) Failure to complete awarded work.
 - (iii) Liquidated damages or actual damages assessed for delay in meeting completion dates.
- (g) Brief descriptions of the project to include size and location.
- (h) Name of Project Manager

The Government will evaluate the following subfactors:

Quality of Product and Services. Reviews how well the offeror has complied with contract requirements in the past and conformance with standards of good workmanship.

Customer Satisfaction. Reviews how satisfied prior customers and end users are with the offeror's completed work. Includes the willingness of prior customers to do business with the offeror again if given the choice.

Timeliness of Performance. Reviews how well the contractor has adhered to contract schedules.

Extent of subcontracting to small businesses, small disadvantaged businesses, and women-owned businesses.

FACTOR 2. Experience. Provide in detail the experience of your organization in contracts of similar type and complexity, including a list of contracts relevant to the proposed contract, which your organization has completed within the last six years, or which are currently under contract and more than 50% complete. Provide the project name, a short description, the size, the owner's name and telephone number, the date of completion and the percentage of the project accomplished with your own forces. Information regarding the type and extent of work completed under the contract shall be included. For this factor, a project of similar type, size and complexity is considered to be one that contains similar work items, schedule constraints and/or project delivery method.

The Government will evaluate the following subfactors:

Design-Build Roadway Experience

Major Grading, Drainage, Paving and Bridge Experience

FACTOR 3. Pavement Design. Provide a detailed plan that describes how the pavement design will meet the requirements of the Scope of Work in the contract provisions. The plan shall describe how the offeror will address the performance parameters of subgrade, pavement structure and design life. The Government will evaluate the following subfactors:

Site Investigation – Reviews how well the offeror has identified appropriate and validated technology for the characterization of subgrade soils.

Pavement Structure – Reviews how well the offeror's design methodology that combines subgrade underdrainage, base and pavement.

Design Life – Reviews how well the offeror's methodology ensures that design life parameters are met and long-term performance is not jeopardized.

FACTOR 4. Schedule. Provide a schedule detailing major items of work not to exceed twenty separate items in a bar chart that illustrate the offeror's plan to design and construct the project within the time constraints provided in the contract. The Government will evaluate the following subfactors:

Overall Schedule - Reviews how well the offeror meets or improves upon the length of time provided in the proposal documents and identifies the milestones for design and construction.

Incorporation of Quality Control Procedures – Reviews how well the offeror builds time into the schedule for quality control reviews of design and construction submittals.

FACTOR 5. Personnel Qualifications. Identify key personnel that will be involved in the design, construction, QC/QA and management of the project. For each key personnel describe his/her function and responsibility to the project. Provide the name of a principle or officer of the offeror that will be in overall charge of the project. Provide resumes for each listed individual.

FACTOR 6. Price. Offerors shall submit the Proposal Schedule, as found in Section 00010. The Proposal Schedule will be evaluated in accordance with paragraphs: BASIS FOR AWARD, EVALUATION FACTORS, and PRICE listed below.

d. ADDITIONAL INFORMATION TO BE PROVIDED IN VOLUME 3:

- The Offer (the SF1442) duly executed with an original signature by an official authorized to bind the company.
- Acknowledgement of all amendments to the solicitation in accordance with the instructions on the Standard Form 30 (amendment form).
- The completed Section 00600 of the solicitation (Representations and Certifications).

- For joint ventures, the information required by paragraph “Joint Ventures.”

JOINT VENTURES

Joint ventures shall submit the following additional documentation regarding their business entities:

- A certified copy of their Joint Venture agreement.
- A detailed statement outlining the following in terms of percentages, where appropriate.
- The relationship of the joint venture parties in terms of business ownership, capital contribution, and profit distribution or loss sharing.
- The management approach of the joint venture in terms of who will conduct, direct, supervise and control the project and have custody and control of the assets of the joint venture and perform the duties necessary to complete the work.
- The structure of the joint venture and decision-making responsibilities of the joint venture parties in terms of who will control the manner and method of performance of the work.
- The bonding responsibilities of the joint venture parties.
- Identification of the key personnel having authority to legally bind the joint venture to subcontracts and state who will provide or contract for the labor and materials for the joint venture.
- Identification of party maintaining the joint venture bank accounts for the payment of all expenses and the deposits of all receipts, keep the books and records, and pay applicable taxes for the joint venture.
- Identification of party furnishing the facilities, such as office supplies and telephone service.
- Identification of party having overall control of the joint venture.

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

If one of the joint venture parties possesses experience and/or past performance as a Federal Government contractor or as a Corps of Engineers contractor, that experience and/or past performance will be included as the experience and/or past performance of the joint venture.

SAMPLE TRANSMITTAL LETTER
AND
PAST PERFORMANCE EVALUATION QUESTIONNAIRE

Date: _____

To: _____

We have listed your firm as a reference for work we have performed for you as listed below. Our firm will be submitting a proposal under a project advertised by the U.S. Army Corps of Engineers, Kansas City District. In accordance with Federal Acquisition Regulations (FAR), an evaluation of our firm's past performance will be completed by the Corps of Engineers. Your candid response to the attached questionnaire will assist the evaluation team in this process.

We understand that you have a busy schedule and your participation in this evaluation is greatly appreciated. Please complete the enclosed questionnaire as thoroughly as possible. Space is provided for comments. Understand that while the responses to this questionnaire may be released to the offeror, FAR 15.306 (e)(4) prohibits the release of the names of the persons providing the responses. Complete confidentiality will be maintained. Furthermore, a questionnaire has also been sent to _____ of your organization. Only one response from each office is required. If at all possible, we suggest that you individually answer this questionnaire and then coordinate your responses with that of _____, to forge a consensus on one overall response from your organization.

Please send your completed questionnaire to the following address:

U.S. Army Engineer District, Kansas City
ATTN: CENWK-CT-C/Pamela Wellons
757 Federal Building
601 East 12th Street
Kansas City, Missouri 64016-2896

The questionnaires can also be faxed to 816-426-5169 or e-mailed to Pamela.S.Wellons@usace.army.mil.

If you have questions regarding the attached questionnaire, or require assistance, please contact Ms. Wellons at (816) 983-3802. Thank you for your assistance.

PAST PERFORMANCE EVALUATION QUESTIONNAIRE

Upon completion of this form, please send directly to the U.S. Army Corps of Engineers in the enclosed addressed envelope, fax to 816-426-5169, ATTN: Pam Wellons, or e-mail to Pamela.S.Wellons@usace.army.mil. Do not return this form to the contractor's offices. Thank you.

1. Contractor/Name & Address (City and State):

2. Type of Contractor: ____ Construction ____ Design ____ Design Build

3. Type of Contract: Fixed Price _____ Cost Reimbursement _____
Other (Specify) _____

4. Title of Project/Contract Number: _____

5. Description of Work: (Attach additional pages as necessary)

6. Complexity of Work: High _____ Mid _____ Routine _____

7. Location of Work: _____

8. Date of Award: _____

9. Status: Active _____ (provide percent complete)
Complete _____ (provide completion date)

10. Name, address and telephone number of Contracting Officer's Technical Representative:

11. Name, Title, Address and Telephone Number of Individual completing survey:

12. Date Questionnaire Completed: _____

Please note: Adverse remarks will be provided to contractors in the competitive range for award for response in accordance with Federal Acquisition Regulation requirements. The contracting office will not however, provide your name or copies of this questionnaire to the contractor or any other party not directly involved in the evaluation of the contractor's proposal. Your response to this questionnaire must be received in the contracting office no later than the closing date of the RFP. Questionnaires received after this date will be discarded and will not be evaluated. The evaluation team, if they so choose, may call you for clarification or additional information.

Please answer each of the following questions. **If the rating is other than average or satisfactory please provide additional information in the remarks section.**

QUALITY OF PRODUCT/SERVICE:

- 1. Evaluate the contractor's performance in complying with contract requirements, quality achieved and overall technical expertise demonstrated.

Excellent Quality	Above Average Quality	Average Quality	Below Average Quality	Unsuccessful or Experienced Significant Quality Problems

Remarks:

- 2. To what extent were the contractor's reports and documentation accurate, complete and submitted in a timely manner?

Excellent Quality	Above Average Quality	Average Quality	Below Average Quality	Unsuccessful or Experienced Significant Quality Problems

Remarks:

- 3. To what extent was the contractor able to solve contract performance problems without extensive guidance from government/owner counterparts?

Excellent	Above Average	Average	Below Average	Unsuccessful

Remarks:

4. How well did the contractor manage and coordinate subcontractors, suppliers, and the labor force?

Excellent	Above Average	Average	Below Average	Unsuccessful

Remarks:

5. Was the contractor’s design documentation complete and adequate to construct the facility?

Yes _____ No _____ Not Applicable _____

Remarks:

6. Were there any project problems or contract claims resulting directly from inadequacy of the design documents?

Yes _____ No _____ Not Applicable _____

Remarks:

CUSTOMER SATISFACTION:

7. To what extent were the end users satisfied with:

	Quality?	Cost?	Schedule?
Exceptionally satisfied			
Highly satisfied			
Satisfied			
Somewhat Dissatisfied			
Highly dissatisfied			

Remarks:

8. If given the opportunity, would you work with this contractor again?

Yes _____ No _____ Not Sure _____

Remarks:

TIMELINESS OF PERFORMANCE:

9. To what extent did the contractor meet the contract schedule?

Completed substantially ahead of schedule	
Completed work on schedule with no time delays	
Completed work on schedule, with minor delays under extenuating circumstances	
Experienced significant delays without justification	

Remarks:

10. If work was not completed on schedule, were Liquidated Damages, or other similar penalties assessed?

_____ Yes _____ No

Remarks:

11. If work was completed ahead of schedule, were incentives paid to the contractor?

_____ Yes _____ No

Remarks:

OTHER REMARKS:

12. Use the space below to provide other information related to the contractor's performance. This may include the contractor's selection and management of subcontractors, effectiveness of their small/small disadvantaged business subcontracting plan, flexibility in dealing with contract challenges, their overall concern for the Government's interest (if applicable), project awards received, etc.

SUBCONTRACTING PLAN FORMAT

NOTICE TO OFFERORS

If your firm is a large business and your bid exceeds \$500,000 or more for services or \$1,000,000 for construction, your attention is directed to the following provisions contained in the solicitation:

- 52.219-8, Utilization of Small, Small Disadvantaged and Women-Owned Business Concerns (Alternate I)
- 52.219-9, Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan (Alternate I)
- 52.219-16, Liquidated Damages - Small Business Subcontracting Plan
- 52.226-1, Utilization of Indian Organizations and Indian-Owned Economic Enterprises

For your information, the United Army Corps of Engineers considers the following goals reasonable and achievable for fiscal year and during the performance of the resultant contract.

- a. 61.4% of planned subcontracting dollars will be placed with all small business concerns.
- b. 9.1% of planned subcontracting dollars will be placed with those small business concerns owned and controlled by socially and economically disadvantaged individuals.
- c. 5% of planned subcontracting dollars will be placed with those small business concerns owned and controlled by women.
- d. 3% of planned subcontracting dollars will be placed with those small business concerns owned and controlled by service disabled veterans.
- e. There are no established goals for planned subcontracting dollars placed with those small business concerns owned and controlled by certified Hubzone concerns, small business concerns owned and controlled by veterans, and Historic Black Colleges and/or Minority Institutions, however, subcontracting with these concerns is highly encouraged.

Goals included in any proposed subcontracting plan should be at least equal to those indicated above. If lesser goals are proposed, you must substantiate how the proposed plan represents the firm best effort to comply with the terms and conditions of the solicitation. Offerors are highly encouraged to become familiarize with the intent of the solicitation provisions and the elements of the subcontracting plan.

The subcontracting plan must contain, at a minimum, the elements set forth in solicitation provision 52.219-9. Proposed plans will be reviewed to ensure the plan represents the firm's best efforts to maximize subcontracting opportunities for small, small disadvantaged and women-owned businesses. Subcontracting plans require Contracting Officer approval prior to contract award.

Should the selected offeror fail to submit an acceptable subcontracting plan within the time limit prescribed by the Contracting Officer, the offeror will be considered ineligible for award. The approved subcontracting plan (to include goals) will become a material part of the contract. An example of a format of a subcontracting plan is attached for your information. The attached ***plan is an example only*** and should not be construed as the only acceptable subcontracting plan format. Any format will be acceptable provided the plan addresses each element as required by the Federal Acquisition Regulations and its supplements.

Should you have any questions or need assistance in developing your plan, please contact the assigned Contract Specialist or the District's Deputy for Small Business at 816-983-3927 or fax your inquiries to 816-426-2979.

SMALL, SMALL DISADVANTAGED AND WOMEN-OWNED
SMALL BUSINESS SUBCONTRACTING PLAN

EXAMPLE

DATE: _____

CONTRACTOR: _____

ADDRESS: _____

PHONE NO: _____

PROJECT TITLE: _____

SOLICITATION NO: _____

CONTRACT NO: _____

1. In accordance with the contract clauses at 52.219-8 and 52.219-9, (*name of contractor*) submits the following Subcontracting Plan for Small, Small Disadvantaged, and Women-owned Business Concerns.

2. Subcontracting goals for this contract:

a. Total contract amount is \$_____.

b. Total dollars planned to be subcontracted (to all types of businesses): \$_____.

Type of Subcontractor	Amount Planned to be Subcontracted	Percentage of Subcontracted Dollars
Large Business		%
Small Businesses	(sum)	% (sum)
- Small Disadvantaged*		%
- Small Women-Owned		%
- Small Service Disabled Veterans Owned		%
- Small Veteran Owned		%
- HubZone Concern		%
Historical Black College and Minority Institution		%
Total		100%

***NOTE:** *Women-owned businesses are not considered a small disadvantaged business. Do not include subcontract awards to women-owned businesses in your calculations unless the firm meets the definition of a small disadvantaged business.*

3. The principal items or areas we will subcontract under this contract are (**NOTE: Construction contractors remember to include materials/supplies when developing plan. Also, list each subcontracted task by Division and Section number**):

a. Of the items or areas stated in 3; we plan to subcontract the following to Small Businesses:

b. Of the items or areas stated in 3.a; we plan to subcontract the following to Small Disadvantaged Businesses:

c. Of the items or areas stated in 3.a; we plan to subcontract the following to Small Women-Owned Businesses:

d. Of the items or areas stated in 3.a; we plan to subcontract the following to Small Service Disabled Veterans-Owned Businesses:

e. Of the items or areas stated in 3.a; we plan to subcontract the following to Small Veteran-Owned Businesses:

f. Of the items or areas stated in 3; we plan to subcontract the following to Hub Zone concerns:

g. Of the items or areas stated in 3; we plan to subcontract the following to Historically Black Colleges and Minority Institutions:

****NOTE: SEE LAST PAGE IF THIS SOLICITATION HAS OPTIONS (delete this statement from your plan)****

4. Provide a description of the method your firm used to develop the subcontracting goals in paragraph 2:

5. Indirect costs were () were not () used in establishing subcontracting goals. ***If indirect costs are included in your goals, furnish a description of the method used to determine the proportionate share of indirect costs to be incurred with (i) small business concerns (ii) small disadvantaged business concerns and (iii) women-owned.***

6. The following individual will administer this Subcontracting Plan on behalf of (name of contractor):

Name: Title:

Address:

Telephone:

The aforementioned individual's specific duties will include, but is not limited to:

a. Developing and maintaining source lists of small, small disadvantaged and women-owned small business concerns. Sources used are the Small Business Administration's Procurement Automated Source System (PASS), the National Minority Purchasing Council Vendor Information Service, Minority Business Development Agency, US Department of Commerce, Local Minority Business Development Centers, Economic Development Centers, and National Center for American Indian Enterprise Development.

b. Assuring the inclusion of small, small disadvantaged, and women-owned small business concerns in all solicitations for products or services which they are capable of providing; and ensuring that all solicitations are structured to permit the maximum possible participation by small, small disadvantaged and women-owned small business concerns.

c. Establishing and maintaining records of all subcontract awards to ensure appropriate documentation of non-selection of bids submitted by a small, small disadvantaged business, or women-owned small business concerns.

d. Preparing and submitting the Subcontracting Report for Individual Contracts (SF 294) and the Summary Subcontract Report (SF 295) in accordance with instructions provided, and coordinating and preparing for all compliance reviews by Federal agencies.

e. Promoting activities necessary to further the intent of the subcontracting plan. Activities include motivational training of purchasing personnel; attendance at workshops, seminars and trade fairs conducted by or on behalf of small business and/or small disadvantaged and/or women-owned small business concerns; and general cooperation with members of the small, small disadvantaged and women-owned small business concerns or their representatives.

7. The following steps will be taken to ensure that small, small disadvantaged, and women-owned small business concerns receive notice of and have an equitable opportunity to compete for intended awards of subcontracts and/or purchase orders for the products and/or services describe in paragraph 4 above:

a. Sources will be requested through SBA's PASS system, business development organizations, minority and small business trade associations and at small, minority and women-owned small business procurement conferences; sources will be contacted; and bidding materials will be provided to all responding parties expressing an interest.

b. The firm will conduct and maintain internal motivational training to guide and encourage purchasing personnel to maintain source lists and guides to small, small disadvantaged, and women-owned small business concerns. Purchasing activities will be monitored to ensure sufficient time is allowed for interested offerors to prepare bids and to ensure continuous compliance with the approved Subcontracting Plan.

8. *[Name of contractor]* agrees that the clause entitled "Utilization of Small, Small Disadvantaged and Women-Owned Business Concerns" will be included in all subcontracts that offer further subcontracting opportunities. All subcontractors, except small business concerns, who receive subcontracts in excess of \$500,000 (\$1,000,000 in the case of construction) will be required to adopt a plan similar to this one. Such plans will be reviewed to assure that all minimum requirements of an acceptable subcontracting plan have been satisfied.

The acceptability of proposed goals shall be determined on a cases-by-case basis depending on the supplies/services involved, the availability of potential small, small disadvantaged, and women-owned subcontractors, and prior experience. Once approved and implemented, plans will be monitored through the submission of periodic reports or, as time and availability of funds permit, periodic visits to subcontractors facilities to review applicable records and subcontracting program progress.

9. The Firm agrees to submit periodic reports and cooperate in any studies or surveys required by the Contracting Activity or Small Business Administration to determine the extent of the firm compliance with the subcontracting plan.

10. *(Name of Contractor)* agrees to maintain at least the following types of records to document compliance with the Subcontracting Plan:

a. The names of all organizations, agencies, and associations contacted for small, small disadvantaged, and women-owned small business sources, along with records of attendance at conference, seminars and trade fairs where additional sources were developed.

b. Source lists, guides, and other data identifying small business concerns, small disadvantaged business concerns and women-owned small business concerns.

c. Records of subcontracts award in excess of \$100,000 will demonstrate how small business concerns, small disadvantaged business concerns and women-owned business concerns were solicited or provide an explanation as to why these business concerns were not considered for subcontracting opportunities.

d. Records of subcontract award data to include subcontractor's name and address, to be kept on a contract-by-contract basis.

e. Minutes of internal motivational and training meetings held for the guidance and encouragement of purchasing personnel, and records of all monitoring activities performed for compliance evaluation.

f. Copies of SF 294 and SF 295 showing date and place of filing and copies of all other reports or results of reviews conducted by the contracting agency or other interested agencies of the Federal government to monitor our compliance with this Subcontracting Plan.

11. *(Name of Contractor)* will submit a SF 295, Summary Subcontract Report, on Corps of Engineers projects only. The SF 295 shall be completed and distributed in accordance with the Corps of engineers Supplemental Instructions. *(Name of Contractor)* will not report Corps of Engineers projects through any other Agency unless authorized by the Contracting Officer.

Contractor's Signature: _____

Typed Name: _____

Title: _____

Date: _____

This Plan is Accepted By:

Contracting Officer

Date: _____

NOTE: If this solicitation has options, the plan must contain separate goals for each option. **EXAMPLE:**

1. Option # _____

a. Total contract amount is \$ _____.

b. Total dollars planned to be subcontracted (to all types of businesses): \$ _____.

Type of Subcontractor	Amount Planned to be Subcontracted	Percentage of Subcontracted Dollars
Large Business		%
Small Businesses		%
- Small Disadvantaged*		%
- Small Women-Owned		%
- Small Service Disabled Veterans Owned		%
- Small Veteran Owned		%
HubZone Concern		%
Historical Black College and Minority Institution		%
Total		100%

SECTION 00120
PROPOSAL EVALUATION AND CONTRACT AWARD

1. INFORMAL SOURCE SELECTION PROCESS

All offers received in response to this solicitation will be evaluated in accordance with informal source selection procedures. The principal objective of this process is to select responsible offeror to be the overall Best Value to the Government, price and other factors considered (the Best Value). The Government reserves the right to consider and evaluate information regarding past performance from sources outside the proposal. The right is reserved to accept other than the lowest price offer and to reject any or all offers. Award may be made to the superior proposal, regardless of cost or price, provided that price is determined to be reasonable. The process is designed to ensure the impartial, equitable, and comprehensive evaluation of all technically acceptable, responsible proposal received in response to this particular solicitation.

Source Selection Organization.

The source selection organization is established as a separate organization and management chain of command whose only purpose is to accomplish the objective above. The organization consists of a Source Selection Authority (SSA), Source Selection Advisory Council (SSAC) and a Source Selection Evaluation Board (SSEB). The SSEB is comprised of separate Technical Evaluation and Price Evaluation teams. The organization is designed to ensure active ongoing involvement of appropriate contracting, technical, logistics, legal, price analysis, small business, and other functional staff management expertise.

Source Selection Procedure.

The source selection procedures will begin with an initial review of proposals and continue with a technical and price evaluation conducted by the SSEB. The SSEB shall evaluate the proposals based solely on the evaluation criteria identified in paragraph: Evaluation Factors, below. The results of the SSEB evaluations will be presented to the SSA and SSAC, who will review the SSEB evaluations and conduct a comparison analysis of the proposals. The SSA will either make the final source selection decision or determine whether it is appropriate to engage in clarifications or communication prior to establishment of a competitive range, or to establish a competitive range and conduct discussions with those offerors that are included in the competitive range. The Government intends to award without discussions. All communications leading to establishment of the competitive range will be conducted in accordance with FAR Part 15.306b.

If a competitive range is established, discussions will be conducted with offerors who are included in the competitive range. After conclusion of discussions and receipt of final revised technical proposals, the SSEB will complete the evaluation and establish final ratings. Results of the final technical ratings will be presented to the SSA and SSAC. The SSA shall then rank the proposals based on the Best Value to the Government, price and other factors considered and make the final source selection decision. If appropriate, the SSA will apply the tradeoff process in the Best Value Continuum.

The proposals received in response to this RFP will be evaluated utilizing a rating system to select the most advantageous proposal. To be considered acceptable, each offeror shall specifically address each of the evaluation factors listed below. Sufficient detail shall be provided, citing specific data as may be required, such that the proposal may be adequately evaluated. The proposal must show clearly that the offeror has an understanding of the work tasks required and has the capability and responsibility to accomplish the project.

The Government is not responsible for information overlooked during the evaluation that is not located in the appropriate proposal section. To ensure that evaluation credit is appropriately received for proposal material submitted, do not incorporate by reference documents not contained in the proposal. References to other sections of the proposal shall be by specific paragraph number (and name, if applicable), page number and section. As

indicated in Section 00110, a maximum of 200 pages will be evaluated. Proposals in excess of 200 pages will be reduced in size, prior to evaluation, in accordance with Section 00110.

2. BASIS FOR AWARD

The Government intends to select, without discussions, the responsible offeror whose proposal conforms to the solicitation and is determined to be the Best Value to the Government in accordance with the following relationship between price and technical merit. The technical evaluation factors, when combined, are considered of equal importance to price (see paragraphs below: Relative Weight of Technical Evaluation Criteria and Price). The closer the total evaluated technical ratings of acceptable proposals are to one another, the greater will be the importance of price in making the selection determination. The closer the final price evaluations are to one another, the greater will be the importance of the total evaluated technical ratings in making the selection determination.

3. EVALUATION FACTORS

Evaluation factors are listed below. All factors will be evaluated on the completeness, conciseness, and relevance of information provided. These factors are listed in the order of importance described in paragraph: Relative Weight of Technical Evaluation Criteria, with price being of equal importance to all technical factors combined.

FACTOR 1 (Volume 1, Part 1) – Past Performance

- a. Quality of Product and Service.
- b. Customer Satisfaction.
- c. Timeliness of Performance.
- d. Extent of Subcontracting to Small Businesses, Small Disadvantaged Businesses, and Women-Owned Businesses

FACTOR 2 (Volume 1, Part 2) – Experience

- a. Design-Build Roadway Experience
- b. Major Grading, Drainage, Paving and Bridge Experience

FACTOR 3 (Volume 1, Part 3) – Pavement Design

- a. Site Investigation
- b. Pavement Structure
- c. Design Life

FACTOR 4 (Volume 1, Part 4) – Schedule

- a. Overall Schedule
- b. Incorporation of Quality Control Procurements

FACTOR 5 (Volume 1, Part 5) – Personnel Qualifications

FACTOR 6 (Volume 2) – Price

4. RELATIVE WEIGHT OF TECHNICAL EVALUATION CRITERIA

Factor 1 is the most important technical factor. Within Factor 1, subfactor a is the most important; subfactor b is slightly less important than subfactor a; subfactor c is slightly less important than subfactor b; and subfactor d is slightly less important than subfactor c.

Factor 2 is equal to Factor 3. Factors 2 and 3 are slightly less important than Factor 1. Within Factor 2 and 3, the subfactors are equal in importance to one another.

Factor 4 is less important than Factors 2 and 3. Within Factor 4, subfactor a is most important and subfactor b is less important than subfactor a.

Factor 5 is the least important of all the technical factors.

Factor 6 (Price) is equal in importance to Factors 1, 2, 3, 4, and 5 combined.

5. PRICE

e. Price will not be point-scored, but will be subjectively evaluated. The specific evaluation process is described below. The technical evaluation factors, when combined, are equal to price. The closer the total evaluated technical ratings of acceptable offers are to one another, the greater will be the importance of price in making the selection determination. The closer the final price evaluations are to one another, the greater will be the importance of the total evaluated technical ratings in making the selection determination.

f. The Price Proposal Schedule (Volume 2) submitted in response to this solicitation will not be point scored but will be subjectively evaluated for reasonableness over the life of the contract. In the event, during the course of the analysis, the Price Evaluation Team has reason to question the reasonableness of a price proposal, or has reason to believe there is unbalancing in the price proposal, the PET may conduct such additional reasonable analysis as it requires in order to complete a thorough price analysis. Because the evaluation of the price proposal will represent a portion of the total evaluation, it is possible that an offeror might not be selected because of an unbalanced or an unreasonable price proposal.

g. The evaluated price information will be reported to the SSA and SSAC. The SSA and SSAC will utilize the technical ratings and the price evaluations in preparing its overall ranking of the proposals and as to the Best Value determination for selection of successful offeror.

6. PAST PERFORMANCE

In the course of evaluating offerors' proposals, the Source Selection Evaluation Board may contact references submitted by the offeror. The SSEB may also check past performance information obtained from sources other than those identified by the offeror. All gathered information will be used to evaluate the offeror's overall past performance.

Sheer numbers of confirmed negative comments may not give the offeror an overall rating of less than satisfactory. Negative comments in areas that are not of vital importance to the successful performance of this contract may not result in a rating of less than satisfactory. Conversely, one or only a few negative confirmed comments in areas of vital importance to the successful performance of this contract may render an overall past performance rating less than satisfactory.

During the evaluation, the following will also be taken into consideration: the age and relevance of past performance information; the offeror's overall work record; if there are any problems identified, the number, type, and severity of the problems and the effectiveness of corrective actions taken.

At no time during this process, nor during the debriefing, nor after award, will the names of the individuals providing reference information about an offeror's past performance be revealed to the offerors or to any other party. Offerors may be afforded the opportunity to respond to adverse comments made by references in accordance with guidelines identified in FAR Part 15.3. In this case, comments will be extracted and provided to the offeror. Copies of the questionnaires will not be furnished to the offeror and will remain confidential.

During the ranking process the SSA may also consider past performance information in evaluating overall risk associated with a particular proposer.

4. SMALL, SMALL DISADVANTAGED AND WOMEN-OWNED BUSINESS SUBCONTRACTING PLAN

The Government will request a Subcontracting Plan from the selected contractor, if the contractor is a large business. The Government will then evaluate the Subcontracting Plan in accordance with Appendix CC, Subcontracting Plan Evaluation Guide, of the Army Federal Acquisition Regulation Supplement (AFARS) by the Small Business Specialist on the SSEB. This Subcontracting Plan must be approved by the Contracting Officer prior to award of the contract.

5. DEBRIEFING

In accordance with FAR 15.505 Preaward Debriefing of Offerors, and FAR 15.506 Postaward Debriefing of Offerors, the offeror should be aware of the following.

PREAWARD DEBRIEFING OF OFFERORS (FAR 15.505)

Offerors excluded from the competitive range or otherwise excluded from the competition before award may request a debriefing before award (10 U.S.C. 2305(b)(6)(A) and 41 U.S.C. 253b(f)-(h)).

(a)(1) The offeror may request a preaward debriefing by submitting a written request for debriefing to the Contracting Officer within 3 days after receipt of the notice of exclusion from the competition.

(2) At the offeror's request, this debriefing may be delayed until after award. If the debriefing is delayed until after award, it shall include all information normally provided in a postaward debriefing (see 15.506(d)). Debriefings delayed pursuant to this paragraph could affect the timeliness of any protest filed subsequent to the debriefing.

(3) If the offeror does not submit a timely request, the offeror need not be given either a preaward or a postaward debriefing. Offerors are entitled to no more than one debriefing for each proposal.

(b) The Contracting Officer shall make every effort to debrief the unsuccessful offeror as soon as practicable, but may refuse the request for a debriefing if, for compelling reasons, it is not in the best interests of the Government to conduct a debriefing at that time. The rationale for delaying the debriefing shall be documented in the contract file. If the Contracting Officer delays the debriefing, it shall be provided no later than the time postaward debriefings are provided under 15.506. In that event, the Contracting Officer shall include the information at 15.506(d) in the debriefing.

(c) Debriefings may be done orally, in writing, or by any other method acceptable to the Contracting Officer.

The Contracting Officer should normally chair any debriefing session held. Individuals who conducted the evaluations shall provide support.

At minimum, preaward debriefings shall include--

(1) The agency's evaluation of significant elements in the offeror's proposal;

(2) A summary of the rationale for eliminating the offeror from the competition; and

(3) Reasonable responses to relevant questions about whether source selection procedures contained in the solicitation, applicable regulations, and other applicable authorities were followed in the process of eliminating the offeror from the competition.

Preaward debriefings shall not disclose--

The number of offerors;

The identity of other offerors;

The content of other offerors' proposals;

The ranking of other offerors;

The evaluation of other offerors; or

Any of the information prohibited in 15.506(e).

An official summary of the debriefing shall be included in the contract file.

POSTAWARD DEBRIEFING OF OFFERORS FAR 15.506

(a)(1) An offeror, upon its written request received by the agency within 3 days after the date on which that offeror has received notification of contract award in accordance with 15.503(b), shall be debriefed and furnished the basis for the selection decision and contract award.

(2) To the maximum extent practicable, the debriefing should occur within 5 days after receipt of the written request. Offerors that requested a postaward debriefing in lieu of a preaward debriefing, or whose debriefing was delayed for compelling reasons beyond contract award, also should be debriefed within this time period.

(3) An offeror that was notified of exclusion from the competition (see 15.505(a)), but failed to submit a timely request, is not entitled to a debriefing.

(4)(i) Untimely debriefing requests may be accommodated.

(ii) Government accommodation of a request for delayed debriefing pursuant to 15.505(a)(2), or any untimely debriefing request, does not automatically extend the deadlines for filing protests. Debriefings delayed pursuant to 15.505(a)(2) could affect the timeliness of any protest filed subsequent to the debriefing.

(b) Debriefings of successful and unsuccessful offerors may be done orally, in writing, or by any other method acceptable to the Contracting Officer.

(c) The Contracting Officer should normally chair any debriefing session held. (Individuals who conducted the evaluations shall provide support.)

At a minimum, the debriefing information shall include--

(1) The Government's evaluation of the significant weaknesses or deficiencies in the offeror's proposal, if applicable;

(2) The overall evaluated price (including unit prices), and technical rating, if applicable, of the successful offeror and the debriefed offeror, and past performance information on the debriefed offeror;

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

(4) A summary of the rationale for award;

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

(6) Reasonable responses to relevant questions about whether source selection procedures contained in the solicitation, applicable regulations, and other applicable authorities were followed.

(e) The debriefing shall not include point-by-point comparisons of the debriefed offeror's proposal with those of other offerors. Moreover, the debriefing shall not reveal any information prohibited from disclosure by 24.202 or exempt from release under the Freedom of Information Act (5 U.S.C. 552) including--

(1) Trade secrets;

(2) Privileged or confidential manufacturing processes and techniques;

(3) Commercial and financial information that is privileged or confidential, including cost breakdowns, profit, indirect cost rates, and similar information; and

(4) The names of individuals providing reference information about an offeror's past performance.

(f) An official summary of the debriefing shall be included in the contract file.

SECTION 00600 Representations & Certifications

CLAUSES INCORPORATED BY FULL TEXT

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

(a) The offeror certifies that --

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

(i) Those prices,

(ii) The intention to submit an offer, or

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

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

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

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

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

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

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

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

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

(End of provision)

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

(a) The definitions and prohibitions contained in the clause, at FAR 52.203-12, Limitation on Payments to Influence Certain Federal Transactions, included in this solicitation, are hereby incorporated by reference in paragraph (b) of

this Certification.

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

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the offeror shall complete and submit, with its offer, OMB standard form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

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

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, Title 31, United States Code. Any person who makes an expenditure prohibited under this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(End of provision)

52.204-3 TAXPAYER IDENTIFICATION (OCT 1998)

(a) Definitions.

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

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

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

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

(d) Taxpayer Identification Number (TIN).

___ TIN: _____

___ TIN has been applied for.

TIN is not required because:

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

Offeror is an agency or instrumentality of a foreign government;

Offeror is an agency or instrumentality of the Federal Government.

(e) Type of organization.

Sole proprietorship;

Partnership;

Corporate entity (not tax-exempt);

Corporate entity (tax-exempt);

Government entity (Federal, State, or local);

Foreign government;

International organization per 26 CFR 1.6049-4;

Other _____

(f) Common parent.

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

Name and TIN of common parent:

Name _____

TIN _____

(End of provision)

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

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

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

(End of provision)

52.209-5 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND

OTHER RESPONSIBILITY MATTERS (DEC 2001)

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

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

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

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

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

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

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

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

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

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

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

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

(End of provision)

52.215-6 PLACE OF PERFORMANCE (OCT 1997)

(a) The offeror or respondent, in the performance of any contract resulting from this solicitation, () intends, () does not intend [check applicable block] to use one or more plants or facilities located at a different address from the

address of the offeror or respondent as indicated in this proposal or response to request for information.

(b) If the offeror or respondent checks “intends” in paragraph (a) of this provision, it shall insert in the following spaces the required information:

Place of Performance (Street Address, City, State, County, Zip Code)	Name and Address of Owner and Operator of the Plant or Facility if Other Than Offeror or Respondent
<hr/>	<hr/>

52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (MAY 2001) ALTERNATE I (OCT 2000) & ALTERNATE II (OCT 2000)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 234110.

(2) The small business size standard is \$27,500,000.00.

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

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

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

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

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

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

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

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

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

concern or concerns that are participating in the joint venture: _____.) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

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

Black American.

Hispanic American.

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

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

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

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

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

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

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

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

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

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

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

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

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

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

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

(d) Notice.

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

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

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

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

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

(End of provision)

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

(a) Definition.

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

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

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

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

No. of Employees Avg. Annual Gross Revenues

___ 50 or fewer ___ \$1 million or less

___ 51 - 100 ___ \$1,000,001 - \$2 million

___ 101 - 250 ___ \$2,000,001 - \$3.5 million

___ 251 - 500 ___ \$3,500,001 - \$5 million

___ 501 - 750 ___ \$5,000,001 - \$10 million

___ 751 - 1,000 ___ \$10,000,001 - \$17 million

___ Over 1,000 ___ Over \$17 million

(End of provision)

52.219-21 SMALL BUSINESS SIZE REPRESENTATION FOR TARGETED INDUSTRY CATEGORIES UNDER THE SMALL BUSINESS COMPETITIVENESS DEMONSTRATION PROGRAM (MAY 1999)

(Complete only if the Offeror has represented itself under the provision at 52.219-1 as a small business concern under the size standards of this solicitation.)

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

No. of Employees Avg. Annual Gross Revenues

- 50 or fewer \$1 million or less
- 51 - 100 \$1,000,001 - \$2 million
- 101 - 250 \$2,000,001 - \$3.5 million
- 251 - 500 \$3,500,001 - \$5 million
- 501 - 750 \$5,000,001 - \$10 million
- 751 - 1,000 \$10,000,001 - \$17 million
- 17 million

(End of provision)

52.219-22 SMALL DISADVANTAGED BUSINESS STATUS (OCT 1999)

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

(b) Representations.

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

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

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

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

(C) It is identified, on the date of this representation, as a certified small disadvantaged business concern in the database maintained by the Small Business Administration(PRO0Net); or

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

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

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

- (1) Be punished by imposition of a fine, imprisonment, or both;
- (2) Be subject to administrative remedies, including suspension and debarment; and
- (3) Be ineligible for participation in programs conducted under the authority of the Small Business Act.

(End of provision)

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

The offeror represents that --

- (a) [] It has, [] has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;
- (b) [] It has, [] has not, filed all required compliance reports; and
- (c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of provision)

52.223-4 RECOVERED MATERIAL CERTIFICATION (OCT 1997)

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

(End of provision)

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

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

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

- (1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or

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

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

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

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

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

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

52.226-2 HISTORICALLY BLACK COLLEGE OR UNIVERSITY AND MINORITY INSTITUTION REPRESENTATION (MAY 2001)

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

Historically black college or university means an institution determined by the Secretary of Education to meet the requirements of 34 CFR 608.2. For the Department of Defense, the National Aeronautics and Space Administration, and the Coast Guard, the term also includes any nonprofit research institution that was an integral part of such a college or university before November 14, 1986.

Minority institution means an institution of higher education meeting the requirements of Section 1046(3) of the Higher Education Act of 1965 (20 U.S.C. 1067k, including a Hispanic-serving institution of higher education, as defined in Section 316(b)(1) of the Act (20 U.S.C. 1101a)).

(b) Representation. The offeror represents that it--

is is not a historically black college or university;

is is not a minority institution.

(End of provision)

52.227-6 ROYALTY INFORMATION (APR 1984)

(a) Cost or charges for royalties. When the response to this solicitation contains costs or charges for royalties totaling more than \$250, the following information shall be included in the response relating to each separate item of royalty or license fee:

(1) Name and address of licensor.

(2) Date of license agreement.

(3) Patent numbers, patent application serial numbers, or other basis on which the royalty is payable.

(4) Brief description, including any part or model numbers of each contract item or component on which the royalty is payable.

(5) Percentage or dollar rate of royalty per unit.

(6) Unit price of contract item.

(7) Number of units.

(8) Total dollar amount of royalties.

(b) Copies of current licenses. In addition, if specifically requested by the Contracting Officer before execution of the contract, the offeror shall furnish a copy of the current license agreement and an identification of applicable claims of specific patents.

(End of provision)

52.230-1 COST ACCOUNTING STANDARDS NOTICES AND CERTIFICATION (JUN 2000)

Note: This notice does not apply to small businesses or foreign governments. This notice is in three parts, identified by Roman numerals I through III.

Offerors shall examine each part and provide the requested information in order to determine Cost Accounting Standards (CAS) requirements applicable to any resultant contract.

If the offeror is an educational institution, Part II does not apply unless the contemplated contract will be subject to full or modified CAS coverage pursuant to 48 CFR 9903.201-2(c)(5) or 9903.201-2(c)(6), respectively.

I. DISCLOSURE STATEMENT--COST ACCOUNTING PRACTICES AND CERTIFICATION

(a) Any contract in excess of \$500,000 resulting from this solicitation will be subject to the requirements of the Cost Accounting Standards Board (48 CFR Chapter 99), except for those contracts which are exempt as specified in 48 CFR 9903.201-1.

(b) Any offeror submitting a proposal which, if accepted, will result in a contract subject to the requirements of 48 CFR Chapter 99 must, as a condition of contracting, submit a Disclosure Statement as required by 48 CFR 9903.202. When required, the Disclosure Statement must be submitted as a part of the offeror's proposal under this solicitation unless the offeror has already submitted a Disclosure Statement disclosing the practices used in connection with the pricing of this proposal. If an applicable Disclosure Statement has already been submitted, the offeror may satisfy the requirement for submission by providing the information requested in paragraph (c) of Part I of this provision.

CAUTION: In the absence of specific regulations or agreement, a practice disclosed in a Disclosure Statement shall not, by virtue of such disclosure, be deemed to be a proper, approved, or agreed-to practice for pricing proposals or accumulating and reporting contract performance cost data.

(c) Check the appropriate box below:

(1) Certificate of Concurrent Submission of Disclosure Statement.

The offeror hereby certifies that, as a part of the offer, copies of the Disclosure Statement have been submitted as follows: (i) original and one copy to the cognizant Administrative Contracting Officer (ACO) or cognizant Federal agency official authorized to act in that capacity (Federal official), as applicable, and (ii) one copy to the cognizant Federal auditor.

(Disclosure must be on Form No. CASB DS-1 or CASB DS-2, as applicable. Forms may be obtained from the cognizant ACO or Federal official and/or from the loose-leaf version of the Federal Acquisition Regulation.)

Date of Disclosure Statement: _____ Name and Address of Cognizant ACO or Federal Official Where Filed: _____

The offeror further certifies that the practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the Disclosure Statement.

(2) Certificate of Previously Submitted Disclosure Statement.

The offeror hereby certifies that the required Disclosure Statement was filed as follows:

Date of Disclosure Statement: _____ Name and Address of Cognizant ACO or Federal Official Where Filed: _____

The offeror further certifies that the practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the applicable Disclosure Statement.

(3) Certificate of Monetary Exemption.

The offeror hereby certifies that the offeror, together with all divisions, subsidiaries, and affiliates under common control, did not receive net awards of negotiated prime contracts and subcontracts subject to CAS totaling more than \$50 million (of which at least one award exceeded \$1 million) in the cost accounting period immediately preceding the period in which this proposal was submitted. The offeror further certifies that if such status changes before an award resulting from this proposal, the offeror will advise the Contracting Officer immediately.

(4) Certificate of Interim Exemption.

The offeror hereby certifies that (i) the offeror first exceeded the monetary exemption for disclosure, as defined in (3) of this subsection, in the cost accounting period immediately preceding the period in which this offer was submitted and (ii) in accordance with 48 CFR 9903.202-1, the offeror is not yet required to submit a Disclosure Statement. The offeror further certifies that if an award resulting from this proposal has not been made within 90 days after the end of that period, the offeror will immediately submit a revised certificate to the Contracting Officer, in the form specified under subparagraph (c)(1) or (c)(2) of Part I of this provision, as appropriate, to verify submission of a completed Disclosure Statement.

CAUTION: Offerors currently required to disclose because they were awarded a CAS-covered prime contract or subcontract of \$50 million or more in the current cost accounting period may not claim this exemption (4). Further, the exemption applies only in connection with proposals submitted before expiration of the 90-day period following the cost accounting period in which the monetary exemption was exceeded.

II. COST ACCOUNTING STANDARDS--ELIGIBILITY FOR MODIFIED CONTRACT COVERAGE

If the offeror is eligible to use the modified provisions of 48 CFR 9903.201-2(b) and elects to do so, the offeror shall indicate by checking the box below. Checking the box below shall mean that the resultant contract is subject to the Disclosure and Consistency of Cost Accounting Practices clause in lieu of the Cost Accounting Standards clause.

() The offeror hereby claims an exemption from the Cost Accounting Standards clause under the provisions of 48 CFR 9903.201-2(b) and certifies that the offeror is eligible for use of the Disclosure and Consistency of Cost Accounting Practices clause because during the cost accounting period immediately preceding the period in which this proposal was submitted, the offeror received less than \$50 million in awards of CAS-covered prime contracts and subcontracts. The offeror further certifies that if such status changes before an award resulting from this proposal, the offeror will advise the Contracting Officer immediately.

CAUTION: An offeror may not claim the above eligibility for modified contract coverage if this proposal is expected to result in the award of a CAS-covered contract of \$50 million or more or if, during its current cost accounting period, the offeror has been awarded a single CAS-covered prime contract or subcontract of \$25 million or more.

III. ADDITIONAL COST ACCOUNTING STANDARDS APPLICABLE TO EXISTING CONTRACTS

The offeror shall indicate below whether award of the contemplated contract would, in accordance with subparagraph (a)(3) of the Cost Accounting Standards clause, require a change in established cost accounting practices affecting existing contracts and subcontracts.

() YES () NO

(End of clause)

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

(a) "Definitions."

As used in this provision --

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

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

(3) "Significant interest" means --

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

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

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

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

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

(b) "Prohibition on award."

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

(c) "Disclosure."

If the government of a terrorist country has a significant interest in the Offeror or a subsidiary of the Offeror, the

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

- (1) Identification of each government holding a significant interest; and
- (2) A description of the significant interest held by each government.

(End of provision)

252.209-7003 COMPLIANCE WITH VETERANS' EMPLOYMENT REPORTING REQUIREMENTS (MAR 1998)

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

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

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

(b) Representation. The Offeror represents that it:

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

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

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

(End of provision)

SECTION 00700 Contract Clauses

CLAUSES INCORPORATED BY REFERENCE:

52.202-1 Alt I	Definitions (Dec 2001) --Alternate I	MAY 2001
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	APR 1984
52.203-7	Anti-Kickback Procedures	JUL 1995
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	JAN 1997
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	JAN 1997
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	JUN 1997
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	JUL 1995
52.211-13	Time Extensions	SEP 2000
52.211-18	Variation in Estimated Quantity	APR 1984
52.215-2	Audit and Records--Negotiation	JUN 1999
52.215-11	Price Reduction for Defective Cost or Pricing Data--Modifications	OCT 1997
52.215-12	Subcontractor Cost or Pricing Data	OCT 1997
52.215-13	Subcontractor Cost or Pricing Data--Modifications	OCT 1997
52.215-15	Pension Adjustments and Asset Reversions	DEC 1998
52.215-17	Waiver of Facilities Capital Cost of Money	OCT 1997
52.215-18	Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other than Pensions	OCT 1997
52.215-19	Notification of Ownership Changes	OCT 1997
52.219-8	Utilization of Small Business Concerns	OCT 2000
52.219-9	Small Business Subcontracting Plan	JAN 2002
52.219-16	Liquidated Damages-Subcontracting Plan	JAN 1999
52.222-3	Convict Labor	AUG 1996
52.222-4	Contract Work Hours and Safety Standards Act - Overtime Compensation	SEP 2000
52.222-6	Davis Bacon Act	FEB 1995
52.222-7	Withholding of Funds	FEB 1988
52.222-8	Payrolls and Basic Records	FEB 1988
52.222-9	Apprentices and Trainees	FEB 1988
52.222-10	Compliance with Copeland Act Requirements	FEB 1988
52.222-11	Subcontracts (Labor Standards)	FEB 1988
52.222-12	Contract Termination-Debarment	FEB 1988
52.222-13	Compliance with Davis -Bacon and Related Act Regulations.	FEB 1988
52.222-14	Disputes Concerning Labor Standards	FEB 1988
52.222-15	Certification of Eligibility	FEB 1988
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	APR 2002
52.222-27	Affirmative Action Compliance Requirements for Construction	FEB 1999
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era and Other Eligible Veterans	DEC 2001
52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era and Other Eligible Veterans	DEC 2001
52.222-38	Compliance with Veterans' Employment Reporting Requirements	DEC 2001
52.223-6	Drug Free Workplace	MAY 2001

52.223-14	Toxic Chemical Release Reporting	OCT 2000
52.225-12	Notice of Buy American Act Requirement - Construction Materials Under Trade Agreements	FEB 2000
52.225-13	Restrictions on Certain Foreign Purchases	JUL 2000
52.226-1	Utilization Of Indian Organizations And Indian-Owned Economic Enterprises	JUN 2000
52.227-1	Authorization and Consent	JUL 1995
52.227-2	Notice And Assistance Regarding Patent And Copyright Infringement	AUG 1996
52.227-4	Patent Indemnity-Construction Contracts	APR 1984
52.228-1	Bid Guarantee	SEP 1996
52.228-11	Pledges Of Assets	FEB 1992
52.228-14	Irrevocable Letter of Credit	DEC 1999
52.229-3	Federal, State And Local Taxes	JAN 1991
52.229-5	Taxes--Contracts Performed In U S Possessions Or Puerto Rico	APR 1984
52.230-2	Cost Accounting Standards	APR 1998
52.232-17	Interest	JUN 1996
52.232-23 Alt I	Assignment of Claims (Jan 1986) - Alternate I	APR 1984
52.233-1	Disputes	DEC 1998
52.233-3	Protest After Award	AUG 1996
52.236-2	Differing Site Conditions	APR 1984
52.236-3	Site Investigation and Conditions Affecting the Work	APR 1984
52.236-5	Material and Workmanship	APR 1984
52.236-6	Superintendence by the Contractor	APR 1984
52.236-7	Permits and Responsibilities	NOV 1991
52.236-8	Other Contracts	APR 1984
52.236-9	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements	APR 1984
52.236-10	Operations and Storage Areas	APR 1984
52.236-11	Use and Possession Prior to Completion	APR 1984
52.236-12	Cleaning Up	APR 1984
52.236-13	Accident Prevention	NOV 1991
52.236-15	Schedules for Construction Contracts	APR 1984
52.236-17	Layout of Work	APR 1984
52.236-24	Work Oversight in Architect-Engineer Contracts	APR 1984
52.236-26	Preconstruction Conference	FEB 1995
52.242-13	Bankruptcy	JUL 1995
52.242-14	Suspension of Work	APR 1984
52.243-1 Alt III	Changes--Fixed Price (Aug 1987) - Alternate III	APR 1984
52.243-4	Changes	AUG 1987
52.244-6	Subcontracts for Commercial Items	DEC 2001
52.246-12	Inspection of Construction	AUG 1996
52.247-34	F.O.B. Destination	NOV 1991
52.249-2 Alt I	Termination for Convenience of the Government (Fixed-Price) (Sep 1996) - Alternate I	SEP 1996
52.249-7	Termination (Fixed-Price Architect-Engineer)	APR 1984
52.249-10	Default (Fixed-Price Construction)	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	MAR 1999
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.204-7004	Required Central Contractor Registration	NOV 2001
252.205-7000	Provisions Of Information To Cooperative Agreement Holders	DEC 1991
252.209-7000	Acquisition From Subcontractors Subject To On-Site Inspection Under The Intermediate Range Nuclear Forces (INF) Treaty	NOV 1995

252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	MAR 1998
252.215-7000	Pricing Adjustments	DEC 1991
252.215-7002	Cost Estimating System Requirements	OCT 1998
252.219-7003	Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan (DOD Contracts)	APR 1996
252.225-7012	Preference For Certain Domestic Commodities	AUG 2000
252.225-7031	Secondary Arab Boycott Of Israel	JUN 1992
252.226-7001	Utilization of Indian Organizations and Indian-Owned Economic Enterprises-DoD Contracts	SEP 2001
252.227-7033	Rights in Shop Drawings	APR 1966
252.231-7000	Supplemental Cost Principles	DEC 1991
252.236-7000	Modification Proposals -Price Breakdown	DEC 1991
252.236-7006	Cost Limitation	JAN 1997
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.244-7000	Subcontracts for Commercial Items and Commercial Components (DoD Contracts)	MAR 2000
252.246-7000	Material Inspection And Receiving Report	DEC 1991
252.247-7023	Transportation of Supplies by Sea	MAR 2000
252.247-7024	Notification Of Transportation Of Supplies By Sea	MAR 2000

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

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

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

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

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

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

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

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

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

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

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

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

(1) The Contractor shall submit cost or pricing data and supporting attachments prepared in the following format:

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

(End of clause)

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

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

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

Goals for minority participation for each trade	Goals for female participation for each trade
2.3%	6.9%

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

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

Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

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

- (1) Name, address, and telephone number of the subcontractor;
- (2) Employer's identification number of the subcontractor;
- (3) Estimated dollar amount of the subcontract;
- (4) Estimated starting and completion dates of the subcontract; and
- (5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is **Waynesville, Pulaski County, Missouri**.

52.225-11 BUY AMERICAN ACT--BALANCE OF PAYMENTS PROGRAM--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (FEB 2000)

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

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

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

Cost of components means--

- (1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or
- (2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

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

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

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

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

Designated country construction material means a construction material that--

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

Domestic construction material means--

- (1) An unmanufactured construction material mined or produced in the United States; or
- (2) A construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic.

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

North American Free Trade Agreement country means Canada or Mexico.

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

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

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

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

(2) The Contractor shall use only domestic, designated country, or NAFTA country construction material in performing this contract, except as provided in paragraphs (b)(3) and (b)(4) of this clause.

(3) The requirement in paragraph (b)(2) of this clause does not apply to the construction materials or components listed by the Government as follows:

(a) The following articles have been determined to be non-available in accordance with FAR [25.103](#)(b):

- Acetylene, black.
- Agar, bulk.
- Anise.
- Antimony, as metal or oxide.
- Asbestos, amosite, chrysotile, and crocidolite.

Bananas.
Bauxite.
Beef, corned, canned.
Beef extract.
Bephenium hydroxynapthoate.
Bismuth.
Books, trade, text, technical, or scientific; newspapers; pamphlets; magazines; periodicals; printed briefs and films; not printed in the United States and for which domestic editions are not available.
Brazil nuts, unroasted.
Cadmium, ores and flue dust.
Calcium cyanamide.
Capers.
Cashew nuts.
Castor beans and castor oil.
Chalk, English.
Chestnuts.
Chicle.
Chrome ore or chromite.
Cinchona bark.
Cobalt, in cathodes, rondelles, or other primary ore and metal forms.
Cocoa beans.
Coconut and coconut meat, unsweetened, in shredded, desiccated, or similarly prepared form.
Coffee, raw or green bean.
Colchicine alkaloid, raw.
Copra.
Cork, wood or bark and waste.
Cover glass, microscope slide.
Crane rail (85-pound per foot).
Cryolite, natural.
Dammar gum.
Diamonds, industrial, stones and abrasives.
Emetine, bulk.
Ergot, crude.
Erythrityl tetranitrate.
Fair linen, altar.
Fibers of the following types: abaca, abace, agave, coir, flax, jute, jute burlaps, palmyra, and sisal.
Goat and kidskins.
Graphite, natural, crystalline, crucible grade.
Hand file sets (Swiss pattern).
Handsewing needles.
Hemp yarn.
Hog bristles for brushes.
Hyoscine, bulk.
Ipecac, root.
Iodine, crude.
Kaurigum.
Lac.
Leather, sheepskin, hair type.
Lavender oil.
Manganese.
Menthol, natural bulk.
Mica.
Microprocessor chips (brought onto a Government construction site as separate units for incorporation into building systems during construction or repair and alteration of real property).
Nickel, primary, in ingots, pigs, shots, cathodes, or similar forms; nickel oxide and nickel salts.

Nitroguanidine (also known as picrite).
Nux vomica, crude.
Oiticica oil.
Olive oil.
Olives (green), pitted or unpitted, or stuffed, in bulk.
Opium, crude.
Oranges, mandarin, canned.
Petroleum, crude oil, unfinished oils, and finished products.
Pine needle oil.
Platinum and related group metals, refined, as sponge, powder, ingots, or cast bars.
Pyrethrum flowers.
Quartz crystals.
Quebracho.
Quinidine.
Quinine.
Rabbit fur felt.
Radium salts, source and special nuclear materials.
Rosettes.
Rubber, crude and latex.
Rutile.
Santonin, crude.
Secretin.
Shellac.
Silk, raw and unmanufactured.
Spare and replacement parts for equipment of foreign manufacture, and for which domestic parts are not available.
Spices and herbs, in bulk.
Sugars, raw.
Swords and scabbards.
Talc, block, steatite.
Tantalum.
Tapioca flour and cassava.
Tartar, crude; tartaric acid and cream of tartar in bulk.
Tea in bulk.
Thread, metallic (gold).
Thyme oil.
Tin in bars, blocks, and pigs.
Triprolidine hydrochloride.
Tungsten.
Vanilla beans.
Venom, cobra.
Wax, carnauba.
Wire glass.
Woods; logs, veneer, and lumber of the following species: Alaskan yellow cedar, angelique, balsa, ekki, greenheart, lignum vitae, mahogany, and teak.
Yarn, 50 Denier rayon.

(b) The determination in paragraph (a) of this section does not apply if the contracting officer learns before the time designated for receipt of bids in sealed bidding or final offers in negotiation that an article on the list is available domestically in sufficient and reasonably available quantities of a satisfactory quality. The contracting officer must amend the solicitation if purchasing the article, or if purchasing an end product that could contain such an article as a component, and must specify in all new solicitations that the article is available domestically and that offerors and contractors may not treat foreign components of the same class or kind as domestic components. In addition, the contracting officer must submit a copy of supporting documentation to the appropriate council identified in FAR [1.201-1](#) in accordance with agency procedures, for possible removal of the article from the list.

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

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the restrictions of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent. For determination of unreasonable cost under the Balance of Payments Program, the Contracting Officer will use a factor of 50 percent;

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

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

(c) Request for determination of inapplicability of the Buy American Act or Balance of Payments Program. (1)(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(4) of this clause shall include adequate information for Government evaluation of the request, including--

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

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

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

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

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

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

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

(2) If the Government determines after contract award that an exception to the Buy American Act or Balance of Payments Program applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(4)(i) of this clause.

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

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

Foreign and Domestic Construction Materials Price Comparison

Construction Material Description	Unit of Measure	Quantity	Price (Dollars) \\1\\
Item 1: Foreign construction material.
Domestic construction material.
Item 2: Foreign construction material.
Domestic construction material.

\\1\\ Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).

List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.

Include other applicable supporting information.

(End of clause)

**52.231-5000 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE
MAR 1995)--EFARS**

(a) This clause does not apply to terminations. See 52.249-5000, Basis for Settlement of Proposals and FAR Part 49.

(b) Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual cost data for each piece of equipment or groups of similar serial and series for which the Government can determine both ownership and operating costs from the contractor's accounting records. When both ownership and operating costs cannot be determined for any piece of equipment or groups of similar serial or series equipment from the contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule, Region V. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the contracting officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retroactive pricing, the schedule in effect at the time the work was performed shall apply.

(c) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees.

(d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet.

(End of clause)

52.232-5 PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS (MAY 1997)

(a) Payment of price. The Government shall pay the Contractor the contract price as provided in this contract.

(b) Progress payments. The Government shall make progress payments monthly as the work proceeds, or at more frequent intervals as determined by the Contracting Officer, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer.

(1) The Contractor's request for progress payments shall include the following substantiation:

(i) An itemization of the amounts requested, related to the various elements of work required by the contract covered by the payment requested.

(ii) A listing of the amount included for work performed by each subcontractor under the contract.

(iii) A listing of the total amount of each subcontract under the contract.

(iv) A listing of the amounts previously paid to each such subcontractor under the contract.

(v) Additional supporting data in a form and detail required by the Contracting Officer.

(2) In the preparation of estimates, the Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration. Material delivered to the Contractor at locations other than the site also may be taken into consideration if--

(i) Consideration is specifically authorized by this contract; and

(ii) The Contractor furnishes satisfactory evidence that it has acquired title to such material and that the material will be used to perform this contract.

(c) Contractor certification. Along with each request for progress payments, the Contractor shall furnish the following certification, or payment shall not be made: (However, if the Contractor elects to delete paragraph (c)(4) from the certification, the certification is still acceptable.)

I hereby certify, to the best of my knowledge and belief, that--

(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

(2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements and the requirements of chapter 39 of Title 31, United States Code;

(3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract; and

(4) This certification is not to be construed as final acceptance of a subcontractor's performance.

(Name)

(Title)

(Date)

(d) Refund of unearned amounts. If the Contractor, after making a certified request for progress payments, discovers that a portion or all of such request constitutes a payment for performance by the Contractor that fails to conform to the specifications, terms, and conditions of this contract (hereinafter referred to as the "unearned amount"), the Contractor shall--

(1) Notify the Contracting Officer of such performance deficiency; and

(2) Be obligated to pay the Government an amount (computed by the Contracting Officer in the manner provided in paragraph (j) of this clause) equal to interest on the unearned amount from the 8th day after the date of receipt of the unearned amount until--

(i) The date the Contractor notifies the Contracting Officer that the performance deficiency has been corrected; or

(ii) The date the Contractor reduces the amount of any subsequent certified request for progress payments by an amount equal to the unearned amount.

(e) Retainage. If the Contracting Officer finds that satisfactory progress was achieved during any period for which a progress payment is to be made, the Contracting Officer shall authorize payment to be made in full. However, if satisfactory progress has not been made, the Contracting Officer may retain a maximum of 10 percent of the amount of the payment until satisfactory progress is achieved. When the work is substantially complete, the Contracting Officer may retain from previously withheld funds and future progress payments that amount the Contracting Officer considers adequate for protection of the Government and shall release to the Contractor all the remaining withheld funds. Also, on completion and acceptance of each separate building, public work, or other division of the contract, for which the price is stated separately in the contract, payment shall be made for the completed work without retention of a percentage.

(f) Title, liability, and reservation of rights. All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Government, but this shall not be construed as --

(1) Relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or

(2) Waiving the right of the Government to require the fulfillment of all of the terms of the contract.

(g) Reimbursement for bond premiums. In making these progress payments, the Government shall, upon request, reimburse the Contractor for the amount of premiums paid for performance and payment bonds (including coinsurance and reinsurance agreements, when applicable) after the Contractor has furnished evidence of full payment to the surety. The retainage provisions in paragraph (e) of this clause shall not apply to that portion of progress payments attributable to bond premiums.

(h) Final payment. The Government shall pay the amount due the Contractor under this contract after--

(1) Completion and acceptance of all work;

(2) Presentation of a properly executed voucher; and

(3) Presentation of release of all claims against

the Government arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned under the Assignment of Claims Act of 1940 (31 U.S.C. 3727 and 41 U.S.C. 15).

(i) Limitation because of undefinitized work. Notwithstanding any provision of this contract, progress payments shall not exceed 80 percent on work accomplished on undefinitized contract actions. A "contract action" is any action resulting in a contract, as defined in FAR Subpart 2.1, including contract modifications for additional supplies or services, but not including contract modifications that are within the scope and under the terms of the contract, such as contract modifications issued pursuant to the Changes clause, or funding and other administrative changes.

(j) Interest computation on unearned amounts. In accordance with 31 U.S.C. 3903(c)(1), the amount payable under subparagraph (d)(2) of this clause shall be--

(1) Computed at the rate of average bond equivalent rates of 91-day Treasury bills auctioned at the most recent auction of such bills prior to the date the Contractor receives the unearned amount; and

(2) Deducted from the next available payment to the Contractor.

52.232-27 PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS (FEB 2002)

Notwithstanding any other payment terms in this contract, the Government will make invoice payments under the terms and conditions specified in this clause. The Government considers payment as being made on the day a check is dated or the date of an electronic funds transfer. Definitions of pertinent terms are set forth in sections 2.101, 32.001, and 32.902 of the Federal Acquisition Regulation. All days referred to in this clause are calendar days, unless otherwise specified. (However, see paragraph (a)(3) concerning payments due on Saturdays, Sundays, and legal holidays.)

(a) Invoice payments--(1) Types of invoice payments. For purposes of this clause, there are several types of invoice payments that may occur under this contract, as follows:

(i) Progress payments, if provided for elsewhere in this contract, based on Contracting Officer approval of the estimated amount and value of work or services performed, including payments for reaching milestones in any project.

(A) The due date for making such payments is 14 days after the designated billing office receives a proper payment request. If the designated billing office fails to annotate the payment request with the actual date of receipt at the time of receipt, the payment due date is the 14th day after the date of the Contractor's payment request, provided the designated billing office receives a proper payment request and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(B) The due date for payment of any amounts retained by the Contracting Officer in accordance with the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts, is as specified in the contract or, if not specified, 30 days after approval by the Contracting Officer for release to the Contractor.

(ii) Final payments based on completion and acceptance of all work and presentation of release of all claims against the Government arising by virtue of the contract, and payments for partial deliveries that have been accepted by the Government (e.g., each separate building, public work, or other division of the contract for which the price is stated separately in the contract).

(A) The due date for making such payments is the later of the following two events:

(1) The 30th day after the designated billing office receives a proper invoice from the Contractor.

(2) The 30th day after Government acceptance of the work or services completed by the Contractor. For a final invoice when the payment amount is subject to contract settlement actions (e.g., release of claims), acceptance is deemed to occur on the effective date of the contract settlement.

(B) If the designated billing office fails to annotate the invoice with the date of actual receipt at the time of receipt, the invoice payment due date is the 30th day after the date of the Contractor's invoice, provided the designated billing office receives a proper invoice and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(2) Contractor's invoice. The Contractor shall prepare and submit invoices to the designated billing office specified in the contract. A proper invoice must include the items listed in paragraphs (a)(2)(i) through (a)(2)(xi) of this clause. If the invoice does not comply with these requirements, the designated billing office must return it within 7 days after receipt, with the reasons why it is not a proper invoice. When computing any interest penalty owed the Contractor, the Government will take into account if the Government notifies the Contractor of an improper invoice in an untimely manner.

(i) Name and address of the Contractor.

(ii) Invoice date and invoice number. (The Contractor should date invoices as close as possible to the date of mailing or transmission.)

(iii) Contract number or other authorization for work or services performed (including order number and contract line item number).

(iv) Description of work or services performed.

(v) Delivery and payment terms (e.g., discount for prompt payment terms).

(vi) Name and address of Contractor official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).

(vii) Name (where practicable), title, phone number, and mailing address of person to notify in the event of a defective invoice.

(viii) For payments described in paragraph (a)(1)(i) of this clause, substantiation of the amounts requested and certification in accordance with the requirements of the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts.

(ix) Taxpayer Identification Number (TIN). The Contractor shall include its TIN on the invoice only if required elsewhere in this contract.

(x) Electronic funds transfer (EFT) banking information.

(A) The Contractor shall include EFT banking information on the invoice only if required elsewhere in this contract.

(B) If EFT banking information is not required to be on the invoice, in order for the invoice to be a proper invoice, the Contractor shall have submitted correct EFT banking information in accordance with the applicable solicitation provision (e.g., 52.232-38, Submission of Electronic Funds Transfer Information with Offer), contract clause (e.g., 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration, or 52.232-34, Payment by Electronic Funds Transfer--Other Than Central Contractor Registration), or applicable agency procedures.

(C) EFT banking information is not required if the Government waived the requirement to pay by EFT.

(xi) Any other information or documentation required by the contract.

(3) Interest penalty. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if payment is not made by the due date and the conditions listed in paragraphs (a)(3)(i) through (a)(3)(iii) of this clause are met, if applicable. However, when the due date falls on a Saturday, Sunday, or legal holiday, the designated payment office may make payment on the following working day without incurring a late payment interest penalty.

(i) The designated billing office received a proper invoice.

(ii) The Government processed a receiving report or other Government documentation authorizing payment and there was no disagreement over quantity, quality, Contractor compliance with any contract term or condition, or requested progress payment amount.

(iii) In the case of a final invoice for any balance of funds due the Contractor for work or services performed, the amount was not subject to further contract settlement actions between the Government and the Contractor.

(4) Computing penalty amount. The Government will compute the interest penalty in accordance with the Office of Management and Budget prompt payment regulations at 5 CFR part 1315.

(i) For the sole purpose of computing an interest penalty that might be due the Contractor for payments described in paragraph (a)(1)(ii) of this clause, Government acceptance or approval is deemed to occur constructively on the 7th day after the Contractor has completed the work or services in accordance with the terms and conditions of the contract. If actual acceptance or approval occurs within the constructive acceptance or approval period, the Government will base the determination of an interest penalty on the actual date of acceptance or approval. Constructive acceptance or constructive approval requirements do not apply if there is a disagreement over quantity, quality, or Contractor compliance with a contract provision. These requirements also do not compel Government officials to accept work or services, approve Contractor estimates, perform contract administration functions, or make payment prior to fulfilling their responsibilities.

(ii) The prompt payment regulations at 5 CFR 1315.10(c) do not require the Government to pay interest penalties if payment delays are due to disagreement between the Government and the Contractor over the payment amount or other issues involving contract compliance, or on amounts temporarily withheld or retained in accordance with the terms of the contract. The Government and the Contractor shall resolve claims involving disputes, and any interest that may be payable in accordance with the clause at FAR 52.233-1, Disputes.

(5) Discounts for prompt payment. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if the Government takes a discount for prompt payment improperly. The Government will calculate the interest penalty in accordance with the prompt payment regulations at 5 CFR part 1315.

(6) Additional interest penalty. (i) The designated payment office will pay a penalty amount, calculated in accordance with the prompt payment regulations at 5 CFR part 1315 in addition to the interest penalty amount only if--

(A) The Government owes an interest penalty of \$1 or more;

(B) The designated payment office does not pay the interest penalty within 10 days after the date the invoice amount is paid; and

(C) The Contractor makes a written demand to the designated payment office for additional penalty payment, in accordance with paragraph (a)(6)(ii) of this clause, postmarked not later than 40 days after the date the invoice amount is paid.

(ii)(A) The Contractor shall support written demands for additional penalty payments with the following data. The Government will not request any additional data. The Contractor shall--

(1) Specifically assert that late payment interest is due under a specific invoice, and request payment of all overdue late payment interest penalty and such additional penalty as may be required;

(2) Attach a copy of the invoice on which the unpaid late payment interest was due; and

(3) State that payment of the principal has been received, including the date of receipt.

(B) If there is no postmark or the postmark is illegible --

(1) The designated payment office that receives the demand will annotate it with the date of receipt provided the demand is received on or before the 40th day after payment was made; or

(2) If the designated payment office fails to make the required annotation, the Government will determine the demand's validity based on the date the Contractor has placed on the demand, provided such date is no later than the 40th day after payment was made.

(b) Contract financing payments. If this contract provides for contract financing, the Government will make contract financing payments in accordance with the applicable contract financing clause.

(c) Subcontract clause requirements. The Contractor shall include in each subcontract for property or services (including a material supplier) for the purpose of performing this contract the following:

(1) Prompt payment for subcontractors. A payment clause that obligates the Contractor to pay the subcontractor for satisfactory performance under its subcontract not later than 7 days from receipt of payment out of such amounts as are paid to the Contractor under this contract.

(2) Interest for subcontractors. An interest penalty clause that obligates the Contractor to pay to the subcontractor an interest penalty for each payment not made in accordance with the payment clause--

(i) For the period beginning on the day after the required payment date and ending on the date on which payment of the amount due is made; and

(ii) Computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(3) Subcontractor clause flowdown. A clause requiring each subcontractor to use:

(i) Include a payment clause and an interest penalty clause conforming to the standards set forth in paragraphs (c)(1) and (c)(2) of this clause in each of its subcontracts; and

(ii) Require each of its subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or supplier.

(d) Subcontract clause interpretation. The clauses required by paragraph (c) of this clause shall not be construed to impair the right of the Contractor or a subcontractor at any tier to negotiate, and to include in their subcontract, provisions that--

(1) Retainage permitted. Permit the Contractor or a subcontractor to retain (without cause) a specified percentage of each progress payment otherwise due to a subcontractor for satisfactory performance under the subcontract without incurring any obligation to pay a late payment interest penalty, in accordance with terms and conditions agreed to by the parties to the subcontract, giving such recognition as the parties deem appropriate to the ability of a subcontractor to furnish a performance bond and a payment bond;

(2) Withholding permitted. Permit the Contractor or subcontractor to make a determination that part or all of the subcontractor's request for payment may be withheld in accordance with the subcontract agreement; and

(3) Withholding requirements. Permit such withholding without incurring any obligation to pay a late payment penalty if--

(i) A notice conforming to the standards of paragraph (g) of this clause previously has been furnished to the subcontractor; and

(ii) The Contractor furnishes to the Contracting Officer a copy of any notice issued by a Contractor pursuant to paragraph (d)(3)(i) of this clause.

(e) Subcontractor withholding procedures. If a Contractor, after making a request for payment to the Government but before making a payment to a subcontractor for the subcontractor's performance covered by the payment request, discovers that all or a portion of the payment otherwise due such subcontractor is subject to withholding from the subcontractor in accordance with the subcontract agreement, then the Contractor shall--

(1) Subcontractor notice. Furnish to the subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon ascertaining the cause giving rise to a withholding, but prior to the due date for subcontractor payment;

(2) Contracting Officer notice. Furnish to the Contracting Officer, as soon as practicable, a copy of the notice furnished to the subcontractor pursuant to paragraph (e)(1) of this clause;

(3) Subcontractor progress payment reduction. Reduce the subcontractor's progress payment by an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (e)(1) of this clause;

(4) Subsequent subcontractor payment. Pay the subcontractor as soon as practicable after the correction of the identified subcontract performance deficiency, and--

(i) Make such payment within--

(A) Seven days after correction of the identified subcontract performance deficiency (unless the funds therefor must be recovered from the Government because of a reduction under paragraph (e)(5)(i)) of this clause; or

(B) Seven days after the Contractor recovers such funds from the Government; or

(ii) Incur an obligation to pay a late payment interest penalty computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty;

(5) Notice to Contracting Officer. Notify the Contracting Officer upon--

(i) Reduction of the amount of any subsequent certified application for payment; or

(ii) Payment to the subcontractor of any withheld amounts of a progress payment, specifying--

(A) The amounts withheld under paragraph (e)(1) of this clause; and

(B) The dates that such withholding began and ended; and

(6) Interest to Government. Be obligated to pay to the Government an amount equal to interest on the withheld payments (computed in the manner provided in 31 U.S.C. 3903(c)(1)), from the 8th day after receipt of the withheld amounts from the Government until--

(i) The day the identified subcontractor performance deficiency is corrected; or

(ii) The date that any subsequent payment is reduced under paragraph (e)(5)(i) of this clause.

(f) Third-party deficiency reports--(1) Withholding from subcontractor. If a Contractor, after making payment to a first-tier subcontractor, receives from a supplier or subcontractor of the first-tier subcontractor (hereafter referred to as a "second-tier subcontractor") a written notice in accordance with section 2 of the Act of August 24, 1935 (40 U.S.C. 270b, Miller Act), asserting a deficiency in such first-tier subcontractor's performance under the contract for which the Contractor may be ultimately liable, and the Contractor determines that all or a portion of future payments otherwise due such first-tier subcontractor is subject to withholding in accordance with the subcontract agreement, the Contractor may, without incurring an obligation to pay an interest penalty under paragraph (e)(6) of this clause--

(i) Furnish to the first-tier subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon making such determination; and

(ii) Withhold from the first-tier subcontractor's next available progress payment or payments an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (f)(1)(i) of this clause.

(2) Subsequent payment or interest charge. As soon as practicable, but not later than 7 days after receipt of satisfactory written notification that the identified subcontract performance deficiency has been corrected, the Contractor shall--

(i) Pay the amount withheld under paragraph (f)(1)(ii) of this clause to such first-tier subcontractor; or

(ii) Incur an obligation to pay a late payment interest penalty to such first-tier subcontractor computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(g) Written notice of subcontractor withholding. The Contractor shall issue a written notice of any withholding to a subcontractor (with a copy furnished to the Contracting Officer), specifying--

(1) The amount to be withheld;

(2) The specific causes for the withholding under the terms of the subcontract; and

(3) The remedial actions to be taken by the subcontractor in order to receive payment of the amounts withheld.

(h) Subcontractor payment entitlement. The Contractor may not request payment from the Government of any amount withheld or retained in accordance with paragraph (d) of this clause until such time as the Contractor has determined and certified to the Contracting Officer that the subcontractor is entitled to the payment of such amount.

(i) Prime-subcontractor disputes. A dispute between the Contractor and subcontractor relating to the amount or entitlement of a subcontractor to a payment or a late payment interest penalty under a clause included in the subcontract pursuant to paragraph (c) of this clause does not constitute a dispute to which the Government is a party. The Government may not be interpleaded in any judicial or administrative proceeding involving such a dispute.

(j) Preservation of prime-subcontractor rights. Except as provided in paragraph (i) of this clause, this clause shall not limit or impair any contractual, administrative, or judicial remedies otherwise available to the Contractor or a subcontractor in the event of a dispute involving late payment or nonpayment by the Contractor or deficient subcontract performance or nonperformance by a subcontractor.

(k) Non-recourse for prime contractor interest penalty. The Contractor's obligation to pay an interest penalty to a subcontractor pursuant to the clauses included in a subcontract under paragraph (c) of this clause shall not be construed to be an obligation of the Government for such interest penalty. A cost-reimbursement claim may not include any amount for reimbursement of such interest penalty.

(l) Overpayments. If the Contractor becomes aware of a duplicate payment or that the Government has otherwise overpaid on an invoice payment, the Contractor shall immediately notify the Contracting Officer and request instructions for disposition of the overpayment.

(End of clause)

52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER—CENTRAL CONTRACTOR REGISTRATION (MAY 1999)

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

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

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

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

(b) Contractor's EFT information. The Government shall make payment to the Contractor using the EFT information contained in the Central Contractor Registration (CCR) database. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the CCR database.

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

(d) Suspension of payment. If the Contractor's EFT information in the CCR database is incorrect, then the Government need not make payment to the Contractor under this contract until correct EFT information is entered into the CCR database; and any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

(e) Contractor EFT arrangements. If the Contractor has identified multiple payment receiving points (i.e., more than one remittance address and/or EFT information set) in the CCR database, and the Contractor has not notified the Government of the payment receiving point applicable to this contract, the Government shall make payment to the first payment receiving point (EFT information set or remittance address as applicable) listed in the CCR database.

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

(i) Making a correct payment;

(ii) Paying any prompt payment penalty due; and

(iii) Recovering any erroneously directed funds.

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

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

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

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

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

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

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

(End of Clause)

52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FEB 1997) - ALTERNATE I (APR 1984

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by," or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

(c) Where "as shown," "as indicated," "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place," that is "furnished and installed".

(d) Shop drawings means drawings, submitted to the Government by the Contractor, subcontractor, or any lower tier subcontractor pursuant to a construction contract, showing in detail (1) the proposed fabrication and assembly of structural elements, and (2) the installation (i.e., fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the contractor to explain in detail specific portions of the work required by the contract. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the Government's reasons therefor. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Contracting Officer approves any such variation, the Contracting Officer shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the Contracting Officer and one set will be returned to the Contractor. Upon completing the work under this contract, the Contractor shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the equipment is completed and accepted.

(End of clause)

52.236-22 DESIGN WITHIN FUNDING LIMITATIONS (APR 1984)

(a) The Contractor shall accomplish the design services required under this contract so as to permit the award of a contract, using standard Federal Acquisition Regulation procedures for the construction of the facilities designed at a price that does not exceed the estimated construction contract price as set forth in paragraph (c) below. When bids or proposals for the construction contract are received that exceed the estimated price, the contractor shall perform such redesign and other services as are necessary to permit contract award within the funding limitation. These additional services shall be performed at no increase in the price of this contract. However, the Contractor shall not be required to perform such additional services at no cost to the Government if the unfavorable bids or proposals are the result of conditions beyond its reasonable control.

(b) The Contractor will promptly advise the Contracting Officer if it finds that the project being designed will exceed or is likely to exceed the funding limitations and it is unable to design a usable facility within these limitations. Upon receipt of such information, the Contracting Officer will review the Contractor's revised estimate of construction cost. The Government may, if it determines that the estimated construction contract price set forth in this contract is so low that award of a construction contract not in excess of such estimate is improbable, authorize a change in scope or materials as required to reduce the estimated construction cost to an amount within the estimated construction contract price set forth in paragraph (c) below, or the Government may adjust such estimated construction contract price. When bids or proposals are not solicited or are unreasonably delayed, the Government shall prepare an estimate of constructing the design submitted and such estimate shall be used in lieu of bids or

proposals to determine compliance with the funding limitation.

(c) The estimated construction contract price for the project described in this contract is \$ **20,000,000.00**.

52.236-25 REQUIREMENTS FOR REGISTRATION OF DESIGNERS (APR 1984)

The design of architectural, structural, mechanical, electrical, civil, or other engineering features of the work shall be accomplished or reviewed and approved by architects or engineers registered to practice in the particular professional field involved in a State or possession of the United States, in Puerto Rico, or in the District of Columbia.

(End of clause)

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

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

<http://www.arnet.gov/far/>

<http://www.acq.osd.mil/dp/dars/dfars/dfars.html>

252.227-7022 GOVERNMENT RIGHTS (UNLIMITED) (MAR 1979)

The Government shall have unlimited rights, in all drawings, designs, specifications, notes and other works developed in the performance of this contract, including the right to use same on any other Government design or construction without additional compensation to the Contractor. The Contractor hereby grants to the Government a paid-up license throughout the world to all such works to which he may assert or establish any claim under design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish the original or copies of all such works on the request of the Contracting Officer.

(End of clause)

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

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

(b) The Contractor shall--

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

(c) In general--

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

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

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

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

(End of clause)

SECTION 00800 Special Contract Requirements

CLAUSES INCORPORATED BY FULL TEXT

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

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than the proposed performance period after receipt of the contract notice to proceed. The maximum proposed performance period cannot exceed 880 calendar days after receipt of the notice to proceed. The time stated for completion shall include final cleanup of the premises.

(End of clause)

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

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of \$1,235.00 for each calendar day of delay until the work is completed or accepted.

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

(End of clause)

52.232-5000 PAYMENT FOR MATERIALS DELIVERED OFF-SITE (MAR 1995)--EFARS

(a) Pursuant to FAR clause 52.232-5, Payments Under Fixed Priced Construction Contracts, materials delivered to the contractor at locations other than the site of the work may be taken into consideration in making payments if included in payment estimates and if all the conditions of the General Provisions are fulfilled. Payment for items delivered to locations other than the work site will be limited to: (1) materials required by the technical provisions; or (3) materials that have been fabricated to the point where they are identifiable to an item of work required under this contract.

(b) Such payment will be made only after receipt of paid or receipted invoices or invoices with canceled check showing title to the items in the prime contractor and including the value of material and labor incorporated into the item. In addition to petroleum products, payment for materials delivered off-site is limited to items approved by the Contracting Officer prior to commencement of construction.

(End of clause)

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

The Contractor shall perform on the site, and with its own organization, work equivalent to at least thirty (30) percent of the total amount of the construction work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.

SCR-DB-001 DESIGN-BUILD CONTRACT - ORDER OF PRECEDENCE – AUG 1997

- (a) The contract includes the standard contract clauses and schedules current at the time of contract award. It entails (1) the solicitation in its entirety, including all drawings, cuts, and illustrations, and any amendments, and (2) the successful offeror's accepted proposal. The contract constitutes and defines the entire agreement between the Contractor and the Government. No documentation shall be omitted which in any way bears upon the terms of that agreement.
- (b) In the event of conflict or inconsistency between any of the provisions of this contract, precedence shall be given in the following order:
- (1) Betterments: Any portions of the accepted proposal which both conform to and exceed the provisions of the solicitation.
 - (2) The provisions of the solicitation. (See also Contract Clause: SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION.)
 - (3) All other provisions of the accepted proposal.
 - (4) Any design products including, but not limited to, plans, specifications, engineering studies and analyses, shop drawings, equipment installation drawings, etc. These are "deliverables" under the contract and are not part of the contract itself. Design products must conform with all provisions of the contract, in the order of precedence herein.

(End of Clause)

SCR-DB-0002 PROPOSED BETTERMENTS – AUG 1997

- (a) The minimum requirements of the contract are identified in the Request for Proposal. All betterments offered in the proposal become a requirement of the awarded contract.
- (b) A "Betterment" is defined as any component or system, which exceeds the minimum requirements stated in the Request for Proposal. This includes all proposed betterments listed in accordance with the "Proposal Submission Requirements" of the Solicitation, and all Government identified betterments.
- (c) "Government identified betterments" include the betterments identified on the "List of Accepted Project Betterments" prepared by the Proposal Evaluation Board and made part of the contract by alteration, and all other betterments identified in the accepted Proposal after award.

(End of Clause)

SCR-DB-004 KEY PERSONNEL, SUBCONTRACTORS AND OUTSIDE ASSOCIATES OR CONSULTANTS – AUG 1997

In connection with the services covered by this contract, any in-house personnel, subcontractors, and outside associates or consultants will be limited to individuals or firms that were specifically identified and agreed to during negotiations. The contractor shall obtain the Contracting Officer's written consent before making any substitution for these designated in-house personnel, subcontractors, associates, or consultants.

(End of Clause)

SCR-DB-005 RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN – FEB 2000

- (a) The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and any other non-construction services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiency in its

designs, drawings, specifications, and other non-construction services and perform any necessary rework or modifications, including any damage to real or personal property, resulting from the design error or omission.

(b) Neither the Government's review, approval or acceptance of, nor payment for, the services required under this contract shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract. The Contractor shall be and remain liable to the Government in accordance with applicable law for all damages to the Government caused by the Contractor's negligent performance of any of the services described in paragraph (a) furnished under this contract.

(c) The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law.

(d) if the Contractor is comprised of more than one legal entity, each entity shall be jointly and severally liable thereunder.

(End of Clause)

SCR-DB-006 WARRANTY OF CONSTRUCTION WORK – AUG 1997

(a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (1) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

(b) This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

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

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

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

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

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

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

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

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

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

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

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

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

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

(End of Clause)

SCR-DB-007 SEQUENCE OF DESIGN-CONSTRUCTION – AUG 1997

(a) After receipt of the Contract Notice to Proceed (NTP) the Contractor shall initiate design, comply with all design submission requirements as covered under Division 01 General Requirements, and obtain Government review of each submission. The Contractor may begin construction on portions of the work for which the Government has reviewed the final design submission and has determined satisfactory for purposes of beginning construction. The ACO or COR will notify the Contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal required when, in the opinion of the ACO or COR, the initial submission failed to meet the minimum quality requirements as set forth in the Contract.

(b) If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed Final Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted and are satisfactory to the Government.

(c) No payment will be made for any in-place construction until all required submittals have been made, reviewed, and are satisfactory to the Government.

(End of clause)

SCR-DB-009 CONSTRUCTOR'S ROLE DURING DESIGN PROCESS – JUN 1998

The Contractor's construction management key personnel shall be actively involved during the design process to effectively integrate the design and construction requirements of this contract. In addition to the typical required construction activities, the Contractor's involvement includes, but is not limited to, actions such as: integrating the design schedule into the Master Schedule to maximize the effectiveness of fasttracking design and construction (within the limits allowed in the contract), ensuring constructibility and economy of the design, integrating the shop drawing and installation drawing process into the design, executing the material and equipment acquisition programs to meet critical schedules, effectively interfacing the construction QC program with the design QC program, and maintaining and providing the design team with accurate, up-to-date redline and as-built documentation. The Contractor shall require and manage the active involvement of key trade subcontractors in the above activities.

(End of Clause)

SCR-DB-010 VALUE ENGINEERING AFTER AWARD – JUNE 1999

(a) In reference to Contract Clause 52.248-3, "Value Engineering Construction," the Government may refuse to entertain a "Value Engineering Change Proposal" (VECP) for those "performance oriented" aspects of the Solicitation documents which were addressed in the Contractor's accepted contract proposal and which were evaluated in competition with other offerors for award of this contract.

(b) The Government may consider a VECP for those "prescriptive" aspects of the Solicitation documents, not addressed in the Contractor's accepted contract proposal or addressed but evaluated only for minimum conformance with the Solicitation requirements.

(c) For purposes of this clause, the term "performance oriented" refers to those aspects of the design criteria or other contract requirements which allow the Offeror or Contractor certain latitude, choice of and flexibility to propose in its accepted contract offer a choice of design, technical approach, design solution, construction approach or other approach to fulfill the contract requirements. Such requirements generally tend to be expressed in terms of functions to be performed, performance required or essential physical characteristics, without dictating a specific process or specific design solution for achieving the desired result.

(d) In contrast, for purposes of this clause, the term "prescriptive" refers to those aspects of the design criteria or other Solicitation requirements wherein the Government expressed the design solution or other requirements in terms of specific material, approaches, systems, and/or processes to be used. Prescriptive aspects typically allow the Offerors little or no freedom in the choice of design approach, materials, fabrication techniques, methods of installation, or any other approach to fulfill the contract requirements.

(End of Clause)

SCR-DB-011 PARTNERING – FEB 2000

In order to most effectively accomplish this contract, the Government proposes to form a partnership with the Contractor to develop a cohesive building team. It is anticipated that this partnership would involve the Corps of Engineers, the Directorate of Environmental and Master Planning, the Contractor, primary subcontractors and the designers. This partnership would strive to develop a cooperative management team drawing on the strengths of each team member in an effort to achieve a quality project within budget and on schedule. This partnership would be bilateral in membership and participation will be totally voluntary. Any cost associated with effectuating this partnership, excluding travel and lodging cost of Government personnel, will be borne by the Contractor. The partnering meetings shall be held in Waynesville, Missouri.

(End of Clause)

SCR-DB-012 DESIGN CONFERENCES – AUG 1997

(a) Pre-Work: As part of the Pre-work Conference conducted after contract award, key representatives of the Government and the Contractor will review the design submission and review procedures specified herein, discuss the preliminary design schedule and provisions for phase completion of the D/B documents with construction activities (fast tracking), as appropriate, meet with Corps of Engineers Design Review personnel and key Using Agency points of contact and any other appropriate pre-design discussion items.

(b) Design Charette: After award of the contract, the Contractor shall visit the site and conduct extensive interviews, and problem solving discussions with the individual users, base personnel, Corps of Engineers personnel to acquire all necessary site information, review user operations, and discuss user needs. The Contractor shall document all discussions. The design shall be finalized as direct result of these meetings.

(c) Design Review Conferences: Review conferences will be held on base for each design for each submittal. The Contractor will bring the personnel that developed the design submittal to the review conference. The conferences will take place the week after the review is complete.

(End of Clause)

SCR-DB-014 RECOMMENDED INSURANCE COVERAGE – FEB 2000

The Design-Build Contractor's attention is invited to the contract requirements concerning "RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN" and "WARRANTY OF CONSTRUCTION WORK." These requirements

vest in the Contractor complete responsibility for the professional quality, technical accuracy, and coordination of all design, drawings, specifications and other work or materials furnished by his in-house or consultant forces. The Design-Build Contractor must correct and revise any errors or deficiencies in his work, notwithstanding any review, approval, acceptance or payment by the Government. The Contractor must correct and change any work resulting from his defective design at no additional cost to the Government. The requirements further stipulate that the Design-Build Contractor shall be liable to the Government caused by negligent performance. Though not a mandatory requirement, this is to recommend that the Design-Build Contractor investigate and obtain appropriate insurance coverage for such liability protection.

(End of Clause)

SCR-DB-015 SUBMITTAL OF WORK TO BE PERFORMED BY THE CONTRACTOR (FEB 2000)

The Contractor shall furnish the Contracting Officer within 10 days after the award the items of work he will performed with his own forces and the estimated cost of those items. The percentage of work that must be performed by the Contractor is stated in Contract Clause 52.236-1, "Performance of Work by the Contractor."

(End of Clause)

SECTION 00810

WAGE RATES

1. General Decision No. MO020001, dated 05/03/02, 2 mods.

GENERAL DECISION MO020001 05/03/02 MO1
General Decision Number MO020001

Superseded General Decision No. MO010001

State: Missouri

Construction Type:
HEAVY
HIGHWAY

County(ies):
STATEWIDE

HEAVY AND HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/01/2002
1	04/12/2002
2	05/03/2002

COUNTY(ies):
STATEWIDE

CARP0007M 04/01/2001

	Rates	Fringes
CASS (Richards-Gebauer AFB ONLY), CLAY, JACKSON, PLATTE AND RAY COUNTIES		
CARPENTERS & PILEDRIVERS	25.50	6.88

CARP0008C 05/01/1999

	Rates	Fringes
ST. LOUIS COUNTY AND CITY		
CARPENTERS	26.49	5.69

CARP0011A 05/01/2001

	Rates	Fringes
CARPENTERS & PILEDRIVERS:		
JEFFERSON AND ST. CHARLES COUNTIES	26.29	5.40
FRANKLIN COUNTY	23.78	5.40
WARREN COUNTY	23.78	5.40
LINCOLN COUNTY	23.39	5.40
PIKE, ST. FRANCOIS AND WASHINGTON COUNTIES	22.44	5.40
BUCHANAN, CLINTON, JOHNSON AND LAFAYETTE COUNTIES	22.68	5.99
ATCHISON, ANDREW, BATES, CALDWELL, CARROLL, DAVIESS, DEKALB, GENTRY, GRUNDY, HARRISON, HENRY, HOLT, LIVINGSTON, MERCER, NODAWAY, ST. CLAIR, SALINE AND WORTH COUNTIES	22.03	5.99

BARRY, BARTON, CAMDEN, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY, JASPER, LACLEDE, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK, STONE, TANEY, VERNON, WEBSTER AND WRIGHT COUNTIES	21.68	5.99
CRAWFORD, DENT, GASCONADE, IRON, MADISON, MARIES, MONTGOMERY, PHELPS, PULASKI, REYNOLDS, SHANNON, AND TEXAS COUNTIES	21.73	5.40
RALLS, MARION, LEWIS, CLARK AND SCOTLAND COUNTIES	21.88	5.40
BENTON, MORGAN AND PETTIS COUNTIES	21.83	6.24
ADAIR, AUDRAIN, BOONE, CALLAWAY, CHARITON, COLE, COOPER, HOWARD, KNOX, LINN, MACON, MILLER, MONITEAU, MONROE, OSAGE, PUTNAM, RANDOLPH, SCHUYLER, SHELBY AND SULLIVAN	23.13	6.24
BOLLINGER, BUTLER, CAPE GIRARDEAU, DUNKLIN, MISSISSIPPI, NEW MADRID, PEMISCOT, PERRY, STE. GENEVIEVE, SCOTT, STODDARD AND WAYNE COUNTIES	22.46	4.72
CARTER, HOWELL, OREGON AND RIPLEY COUNTIES	21.54	4.72

* ELEC0001B 06/01/2001

	Rates	Fringes
BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, DUNKLIN, FRANKLIN, IRON, JEFFERSON, LINCOLN, MADISON, MISSISSIPPI, NEW MADRID, PEMISCOT, PERRY, REYNOLDS, RIPLEY, ST. CHARLES, ST. FRANCOIS, ST. LOUIS (City and County), STE. GENEVIEVE, SCOTT, STODDARD, WARREN, WASHINGTON AND WAYNE COUNTIES		
ELECTRICIANS	27.85	15.04

ELEC0002D 09/02/2001

	Rates	Fringes
ADAIR, AUDRAIN, BOONE, CALLAWAY, CAMDEN, CARTER, CHARITON, CLARK, COLE, COOPER, CRAWFORD, DENT, FRANKLIN, GASCONADE, HOWARD, HOWELL, IRON, JEFFERSON, KNOX, LEWIS, LINCON, LINN, MACON, MARIES, MARION, MILLER, MONITEAU, MONROE, MONTGOMERY, MORGAN, OREGON, OSAGE, PERRY, PHELPS, PIKE, PULASKI, PUTNAM, RALLS, RANDOLPH, REYNOLDS, RIPLEY, ST. CHARLES, ST. FRANCOIS, ST. LOUIS (City and County), STE. GENEVIEVE, SCHUYLER, SCOTLAND, SHANNON, SHELBY, SULLIVAN, TEXAS, WARREN AND WASHINGTON COUNTIES.		

LINE CONSTRUCTION:

Lineman & Cable Splicer	27.48	42% + 2.10
Groundman Equipment Operator	24.60	42% + 2.10
Groundman Winch Driver	20.22	42% + 2.10
Groundman, Groundman Driver	19.47	42% + 2.10

ELEC0053F 08/27/2000

Rates Fringes
BATES, BENTON, CARROLL, CASS, CLAY, HENRY, JACKSON, JOHNSON,
LAFAYETTE, PETTIS, PLATTE, RAY, AND SALINE COUNTIES.

LINE CONSTRUCTION:

Lineman	27.80	9.99
Lineman Operator	25.97	9.46
Groundman Powderman	19.45	7.59
Groundman	18.49	7.31

ANDREW, ATCHINSON, BARRY, BARTON, BUCHANAN, CALDWELL, CEDAR,
CHRISTIAN, CLINTON, DADE, DALLAS, DAVIESS, DE KALB, DOUGLAS,
GENTRY, GREENE, GRUNDY, HARRISON, HICKORY, HOLT, JASPER, LACLEDE,

LAWRENCE, LIVINGSTON, McDONALD, MERCER, NEWTON, NODAWAY, OZARK,
POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER, WORTH, AND
WRIGHT COUNTIES.

LINE CONSTRUCTION:

Lineman	26.75	9.69
Lineman Operator	25.41	9.30
Groundman Powderman	18.69	7.37
Groundman	17.30	6.98

ELEC0095C 06/01/2001

Rates Fringes
BARRY, BARTON, CEDAR, CRAWFORD, DADE, JASPER, LAWRENCE, MCDONALD,
NEWTON, ST CLAIR, AND VERNON COUNTIES

ELECTRICIANS:

Electricians	20.51	5.68
Cable Splicers	20.86	5.68

ELEC0124I 08/27/2001

Rates Fringes
BATES, BENTON, CARROLL, CASS, CLAY, COOPER, HENRY, JACKSON,
JOHNSON, LAFAYETTE, MORGAN, PETTIS, PLATTE, RAY AND SALINE
COUNTIES:

ELECTRICIANS	28.78	11.87
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ELEC0257C 03/01/1999

Rates Fringes
AUDRAIN (Except, Cuivre Township), BOONE, CALLAWAY, CAMDEN,
CHARITON, COLE, CRAWFORD, DENT, GASCONADE, HOWARD, MARIES,
MILLER, MONITEAU, OSAGE, PHELPS AND RANDOLPH COUNTIES:

Electricians	20.95	8.88
Cable Splicers	21.95	8.88

ELEC0350B 12/01/2000

Rates Fringes

ADAIR, AUDRAIN (East of Highway 19), CLARK, KNOX, LEWIS, LINN,
 MACON, MARION, MONROE, MONTGOMERY, PIKE, PUTNAM, RALLS, SCHUYLER,
 SCOTLAND, SHELBY AND SULLIVAN COUNTIES

ELECTRICIANS	24.06	7.44
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ELEC0453D 09/01/2000

Rates Fringes

CHRISTIAN, DALLAS, DOUGLAS, GREENE, HICKORY, OREGON, OZARK,
 SHANNON, TEXAS, WEBSTER AND WRIGHT COUNTIES

ELECTRICIANS	20.60	4.37+10%
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PULASKI COUNTY

ELECTRICIANS	21.64	4.37+10%
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HOWELL, LACLEDE, POLK, STONE AND TANEY COUNTIES

ELECTRICIANS	14.20	3.97+10%
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ELEC0545D 12/01/2001

Rates Fringes

ANDREW, BUCHANAN, CLINTON, DEKALB, ATCHISON, HOLT, MERCER,
 GENTRY, HARRISON, DAVIESS, GRUNDY, WORTH, LIVINGSTON, NODAWAY,
 AND CALDWELL COUNTIES

ELECTRICIANS	25.78	8.56
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ELEC0702D 09/04/1995

Rates Fringes

BOLLINGER, BUTLER, CAPE GIRARDEAU, DUNKLIN, MADISON, MISSISSIPPI,
 NEW MADRID, PEMISCOT, SCOTT, STODDARD AND WAYNE COUNTIES

LINE CONSTRUCTION:

Lineman	25.50	17%+2.00
Groundman Equipment Operator (all crawler type equipment D-4 and larger)	21.87	17%+2.00
Groundman - Class A	15.45	17%+2.00

ENGI0016A 05/01/2001

Rates Fringes

BARRY, BARTON, CAMDEN, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS,
 GREENE, JASPER, LAWRENCE, HICKORY, LACLEDE, MCDONALD, NEWTON,
 OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER AND
 WRIGHT COUNTIES

POWER EQUIPMENT OPERATORS

GROUP 1	20.12	5.95
GROUP 2	19.77	5.95
GROUP 3	19.57	5.95

GROUP 4

17.52

5.95

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt finishing machine & trench widening spreader; asphalt plant console operator; autograder; automatic slipform paver; backhoe; blade operator - all types; boat operator - tow; boilers-2; central mix concrete plant operator; clamshell operator; concrete mixer paver; crane operator; derrick or derrick trucks; ditching machine; dozer operator; dragline

operator; dredge booster pump; dredge engineman; dredge operator; drill cat with compressor mounted on cat; drilling or boring machine rotary self-propelled; highloader; hoisting engine - 2 active drums; launch hammer wheel; locomotive operator; - standard guage; mechanic and welders; mucking machine; off-road trucks; piledriver operator; pitman crane operator; push cat operator; quad trac; scoop operator - all types; shovel operator; sideboom cats; skimmer scoop operators; trenching machine operator; truck crane.

GROUP 2: A-frame; asphalt hot-mix silo; asphalt plant fireman (drum or boiler); asphalt plant man; asphalt plant mixer operator; asphalt roller operator; backfiller operator; barber-greene loader; boat operator (bridges and dams); chip spreader; concrete mixer operator - skip loader; concrete plant operator; concrete pump operator; crusher operator; dredge oiler; elevating grader operator; fork lift; greaser-fleet; hoisting engine - 1; locomotive operator - narrow gauge; multiple compactor; pavement breaker; powerbroom - self-propelled; power shield; rooter; side discharge concrete spreader; slip form finishing machine; stumpcutter machine; throttle man; tractor operator (over 50 h.p.); winch truck.

GROUP 3: Boilers - 1; chip spreader (front man); churn drill operator; clef plane operator; concrete saw operator (self-propelled); curb finishing machine; distributor operator; finishing machine operator; flex plane operator; float operator; form grader operator; pugmill operator; roller operator, other than high type asphalt; screening & washing plant operator; siphons & jets; sub-grading machine operator; spreader box operator, self-propelled (not asphalt); tank car heater operator (combination boiler & booster); tractor operator (50 h.p. or less); Umac, Ulric or similar spreader; vibrating machine operator, not hand;

GROUP 4: Grade checker; Oiler; Oiler-Driver

HOURLY PREMIUMS:

The following classifications shall receive \$.25 above GROUP 1 rate: Clamshells - 3 yds. or over; Cranes - Rigs or Piledrivers, 100 ft. of boom or over (including jib); Draglines - 3 yds. or over; Hoists - each additional active drum over 2 drums; Shovels - 3 yds. or over;

The following classifications shall receive \$.50 above GROUP 1 rate: Tandem scoop operator; Cranes - Rigs or Piledrivers,

150 ft. to 200 ft. of boom (including jib); Tandem scoop.

The following classifications shall receive \$.75 above GROUP 1 rate: Cranes - Rigs or Piledrivers, 200 ft. of boom or over (including jib.).

ENGI0101A 05/01/2001

	Rates	Fringes
BUCHANAN, CASS, CLINTON AND LAFAYETTE COUNTIES		
POWER EQUIPMENT OPERATORS		
GROUP 1	21.70	8.15
GROUP 2	21.30	8.15
GROUP 3	19.30	8.15

ANDREW, ATCHISON, BATES, BENTON, CALDWELL, CARROLL, CHARITON, COOPER, DAVIESS, DEKALB, GENTRY, GRUNDY, HARRISON, HENRY, HOLT, HOWARD, JOHNSON, LINN, LIVINGSTON, MERCER, NODAWAY, PETTIS, SALINE, SULLIVAN AND WORTH COUNTIES

POWER EQUIPMENT OPERATORS		
GROUP 1	21.70	8.15
GROUP 2	21.30	8.15
GROUP 3	19.30	8.15

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt roller operator, finish; asphalt paver and spreader; asphalt plant operator; auto grader or trimmer or sub-grader; backhoe; blade operator (all types); boilers - 2; booster pump on dredge; bulldozer operator; boring machine (truck or crane mounted); clamshell operator; concrete mixer paver; concrete plant operator; concrete pump operator; crane operator; derrick or derrick trucks; ditching machine; dragline operator; dredge engineman; dredge operator; drill cat with compressor mounted (self-contained) or similar type self-propelled rotary drill (not air tract); drilling or boring machine (rotary-self-propelled); finishing machine operator; greaser; high loader-fork lift-skid loader (all types); hoisting engineer (2 active drums); locomotive operator (standard guage); mechanics and welders (field and plants); mucking machine operator; pile drive operator; pitman crane or boom truck (all types); push cat; quad track; scraper operators (all types); shovel operator; sideboom cats; side discharge spreader; skimmer scoop operators; slip form paver operator (CMI, Rex, Gomeco or equal); la tourneau rooter (all tiller types); tow boat operator; truck crane; wood and log chippers (all types).

GROUP 2: A-frame truck operator; articulated dump truck; back filler operator; boilers (1); chip spreader; churn drill operator; compressor; concrete mixer operator, skip loader; concrete saws (self-propelled); conveyor operator; crusher operator; distributor operator; elevating grader operator; farm tractor (all attachments); fireman rig; float operator; form grade operator; hoisting engine (one drum); maintenance operator; multiple compactor; pavement breaker, self-propelled hydra-hammer

(or similar type); paymill operator; power shield; pumps; roller operator (with or without blades); screening and washing plant; self-propelled street broom or sweeper; siphons and jets; straw blower; stump cutting machine; siphons and jets; tank car heater operator (combination boiler and booster); welding machine; vibrating machine operator (not hand held); welding machine.

GROUP 3: Oiler; oiler driver; mechanic.

HOURLY PREMIUMS:

THE FOLLOWING CLASSIFICATIONS SHALL RECEIVE (\$.25) ABOVE GROUP 1 RATE: Dragline operator - 3 yds. & over; shovel 3 yds. & over; clamshell 3 yds. & over; Crane, rigs or piledrivers, 100' of boom or over (incl. jib.), hoist - each additional active drum over 2 drums

THE FOLLOWING CLASSIFICATIONS SHALL RECEIVE (\$.50) ABOVE GROUP 1 RATE: Tandem scoop operator; crane, rigs or piledrivers 150' to 200' of boom (incl. jib.)

THE FOLLOWING CLASSIFICATIONS SHALL RECEIVE (\$.75) ABOVE GROUP 1 RATE: Crane rigs, or piledrivers 200 ft. of boom or over (including jib.)

 ENGI0101E 04/01/2002

	Rates	Fringes
CASS, CLAY, JACKSON, PLATTE AND RAY COUNTIES		
POWER EQUIPMENT OPERATORS:		
GROUP 1	23.79	8.97
GROUP 2	22.75	8.97
GROUP 3	18.28	8.97
GROUP 4	21.63	8.97

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt roller operator, finish; asphalt paver and spreader; asphalt plant operator; auto grader or trimmer or sub-grader; backhoe; blade operator (all types); boilers-2; booster pump on dredge; boring machine (truck or crane mounted); bulldozer operator; clamshell operator; concrete cleaning decontamination machine operator; concrete mixer paver; concrete plant operator; concrete pump operator; crane operator; derrick or derrick trucks; ditching machine; dragline operator; dredge engineman; dredge operator; drillcat with compressor mounted (self-contained) or similar type self propelled rotary drill (not air tract); drilling or boring machine (rotary - self-propelled); finishing machine operator; greaser; heavy equipment robotics operator/mechanic; horizontal directional drill operator; horizontal directional drill locator; loader-forklift - skid loader (all types); hoisting engineer (2 active drums); locomotive operator (standard guage); master environmental maintenance mechanic; mechanics and welders (field and plants); mucking machine operator; piledrive operator; pitman crane or boom truck (all types); push cat; quad-track; scraper operators (all types);

or Floating; Scoop, Skimmer; Shovel, Power (Electric, Gas, Steam or other powers); Shovel, Power (7 cu yds and over); Switch Boat; Whirley; Air Tugger with air compressor; Anchor Placing Barge; Asphalt Spreader; Athey Force Feeder Loader, self-propelled;

Backfilling Machine; Boat Operator - Push Boat or Tow Boat (job site); Boiler, High Pressure Breaking in Period; Boom Truck, Placing or Erecting; Boring Machine, Footing Foundation; Bullfloat; Cherry Picker; Combination Concrete Hoist and Mixer (such as Mixermobile); Compressor, Two 125 CFM and under; Compressor, Two through Four over 125 CFM; Compressor when operator runs throttle; Concrete Breaker (Truck or Tractor mounted); Concrete Pump (such as Pumpcrete machine); Concrete Saw (self-propelled); Concrete Spreader; Conveyor, Large (not selfpropelled) hoisting or moving brick and concrete into, or into and on floor level, one or both; Crane, Climbing (such as Linden); Crane, Hydraulic - Rough Terrain, self-propelled; Crane, Hydraulic - Truck or Cruiser mounted - under 16 tons; Drilling machine - Self-powered, used for earth or rock drilling or boring (wagon drills and any hand drills obtaining power from other souces including concrete breakers, jackhammers and Barco equipmnet no engineer required); Elevating Grader; Engine Man, Dredge; Excavator or Powerbelt Machine; Finishing Machine, self-propelled oscillating screed; Forklift; Generators, Two through Six 30 KW or over; Grader, Road with power blade; Greaser; Highlift; Hoist, Concrete and Brick (Brick cages or concrete skips operating or on tower, Towermobile, or similar equipment); Hoist, Three or more drums in use; Hoist, Stack; Hydro-Hammer; Lad-A-Vator, hoisting brick or concrete; Loading Machine such as Barber-Greene; Mechanic on job site

GROUP 2: Air Tugger with plant air; Boiler (for power or heating shell of building or temporary enclosures in connection with construction work); Boiler, Temporary; Compressor, One over 125 CFM; Compressor, truck mounted; Conveyor, Large (not self-propelled); Conveyor, Large (not self- propelled) moving brick and concrete (distributing) on floor level; Curb Finishing Machine; Ditch Paving Machine; Elevator (outside); Endless Chain Hoist; Fireman (as required); Form Grader; Hoist, One Drum regardless of size (except brick or concrete); Lad-A-Vator, other hoisting; Manlift; Mixer, Asphalt, over 8 cu ft capacity; Mixer, one bag capacity or less; Mixer, without side loader, two bag capacity or more; Mixer, with side loader, regardless of size, not Paver; Mud Jack (where mud jack is used in conjenction with an air compressor, operator shall be paid \$.55 per hour in addition to his basic hourly rate for covering both operations); Pug Mill operator; Pump, Sump - self powered, automatic controlled over 2"; Scissor Lift (used for hoisting); Skid Steer Loader; Sweeper, Street; Tractor, small wheel type 50 HP and under with grader blade and similar equipment; Welding Machine, One over 400 amp; Winch, operating from truck

GROUP 3: Boat operator - outboard motor, job site; Conveyors (such as Con-Vay-It) regardless of how used; Elevator (inside); Heater operator, 2 through 6; Sweeper, Floor

GROUP 4: Crane type

HOURLY PREMIUMS:

Backhoe, Hydraulic 2 cu yds or less without oiler - \$2.00;

Certified Crane Operator - \$1.50; Certified Hazardous Material Operator \$1.50; Crane, climbing (such as Linden) - \$.50; Crane, Pile Driving and Extracting - \$.50 Crane with boom (including job) over 100 ft from pin to pin - add \$.01 per foot to maximum of \$4.00); Crane, using rock socket tool - \$.50; Derrick, diesel, gas or electric hoisting material and erecting steel (150 ft or more above ground) - \$.50; Dragline, 7 cu yds and over - \$.50; Hoist, Three or more drums in use - \$.50; Scoop, Tandem - \$.50; Shovel, Power - 7 cu yds and over - \$.50; Tractor, Tandem Crawler - \$.50; Tunnel, man assigned to work in tunnel or tunnel shaft - \$.50; Wrecking, when machines are working on second floor or higher - \$.50

* ENGI0513G 05/01/2002

Rates Fringes
ADAIR, AUDRAIN, BOLLINGER, BOONE, BUTLER, CALLAWAY, CAPE
GIRARDEAU, CARTER, CLARK, COLE, CRAWFORD, DENT, DUNKLIN,
GASCONADE, HOWELL, IRON, KNOX, LEWIS, MACON, MADISON, MARIES,
MARION, MILLER, MISSISSIPPI, MONITEAU, MONROE, MONTGOMERY,
MORGAN, NEW MADRID, OREGON, OSAGE, PEMISCOT, PERRY, PHELPS, PIKE,
PULASKI, PUTNAM, RALLS, RANDOLPH, REYNOLDS, RIPLEY, ST. FRANCOIS,
STE. GENEVIEVE, SCHUYLER, SCOTLAND, SCOTT, SHANNON, SHELBY,
STODDARD, TEXAS, WASHINGTON, AND WAYNE COUNTIES

POWER EQUIPMENT OPERATORS

	Rates	Fringes
GROUP 1	21.35	12.23
GROUP 2	21.00	12.23
GROUP 3	20.80	12.23
GROUP 4	17.15	12.23

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt finishing machine & trench widening spreader, asphalt plant console operator; autograder; automatic slipform paver; back hoe; blade operator - all types; boat operator tow; boiler two; central mix concrete plant operator; clam shell operator; concrete mixer paver; crane operator; derrick or derrick trucks; ditching machine; dozer operator; dragline operator; dredge booster pump; dredge engineman; dredge operator; drill cat with compressor mounted on cat; drilling or boring machine rotary self-propelled; highloader; hoisting engine 2 active drums; launchhammer wheel; locomotive operator standrad guage; mechanics and welders; mucking machine; piledriver operator; pitman crane operator; push cat operator; quad-trac; scoop operator; sideboom cats; skimmer scoop operator; trenching machine operator; truck crane, shovel operator.

GROUP 2: A-Frame; asphalt hot-mix silo; asphalt roller operator asphalt plant fireman (drum or boiler); asphalt plant man; asphalt plant mixer operator; backfiller operator; barber-greene loader; boat operator (bridge & dams); chip spreader; concrete mixer operator skip loader; concrete plant operator; concrete

pump operator; dredge oiler; elevating graded operator; fork lift; grease fleet; hoisting engine one; locomotive operator narrow gauge; multiple compactor; pavement breaker; powerbroom

self-propelled; power shield; rooter; slip-form finishing machine; stumpcutter machine; side discharge concrete spreader; throttleman; tractor operator (over 50 hp); winch truck; asphalt roller operator; crusher operator.

GROUP 3: Spreader box operator, self-propelled not asphalt; tractor operator (50 h.p. or less); boilers one; chip spreader (front man); churn drill operator; compressor over 105 CFM 2-3 pumps 4" & over; 2-3 light plant 7.5 KWA or any combination thereof; clef plane operator; compressor maintenance operator 2 or 3; concrete saw operator (self-propelled); curb finishing machine; distributor operator; finishing machine operator; flex plane operator; float operator; form grader operator; pugmill operator; riller operator other than high type asphalt; screening & washing plant operator; siphons & jets; subgrading machine operator; tank car heater (combination boiler & booster); ulmac, ulric or similar spreader; vibrating machine operator; hydrobroom.

GROUP 4: Oiler; grout machine; oiler driver; compressor over 105 CFM one; conveyor operator one; maintenance operator; pump 4" & over one.

FOOTNOTE:

HOURLY PREMIUMS

Backhoe hydraulic, 2 cu. yds. or under without oiler - \$2.00
 Certified Crane Operator - \$1.50; Certified Hazardous Material Operator \$1.50; Crane, climbing (such as Linden) - \$0.50;
 Crane, pile driving and extracting - \$0.50; Crane, with boom (including jib) over 100' from pin to pin add \$0.01 per foot to maximum of \$4.00; Crane, using rock socket tool - \$0.50;
 Derrick, diesel, gas or electric, hoisting material and erecting steel (150' or more above the ground) - \$0.50;
 Dragline, 7 cu. yds, and over - \$0.50; Hoist, three or more drums in use - \$0.50; Scoop, Tandem - \$0.50; Shovel, power - 7 cu. yds. or more - \$0.50; Tractor, tandem crawler - \$0.50;
 Tunnel, man assigned to work in tunnel or tunnel shaft - \$0.50; Wrecking, when machine is working on second floor or higher - \$0.50;

 * ENGI0513H 05/01/2002

	Rates	Fringes
ST. LOUIS CITY AND COUNTY		
POWER EQUIPMENT OPERATORS:		
GROUP 1	24.92	12.24
GROUP 2	24.92	12.24
GROUP 3	23.02	12.24
GROUP 4	20.02	12.24
GROUP 5	19.56	12.24

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Backhoe, cable or hydraulic; cableway; crane, crawler or truck; crane, hydraulic-truck or cruiser mounted 16 tons & over; crane locomotive; derrick, steam; derrick car & derrick boat; dragline; dredge; gradall, crawler or tire mounted; locomotive, gas, steam & other powers; pile driver, land or floating; scoop, skimmer; shovel, power (steam, gas, electric, or other powers); switch boat; whirley.

GROUP 2: Air tugger w/air compressor; anchor-placing barge; asphalt spreader; atehy force feeder loader (self-propelled); backfilling machine; backhoe-loader; boat operator-push boat or tow boat (job site); boiler, high pressure breaking in period; boom truck, placing or erecting; boring machine, footing foundation; bull-float; cherry picker; combination concrete hoist & mixer (such as mixer mobile); compressor (when operator runs throttle); concrete breaker (truck or tractor mounted); concrete pump, such as pump-crete machine; concrete saw (self-propelled), concrete spreader; conveyor, large (not self-propelled), hoisting or moving brick and concrete into, or into and on floor level, one or both; crane, hydraulic-rough terrain, self-propelled; crane hydraulic-truck or cruiser mounted-under 16 tons; drilling machines, self-powered use for earth or rock drilling or boring (wagon drills and any hand drills obtaining power from other sources including concrete breakers, jackhammers and barco equipment-no engineer required); elevating grader; engineman, dredge; excavator or powerbelt machine; finishing machine, self-propelled oscillating screed; forklift; grader, road with power blade; highlift; greaser; hoist, stack, hydro-hammer; loading machine (such as barber-greene); machanic, on job site; mixer, pipe wrapping machines; plant asphalt; plant, concrete producing or ready-mix job site; plant heating-job site; plant mixing-job site; plant power, generating-job site; pumps, two through six self-powered over 2"; pumps, electric submersible, two through six, over 4"; quad-track; roller, asphalt, top or sub-grade; scoop, tractor drawn; spreader box; sub-grader; tie tamper; tractor-crawler, or wheel type with or without power unit, power take-offs and attachments regardless of size; trenching machine; tunnel boring machine; vibrating machine automatic, automatic propelled; welding machines (gasoline or diesel) two through six; well drilling machine

GROUP 3: Conveyor, large (not self-propelled); con-; veyor, large (not self-propelled) moving brick and concrete distributing) on floor level; mixer two or more mixers of one bag capacity or less; air tugger w/plant air; boiler, for power or heating on construction projects; boiler, temporary; compressor (mounted on truck; curb finishing machine; ditch paving machine; elevator; endless chain hoist; form grader; hoist, one drum regardless of size; lad-a-vator; manlift; mixer, asphalt,

over 8 cu. ft. capacity, without side loader, 2 bag capacity or more; mixer, with side loader, regardless of size; pug mill operator; pump, sump-self-powered, automatic controlled over 2" during use in connection with construction work; sweeper, street; welding machine, one over 400 amp.; winch operating from truck; scissor lift (used for hoisting); tractor, small wheel type 50 h.p. & under with grader blade & similar equipment

GROUP 4: Boat operator-outboard motor (job site); conveyor (such as con-vay-it) regardless of how used; sweeper, floor

GROUP 5: Oiler on dredge and on truck crane.

HOURLY PREMIUMS:

Backhoe, hydraulic		
2 cu. yds. or under without oiler	\$2.00	
Certified Crane Operator	1.50	
Certified Hazardous Material Operator	1.50	
Crane, climbing (such as Linden)	.50	
Crane, pile driving and extracting	.50	
Crane, with boom (including jib) over 100' (from pin to pin) add \$.01 per foot to maximum of	4.00	
Crane, using rock socket tool	.50	
Derrick, diesel, gas or electric, hoisting material and erecting steel (150' or more above ground)	.50	
Dragline, 7 cu. yds. and over	.50	
Hoist, three (3) or more drums in use	.50	
Scoop, Tandem	.50	
Shovel, power - 7 cu. yds. or more	.50	
Tractor, tandem crawler	.50	
Tunnel, man assigned to work in tunnel or tunnel shaft	.50	
Wrecking, when machine is working on second floor or higher	.50	

IRON0010M 04/01/2001

BUCHANAN, CASS, CLAY, JACKSON, JOHNSON, LAFAYETTE, PLATTE AND RAY Counties

	Rates	Fringes
IRONWORKERS	22.70	11.63

ANDREW, ATCHISON, BARTON, BATES, BENTON, CALDWELL, CAMDEN, CARROLL, CEDER CHARITON, CHRISTIAN, CLINTON, COOPER, DADE, DALLAS, DAVIESS, DE KALB, GENTRY, GREENE, GRUNDY, HARRISON, HENRY, HICKORY, HOLT, HOWARD, LACLEDE, LINN, LIVINGSTON, MERCER, MONITEAU, MORGAN, NODAWAY, PETTIS, POLK, PUTNAM, RANDOLPH, ST. CLAIR, SALINE, SULLIVAN, TANEY, VERNON, WEBSTER, WRIGHT and WORTH Counties; and portions of ADAIR, BOONE, MACON, MILLER, and RANDOLPH Counties

IRONWORKERS	19.70	11.63

* IRON0321C 05/01/2002		
	Rates	Fringes
DOUGLAS, HOWELL and OZARK COUNTIES		
IRONWORKERS	17.70	8.01

IRON0396D 08/01/2001		
	Rates	Fringes
ST. LOUIS (City and County), ST. CHARLES, JEFFERSON, IRON, FRANKLIN, LINCOLN, WARREN, WASHINGTON, ST. FRANCOIS, STE. GENEVIEVE, and REYNOLDS Counties; and portions of MADISON, PERRY, BOLLINGER, WAYNE, and CARTER Counties		
IRONWORKERS	25.34	11.42

IRON0396I 08/01/2001		
	Rates	Fringes
AUDRAIN, CALLAWAY, COLE, CRAWFORD, DENT, GASCONADE, MARIES, MONTGOMERY, OSAGE, PHELPS, PIKE, PULASKI, TEXAS, and WRIGHT Counties; and portions of CAMDEN, DOUGLAS, HOWELL, MILLER, OREGON, BOONE, SHANNON, LACLEDE, MONROE, and RALLS Counties		
IRONWORKERS	20.56	11.29

IRON0577F 06/01/2001		
	Rates	Fringes
ADAIR, CLARK, KNOX, LEWIS, MACON, MARION, MONROE, RALLS, SCHUYLER, SCOTLAND, AND SHELBY COUNTIES		
IRONWORKERS	19.85	9.06

IRON0584E 06/01/2001		
	Rates	Fringes
BARRY, JASPER, LAWRENCE, MCDONALD, NEWTON AND STONE Counties		
IRONWORKERS	18.20	7.87

IRON0782D 05/01/2001		
	Rates	Fringes
CAPE GIRARDEAU, MISSISSIPPI, NEW MADRID, SCOTT, & STODDARD Counties; and portions of BOLLINGER, BUTLER, CARTER, DUNKLIN, MADISON, PEMISCOT, PERRY, RIPLEY, and WAYNE Counties		
IRONWORKERS:		
All Major River Work		
(Dams, Bridges):		
Projects \$20 million		
or more	20.65	9.88

All Other Work	19.55	9.11

LABO0042C 03/05/2001		
	Rates	Fringes
ST. LOUIS (City and County)		
LABORERS:		
Plumber Laborers	22.75	6.65

LABO0042H 03/06/2002		
	Rates	Fringes
ST. LOUIS (City and County)		
LABORERS:		
Laborers, Flagperson	23.11	7.10
Wrecking	22.99	7.10
Dynamiter, Powderman	23.61	7.10

* LABO0424B 05/01/2002		
	Rates	Fringes
FRANKLIN COUNTY		
LABORERS		
GROUP 1	21.65	6.40
GROUP 2	22.25	6.40
JEFFERSON COUNTY		
LABORERS		
GROUP 1	21.70	6.40
GROUP 2	22.30	6.40
ADAIR, AUDRAIN, BOLLINGER, BOONE, BUTLER, CALLAWAY, CAPE GIRARDEAU, CARTER, CHARITON, CLARK, COLE, COOPER, CRAWFORD, DENT, DUNKLIN, GASCONADE, HOWARD, HOWELL, IRON, KNOX, LEWIS, LINN, MACON, MADISON, MARIES, MARION, MILLER, MISSISSIPPI, MONITEAU, MONROE, NEW MADRID, OREGON, OSAGE, PEMISCOT, PERRY, PHELPS, PIKE, PULASKI, PUTNAM, RALLS, RANDOLPH, REYNOLDS, RIPLEY, ST. FRANCOIS, STE. GENEVIEVE, SCHUYLER, SCOTLAND, SCOTT, SHANNON, SHELBY, STODDARD, SULLIVAN, TEXAS, WASHINGTON, AND WAYNE COUNTIES		
LABORERS		
GROUP 1	20.20	6.40
GROUP 2	20.80	6.40
LINCOLN, MONTGOMERY AND WARREN COUNTIES		
LABORERS		
GROUP 1	20.45	6.40
GROUP 2	21.05	6.40
LABORERS CLASSIFICATIONS		

GROUP 1 - General laborer-flagman, carpenter tenders; salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggy man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzle man; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

LABO0579F 05/01/2001

	Rates	Fringes
BUCHANAN AND LAFAYETTE COUNTIES		
LABORERS		
GROUP 1	18.04	6.29
GROUP 2	18.39	6.29

ANDREW, ATCHISON, BARRY, BARTON, BATES, BENTON, CALDWELL, CAMDEN, CARROLL, CEDAR, CHRISTIAN, CLINTON, DADE, DALLAS, DAVIESS, DEKALB, DOUGLAS, GREENE, GENTRY, GRUNDY, HARRISON, HENRY, HICKORY, HOLT, JASPER, JOHNSON, LACLEDE, LAWRENCE, LIVINGSTON, MCDONALD, MERCER, MORGAN, NEWTON, NODAWAY, OZARK, PETTIS, POLK, ST. CLAIR, SALINE, STONE, TANEY, VERNON, WEBSTER, WORTH AND

WRIGHT COUNTIES.

LABORERS

GROUP 1	16.69	6.04
GROUP 2	17.24	6.04

LABORERS CLASSIFICATIONS

GROUP 1: General Laborers - Carpenter tenders; salamander tenders; loading trucks under bins; hoppers & conveyors; track men & all other general laborers; air tool operator; cement handler-bulk or sack; dump man on earth fill; georgie buggy man; material batch hopper man; material mixer man (except on manholes); coffer dams; riprap pavers - rock, block or brick; signal man; scaffolds over ten feet not self-supported from ground up; skipman on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoline, oil drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator, all work in connection with hydraulic or general dredging operations; puddlers (paving only); straw blower nozzle man; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material or materials (where special protection is required); rubbing concrete; topper of standing trees; batter board man on pipe and ditch work; feeder man on wood pulverizers; board and willow mat weavers and cable tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 feet where compressed air is not used; abutment and pier hole men working six (6) feet or more below ground; men working in coffer dams for bridge piers and footings in the river; ditchliners; pressure groutmen; caulker; chain or concrete saw; cliffscalers working from scaffolds, bosuns' chairs or platforms on dams or power plants over (10) feet above ground; mortarmen on brick or block manholes; toxic and hazardous waste work.

GROUP 2: Skilled Laborers - Head pipe layer on sewer work; laser beam man; Jackson or any other similar tamp; cutting torch man; form setters; liners and stringline men on concrete paving, curb, gutters; hot mastic kettleman; hot tar applicator; sandblasting and gunite nozzle men; air tool operator in tunnels; screed man on asphalt machine; asphalt raker; barco tamper; churn drills; air track drills and all similar drills; vibrator man; stringline man for electronic grade control; manhole builders-brick or block; dynamite and powder men; grade checker.

LABO0660H 03/07/2001

	Rates	Fringes
ST. CHARLES COUNTY		
LABORERS:		
GROUP 1	21.77	6.17
GROUP 2	21.77	6.17

LABORERS CLASSIFICATIONS

GROUP 1: General laborer; carpenter tender; salamander tender; dump man; ticket takers; flagman; loading trucks under bins, hoppers, and conveyors; track men; cement handler; dump man on earth fill; Georgie buggy man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap paver - rock, block, or brick; signal man; scaffolds over 10 ft not self-supported from ground up; skipman on concrete paving; wire mech setters on concrete paving; all work in connection with sewer, water, gas, gasoline, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters; puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; toppler of standing trees; feeder man on wood pulverizer; board and w llow mat weavers and cable tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft where compressed air is not used; abutment and pier hole men working 6 ft or more below ground; men working in coffer dams for bridge piers and footings in the river; Barcotamper, Jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditchliners; hot mastic kettleman; hot tar applicator; hand blade operators; mortar men on brick or block manholes; rubbing concrete; air tool operator under 65 pounds; caulker and lead man; chain saw under 15 hp; guard rail and sign erectors

GROUP 2: Vibrator man; asphalt raker; hand pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from Bosun's chairs, scaffolds or platforms on dams or power plants over 10 ft high; air tool operator over 65 pounds; stringline man on concrete paving etc.; sand blast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills; gunnite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 hp and over; grade checker; stringline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi and over; asbestos and/or hazardous waste removal and or disposal;

LABO0663D 04/01/2002

Rates

Fringes

CASS, CLAY, JACKSON, PLATTE AND RAY COUNTIES

LABORERS:

GROUP 1	21.05	7.24
GROUP 2	22.14	7.24

LABORERS CLASSIFICATIONS

GROUP 1: General laborers, Carpenter tenders, salamander tenders, loading trucks under bins, hoppers and conveyors, track

men and all other general laborers, air tool operator, cement handler (bulk or sack), chain or concrete saw, deck hands, dump man on earth fill, Georgie Buggies man, material batch hopper man, scale man, material mixer man (except on manholes), coffer dams, abutments and pier hole men working below ground, riprap pavers rock, black or brick, signal man, scaffolds over ten feet not self-supported from ground up, skipman on concrete paving, wire mesh setters on concrete paving, all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipelines, power tool operator, all work in connection with hydraulic or general dredging operations, straw blower nozzle man, asphalt plant platform man, chuck tender, crusher feeder, men handling creosote ties on creosote materials, men working with and handling epoxy material or materials (where special protection is required), topper of standing trees, batter board man on pipe and ditch work, feeder man on wood pulverizers, board and willow mat weavers and cable tiers on river work, deck hands, pile dike and revetment work, all laborers working on underground tunnels less than 25 feet where compressed air is not used, abutment and pier hole men working six (6) feet or more below ground, men working in coffer dams for bridge piers and footings in the river, ditchliners, pressure groutmen, caulker and chain or concrete saw, cliffscalers working from scaffolds, bosuns' chairs or platforms on dams or power plants over (10) feet above ground, mortarmen on brick or block manholes, signal man.

GROUP 2: Skilled Laborer - spreader or screed man on asphalt machine, asphalt raker, grade checker, vibrator man, concrete saw over 5 hp., laser beam man, barco tamper, jackson or any other similar tamp, wagon driller, churn drills, air track drills and other similar drills, cutting torch man, form setters, liners and stringline men on concrete paving, curb, gutters and etc., hot mastic kettleman, hot tar applicator, hand blade operators, mortar men on brick or block manholes, sand blasting and gunnite nozzle men, rubbing concrete, air tool operator in tunnels, head pipe layer on sewer work, manhole builder (brick or block), dynamite and powder men.

 PAIN0002B 09/01/2001

	Rates	Fringes
CLARK, FRANKLIN, JEFFERSON, LEWIS, LINCOLN, MARION, PIKE, RALLS, ST. CHARLES, ST. LOUIS (CITY & COUNTY), AND WARREN COUNTIES		

PAINTERS:

Brush	23.93	7.35
Spray	25.93	7.35

PAIN0002G 04/17/2001

	Rates	Fringes
ADAIR, AUDRAIN, BOONE, CALLAWAY, CHARITON, COLE, GASCONADE, HOWARD, KNOX, LINN, MACON, MONROE, MONTGOMERY, OSAGE, PUTNAM, RANDOLPH, SCHUYLER, SCOTLAND, SHELBY AND SULLIVAN COUNTIES and the City of Booneville.		

PAINTERS:

Brush, Roller, Paperhanger, Tapers	16.94	6.31
Tapers using Ames or comparable tools (bazooks, etc.)	17.19	6.31
Spray; Water Base Epoxy; Stage Under 50 ft.;		
Structural Steel (except for stairs and railings)	17.44	6.31
Sandblasting; Epoxy or Any Two Part Coating; Stage or Other Aerial Work Platforms Over 50 ft. high;		
Lead Abatement	17.94	6.31
Bridges, Dams, Locks or Powerhouses	18.94	6.31

PAIN0003D 04/01/2000

Rates Fringes

BATES, BENTON, CALDWELL, CARROLL, CASS, CLAY, CLINTON, COOPER,
DAVISS, GRUNDY, HARRISON, HENRY, JACKSON, JOHNSON, LAFAYETTE,
LIVINGSTON, MERCER, MONITEAU, MORGAN, PETTIS, PLATTE, RAY AND
SALINE COUNTIES

PAINTERS:

Brush & Roller; Taper	22.10	6.01
Bazooka; Paperhanger	22.60	6.01
Storage Bin & Tanks (Roller or Brush); Elevated Tanks (Roller or Brush); Stageman; Beltman; Bridgeman; Steelman; Sand Blast (Base); Elevator Shaft	22.85	6.01
Lead Abatement; Sprayman	23.10	6.01
Sandblast (Bridge, Stage, Erected Steel and Storage Bin and Tanks)	23.60	6.01
Sprayman (Storage Bin & Tanks, Elevated Tanks); Stageman (Spray); Bridgeman (Spray); Steelman (Spray)	23.85	6.01
Steeplejack (other than Elevated Tanks)	26.79	6.01
Steeplejack -Spray or Sandblast (other than Elevated Tanks)	27.79	6.01

PAIN0098B 05/01/2000

Rates Fringes

ANDREW, ATCHISON, BUCHANAN, DE KALB, GENTRY, HOLT, NODAWAY &
WORTH COUNTIES

PAINTERS:

Brush & Roller	20.50	4.40
Sandblasters	21.50	4.40
Steeple Jack	23.50	4.40

PAIN0203B 04/01/1999

Rates Fringes
BARRY, BARTON, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE,
HICKORY, HOWELL, JASPER, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK,
ST. CLAIR, STONE, TANEY, VERNON, WEBSTER and WRIGHT COUNTIES

PAINTERS:
Sandblasters & Highman (over
40') 17.68 3.23
Painters 17.38 3.23
Tapers 16.47 3.21

PAIN1265C 07/01/2001

Rates Fringes
CAMDEN, CRAWFORD, DENT, LACLEDE, MARIES, MILLER, PHELPS, PULASKI
AND TEXAS COUNTIES

PAINTERS:
Brush and Roller, Spray 17.54 7.37
Structural Steel,
Sandblasting and all Tank
Work 18.79 7.37
Lead Abatement 19.79 7.37

PAIN1292B 07/01/2001

Rates Fringes
BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, DUNKLIN, MISSISSIPPI,
NEW MADRID, OREGON, PEMISCOT, PERRY, REYNOLDS, RIPLEY, SCOTT,
SHANNON, STODDARD and WAYNE COUNTIES

PAINTERS:
Commercial 15.44 5.97
Industrial 17.94 5.97
Bridges, Stacks & Tanks 22.89 5.97
Taper (Tools) 15.69 5.97
Spray & Abrasive Blasting 17.44 5.97
Waterblasting 17.44 5.97

Height Rates (All Areas): Over 60 ft. \$0.50 per hour.
Under 60 ft. \$0.25 per hour.

PAIN1292F 07/01/2001

Rates Fringes
IRON, MADISON, ST. FRANCOIS, STE. GENEVIEVE and WASHINGTON
COUNTIES

PAINTERS:
Commercial 17.54 5.97
Industrial 18.54 5.97
Tapers (Tools) 17.79 5.97
Bridges, Stacks & Tanks 22.89 5.97

Spray & Abrasive Blasting	19.54	5.97
Waterblasting	19.54	5.97
Lead Abatement	18.29	5.97

Height Rates (All Areas): Over 60 ft. \$0.50 per hour
Under 60 ft. \$0.25 per hour.

PLAS0518F 04/01/2002

	Rates	Fringes
BARRY, BARTON, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HOWELL, JASPER, LACLEDE, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK, STONE, TANEY, VERNON, WEBSTER, AND WRIGHT COUNTIES		

CEMENT MASONS	17.31	3.84
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PLAS0518G 04/01/2001

	Rates	Fringes
CASS (Richards-Gebaur AFB only), CLAY, JACKSON, PLATTE AND RAY COUNTIES		

CEMENT MASONS	21.25	8.15
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PLAS0518K 05/01/2001

	Rates	Fringes
ANDREW, ATCHISON, BUCHANAN, BATES, CALDWELL, CARROLL, CASS (Except Richards-Gebaur AFB) CLINTON, DAVIESS, DEKALB, GENTRY, GRUNDY, HARRISON, HOLT, JACKSON, LAFAYETTE, LIVINGSTON, MACON, MERCER, NODAWAY AND WORTH COUNTIES		

CEMENT MASONS	23.13	7.15
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PLAS0527A 05/01/2001

	Rates	Fringes
JEFFERSON, ST. CHARLES COUNTIES AND ST. LOUIS (City and County)		

CEMENT MASONS	24.48	8.85
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FRANKLIN, LINCOLN, AND WARREN COUNTIES

CEMENT MASONS	23.31	8.85
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PLAS0527D 06/01/2001

	Rates	Fringes
CRAWFORD, DENT, IRON, MADISON, MARION, PHELPS, PIKE, PULASKI, RALLS, REYNOLDS, ST. FRANCOIS, STE. GENEVIEVE, SHANNON, TEXAS, WASHINGTON COUNTIES		

CEMENT MASONS	22.00	8.76
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* PLAS0908A 05/01/2002

Rates Fringes
BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, DUNKLIN, MISSISSIPPI,
NEW MADRID, OREGON, PEMISCOT, PERRY, RIPLEY, SCOTT, STODDARD, AND
WAYNE COUNTIES

CEMENT MASONS 17.40 8.95

PLAS0908G 03/01/2001

Rates Fringes
BENTON, CALLAWAY, CAMDEN, COLE, GASCONADE, HENRY, HICKORY,
JOHNSON, MARIES, MILLER, MONTGOMERY, MORGAN, OSAGE, PETTIS,
SALINE & ST. CLAIR COUNTIES

CEMENT MASONS 18.61 5.65

PLUM0008C 06/01/2000

Rates Fringes
CASS, CLAY, JACKSON, JOHNSON, PLATTE COUNTIES

PLUMBERS 26.44 9.87

BATES, BENTON, CARROLL, HENRY, LAFAYETTE, MORGAN,
PETTIS, RAY, ST. CLAIR, SALINE, AND VERNON COUNTIES

PLUMBERS 24.00 9.87

PLUM0035C 01/01/2000

Rates Fringes
CAMDEN, COLE, CRAWFORD, FRANKLIN, JEFFERSON, MARIES, MILLER,
MONITEAU, OSAGE, PHELPS, PULASKI, ST. CHARLES, ST. LOUIS (City
and County), WARREN and WASHINGTON COUNTIES

PLUMBERS 26.105 9.74

PLUM0045D 12/15/2001

Rates Fringes
ANDREW, ATCHISON, BUCHANAN, CALDWELL, CLINTON, DAVIESS, DEKALB,
GENTRY, HARRISON, HOLT, NODAWAY AND WORTH COUNTIES

PLUMBERS & PIPEFITTERS 26.85 9.80

PLUM0178D 11/01/2001

Rates Fringes
BARRY, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY,
LACLEDE, LAWRENCE, POLK, STONE, TANEY, WEBSTER, AND WRIGHT
COUNTIES

PLUMBERS & PIPEFITTERS 22.10 7.37

PLUM0317B 07/01/1995

Rates Fringes
BOONE, CALLAWAY, COOPER, HOWARD, AND RANDOLPH COUNTY (Southern
half)

PLUMBERS & PIPEFITTERS 19.18 3.17

PLUM0533E 06/01/2001

Rates Fringes
BATES, BENTON, CARROLL, CASS, CLAY, HENRY, HICKORY, JACKSON,
JOHNSON, LAFAYETTE, MORGAN, PETTIS, PLATTE, RAY, SALINE,
ST. CLAIR AND VERNON COUNTIES

PIPEFITTERS 28.38 11.08

PLUM0562D 07/01/2001

Rates Fringes
ADAIR, AUDRAIN, BOLLINGER, BUTLER, CAMDEN, CAPE GIRARDEAU,
CARTER, CHARITON, CLARK, COLE, CRAWFORD, DENT, DUNKLIN, FRANKLIN,
GASCONADE, GRUNDY, HOWELL, IRON, JEFFERSON, KNOX, LEWIS, LINCOLN,
LINN, LIVINGSTON, MACON, MADISON, MARIES, MARION, MERCER, MILLER,
MISSISSIPPI, MONITEAU, MONROE, MONTGOMERY, NEW MADRID, NORTHERN
HALF OF RANDOLPH, OREGON, OSAGE, PEMISCOTT, PERRY, PHELPS, PIKE,
PULASKI, PUTNAM, RALLS, REYNOLDS, RIPLEY, ST. CHARLES, ST.
FRANCOIS, STE. GENEVIEVE, ST. LOUIS, SCHUYLER, SCOTLAND, SCOTT,
SHANNON, SHELBY, STODDARD, SULLIVAN, TEXAS, WARREN, WASHINGTON,
AND WAYNE COUNTIES.

PIPEFITTERS 27.75 11.83

PLUM0658B 07/01/1998

Rates Fringes
BARTON, JASPER, MCDONALD, AND NEWTON COUNTIES

PLUMBERS & PIPEFITTERS 16.73 5.33

TEAM0013H 05/01/2001

Rates Fringes
AUDRAIN, BOLLINGER, BOONE, CALLAWAY, CAPE GIRARDEAU, CARTER,
COLE, CRAWFORD, DENT, GASCONADE, IRON, MACON, MADISON, MARIES,
MARION, MILLER, MISSISSIPPI, MONROE, MONTGOMERY, NEW MADRID,
OSAGE, PEMISCOT, PERRY, PHELPS, PIKE, PULASKI, RALLS, REYNOLDS,
ST. FRANCOIS, STE. GENEVIEVE, SCOTT, SHANNON, SHELBY, STODDARD,
TEXAS, WASHINGTON, AND WAYNE COUNTIES

TRUCK DRIVERS:

GROUP 1	21.72	5.25
GROUP 2	21.87	5.25
GROUP 3	21.88	5.25
GROUP 4	21.99	5.25

ADAIR, BUTLER, CLARK, DUNKIN, HOWELL, KNOX, LEWIS, OREGON,
PUTNAM, RIPLEY, SCHUYLER, AND SCOTLAND COUNTIES

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Flat bed trucks single axle; station wagons; pickup trucks; material trucks single axle; tank wagons single axle.

GROUP 2: Agitator and transit mix-trucks.

GROUP 3: Flat bed trucks tandem axle; articulated dump trucks; material trucks tandem axle; tank wagons tandem axle.

GROUP 4: Semi and/or pole trailers; winch, fork & steel trucks; distributor drivers & operators; tank wagons semi-trailer; insley wagons, dumpsters, half-tracks, speedace, euclids & other similar equipment; A-frames and derrick trucks; float or low boy.

TEAM0245C 03/25/1998

Rates Fringes
BARRY, BARTON, CAMDEN, CEDAR, CHRISTIAN, DALLAS, DENT, DOUGLAS, GREENE, HICKORY, HOWELL, JASPER, LACLEDE, LAWRENCE, MCDONALD, MILLER, NEWTON, OZARK, PHELPS, POLK, PULASKI, SHANNON, STONE, TANEY, TEXAS, VERNON, WEBSTER AND WRIGHT COUNTIES

TRUCK DRIVERS:

Traffic Control Service Driver 12.90 3.56+a

PAID HOLIDAYS: New Year's Day, Decoration Day, July 4th,

Labor Day, Thanksgiving Day, Christmas Day, Employee's birthday and 2 personal days.

TEAM0541A 04/01/2001

Rates Fringes
CASS (Richards-Gebaur AFB), CLAY, JACKSON, PLATTE, AND RAY COUNTIES

TRUCK DRIVERS:

GROUP 1 22.81 6.50
GROUP 2 22.32 6.50
GROUP 3 21.84 6.50

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: Mechanics and Welders, Field; A-Frame Low Boy-Boom Truck Driver.

GROUP 2: Articulated Dump Truck; Insley Wagons: Dump Trucks, Excavating, 5 cu yds and over; Dumpsters; Half-Tracks: Speedace: Euclids & similar excavating equipment. Material trucks, Tandem Two teams; Semi-Trailers; Winch trucks-Fork trucks; Distributor Drivers and Operators; Agitator and Transit Mix; Tank Wagon Drivers, Tandem or Semi; One Team; Station Wagons;

Pickup Trucks; Material Trucks, Single Axle; Tank
Wagon Drivers, Single Axle
GROUP 3: Oilers and Greasers - Field

TEAM0541C 03/25/2000

	Rates	Fringes
BATES, CASS, CLAY, HENRY, JACKSON, JOHNSON, LAFAYETTE, PLATTE, AND RAY COUNTIES		

TRUCK DRIVERS:

Traffic Control Service Driver	14.15	2.44+a
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- a. PAID HOLIDAYS: New Year's Day, Decoration Day, July 4th,
Labor Day, Thanksgiving Day, Christmas Day,
Employee's birthday and 2 personal days.
-

TEAM0682D 05/01/2000

	Rates	Fringes
ST LOUIS CITY AND COUNTY		

TRUCK DRIVERS:

GROUP 1	21.105	4.76+a+b
GROUP 2	21.305	4.78+a+b
GROUP 3	21.405	4.79+a+b

- a. PENSION: \$18.80 per day, \$94.00 maximum per week.

- b. HAZMAT PREMIUM: If Hazmat certification on a job site is
required by a state or federal agency or requested by project
owner or by the employer, employees on that job site shall
receive \$1.50 premium pay.

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1 - Pick-up trucks; forklift, single axle; flatbed trucks;
job site ambulance, and trucks or trailers of a water level
capacity of 11.99 cu. yds. or less

GROUP 2 - Trucks or trailers of a water level capacity of 12.0 cu
yds. up to 22.0 cu yds. including euclids, speedace and similar
equipment of same capacity and compressors

GROUP 3 - Trucks or trailers of a water level capacity of 22.0
cu. yds & over including euclids, speedace & all floats, flatbed
trailers, boom trucks, winch trucks, including small trailers,
farm wagons tilt-top trailers, field offices, tool trailers,
concrete pumps, concrete conveyors & gasoline tank trailers and
truck mounted mobile concrete mixers

FOOTNOTE FOR TRUCK DRIVERS:

- a. PAID HOLIDAYS: Christmas Day, Independence Day, Labor Day,
Memorial Day, Veterans Day, New Years Day, Thanksgiving
Day

PAID VACATION: 3 days paid vacation for 600 hours of

service in any one contract year; 4 days paid vacation for 800 hours of service in any one contract year; 5 days paid vacation for 1,000 hours of services in any one contract years.

TEAM0682E 05/01/2000

Rates Fringes
ST.CHARLES, FRANKLIN, JEFFERSON, LINCOLN AND WARREN COUNTIES:

TRUCK DRIVERS:

GROUP 1	21.105	3.29+a+b+c
GROUP 2	21.305	3.29+a+b+c
GROUP 3	21.405	3.29+a+b+c

a.PAID HOLIDAYS: Christmas, Fourth of July, Labor Day, Memorial Day, Veterans Day, to be celebrated on either its National Holiday or on the day after Thanksgiving, whichever is agreed upon by the Association and the Union, New Year's Day and Thanksgiving Day.

b.Pension: \$18.80 per day either worked or compensated to a maximum of \$94.00 per week.

c.Hazmat Pay: If Hazmat Certification on a job site is required by a state or federal agency or requested by

project owner or by the employer, employees on that job site shall receive \$1.50 per hour premium pay.

TRUCK DRIVER CLASSIFICATIONS:

GROUP 1: Trucks or Trailers of a Water Level Capacity of 11.99 cu. yds. or less, Forklift Trucks, Job Site Ambulances, Pickup Trucks, Flatbed Trucks.

GROUP 2: Trucks or Trailers of a Water Level Capacity of 12.0 cu. yds. up to 22 cu. yds., Euclids, Speedace and Similar Equipment of Same Capacity and Compressors.

GROUP 3: Trucks or Trailers of a Water Level Capacity of 22.0 cu. yds. and over, Euclids and all Floats, Flatbed Trailers, Boom Trucks, Winch Trucks, Including Small Trailers, Farm Wagons, Tilt Top Trailers, Tool Trailers, Concrete Pumps, Concrete Conveyors, Gasoline Tank Trailers, Truck Mounted Mobile Concrete Mixers, End Dump, Side Dump and Articulated Dump Trucks.

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

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(v)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively

bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the

Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.

Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.
END OF GENERAL DECISION

SECTION 01000 – PROJECT SUMMARY

1.0 Project Purpose and Summary

In 1995 base realignments and closures (BRAC 95) relocated the U.S. Army Chemical and Military Police (MP) Schools from Fort McClellan, Alabama to Fort Leonard Wood, Missouri. With this expansion and other non-BRAC expansions at Fort Leonard Wood, it was determined that westerly access to the Fort needed to be improved. The West Gate Access Road will connect to the new alignment of State Route H on the West End and Indiana Avenue on the East End. The Missouri Department of Transportation (MoDOT) will be providing the design and construction for improvements to Route H from Interstate 44 to the West Gate Access Road. The Route H project is anticipated to be completed in the summer of 2003.

It is estimated that the personnel required to staff the new schools would increase the post population by 14,000 persons. Many of the new personnel and portions of the current on-post population will live off base in the nearby towns. The traffic generated will increase volumes on all of the connecting road networks in the Fort Leonard Wood area. The purpose of this project is to provide an important limited access road between the City of Waynesville and Fort Leonard Wood and alleviate this potential public highway deficiency outside of Fort Leonard Wood. Additionally, it will provide congestion relief on Missouri Avenue, which is the main entrance into the Fort.

The project consists of a design-build contract for the design and construction of a two-lane access road. Additionally, the project includes a bridge over the Roubidoux Creek and other drainage structures at associated tributaries. Future work in phase 2 of the project will provide for expansion of the roadway to a 4-lane divided highway.

This project is being procured through the Design-Build method of contracting in order to realize the following goals:

1. Receive a quality product with low maintenance costs,
2. Complete the work on an aggressive design and construction schedule,
3. Establish this project as a test project and future example of the Design-Build process for MoDOT,
4. Promote good teamwork and communication,
5. Complete the project within the allotted budget,
6. Meet the need of Fort Leonard Wood and its future growth plans, and
7. Exchange best practices, methods and information between the USACE and Design-Builder

2.0 Project Description

The new roadway will be used as a way to and from work and therefore will have a high peak-hour percentage and skewed directional distribution. This will tend to level out the usage on the highly congested existing Missouri Avenue allowing it to function at a Level of Service (LOS) C in the Design Year 2022. The new roadway will also provide an alternate access to Route I-44 for defense activities and provide needed emergency access in the event of an unforeseen disaster. The West Gate Access Road is a non-interstate roadway and ownership will be transferred to the City of Waynesville upon completion of construction through a perpetual easement.

3.0 Major Work Items

This project will require design and construction work items associated with surveys, earthwork, roadway paving, bridges, hydrology/hydraulics, drainage structures, environmental, signing,

delineation, lighting, QC/QA for design and construction and contract administration. West Gate Access Road will be designed to meet MoDOT's minimum design standards.

4.0 General

The United States Army Corps of Engineers, Kansas City District (USACE), Missouri Department of Transportation (MoDOT), Federal Highway Administration (FHWA) and the Directorate of Public Works, Fort Leonard Wood (DPW-FLW) have formed a partnership to provide project execution of the West Gate Access Road from inception to delivery of the roadway to the City of Waynesville, Missouri. This project team will utilize the appropriate strengths and resources of each team member to successfully provide this roadway asset to the community.

The USACE is the contracting agency for this project and therefore responsible for all administrative aspects thereof. The USACE Resident Office at Fort Leonard Wood shall have primary contract administrative responsibilities and authorities in coordination with MoDOT as the technical experts for construction. The MoDOT Resident Engineer's office at Rolla, Missouri is responsible for the prime technical review of the Design-Build Contractor's design submittals. USACE will provide a full time Senior Construction Representative during the major portions of the construction contract execution. MoDOT will provide an experienced construction inspector to provide technical assistance and interpretation of MoDOT's specifications.

The FHWA will provide oversight of the overall process for the project. The DPW-FLW is a primary customer receiving the benefit of an alternate access into and out of the Fort from Interstate 44. The City of Waynesville is a secondary customer that will be provided with a perpetual easement for the roadway upon completion of the project and then become responsible for all maintenance on the roadway.

The team responsibilities during construction are as follows:

USACE: In partnership with MoDOT

Project Management

Construction contract administration and supervision

Contracting officer authorities and responsibilities

MoDOT: In partnership with USACE

Project management consultation

Construction contract administration and supervision consultation

Contracting officer authorities and responsibilities consultation

FHWA:

Funding

Consultation

Oversight

SECTION 01012 – DESIGN AFTER AWARD

1.0 General

The contractor shall schedule the number and composition of the design submittal phases. Design submittals are required at the preliminary (50%) and final (95%) design stages and at the 100% design complete stage. The requirements of each design stage are listed hereinafter. The contractor shall reflect the number and contents of the design submittals phases in the progress charts. As a maximum, the 50%, 95% and 100% complete design submittals shall be made in only one package for each of the four (4) major categories listed in Paragraph, "Contents of Design Submittals," except the foundation design and long lead item submittals. These exceptions may be in addition to the 4 major submittals. More than one category may be combined in a submittal.

2.0 Designer of Record

The contractor shall identify, for approval, the Designer of Record for each area of work. One designer of record may be responsible for more than one area. All areas of design disciplines shall be accounted for by a listed, registered Designer of Record. The Designer(s) of Record shall stamp, sign, and date all design drawings under their responsible discipline at each design submittal stage (see SCR – "Registration of Designers").

3.0 Stages of Design Submittals

3.1 Preliminary Conformance Review Submittal (50%)

The review of this submittal is primarily to insure that the contract documents and design analysis are proceeding in a timely manner and that the design criteria is being correctly interpreted. The submittal shall consist of the following:

1. Design analysis, developed to 50%
2. 50% Complete drawings
3. CADD files of all drawings (2 copies)

Environmental permits, as required. When environmental permits are not required, the contractor shall provide a statement with justification to that effect.

3.2 Final Design Review Submittal (95%)

The review of this submittal is to insure that the design is in accordance with directions provided the Contractor during the design process. The Contractor shall submit the following documents for Final Design Review:

1. Design Analysis, developed to 95%
2. 95% complete drawings
3. Draft Specifications
4. Annotated 50% review comments

The Design Analysis submitted for Final Design Review shall be in its final form. The Design Analysis shall include all backup material previously submitted and revised as necessary. All design calculations shall be included. The Design Analysis shall contain all explanatory material giving the design rationale for any design decisions, which would not be obvious to an engineer reviewing the Final Drawings and Specifications.

The Contract Drawings submitted for Final Design Review shall include the drawings previously submitted which have been revised and completed as necessary. The Contractor is expected to have completed all of his coordination checks and have the drawings in a design complete condition. The drawings shall be complete at this time including the incorporation of any design review comments generated by the Preliminary design review. The drawings shall contain all the details necessary to assure a clear understanding of the work throughout construction. Shop drawings will not be considered as design drawings. All design shall be shown on design drawings prior to submittal of shop drawings.

The Draft Specifications on all items of work submitted for Final Design Review shall consist of legible marked-up specification sections.

The Contractor may begin construction on portions of the work for which the Government has reviewed the Final Design Submission and has determined satisfactory for purposes of beginning construction. The ACO or COR will notify the Contractor when the design is cleared for construction. The Government will not grant any time extension for any design resubmittal required when, in the opinion of the ACO or COR, the initial submission failed to meet the minimum quality requirements as set forth in the Contract.

3.3 Design Complete Submittal

After the Final Design Review, the Contractor shall revise the Contract Documents by incorporating any comments generated during the Final Design Review and shall prepare final hard copy Contract Specifications. The Contractor shall submit the following documents for the design complete submittal:

1. Design analysis, in final 100% complete form
2. 100% complete drawings
3. Final specifications
4. Annotated 95% review comments
5. CADD files of all drawings (2 copies)

The Contractor shall submit the Design Complete Submittal not later than 30 calendar days after the Government returns the annotated Final Conformance Review Submittal.

If the Government allows the Contractor to proceed with limited construction based on pending minor revisions to the reviewed Final Design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted with the Design Complete Submittal and are satisfactory to the Government.

4.0 Quality of Design Submittals

4.1 General

The quality control and quality assurance procedures for each type of Design Document and Construction Document shall be organized by engineering discipline (such as structural, civil and utilities). These procedures shall specify measures to be taken by the Design-Builder (1) to ensure that appropriate quality standards are specified and included in the Design Documents and Construction Documents and to control deviations from such standards, it being understood and agreed that no deviations from such standards shall be made unless they have been previously approved by USACE at USACE's sole discretion, and (2) for the selection of suitability of materials, and elements of the Work that are included in the Project.

The Design QC/QA Plan shall include the following:

Quality control and quality assurance procedures for preparing and checking all plans, calculations, drawings and other items submitted, to ensure that they are independently checked and back-checked in accordance with generally accepted architectural and engineering practices, by experienced architects and engineers, respectively. The originator, checker and back-checker shall be clearly identified on the face of all submittals. Specific procedures for verifying computer programs used shall also be included. Plans, reports and other documents shall be stamped, signed and dated by the responsible Missouri registered architect or engineer where required under the Contract Provisions, under generally accepted architectural or engineering practices or by applicable laws.

The plan shall set forth the level, frequency and methods of review of the adequacy of the design of the Project, including the methods by which all final Design Documents and Construction Documents shall be independently reviewed and verified for adequacy of design and back-checked in accordance with generally accepted design and engineering practice by experienced architects and engineers not involved with the preparation of such Documents.

The plan shall set forth the procedures for coordinating Work performed by different persons in the same area, or in adjacent areas or in related tasks to ensure that conflicts, omissions or misalignments do not occur between drawings or between the drawings and the specifications and to coordinate the review, approval, release, distribution and revision of documents involving such persons.

The plan shall identify those elements of the Contract Provisions, Design Documents or Construction Documents, if any, requiring special Quality Control and/or Quality Assurance attention or emphasis, including applicable standards of quality or practice to be met, level of completeness and/or extent of detailing required.

The plan shall identify by discipline, the name, qualifications, duties, responsibilities and authorities for all persons proposed to be responsible for QC/QA.

The plan shall state any requirement for, and the name, qualifications, duties, responsibilities and authorities of, external technical experts necessary to ensure the quality of the design of the Project, the anticipated timing of use of, the expected availability of, and any coordination required with respect to any such experts.

The plan shall describe the required design quality control and assurance functions, including scheduled activities for Design QC/QA identifying the Design Documents and Construction Documents to be delivered to USACE for its review at each stage of the design or work phase of the Project.

All documents shall be maintained by the Design-Builder for the duration of the Contract and shall be organized, indexed and delivered to USACE (1) upon Final Acceptance unless required to be delivered earlier pursuant to the Contract Provisions, or (2) even if incomplete, within seven days of receipt of request from USACE. These documents should include but not be limited to the following items: design criteria, reports and notes, calculations, drawings, schematics, supporting materials, etc.

4.2 Design Quality Review

Prior to the release of final Design Documents and Construction Documents, the Design-Builder shall complete review with architects and engineers experienced in the appropriate disciplines(s). The review shall verify that the Design Documents and Construction Documents were prepared in such a manner as to ensure that they will be acceptable to USACE, as well as the Design-Build Team. The criteria used in such review shall include (1) conformity of the final Design documents and Construction Documents with the Contract Provisions; (2) assurance that all materials, equipment and elements of the Work provided for in such documents which shall be incorporated into the Project have been provided for and designed to perform satisfactorily for the purpose intended; (3) the appearance, organization, technical and grammatical accuracy of such documents; (4) verification that such documents have been checked and signed by the drafter, designer, checker and reviewers; (5) where required under the Contract, generally accepted architectural or engineering practices or applicable law, verification that such documents have been stamped, signed and dated by the responsible Missouri registered civil engineer or architect; and (6) assurance that such documents fully provide for constructability, compatibility of materials and conformity to acceptance criteria for inspections and tests as provided in the Contract.

4.3 QC/QA of Design Changes

Changes, including field changes, in the design of the project or any portion thereof as shown on the Design and Construction Documents, shall be subject to design QC/QA measures and procedures commensurate with those applied to the original design of the portion of the Project being changed. Furthermore, all changes described in this Section shall be approved in writing by the organization that performed the original design, with the written approval of USACE. Any changes affecting the basic configuration of the Project shall also be subject to the requirements contained in this Section.

5.0 Documentation

The documents that the Contractor shall submit to the Government for each submittal are listed and generally described hereinafter. Unless otherwise indicated, the Contractor shall submit twenty (20) copies of each item required to be submitted at the Preliminary and Final Conformance Review Submittal stages. All drawings for review submittals shall be half-size black lines. At the Design Complete Submittal, the Contractor shall also submit five (5) complete full-size sets of drawings, five (5) complete half-size sets and two copies of CADD files in Intergraph format, five (5) sets of any project special provisions (similar in form and content to standard MoDOT specifications) and two (2) copies on floppy disks in ASCII.

5.1 Mailing of Design Submittals

Mail all design submittals to the Government during design and construction, using an overnight mailing service. The Government will furnish the Contractor addresses where each copy shall be mailed to after award of the contract. The submittals shall be mailed to four (4) different addresses.

Each design submittal shall have a transmittal letter accompanying it indicating the date, design percentage, type of submittal, list of items submitted, transmittal number and point of contact with telephone number.

6.0 Coordination

6.1 Written Records

Prepare a written record of each design site visit, meeting, or conference, either telephonic or personal, and furnish within five (5) working days copies to the Contracting Officer and all parties involved. The written record shall include subject, names of participants, outline of discussion, and recommendation or conclusions. Number each written record for the particular project under design in consecutive order.

6.2 Design Needs List

Throughout the life of his contract the Contractor shall furnish a biweekly "needs" list for design related items. This list shall itemize in an orderly fashion design data required by the Contractor to advance the design in a timely manner. Each list shall include a sequence number, description of action item, name of the individual or agency responsible for satisfying the action item and remarks. The list will be maintained on a continuous basis with satisfied action items checked off and new action items added as required. Once a request for information is initiated, that item shall remain on the list until the requested information has been furnished or otherwise resolved. Copies of the list will be sent to the USACE Administrative Contracting Officer, Corps of Engineers district office and MoDOT district office.

7.0 Government Review Comments

Within 21 days after Notice to Proceed, the Contractor shall submit, for approval, a complete design schedule with all submittals and review times indicated in calendar dates. The Contractor shall update this schedule monthly.

After receipt, the Government will be allowed fourteen (14) days to review and comment on each 50% design submittal and twenty-one (21) days to review and comment on each 95% design submittal, except as noted below. For each design review submittal, the COR will furnish the Contractor comments from various design sections and from other concerned agencies involved in the review process. The review will be for conformance with the technical requirements of the solicitation and the Successful Offeror's (Contractor's) RFP proposal. If the Contractor disagrees technically with any comment or comments and does not intend to comply with the comment, he must clearly outline, with ample justification, the reasons for noncompliance within five (5) days after receipt of these comments in order that the comment can be resolved.

The Contractor shall furnish disposition of all comments, in writing, with the next scheduled submittal. The Contractor is cautioned in that if he believes the actions required by any comment exceeds the requirements of this contract, that he should take no action and notify the COR in writing immediately. Review conferences will be held for each design submittal at Fort Leonard Wood. The Contractor shall bring the personnel that developed the design submittal to the review conference. These conferences will take place the week after the twenty-one (21) day review period.

If a design submittal is over one (1) calendar day late in accordance with the latest design schedule, the Government review period will be extended 7 days. The review conference will be held the week after the review new period. Submittals date revisions must be made in writing at least one (1) week prior to the effect submittal.

8.0 Design Analysis

8.1 Media and Format

Present the design analysis on 8-1/2-inch by 11-inch paper except that larger sheets may be used when required for graphs or other special calculation forms. All sheets shall be in

reproducible form. The material may be typewritten, handlettered, handwritten, or a combination thereof, provided it is legible. Side margins shall be 1-inch minimum to permit side binding and head to head printing. Bottom margins shall be 1-1/4-inched, with page numbers centered 1-inch from the bottom.

8.2 Organization

Assign the several parts and sheets of the design analysis a sequential binding number and bind them under a cover indicating the name of the facility and project number, if applicable. The title page shall carry the designation of the submittal being made. The complete design analysis presented for final review with final drawings and specifications shall carry the designation "FINAL DESIGN ANALYSIS" on the title page.

8.3 Design Calculations

Design calculations are a part of the design analysis. When they are voluminous, bind them separately from the narrative part of the design analysis. Present the design calculations in a clean and legible form incorporating a title page and index for each volume. Furnish a table of contents, which shall be an index of the indices, when there is more than one volume. Identify the source of loading conditions, supplementary sketches, graphs, formulae, and references. Explain all assumptions and conclusions. Calculation sheets shall carry the names or initials of the computer and checker and the dates of calculations and checking. No portion of the calculations shall be computed and checked by the same person.

8.4 Automatic Data Processing Systems (ADPS)

When ADPS are used to perform design calculations, the design analysis shall include descriptions of the computer programs used and copies of the ADPS input data and output summaries. When the computer output is large, it may be divided into volumes at logical division points. Precede each set of company printouts by an index and by a description of the computation performed. If several sets of computations are submitted, a general table of contents in addition to the individual indices shall accompany them. Preparation of the description, which must accompany each set of ADPS printouts, shall include the following:

1. Explain the design method, including assumptions, theories, and formulae.
2. Include applicable diagrams, adequately identified.
3. State exactly the computation performed by the computer.
4. Provide all necessary explanations of the computer printout format, symbols, and abbreviations.
5. Use adequate and consistent notation.
6. Provide sufficient information to permit manual checks of the results.

9.0 Drawings

9.1 Drawing Requirements

Computer-Aided Design and Drafting (CADD) shall be required for this project. The Contractor shall use Bentley MicroStation. The Contractor shall be responsible for delivering the drawings in the proper CADD format (MoDOT CADD Standards). A table of drawings sheets, file names, layers, views, etc., shall be provided indicating which files, layers, etc., are needed to reproduce each sheet of the drawings. A copy of this file shall be provided to the Government on CD-ROM. All drawings shall be legible and easily readable when reproduced at half-scale.

9.2 Drawing Format

All drawings shall be prepared in accordance with MoDOT standards as described below. Design criteria and referenced drawings furnished by the Government are intended to serve as a minimum standard in the preparation of acceptable drawings and specifications.

9.3 Drawing Files

The Contractor shall be responsible for returning to the Kansas City District electronic files created by the contractor for the Design Complete Submittal. All electronic files shall be fully compatible with the latest version of the required CADD software. The CADD data for the Design Complete Submittal shall be delivered on a compact disc (CD). All review submittals shall be half-size drawings and the Design Complete Submittal shall be full-size, reproducible drawings.

9.4 Drawing Standards

Drawings shall meet the requirements of MoDOT's CADD Standards Manual. Each drawing shall be a full size plan sheet of 22" x 34" nominal size. All images shall be within a border of 20.375" x 31.25" with 0.75" of space on the right and bottom edges. All drawings shall be self-contained or furnished with the supporting library of symbols and all resource files and details to make the drawings complete in the format provided.

9.5 Drawing Scale

The plan drawings shall be to a represented scale of 1" = 50'. The geometry shall consist of vector files, which can be selected and manipulated.

9.6 Other Deliverables

An ASCII (readable) file, in a comma delimited format, shall be provided to the Government that includes control points for the project alignments and proposed right-of-way lines. This file shall be state-plane coordinates and shall contain a point number, XY or NE coordinate and description of each. In addition to the file a hard copy drawing shall be provided to the Government showing the layout of the point numbers in relation to the overall project. These files and drawings shall be submitted with the Design Complete Submittal.

9.7 Payment

Payment to the contractor for the computer deliverable contract plans will not be made until all of the drawings for the project have met the satisfaction of the Government.

10.0 Specifications

10.1 Format

The contractor shall submit marked-up and final specifications as required. The specifications may be any one of the major, well-known master guide specification sources such as MASTERSPEC from the American Institute of Architects, SPECTEXT from Construction Specification Institute or Corps of Engineers Guide Specifications, etc. Use only one source for the project. Edit the specifications for this project and submit it in marked-up or redlined draft version at the Final Review submittal stage. If the design is based on a specific product, the specification shall consist of the important features of the product. The specification shall be detailed enough such that another product meeting the specification could be substituted and it would not adversely impact the project. After incorporation of comments, submit a final, design complete specification package. Submit one (1) original hard copy set of the specifications and a copy on CD-ROM in ASCII. Delete all marked-out or redlined text and type in all inserted text.

10.2 Submittal Register

Develop the submittal requirements during the design phase of the contract, by producing a Contractor Submittal Register during design. Attach a submittal register to each section of the specifications for the submittal requirements of that section. Prepare the Submittal Register on ENG Form 4288. The Contractor shall be responsible for listing all required design and construction submittals necessary to insure the project requirements are complied with. The Register shall identify submittal items such as shop drawings, manufacturer's literature, certificates of compliance, material samples, guarantees, test results, etc, that the Contractor shall submit for review and/or approval action during the life of the contract. The Contractor shall place all the Submittal Register pages in an appendix of the final specifications.

11.0 Surveying & Mapping

11.1 General

Primary survey horizontal control has been established for the project. The initial primary control coordinates were converted from State Plane coordinates to Project Ground coordinates. The Contractor shall provide any necessary survey in accordance with the requirements below. Any questions regarding survey requirements and procedures may be found in the Missouri Department of Transportation Project Development Manual and Manual of Instruction for Geodesy, Cartography, Hydrography and Photogrammetry, dated January 1988. Provide a written scope of work to the survey crew(s) performing this work.

11.2 Horizontal and Vertical Control

11.2.1 Establish Control

Horizontal and vertical control of second order or better shall be established from the existing control located in the vicinity of the mapping area. Descriptions and coordinates of existing monuments are provided in Appendix D. Horizontal control may be established by GPS positioning, see paragraph 11.2.6.

11.2.2 Horizontal Control

Tie the horizontal control to the Local State Plane Grid Coordinate System (NAD 27 or NAD 83). Tie all elevations to the North American Vertical Datum (NAVD 88) with no less that second order accuracy and procedures.

11.2.3 Permanent Monuments

Establish a minimum of three (3) permanent survey monuments on or adjacent to the design site. Survey monuments must be established in areas that will not be disturbed prior to and during the construction phase of the project. Stamp designation and date established on each survey monument. No less than second order horizontal and vertical control shall be established on each survey monument. Indicate a detailed description with horizontal and vertical datum on the site plan survey and design drawings. The Survey monument established on site shall meet the minimum technical standards for the State of Missouri.

11.2.4 Survey Notes

Record Survey Notes in accordance with the MoDOT Project Development Manual and submit original fieldwork.

11.2.5 Field Books

The Contractor shall complete and submit the field adjustment computation sheets with field books. The Contractor shall also furnish a sketch of the traverse on an 8 ½" x 11" sheet of paper, showing the proper orientation of the traverse.

11.2.6 GPS Control

GPS positioning may be used to establish new horizontal control at the project site. Second Order observation procedures shall be employed as described in the MoDOT Project Development Manual.

All components of a system shall be test certified by the Federal Geodetic Control Committee and meet the approval of the Cartography, Geodesy and Photogrammetry Section prior to any work. This includes:

1. Receivers
2. Antennas
3. Data Recording units and storage medium
4. Post processing hardware and software

Complete post processing procedures according to the Survey Manual.

11.3 Survey Requirements

- A. Establish a sufficient quantity of horizontal and vertical control to provide a detailed topographic survey with contour lines for the area to be surveyed.
- B. Provide spot elevations effecting design of facilities such as ground elevations, elevations on existing utilities, and on visible surface features within the area to be surveyed.
- C. Show and identify all surface and subsurface features within the area to be surveyed on the topographic maps. Locate these features by sufficient distance ties and label on the topographic sheets to permit accurate scaling and identification. Where possible, the Contractor shall contact the local utility companies to assist in locating underground lines. All manholes shall be opened and shoe pipe sizes and invert elevations.
- D. Refer to the MoDOT Project Development Manual for further specifications of procedure, data and accuracy requirements.
- E. If required, the Contractor shall stake and provide coordinates and elevations for soil borings to be drilled or provide positions of the borings if already drilled. Horizontal accuracy shall be within 1/10 of a foot. Provide a tabulated list of the coordinates and elevations.

11.4 Mapping and Accuracy Requirements

Mapping for the entire West Gate Access Road corridor has been completed. Any additional mapping required by the contractor shall meet the minimum standards for control surveys as described in the MoDOT Project Development Manual.

11.5 Site Plan Drawing(s)

Show all permanent survey monuments established on-site on the final drawing(s). Inserts on the drawing(s) and/or digital files shall show a detailed sketch of the location with description of the permanent monuments established on site. Course chart on the drawing(s) shall show coordinate and vertical values of each permanent monument. The following is an example of a course chart:

DESIGNATION OF POINT	NAME OF PROJECT AND LOCATION			
	TYPE MARK DATE	NORTHING NAD 27	EASTING NAD 27	ELEVATION NGVD 29
21A-3B	CONC. MON, 1994	345,123.34(ME)	1,234,456.00(ME)	234.56 FT.
21A-3C	REBAR	345,140.66	1,234,400.56	246.98 FT.
BB-3	REBAR	345,340.45	1,234,645.14	76.33 M
21A-3D	CONC. MON, 1994	345,450.98	1,234,823.34	77.45 M

11.6 Digital Data

- A. The 3-D MicroStation .dgn file comprised of photogrammetric data was transformed from State Plane coordinates to project ground datum.
- B. Field survey data of utility locates and drainage features were obtained with an electronic 3-second total station using single angles and single distances with an error ellipse of 0.02 mat 95% confidence level. The field survey work was merged into the 3-D MicroStation .dgn file. Surveys with x, y, z data for areas that were obscured due to dense trees, brush or dark shadows have also been completed.
- C. Digitize the topographic and surface feature data into Intergraph IGDS 3D design file(s) and into a .TTN file according to the specifications as described in the MoDOT CADD Standards Manual.
- D. Following the completion of construction and prior to final acceptance of the project, the Contractor shall provide a complete set of digitized as-built design and construction drawings in Intergraph format (.dgn).
- E. The Contractor shall provide the Government with a copy of the design and .TTN files on a CD-ROM. The CD-ROM shall contain the cell library used to create the drawing(s) and a label shall be attached to the CD showing the project name, location, date, contractor's name, name of files, table of contents, resource files, format and backup procedure.
- F. The Contractor shall keep a copy of the digital data for a period of one year from the date of final Government acceptance. The digital data shall be made available to the Government upon request, at no additional cost.

11.7 Quality Control

Each filed book, computation sheet, topographic sheet, bridge detail and any other work submitted to the Cartography, Geodesy and Photogrammetry Section (CESAM-EN-MS) shall be reviewed and certified as correct by the Registered Land Surveyor of the State in which the project is located as follows: "I certify the data has been reviewed and meets the minimum standards for control surveys, National Map Standards and requirements of Delivery Order _____ under Contract _____" (signature and registration number).

11.8 Submittals

Deliver the following items upon the completion of surveying and mapping to:

- Field books and adjusted computation sheets.
- Sketch of traverse (8 1/2" X 11").
- Station descriptions.
- Intergraph digital data of the survey.

Intergraph digital data of the as-built drawings.
Letter from RLS stating that mapping meets the National Mapping Standards.

If applicable:

Tabulated listing of core drill hole positions.
GPS log sheets.
Satellite range observations diskettes.
Baseline processing sheets.

12.0 Contents of Design Submittals

12.1 50% Design Submittal

The 50" design submittals shall contain as a minimum, the following:

12.1.1 Grading, Drainage and Paving

1. Explanation of objectives and factors influencing design decisions. General overview of major site features planned, such as roadway geometrics, pavement type, bridge selection, traffic control, etc. Rationale for locating major site elements and identification of borrow and spoil areas. Verifications that the design meets the requirements of the Scope of Work.
2. Requirements for flood protection. Selected storm drainage plan with respect to existing drainage patterns and storm drainage systems. Alternate schemes considered in arriving at selected plan. Disposition of storm water collected in the new system. Planned connections to the existing storm drainage system. Features and locations of special drainage structures. Types of materials to be specified for each installation. Verification that the design meets the requirements of Section 6.11 of the Scope of Work.
3. Overall review of geotechnical investigations and analysis for slope stability.
4. Pavement design analysis shall include design method and all pertinent data including traffic types, volumes, soils data and any other data used to design the pavement structures. Verification that design meets the requirements of Section 6.4 of the Scope of Work.
5. Traffic and volume type. Particular AASHTO design vehicles for which turning movements are to be provided for and corresponding minimum turning radius.
6. Requirements for curbs, sidewalks, guardrails, highway signing, pavement markings, fencing, etc. Intersections or connections to existing roads and streets. Traffic routing and control during construction.
7. Site plan (geometry) and grading and drainage plan. Design plans as per Section 6.7.2 of the Scope of Work.
8. An overall site plan on one drawing showing all paving, grading and drainage.
9. Permit applications.

12.1.2 Geotechnical

A geotechnical report and design analysis as per the requirements of Section 6.3 of the Scope of Work,

12.1.3 Bridge and Structures Design

Design narrative and design calculations for the proposed bridge and retaining wall. Explanation of factors influencing decisions on bridge/wall type, size and location. Verification that design meets the requirements of Section 6.8 of the Scope of Work,

12.1.4 Exterior Electrical Distribution System

1. In a narrative, clearly describe the electrical distribution system and state the changes to be made to the existing system to accommodate this project. State any deficiencies to be corrected and provide a description of all new work being performed.
2. State the electrical characteristics of the power supply from the service point to the main service equipment.
3. Indicate the type, number, voltage rating and connections, and kVa rating of all transformers provided.
4. State the type of conductor to be used and provide a justification for its use.
5. Include a statement describing the criteria used for the exterior design such as primary and secondary voltage drop. Describe the physical characteristics of both the underground and overhead power lines. Provide the short circuit current available at the site and state the source of this value.
6. Include a description of all exterior lighting systems included in the design. Identify the fixture types, poles and design lighting levels. Provide point-to-point calculations showing that all design levels have been achieved.
7. Describe energy conservation measures and/or techniques that are being incorporated into the design.
8. All of the exterior electrical design drawings shall be complete with all poles (power and lighting), conductors (overhead and underground), manholes and all pertinent components detailed. Details shall include but not limited to poles, manholes, ductbanks, etc. Calculations shall support all manhole locations.
9. All removals shall be shown on demolition plans.
10. Confirm concurrence with requirements of Section 6.14 of the Scope of Work.

12.2 95% Design Submittal

The 95% design submittals shall contain, as a minimum, the following items for all submittals:

1. A complete set of construction documents, plans and specifications at the same level of detail as if the project were to be bid, including a complete list of equipment and materials to be used. The final drawings are an extension of the reviewed 50% drawings and are to include the 50% comments. The additional 5% is to complete the drawings due to the final design review comments. All details shall be shown on the drawings.
2. The design analysis is an extension of the reviewed 50% design analysis and supports and verifies that the design complies with the requirements of the project.
3. Submit marked-up specifications. The specifications shall be coordinated with the drawings and describe in detail all items shown on the drawings.

12.2.1 Exterior Electrical Distribution System

1. A coordination study with appropriate curves shall be provided to show ALL protective devices have been fully coordinated. Completed short circuit calculations for the entire electrical system shall also be provided. All equipment shall be identified by manufacturer's name and catalog number.
2. Complete voltage drop and lighting calculations shall also be provided. The voltage drop calculations shall use the same single line diagram as the short circuit calculations and shall show drops at the same locations as short circuit currents are shown.

3. The design narrative shall be an updated version of the 50% submittal but shall reflect the design as submitted. The aforementioned calculations shall be included with the narrative. The calculations and coordination study shall have the seal of the registered engineer who performed the same affixed to the cover sheet.
4. The drawings are a completed version of the 50% design drawings with all comments and any other changes incorporated.
5. All details shall be completed at this stage. Congested areas, which cannot be clearly shown at the drawing scale, shall be shown by expanded scale drawings.
6. The drawings shall be thoroughly checked for discipline conflicts to insure that the proper electrical connections are provided for equipment of other disciplines and that there are no conflicts between the location of electrical equipment and equipment of other disciplines.

SECTION 01015 – SCOPE OF WORK

1.0 General

This Scope of Work contains certain requirements relating to design and construction of the project, including requirements for providing professional services, contract administration, and Quality Control/Quality Assurance (QC/QA) for the project, and shall be interpreted as provided in the General Requirements to the Standard Specifications. This Scope of Work is intended to provide clear requirements of finished Work while allowing the Design-Builder flexibility in selecting the design, means, materials, components, and construction methods used.

The project will use Federal funding and requires full conformance to all Federal Acquisition Regulations as well as established Corps of Engineers methods and policies.

2.0 Project Features

Complex geographical features along the proposed alignment of the project site that require consideration include:

- A. An existing landfill located approximately halfway between the Fort and Route H, which is estimated to be 4-7 acres in size. It was operated from the late 1940's to 1961. It is listed as containing household garbage but does not contain any biohazard waste.
- B. Bat habitats in trees along the proposed alignment. These roost trees must be cleared between November 15, 2002 and March 30, 2003.
- C. Stream crossing at Roubidoux Creek, which must provide for the required design storm frequency and also for tank trail crossings beneath the bridge.
- D. Roubidoux Creek is considered a MDC Agency Management Area for trout management waters. In-stream activities and any activities that potentially create runoff to the creek must be avoided from November 15 to February 15 of any year.
- E. The East End of the proposed alignment bisects a former housing development, which contains existing building foundations and abandoned utilities.
- F. Eight (8) archaeological sites, which require Phase II study, were identified on the proposed Westgate Access Road alignment and clearance of these sites will be completed by Fall 2002. Refer to Section 6.5.6 for the location and description of these sites.
- G. An existing entrance to an operational rock quarry is located at approximately Station 121+00 and will need to be relocated as shown on the plans. Uninterrupted ingress and egress to the quarry must be maintained at all times.

3.0 Project Requirements

The project must be designed and constructed in conformance with MoDOT requirements. The Design-Builder shall be responsible for including all Work items necessary to fully address these requirements.

This project will require design and construction work items for grading, paving, hydrology/hydraulics, structures, signing, delineation, illumination and signalization. The project will also require QC/QA for design, QC for construction, design and construction surveying and contract administration. QA for construction will be performed by USACE.

The existing approach pavements of Indiana and Pulaski Avenues will be improved to include turn lanes at the intersection of the West Gate Access Road. This intersection will also be signalized. The mainline and shoulder pavement will be designed to meet MoDOT minimum pavement structure requirements. Permanent lighting will be required from the Indiana/Pulaski intersection through the 5-lane section of the West Gate Access Road.

The grading work for the future West Gate entrance area shown at approximately Station 99+00 is to be completed as part of this project. The parking area, additional lane paving and gate building are not included in this project.

All required borrow and/or waste sites shall be adjacent to the footprint of the proposed future 4-lane roadway. Borrow may be obtained from future cut locations. Waste is to be used to construct any required future embankments. All construction procedures for borrow and waste shall be according to the MoDOT Standard Specifications.

4.0 Drawings

The drawings as listed on the cover sheet of the preliminary plans are hereby referenced and fully incorporated into the work included in this Request for Proposal.

5.0 Design References

Design references developed and published by MoDOT and other agencies that are required for use in the design of this project are listed in this Section. This list is intended only to assist the Design-Builder in identifying the relevant references. These design references are considered to be the minimum applicable standards.

The design of the project work shall be in accordance with this Scope of Work and the references listed herein. It is the responsibility of the Design-Builder to obtain clarification on ambiguities and conflicts, if any, prior to proceeding with design and construction.

Standard Plans are listed as a source of information for a preferred and acceptable means of performing redundant type work. The Design-Builder may use the Standard Plans as appropriate for the specific design for the project. If Standard Plans are specified in this Scope of Work as a project requirement, the Design-Builder shall use the Standard Plans as provided with no modification.

5.1 Project Specific Reports, Studies and Informational Documents

The following documents are applicable to this project and are either attached or available as noted:

- Engineering Considerations and Instructions – Appendix A
- Drainage Design Analysis – Appendix B
- Floodplain Map – Appendix C
- Monumentation List – Appendix D
- QC/QA Reference Tables – Appendix E
- Bridge Memorandum and TS&L Drawings – Appendix F
- Baseline Geotechnical Report (for information only) - Appendix G
- Environmental Assessment – Available for review at the Waynesville City Hall, 201 North Street, Waynesville, MO, 65583

The Engineering Considerations and Instructions (ECI) document outlines the engineering considerations that were used to formulate the preliminary design of the project and is provided as an educational tool for the Design-Builder. It provides a basis for the preliminary design and also notes areas of construction that may require special or increased surveillance and inspection. The Design-Builder is responsible for further development of the ECI as may be appropriate.

5.2 MoDOT Design Manuals and Guidelines

(Available online at <http://www.modot.state.mo.us/design/ppdm/ppdm.htm>)

- MoDOT Project Development Manual
- Missouri Standard Plans for Highway Construction, October 2001
- Missouri Standard Specifications for Highway Construction, 1999 and all current Special Provisions
- MoDOT Bridge Design Manual, 2001
- MoDOT Drainage Design Procedure, Section 9
- MoDOT General Construction Manual
- MoDOT Local Public Agency Manual
- MoDOT Material Manual
- MoDOT Traffic Engineering Marking Policy and Standards, May 2000
- MoDOT Traffic Engineering Signing Policy and Standards, use latest revision

5.2.1 Special Provisions Related to USACE/MoDOT Specifications

In the case of a conflict between the USACE specifications and provisions contained within this Request for Proposal, and the Division 100, General Provisions of the MoDOT Standard Specifications, the USACE specifications and provisions shall govern.

This is a lump sum bid solicitation and any references to measurement and payment in the MoDOT Standard Specifications are deleted for the purposes of this Request for Proposal. No measurement for payment will be made of individual work items and all payments will be on a lump sum basis according to the requirements of this Request for Proposal. Calculations and payment for the Pavement Bonus will be per the requirements of Section 00010.

5.3 General References and Publications

The Construction Documents shall define the project requirements using MoDOT references and publications, with any necessary supplementation provided by appropriate AASHTO and/or FHWA references. The following general regulations, references, and publications supplement the preceding references and those specifically referenced in the Scope of Work and shall be selected by the Design-Builder, as appropriate, to control the work described in the Contract Provisions. Inquiries concerning inconsistencies and conflicts shall be directed to the USACE Resident Engineer. All editions shall be current editions.

5.3.1 Environmental

- National Environmental Policy Act of 1969
- 36 CFR 800 - Protection of Historical and Cultural Properties
- 23 CFR 771 - Environmental Impact and Related Procedures
- 23 CFR 772 - Procedures for the Abatement of Highway Traffic Noise and Construction Noise
- FHPM 7-7-9 - Air Quality Guidelines
- Endangered Species Act of 1973, and supplements
- Executive Order 11990 (Protection of Wetlands)
- Executive Order 11988 (Floodplain Management)
- National Historic Preservation Act of 1966
- Section 4(f) of the Department of Transportation Act
- Section 404 of the Clean Water Act of 1977 (33CFR320-330)
- FHWA Technical Advisory T6640.8, "Guidance Material for the Preparation of Environmental Documents"
- Section 1424(e) of the Safe Drinking Water Act (Sole Source Aquifer Review)

- 36 CFR 60 - Determinations of Eligibility for Inclusion in the National Register of Historic Places
- Public Law 91-646 - Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
- Resource Conservation and Recovery Act (RCRA)
- Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)
- Superfund Amendments and Reauthorization Act (SARA)
- Section 402 Clean Water (NPDES)
- Hazardous Waste Management Act (HWMA)
- Underground Storage Tank Act of 1986
- Local codes and ordinances relating to air quality, noise, dust abatement, light, drainage, etc.

5.3.2 Drainage-Hydraulics-Hydrology

- MoDOT Bridge Design Manual, Hydraulic Design, Section 8.2
- MoDOT Design Manual, Section 9, Hydraulics and Drainage
- “Design of Bridge Deck Drainage”, Publication No. FHWA-SA-92-010
- FHWA Hydraulic Engineering Circular No. 18, “Evaluating Scour at Bridges”
- “Drainage of Highway Pavements”, FHWA Hydraulic Engineering Circular No. 12, March 1986
- “Hydraulic Design of Highway Culverts”, FHWA Hydraulic Design Series No. 5, September 1985

5.3.3 Roadway Geometrics

- AASHTO - A Policy on Geometric Design of Highway and Streets, 2001
- AASHTO - Roadside Design Guide, 1996
- Manual Uniform Traffic Control Devices, 2000

5.3.4 Materials

- Annual Book of American Society for Testing and Materials Standards
- AASHTO Guide for Design of Pavement Structures
- AASHTO Materials Specifications and Tests

5.3.5 Geotechnical

- Foundation Investigations for Structural Procedures by MoDOT including all referenced policy manuals
- AASHTO Manual on Subsurface Investigations (1988)
- AASHTO Standard Specifications for Highway Bridges, 16th Edition, 1996, and Interim Revisions through 2000
- Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Plans and Specifications, FHWA-ED-88-053, 1988
- Drilled Shafts: Construction Procedures and Design Methods, IF-99-025, FHWA, 1999
- Design and Construction of Driven Pile Foundations, Vol. 1 & 2, HI-97-013 & HI-97-014, FHWA, 1997
- Geosynthetic Design and Construction Guidelines, FHWA HI-95-038, 1995
- Slope Stability Reference Guide for National Forests in the United States, Vol. 1, 2, and 3, US Forest Service, 1995
- Rock Slopes: HI-99-007, FHWA, 1998

- Rock Blasting and Overbreak Control, HI-92-01, FHWA, 1992
- Load and Resistance Factor Design (LRFD) for Highway Bridge Substructures, HI-98-032, FHWA, 1998
- AASHTO LRFD Bridge Design Specification, Second Edition, 1998 and Interims through 1999.

5.3.6 Water Quality

- National Pollutant Discharge Elimination System (NPDES) Storm Water General Permit for Construction Activity for the State of Missouri.
- Evaluation and Management of Highway Runoff Water Quality, FHWA, June 1996.
- AASHTO Highway Drainage Guidelines, Volume III (Federal Funds)

5.3.7 Traffic Design (Highway Lighting, Signing and Traffic Control)

- AASHTO Informational Guide to Roadway Lighting
- AASHTO Roadside Design Guide, 1996
- National Electrical Code
- Manual of Uniform Traffic Control Devices, 2000
- Standard Highway Signs, Federal Highway Administration, 1979

5.3.8 Bridges/Structures

- AASHTO Standard Specifications for Highway Bridges, Sixteenth Edition, 1996 and current Interim Revisions.
- AASHTO Guide Specification for Fatigue Design of Steel Bridges
- AASHTO Guide Specification for Structural Supports for Highway Signs, Luminaries, and Traffic Signals, 2001
- PCA "Design of Continuous Highway Bridges with Precast, Prestressed Concrete Girders", August 1969
- ANSI/AASHTO/AWS Bridge Welding Code D 1.5-96
- Any other AASHTO specifications that may be required

5.3.9 Roadside Restoration

- Roadside Design Guide, AASHTO, 1996

6.0 Professional Services

This Section sets forth requirements to be met by the Design-Builder in designing the project and preparing Design and Construction Documents. The Design-Builder shall perform all work in accordance with the policies and procedures in effect at the time the Request for Proposal is issued, unless otherwise directed.

6.1 Design Features

The Design-Builder shall provide the engineering services required to furnish the work products identified in this Request for Proposal. The services include the tasks of data preparation, data interpretation, Design Document and Construction Document preparation. Design and Construction Documents shall be prepared by (or under the direction of) a Professional Engineer, licensed in the State of Missouri and shall carry the Professional Engineer's signature and seal.

Design of this project shall be based on the specific design criteria listed below. The design criteria listed in this Section are specific requirements that take precedence over other

references. When specific requirements are not listed, design references listed in Section 5.0 shall be used to formulate the basis for the design of the project work.

6.2 Surveys and Mapping

6.2.1 Design Surveying

The Design-Builder shall review data provided by USACE. The Design-Builder shall be responsible for any and all additional field survey work that may be required. All field survey work shall be suitable for Design and Construction Document preparation and meet the technical requirements of MoDOT and the Missouri Board for Architects, Engineers and Professional Land Surveyors. Any enhancement of the primary controls shall meet Second Order Class II accuracy.

The Design-Builder shall obtain any permits that may be required prior to beginning fieldwork. A traffic control plan should be prepared, if required.

The Design-Builder shall delineate the proposed right-of-way so that utility companies may prepare relocation plans. Delineation with strips of plastic flagging attached to lath located at appropriate intervals shall provide a clear delineation of the right-of-way.

The Design-Builder shall modify the monumentation and install monument posts according to Section 3-04 of the MoDOT Project Development Manual. DPW-FLW will supply and install the monument plaques at a later date.

6.2.2 Construction Surveying

To facilitate the establishment of lines and elevations, USACE will provide the Design-Builder with the following primary survey and control information:

- A. Descriptions of a minimum of two primary control points used for the horizontal and vertical control. Primary control points will be described by reference to the coordinate system and elevation datum utilized by the project. In addition, USACE will supply horizontal coordinates for the beginning and ending points and for each Point of Intersection (PI) on the right-of-way alignment included in the project.

Copies of the USACE provided primary survey control data are available in Appendix D. Any enhancement of the primary controls by the Design-Builder shall meet Second Order Class II accuracy.

The Design-Builder shall be responsible for all additional surveying necessary to complete the work. Except for the survey control data to be furnished by USACE, all calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Design-Builder's responsibility. The Design-Builder shall report all field survey work in project ground datum.

The Design-Builder shall maintain detailed survey records, including a description of the work performed on each shift, the methods utilized, and the control points used. The record shall be adequate to allow the survey to be reproduced. The Design-Builder shall supply their survey records to USACE as stated in Section 01012.

The Design-Builder shall ensure surveying accuracy.

USACE may spot-check the Design-Builder's surveying. These spot-checks will not change the requirements for normal checking by the Design-Builder.

6.3 Geotechnical Design

The Baseline Geotechnical Report (Appendix F) is provided for information only and the Design-Builder is required to perform all investigations and analysis in order to prepare a geotechnical report and recommendation for the project.

6.3.1 Design Criteria

Foundations

The minimum factors of safety for bearing capacity, uplift and lateral capacity design of foundations shall be in accordance with the MoDOT Bridge Design Manual and Foundation Investigation Procedures, where identified. AASHTO Standard Specifications for Highway Bridges shall be used where MoDOT Manuals do not address factors of safety.

Auger cast piles shall not be used for support of walls and bridge structures.

If liquefiable soils are determined to be present, and it has been determined that they will in fact liquefy under the design earthquake for the site, the soil shall be stabilized to protect the bridge from damage due to lateral deformation and downdrag caused by the liquefaction or the structure shall be designed to withstand the forces and moments resulting from the lateral and vertical movements caused by the liquefaction. Additionally, the design of the foundations shall be evaluated with the soil in a liquefied state.

Cuts, Fills, Excavation, and Other Geotechnical Features

The minimum factor of safety for the stability design of slopes shall be 1.25. A higher factor of safety, per the AASHTO Standard Specifications for Highway Bridges, 1996 with current interims, shall be used where the slope supports a wall or other structure.

6.3.2 Qualifications

The individual with overall responsibility for development of the geotechnical design shall be a Professional Engineer licensed by the State of Missouri having a minimum of seven years supervisory experience in geotechnical design as applied to roadway or bridge design.

The individual responsible for installation and monitoring of any instrumentation used to verify the performance or integrity of the geotechnical features, including CSL Testing, inclinometer measurements, piezometers, settlement indicating devices, SPT testing, electronic cone testing, etc., shall have a minimum of 2 years of experience with the specific type of instrumentation the individual will be using.

6.3.3 Geotechnical Investigation

The Design-Builder shall conduct additional explorations as determined necessary by the Design-Builder at bridge foundation locations, along the alignment of planned retaining walls, at locations of significant cuts and fills, at minor structures such as culverts, signs, signals, and luminaries, and at the locations of stormwater retention-detention structures to supplement the geotechnical baseline data available. The Design-Builder shall plan and conduct a subsurface investigation program as determined necessary by the Design-Builder utilizing exploratory borings, test pits, geophysical methods, and in-situ tests to provide information relative to soil, groundwater, and other geologic conditions along the project alignment for final design. The investigation shall be in accordance with MoDOT Project Development Manual and Foundation Investigations for Structures procedures. All boring locations shall be surveyed, and station, offset, elevation, and state plane coordinates shall be determined and included on the boring logs.

Geotechnical requirements contained in the referenced MoDOT and AASHTO Manuals and the Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Plans and Specifications, ED-88-053, FHWA, 1988 shall be considered as minimum requirements. These are not intended to preclude innovative methods of Geotechnical investigations and testing that may be proposed by the Design-Builder. Soil properties used for design shall be determined in accordance with MoDOT procedures and the AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing. Field tests shall be conducted in general accordance with appropriate American Society for Testing Materials (ASTM) and MoDOT standards. Laboratories selected by the Design-Builder to perform geotechnical testing and analyses must be MoDOT-approved. All test results shall be included in the Geotechnical Report.

The Design-Builder shall secure an access permit from Fort Leonard Wood and/or MoDOT, which may require the preparation of an equipment access plan, description of equipment types, a plan of the test hole locations, etc. The Design-Builder shall adhere to all traffic control requirements when taking samples on existing roadways and other requirements for access and site conduct.

The Geotechnical Report shall summarize the results of the field exploration and all of the equipment used. Down hole hammers or wire line operated hammers shall not be used for Standard Penetration Tests (SPT). Boring logs with station, offset, elevation, state plane coordinates, groundwater elevations, uncorrected SPT test results with blows per 6 inches shall be provided. For cone penetrometers, a plot showing tip resistance, friction, friction ratio, pore water pressure, and inclination with depth shall be provided. Soil units encountered in the field exploration shall be described and their extent and limits shall be identified. Soils profiles shall be developed and shown for all structures and significant cut and fill slopes. Plan views shall be prepared that show the actual locations of the borings in relation to project elements.

The Design-Builder shall provide and install field instrumentation in the exploratory borings of the project conducted by the Design-Builder to monitor water levels and slope movements during both design and construction as needed to satisfy the design and quality control requirements. Instrumentation for quality control on construction may include, but not be limited to, the monitoring of slope movement, wall movement, pore pressure, settlement, and settlement rates. The Design-Builder shall identify the recommended instrument types, locations, installation requirements, zones of influence, and critical readings or levels in the geotechnical report. All instruments shall be installed and monitored by the Design-Builder. Instrumentation readings shall be included in the geotechnical report, and included in supplemental instrumentation monitoring reports as needed for additional readings, including monitoring done during and after construction as part of the QA/QC plan.

6.3.4 Geotechnical Studies

The Design-Builder shall perform necessary geotechnical engineering analysis to identify critical design elements and provide a basis for geotechnical recommendations. Descriptions of the analysis and/or calculations shall be provided at USACE's request. The Design-Builder shall provide comprehensive geotechnical engineering design recommendations for the project. The recommendations shall be detailed and complete for the design of structures, cut slopes, fill slopes, embankments, and drainage facilities. At a minimum the Design-Builder shall address the following:

- A. Overall stability for cut slopes, embankments, and structures shall be assessed. For structures, minimum foundation widths, embedment, overexcavation, and ground

improvement shall be addressed to satisfy overall stability requirements. Maximum cut and fill slope inclinations shall be determined. Any mitigating measures needed to obtain the required level of safety for slopes shall be fully developed for the project.

- B. For structures, suitable foundation types shall be assessed and alternate foundation types recommended. For spread footings, allowable bearing capacity and settlement shall be provided. For seismic design of spread footings, ultimate bearing capacity and shear modulus values shall be determined for strain levels likely to occur in the design seismic event. For piles and drilled shafts, ultimate capacity figures shall be developed that show the capacity in relation to tip elevation for both compression and tension. Settlement shall be assessed and group reduction factors shall be determined. Downdrag and lateral squeeze shall be reviewed as appropriate. Parameters for P-y curve development shall be developed. Minimum tip elevations, casing requirements, and estimates of driveability shall be provided.
- C. Suitable retaining wall types shall be recommended per MoDOT approved types. For all walls (including standard, pre-approved proprietary, and non-preapproved proprietary walls), bearing capacity, settlement, construction considerations, and internal and external stability shall be addressed.
- D. Earthwork recommendations shall be provided including subgrade preparation, material requirements, compaction criteria, pavement thickness design and settlement estimates. In areas where compressible soils are encountered, overexcavation, staged construction, instrumentation, settlement, and creep characteristics and estimates shall be addressed as well as details of any mitigating measures needed to keep embankment performance within project constraints.
- E. Seismic hazards shall be assessed and recommendations shall be provided to mitigate the effects of the identified seismic hazards.
- F. Engineering analysis shall be performed to determine if geologic formations, sinkholes, caves, springs or faults are present in the proposed alignment. If these geologic features are present, then appropriate design and construction elements must be incorporated to reduce the potential that these features might have on the roadway construction and use.
- G. At stream crossings, evaluation of alternatives and recommendations shall be provided for installing new culverts or constructing a bridge structure. Pipe bedding, subgrade preparation, bearing capacity, and settlement shall be addressed.
- H. General drainage, groundwater, pH, and resistivity values as they apply to the project shall be provided. Drainage studies shall involve reviewing soil conditions and field data at the locations of major drainage structures. Potential impacts of drainage facilities on slope stability shall be evaluated. Recommendations shall be provided for erosion protection at outlets and for materials to be used in pond or ditch linings.
- I. For signals, illumination, and sign structures, allowable lateral bearing capacity shall be evaluated. Where poor soils are present that preclude the use of a MoDOT standard foundation design as provided in the MoDOT Standard Plans and the MoDOT Project Development Manual, design recommendations for special foundation designs shall be prepared. Foundation designs for these types of structures shall address bearing capacity, lateral capacity, rotational capacity, settlement, and construction of the foundations.

- J. Where possible, design recommendations shall be provided in tabular or graphical form.
- K. Construction considerations shall be addressed. Temporary slopes and shoring limits shall be the responsibility of the Design-Builder. Special provisions shall be prepared for elements that may encounter difficult ground conditions or that may require non-typical construction methods. Procedures for dealing with caves, sinkholes and other rock discontinuities, as well as overexcavation recommendations and backfill requirements shall be discussed and details prepared for the project. Rock removal methods shall be recommended and procedures detailed for the anticipated rock conditions to be encountered. Construction staging requirements, where applicable, shall be addressed. Wet weather construction and temporary construction water control shall be evaluated.

6.3.5 Geotechnical Report

The Design-Builder shall prepare a Geotechnical Report that summarizes the results of the exploration and engineering studies described above. The report shall present:

- A. A summary of field exploration methods, results, and interpretations, including boring and test pit logs, descriptions of soil conditions and water levels encountered during drilling, and soil profiles and cross-sections.
- B. A summary of laboratory testing methods and tabulated results.
- C. A summary of engineering studies, including material property assumptions, descriptions of computational methods, results of computations, and conclusions regarding design. The conclusions regarding design shall include recommendations for feasible and prudent foundations for each overcrossing foundation, for each wall location, and for each drainage facility.
- D. A summary of recommendations for earthwork factors (shrink and swell), cut and fill slope rates/stability, geologic unit locations (rock blasting, etc.), suitability for embankment and/or aggregate, and pavement design.
- E. A summary of special foundation construction considerations and advisory specification requirements.
- F. Design methods for proposed or recommended foundations.
- G. Design alternatives based on Geotechnical findings.

The report shall be organized so that bridge designers and others can refer to pertinent sections. A separate bridge foundation report need not be prepared.

The Design-Builder shall provide five (5) copies of a draft version of the Geotechnical Report to USACE for review and comment. Upon receipt of written review comments from USACE, the Design-Builder shall finalize the draft report. The Design-Builder shall deliver ten (10) copies of the finalized report, signed and sealed by a Missouri Professional Engineer, to the USACE Resident Engineer.

Upon completion of the final Geotechnical report the Design-Builder may proceed with preparation of the pavement and/or foundation designs.

The Design-Builder shall include in the special provisions all notes related to materials found on the final construction documents and not already covered by the Standard Specifications or the Special Provisions in the Request for Proposal.

Design-Builder shall not be relieved of obligations to perform the Work in accordance with the Contract Provisions by reviews, tests, inspections or approvals performed by any persons, or by any failure of any person to take such action. The reviews, inspections, tests and approvals conducted by USACE and others do not constitute acceptance of the materials or Work reviewed, tested or inspected, and USACE may reject or accept any Work or materials, request changes and/or identify additional Work which must be done at any time, whether or not previous reviews, inspections, tests or approvals were conducted by USACE.

6.4 Pavement Design

New pavement sections on West Gate Access Road shall be designed by the Design-Builder in accordance with the criteria listed in this section. The new shoulder sections on West Gate Access Road shall be paved at the same depth as the through lanes. Reconstruction and pavement widening at the intersection of Indiana and Pulaski Avenues shall be designed by the Design-Builder in accordance with the criteria listed in this section.

The pavement sections for West Gate Access Road and connections shall be either asphaltic concrete or Portland cement concrete pavement.

6.4.1 Qualifications

The pavement designer shall be a qualified and State of Missouri licensed engineer having at least 10 years experience in pavement design.

6.4.2 Design Traffic Volumes

Design traffic volumes as provided by the Missouri Department of Transportation are as follows:

	<u>ADT</u>	Daily ESAL Units (Two Way)	
		<u>Flexible</u>	<u>Rigid</u>
Construction Year (2002)	15,340	710	1,030
Design Year (2022)	27,710	1,280	1,860
Peak Hour	10%		
ADT Trucks	10%		
Accumulated 20-year ESAL units (thousands)		7,200	10,400
Accumulated 35-year ESAL units (thousands)		16,100	23,400

6.4.3 Design Criteria – Asphaltic Concrete Pavement

The pavement design and construction for West Gate Access Road and connections shall, at a minimum, provide for a 35-year service life. The Design-Builder shall design a pavement section that provides for surface and subsurface drainage giving full consideration to frost effect and the elimination of trapped water. The pavement design shall be in accordance with the AASHTO Guide for the Design of Pavement Structures, 1993 and the MoDOT Project Development Manual and for the conditions listed below.

- A. Pavement sections shall be designed based on a 35-year design life of 8.05 million ESAL's.
- B. Lime-treated sub-base will not be permitted on this project.

6.4.4 Design Criteria - Portland Cement Concrete Pavement

The pavement design and construction for West Gate Access Road and connections shall, at a minimum, provide for a 35-year service life. The Design-Builder shall design a pavement section that provides for surface and subsurface drainage giving full consideration to frost effect and the elimination of trapped water. The pavement design shall be in accordance with the AASHTO Guide for the Design of Pavement Structures, 1993 and the MoDOT Project Development Manual, and for the conditions listed below.

- A. Pavement sections shall be designed based on a 35-year design life of 11.7 million ESAL's.
- B. Concrete pavements shall have maximum joint spacing of 15 feet and shall not be continuously reinforced.
- C. The Design-Builder shall design the concrete pavement joints with load transfer devices (i.e., dowels) to ensure a minimum of 80% load transfer at the joints.
- D. Lime-treated sub-base will not be permitted on this project.

6.5 Environmental

6.5.1 NEPA/SEPA Documentation

An Environmental Assessment has been completed for the project and is available upon request from the USACE Contracting Officer. Revision to this Environmental Report may be required if the project footprint changes to the point where the project becomes controversial. The Design Builder would be responsible for preparation of this additional environmental documentation.

6.5.2 Permits

USACE has determined that the proposed project alignment would require a Corps of Engineers Nationwide 404 Permit and associated 401 Water Quality Certifications. The permit will include provisions for a haul road across the Roubidoux River. The USACE will be responsible for obtaining this permit. It is the responsibility of the Design-Builder to determine if any design changes they propose necessitate any additional permits.

A National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit will also be required and obtained by the USACE prior to the start of construction on the project.

A No Rise Certification and Floodplain Development Permit will also be required and obtained by the USACE prior to the start of construction on the project.

The Design-Builder is responsible for obtaining all other construction-related environmental permits including, but not limited to, a Temporary Batch-Plant Permit. Construction activities may not begin until the appropriate environmental permits have been issued and approval to start has been provided by the USACE Resident Engineer.

6.5.3 Temporary Erosion and Sediment Control

This project will add approximately 25 acres of impervious surface and will require a Temporary Erosion Control and Sediment Plan as part of the Stormwater Site Plan to be prepared by the Design-Builder.

The "Temporary Erosion & Sediment Control" measures have been in effect since Oct. 1, 1992. The Missouri Department of Natural Resources (DNR) requires that these measures be implemented on roadway projects consisting of 5 acres or more.

6.5.3.1 Purpose

The purpose of these specifications is to set forth certain temporary water pollution control measures, which shall be required of the Design-Builder. The Design-Builder shall exercise best management practices throughout the life of the project to control water pollution. Construction of permanent drainage facilities as well as performance of other contract work, which may contribute to the control of siltation, shall be accomplished at the earliest practicable time. Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage, or other harmful material shall not be discharged from the project.

6.5.3.2 Description

This work shall consist of furnishing, installing, maintaining, and removing temporary control measures as shown in the Design-Builder's Temporary Erosion Control and Sediment Plan or as ordered by the USACE Resident Engineer. The control of water pollution through use of berms, slope drains, ditch checks, sediment basins, seeding and mulching, bales, silt fences, and other erosion control devices or methods, in accordance with these Specifications. Provisions are to be taken during construction to utilize standard well-head protection measures.

The temporary pollution control provisions contained herein shall be coordinated with the permanent erosion control features specified elsewhere in the contract to assure economical, effective and continuous erosion control. These provisions shall also apply to work within project easements.

6.5.3.3 Preconstruction Submittals

Prior to the start of construction the Design-Builder shall submit for acceptance its schedules for the implementation of temporary and permanent erosion control work, as are applicable for clearing and grubbing; grading; bridges and other structures at watercourses; and paving. No work shall be started until the erosion control sequences and methods of operations have been approved by the USACE Resident Engineer.

6.5.3.4 Construction Requirements

The USACE Resident Engineer may limit the surface area of erodible earth material exposed by clearing and grubbing and/or the surface area of erodible earth material exposed by excavation, borrow, and fill operations. The USACE Resident Engineer may direct the contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment. Such work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains, and use of temporary mulches, seeding or other control devices or methods as necessary to control erosion.

The Design-Builder shall be required to incorporate all permanent erosion control features into the project at the earliest practicable time. Temporary pollution control measures shall be used to correct conditions that develop during construction, which were not foreseen during the design stage; that are needed prior to installation of permanent pollution control features; or that are needed temporarily to control erosion

that develops during normal construction practices, but are not associated with permanent control features on the project.

Clearing and grubbing operations shall be so scheduled and performed such that grading operations and permanent erosion control features will follow immediately thereafter. The surface area of erodible earth material exposed at one time by clearing and grubbing, by excavating, by fill, or by borrow shall not exceed 750,000 square feet without written approval of the USACE Resident Engineer.

The USACE Resident Engineer will limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress commensurate with the Design-Builder's capability and progress in keeping current with the finish grading, mulching, seeding, and other such permanent pollution control measures. Should seasonal imitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately.

The USACE Resident Engineer may increase or decrease the amount of surface area of erodible earth material to be exposed at one time by clearing and grubbing, excavation, borrow and fill operations as determined by his analysis of project conditions.

Unless otherwise provided or approved in writing by the USACE Resident Engineer, construction operations in rivers, streams and impoundments shall be restricted to those areas, which must be entered for the construction of temporary or permanent structures. Rivers, streams, and impoundments shall be promptly cleared of all falsework, piling, debris or other obstructions placed therein or caused by the construction operations.

Frequent fording of live streams with construction equipment will not be permitted. Temporary bridges or other structures shall be used wherever an appreciable number of stream crossings are necessary. Unless otherwise approved in writing by the USACE Resident Engineer, mechanized equipment shall not be operated in live streams except as may be required to construct channel changes and temporary or permanent structures. The requirements of the Section 404 permit for this project shall prevail.

The location of all local material pits, other than commercially operated sources, and all excess material areas shall be subject to the approval of the USACE Resident Engineer. Construction operations shall be conducted and pollution control measures implemented so that erosion will not result in water pollution.

In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, State, or local agencies, the more restrictive laws, rules, or regulations shall apply.

6.5.4 Spill Prevention, Control and Countermeasures Plan

This work shall consist of preparing a Spill Prevention, Control, and Countermeasures (SPCC) Plan and preparing for implementation of the plan.

6.5.4.1 SPCC Plan Requirements

The Design-Builder shall be responsible for the preparation of a SPCC plan to be used for the duration of the project. The plan shall be submitted to the USACE prior to the commencement of any construction activities. A copy of the plan with any updates shall be maintained at the work site by the Design-Builder.

The SPCC plan shall identify construction planning elements and recognize potential spill sources at the site. The Plan shall outline responsive actions in the event of a spill or release and shall identify notification and reporting procedures. The Plan shall also outline Design-Builder management elements such as personnel responsibilities, project site security, site inspections and training.

The Plan shall outline what measures the Design-Builder shall take to prevent the release or spread of the following:

1. Any hazardous material found on site and encountered during construction but not identified in contract documents.
2. Any hazardous materials that the Design-Builder stores, uses, or generates on the construction site during construction activities. These items include, but are not limited to, gasoline, oils and chemicals.

The SPCC plan shall also address, at a minimum, the following project-specific information:

1. Introduction
2. SPCC Plan Elements
3. Site Information
4. Management Approval
5. Site Description
6. Planning and Recognition
7. Spill Prevention and Containment
8. Spill Response
9. Reporting
10. Program Management
11. Attachments:
 - A. Emergency Action Plan
 - B. Site Plan
 - C. Inspection and Incident Report Forms

6.5.4.2 Implementation Requirements

In the event that hazardous material is encountered during the course of the work, regardless of whether or not the material is shown in the Plans, the implementation of the Design-Builder's SPCC Plan shall be included in the scope of the contract and shall be carried out by the Design-Builder.

The Design-Builder shall maintain, at the job site, the applicable equipment and material designated in the SPCC Plan.

6.5.5 Permanent Seeding

The contractor is to provide permanent seeding for all disturbed areas on the project. A mixture of 90% K-31 fescue and 10% perennial rye shall be applied at an application rate of four pounds per 1,000 square feet. On slopes that are 2:1 or steeper a mixture of 90% crown vetch and 10% perennial rye shall be used. All seed shall be AOSA (Association of Official Seed Analysis) certified. Seeded areas shall be mulched as necessary to prevent erosion.

6.5.6 Hazardous Material

A Hazardous Material Survey has been conducted as part of the Environmental Assessment and the results are included therein. Should any hazardous wastes be encountered during construction, the Contractor must contact the USACE Resident Engineer for proper identification and disposal of the wastes in accordance with State regulations.

6.5.7 Archaeological Resources

It is anticipated that all identifiable archaeological procedures and excavations will be completed prior to construction. The following table lists the archaeological sites that have been identified for Phase II Study and the status of each.

Site No.	Location	Phase II Action	Remarks
162	Station 123+00, 300' left	South 175' of the site cleared	Do not disturb the remainder of this site unless additional clearance is obtained. Fence remaining area.
660	Station 128+00, 400' left	Southeast 1/3 of the site cleared	Do not disturb the remainder of this site unless additional clearance is obtained. Fence remaining area.
506	Station 160+00, centerline	Northern 150' of the site cleared	Do not disturb other portion of this site unless additional clearance is obtained. Fence southern portion.
324	Station 180+00, centerline	Total site cleared	
768	Station 181+50, 300' right	Total site cleared	
791	Station 185+00, centerline	Total site cleared	
387	Station 212+50, 200' right	Total site cleared	Silo
238	Station 236+00, centerline	Southern entrance cleared	Tunnel

In lieu of the fencing listed above, the Design-Builder may present an alternate method to control encroachment.

If the Design-Builder proposes an alignment that varies from that shown in the RFP plan sheets, more studies to identify and clear additional the affected archaeological resources will be required. Any additional studies will be performed by and at the expense of the Design-Builder.

6.5.7.1 Restricted Areas

The Design-Builder is hereby advised that no activities may be conducted in the areas that are identified as archaeological sites in the Environmental Assessment but where Phase II studies are not being conducted. These sites may be potentially eligible for listing on the National Register of Historic Places (NRHP). The restricted activities in

these areas include, but are not limited to, the following actions:

1. No vehicles or equipment will move through or any identified potential site.
2. No vehicles will be parked nor equipment or material stored in any identified potential site.
3. No tree/brush clearing or earth disturbing operations will be conducted in any identified potential site.

Any exceptions to this provision will be mutually agreed to by the Contractor, the USACE Resident Engineer, and the Archaeologist.

6.5.7.2 Unidentified Archaeological Resources

Should additional unidentified archaeological resources be uncovered or discovered during construction, the Contractor must immediately stop work in that area and notify the USACE Resident Engineer.

6.5.8 Conservation and Mitigation

All disturbed areas should be first seeded with grass as indicated in Section 6.5.5 of this Scope of Work. All areas that are outside of the MoDOT standard clear zone area are to be planted with short-leaf pine, bare-root seedlings, on a 6' spacing.

The Design-Builder shall be responsible for incorporating any additional conservation or mitigation measures, which are mentioned in the final environmental documents into the design of the project.

6.5.9 Noise Abatement

Although noise mitigation is not required for this project, the Contractor must abide by the MoDOT standards for noise attenuation during construction.

6.6 Utilities

6.6.1 Known Utilities

Existing utilities within the project limits have been identified and information has been collected by USACE from utility companies and municipalities for type and approximate location. USACE will provide this "as-built" utility information on the electronic basemap however, USACE does not guarantee the accuracy of the information provided by the Utility. Therefore, this information shall be confirmed by the Design-Builder through site investigations and shall be placed on the project base map by the Design-Builder.

Potential utility conflicts consist of water, sewer, electric, and aerial fiber optic lines at the intersection of Pulaski and Indiana, as well as an electric transmission line and underground fiber optic line within the mainline roadway alignment. All utility design, utility relocation, extension or addition accomplished by the Design-Builder shall be included in the lump sum bid price for the project. All work shall be performed in accordance with Section 01100 of this Request for Proposal.

The water, sewer and power lines serving Pence School must remain in service at all times.

6.6.1.1 Sanitary Sewer Main

Owner: Fort Leonard Wood, Department of Public Works

Contact: Joe Nelson – Ph: 573.596.0946

The Design-Builder shall perform an engineering study to evaluate the impacts of construction on the existing sanitary sewer line(s). This study may include measurement of the pipe thickness where the pipe enters manholes and potholing to determine existing bedding. The Design-Builder shall provide a Professional Engineer's stamped report of such impacts based on the proposed design or a stamped declaration indicating that there are no adverse impacts. Additionally a Professional Engineer's stamped design for modifying the sanitary sewer line to protect it from the construction, if such protection is determined to be needed, shall be submitted to the USACE for review.

6.6.1.2 Waterline

Owner: Fort Leonard Wood, Department of Public Works
Contact: Joe Nelson – Ph: 573.596.0946

The Design-Builder shall perform an engineering study to evaluate the impacts of construction on the existing waterline(s). The Design-Builder shall provide a Professional Engineer's stamped report of such impacts based on the proposed design or a stamped declaration indicating that there are no adverse impacts. Additionally a Professional Engineer's stamped design for modifying the waterline to protect it from the construction, if such protection is determined to be needed, shall be submitted to the USACE for review.

6.6.1.3 Natural Gas Line

Owner: N/A

There are no natural gas lines in the project area.

6.6.1.4 Power Transmission Line

Owner: Sho-Me Power Electric Cooperative
Contact: Kevin Hopper – Ph: 417.468.2615

The transmission line is a 161 kilovolt (kV) for which Sho-Me Power has an easement. Any relocation or roadway placement within the easement will have to be coordinated with Sho-Me Power. Sho-Me Power will perform any required line relocation design and construction work and the costs of this work shall be paid for by the Design-Builder.

The Design-Builder shall perform an engineering study to evaluate the impacts of construction on the existing transmission line. The Design-Builder shall provide a Professional Engineer's stamped report of such impacts based on the proposed design or a stamped declaration indicating that there are no adverse impacts. The Professional Engineer must be licensed in the State of Missouri.

6.6.1.5 Power Distribution Lines

Owner: Fort Leonard Wood – Department of Public Works
Contact: Dale Wyant – Ph: 573.596.0936

There are existing 12.47 kV distribution lines, 480-volt street lighting (circuit and luminaries) and 240/120 secondary along Indiana Avenue and Pulaski Avenue.

The Design-Builder shall perform an engineering study to evaluate the impacts of construction on the existing power distribution line(s). The Design-Builder shall provide a Professional Engineer's stamped report of such impacts based on the proposed design or a stamped declaration indicating that there are no adverse impacts. Additionally a

Professional Engineer's stamped design for modifying the electrical lines to protect them from the construction, if such protection is determined to be needed, shall be submitted to the USACE for review.

6.6.1.6 Overhead Fiber Optic Cable

Owner: Sho-Me Power Electric Cooperative

Contact: Kevin Hopper – Ph: 417.468.2615

There are existing aerial fiber optic cables along Indiana Avenue and Pulaski Avenue. Any relocation will have to be coordinated with Sho-Me Power. It is anticipated that Sho-Me Power will perform any required cable line relocation design and construction work and the costs of this work shall be paid for by the Design-Builder.

The Design-Builder shall perform an engineering study to evaluate the impacts of construction on the existing fiber optic cables. The Design-Builder shall provide a Professional Engineer's stamped report of such impacts based on the proposed design or a stamped declaration indicating that there are no adverse impacts. The Professional Engineer must be licensed in the State of Missouri.

6.6.1.7 Buried Fiber Optic Cable

Owner: Sprint

Contact: Gary Shockley: Ph – 573.341.0479

The underground fiber optic line is located within an easement that crosses the alignment of the mainline roadway. Any relocation of the line within the easement will have to be coordinated with Sprint. Sprint will perform any required line relocation design and construction work and is also responsible for the costs of this work.

The Design-Builder shall perform an engineering study to evaluate the impacts of construction on the existing fiber optic line. The Design-Builder shall provide a Professional Engineer's stamped report of such impacts based on the proposed design or a stamped declaration indicating that there are no adverse impacts. The Professional Engineer must be licensed in the State of Missouri.

6.6.2 Location of Existing Utilities

The Design-Builder shall identify potential conflicts between new roadway and bridge features (i.e., drainage and sign bridge foundations, etc.), and existing utilities. The Design-Builder shall communicate and coordinate with utility companies and resolve utility construction conflicts.

A technical memorandum, including a map, shall be developed by the Design-Builder summarizing the conflicts and the relocation arrangements with the affected utilities. This technical memorandum shall be transmitted to USACE and the respective utilities.

6.6.3 Utility Conflicts and Adjustments

The Design-Builder shall determine any utility construction conflicts which require the utility to be relocated or adjusted, and shall advise USACE. The Design-Builder shall arrange and conduct utility coordination meetings to identify and resolve conflicts. The Design-Builder shall review relocation plans produced by utility companies to assure that utility conflicts are eliminated and that proposed utility installations conform to MoDOT requirements.

6.6.4 Utility Plans

The Design-Builder shall prepare reproducible plans showing the locations of all existing aerial and buried utility facilities and shall indicate the potential areas of conflict between the utility facilities and the roadway improvements. Vertical locations of underground utilities shall be shown on sections or details only when the actual elevation has been determined by physically exposing the utility and surveying its location.

The base map shall contain matching ground controls, at intervals of no more than five hundred feet, together with a description of the desired area for utility horizontal designation. Where elevations are necessary for the determination of conflicts, the Design-Builder shall furnish a list of the possible conflict locations and conflicting utilities. This list will be used by the Design-Builder for identification of potholing locations to provide accurate horizontal and vertical location of the utility.

In the event of a conflict, the Design-Builder shall furnish copies of the plans to each affected utility company and shall also furnish copies of cross sections upon request. The size of the plans, 1/2 size or full size, shall be as requested by the utility companies. In all cases, the plans shall be scaleable i.e., full size or true half-size. The Design-Builder shall send the plans to the utility companies, receive responses, and provide to USACE copies of all correspondence to and from the utility companies.

The Design-Builder shall include any planned or required utility relocations on the final plans.

6.6.5 Utility Relocations and Adjustments

Where a utility relocation may be required:

- A. The Design-Builder shall identify possible alternatives to minimize utility conflicts.
- B. The Design-Builder shall notify USACE promptly upon determination that relocation of a utility company facility is required.
- C. The Design-Builder will be responsible for any costs to relocate conflicting utilities unless otherwise noted in this Request for Proposal.
- D. Additions, extensions, and improvements of an existing utility facility are the financial responsibility of the utility owner. In the case of a request for addition, extension or improvement, the Design-Builder shall advise USACE of the utility company's request, for additions, extensions, and/or improvements and shall advise the utility company that approval of its request is subject to concurrence by USACE.

6.6.6 Utility Clearance Letter

The Design-Builder shall prepare a utility clearance letter and submit it, together with copies of correspondence from utility companies verifying the information, to USACE for review and concurrence.

If there are no conflicts, the clearance letter shall state that there are no utilities in conflict with construction (i.e. when there are no utility facilities needing adjustment or when all adjustments have been completed prior to writing the clearance letter).

If adjustments are needed, the clearance letter shall list each utility company separately, showing:

- A. The name of the company

- B. The nature of required adjustment
- C. The status of Agreements and permits between the Design-Builder and Utility Company
- D. The status of the utility adjustments whether:
 - 1. To be done by Design-Builder during construction
 - 2. To be done by utility company during construction, with estimated completion date or number of working days
 - 3. In progress, with estimated completion date

6.7 Roadway Design

The Design-Builder shall design all roadway geometrics including horizontal alignment, vertical alignment, cross section elements and superelevation in accordance with the Scope of Work.

Any significant change to the intent of the design may require a review of the environmental documents that have been approved for this project. If any such changes are proposed, the Design-Builder shall bear the responsibility for the cost and schedule adjustments made necessary by same.

6.7.1 Design Criteria

The Design-Builder shall utilize the criteria listed below in developing the roadway design of the project. If the criteria listed below are not achievable, the Design-Builder shall submit to USACE clear documentation of what cannot be achieved and a proposed alternative for review.

6.7.1.1 Roadway Cross Section

- A. Design Speed: 50 MPH
- B. Horizontal Alignment: the maximum degree of curvature is 4° 45'. Spirals are required for curves with a degree of curvature greater than 2°.
- C. Vertical Alignment: minimum K-value for sag vertical curves is 120. Minimum stopping sight distance for crest vertical curves is 525'. Maximum grade is 5% and the minimum desirable grade is 0.5%
- D. The required Level of Service (LOS) is C in design year 2022.
- E. Superelevation: normal crown is 2% and the maximum superelevation is 8%. Shoulders are superelevated the same rate as the traveled way.
- F. Number of Lanes: 2-12' lanes with 8' shoulders.
- G. Slopes: maximum side slopes are 6:1 within the clear zone with the exception of ditch backslopes, which will be a maximum of 2:1.

6.7.1.2 Storage Lengths - Intersection Requirements

The following minimum storage lengths shall be provided in the design of the project:

- A. Left turn from West Gate to Indiana – 250'
- B. Right turn from West Gate to Indiana – 280'
- C. Left turn from Pulaski to Indiana – 200'
- D. Left turn from West Gate to Route H – 200'

6.7.1.3 Access Control

The following considerations for access control shall be included in the design of the project:

- A. Radius returns must accommodate school busses around Pence Elementary School.
- B. The intersection of Indiana and Pulaski Avenues may be closed for a short term period during reconstruction. The proposed schedule for this closure must be approved by the USACE Resident Engineer prior to the start of construction activities.
- C. Access to the rock quarry at Station 121+00 shall be maintained at all times.
- D. Traffic flow on Route H shall be maintained at all times.
- E. All designs shall conform to the latest Americans with Disabilities Act Accessibility Guidelines Title I and II.

6.7.1.4 Roadside Protection

- A. General criteria for location and design of roadside barriers is to be based on the AASHTO Road Design Guide and MoDOT Design Policy.
- B. Clear Zone shall be as directed in the MoDOT Project Development Manual and the AASHTO Roadside Design Guide.
- C. Embankments shall be as directed in the MoDOT Project Development Manual and the AASHTO Roadside Design Guide.
- D. Roadside Obstacles shall be as directed in the MoDOT Project Development Manual and the AASHTO Roadside Design Guide.
- E. Blocked-out Thrie Beam barrier, as identified in the MoDOT Standard Plans for Highway Construction, shall be used at the bridge rail ends.
- F. End treatment for the barrier rail shall be as indicated in the MoDOT Standard Plans for Highway Construction and Special Provisions.
- G. Barrier placement shall be according to the MoDOT Standard Plans for Highway Construction.

6.7.2 Design and Plan Preparation

Design submittals shall be according to Section 01012 of this Request for Proposal.

6.7.2.1 Index and Vicinity Map

The Design-Builder shall prepare an index listing of plan sheet titles as they appear on the plan sheets and in accordance with the MoDOT Design Manual. The Design-Builder shall also prepare a vicinity map showing the Project limits in accordance with the MoDOT Project Development Manual, Section 4-03.2.

6.7.2.2 Roadway Sections

The Design-Builder shall prepare the roadway section plans in accordance with the MoDOT Project Development Manual, Section 4-03.3. Roadway sections shall provide the geometric information on the roadway cross section to be constructed.

6.7.2.3 Quantity Plans

The Design/Builder shall prepare quantity takeoffs, tabulations, and backup calculations and show quantity summaries and breakdowns as required by the MoDOT Project Development Manual, Section 4-03.4.

6.7.2.4 Plan and Profile Plans

The Design-Builder shall prepare the plan and profile plans in accordance with the MoDOT Project Development Manual, Section 4-03.5. The Design-Builder shall develop the alignment data and display the curve data and coordinates necessary to construct the Project. The Design-Builder shall calculate the alignments, profiles and superelevation diagrams for incorporation into the plan and profile plans. The plan and profile plans shall show existing and proposed horizontal and vertical alignments, grading and paving limits, existing and proposed right-of-way with stationing and distance ties, construction permits and easements, monumentation, and other applicable items as described in the MoDOT Project Development Manual. Contour plans shall be submitted if requested by the USACE Resident Engineer.

6.7.2.5 Cross Sections

The Design-Builder shall provide cross sections according to MoDOT Project Development Manual, Section 4-03.12, for review when requested. Each cross section shall include the ultimate roadway template superimposed on the plotted natural terrain. The template should be oriented 90 degrees to the centerline of the alignment being depicted. They should also identify right of way limits, walls, structures and other pertinent design data that might useful in evaluating the design. Cross sections shall normally be prepared at 100-foot intervals, as a minimum, with additional sections at breaks in the terrain unless otherwise directed by the USACE Resident Engineer. Cross sections shall be included in all submittals to utility companies.

6.7.2.6 Intersection Plan for Approval

The Design-Builder shall prepare and furnish to the USACE Resident Engineer, Intersection Plans for Approval in accordance with the MoDOT Project Development Manual. The Design-Builder shall make any revisions to the Plans requested by the USACE Resident Engineer.

6.8 Bridge and Structures Design

This section covers the design of bridges, drainage structures, sign structures and other structures in the project.

The Design-Builder shall perform structural analyses and design of the bridges, drainage structures and other structures included in the Project. All applicable regulations, codes and professional practices shall be followed and all plans, specifications and estimates shall be prepared in accordance with the Geotechnical Report, the Manuals and Guidelines listed in the Design Criteria and directions from the State Structural Project Manager.

The Design-Builder shall design all structural elements, except pile capacity, drilled shaft capacity and the size of spread footings, in accordance with the AASHTO Load Factor design method. Pile capacity, drilled shaft capacity and the size of spread footings is to be based on service loads. The live load utilized on this project is to be AASHTO HS20 modified live load with alternate military loading.

In addition the Design-Builder shall perform a superstructure load rating in accordance with

MoDOT procedures.

Design submittals shall be according to Section 01012 and 01300 of this Request for Proposal.

6.8.1 Design Criteria

All structures shall be designed and constructed using the current editions of the following criteria:

6.8.1.1 Governing Criteria

1. AASHTO "Standard Specifications for Highway Bridges," Sixteenth Edition, 1996 and current interim revisions,
2. Missouri Department of Transportation Bridge Design Manual, 2001,
3. Missouri Standard Plans for Highway Construction, 2001,
4. Missouri Standard Specifications for Construction, 1999,
5. ANSI/AASHTO/AWS Bridge Welding Code D 1.5-96,
6. PCA "Design of Continuous Highway Bridges with Precast, Prestressed Concrete Girders," August 1969,
7. Design of Bridge Deck Drainage," Publication No. FHWA-SA-92-010,
8. MoDOT Bridge Drainage Design Procedure, Section 8.2
9. AASHTO Guide Specification for Fatigue Design of Steel Bridges, and
10. AASHTO Guide Specification for Structural Supports for Highway Signs, Luminaries, and Traffic Signals, 2001.

6.8.1.2 Layout

1. The spans and general arrangement of the structure are shown on the bridge preliminary plans, which are located in Appendix F
2. A minimum horizontal and vertical clearance shall be provided as shown on preliminary plans.
3. The Bridge Memorandum for each alternate structure type can be found in Appendix F. The Design-Builder will be responsible for submitting the Bridge Memorandum, based on the finals selected design for approval.

6.8.2 Miscellaneous

6.8.2.1 Bridge Deck Drainage

1. Deck drains shall be designed to free-fall below the bottom flange of the girder or beams at locations providing 10' horizontal clearance to roadways. Other restrictions shall be per MoDOT criteria.
2. Downspouts, if used, shall be drained to the existing or proposed ground system storm sewers.

6.8.2.2 Utilities

No utilities are to be placed on the bridge. Conduit only.

6.8.2.3 Lighting

Conduit will be required for future roadway lighting.

6.9 Approach Slabs

An approach slab shall be provided at the end of each bridge, and shall be constructed according to MoDOT Standards.

6.10 Sign Structures

Sign structures shall be designed and constructed in accordance with AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals, dated 1994. New overhead sign structures shall be monotube.

6.11 Drainage Design

The Design-Builder shall provide a well-drained corridor and a safe environment for the individuals who use and maintain the highway. The design and construction of all drainage structures and appurtenances shall adequately address functionality, durability, ease of maintenance, maintenance access, safety, aesthetics and protection against vandalism according to the contract specifications and standards. In fulfilling the requirements for drainage, the Design-Builder shall abide by and fulfill the requirements related to drainage features or systems while at the same time meeting the requirements of other required design elements on the project.

Design submittals shall be according to Section 01012 of this Request for Proposal.

6.11.1 Hydrology

The USACE has completed a preliminary Drainage Design Analysis in order to provide a summary of the engineered drainage features on the project. The analysis is included in Appendix B. The Design-Builder shall conduct hydrologic and hydraulic analysis and/or obtain available public information to identify flood plains and probable flood plain impacts. The Design-Builder shall determine existing and developed conditions, discharges for all pertinent drainage systems, and existing flow patterns; assess possible drainage problems, identify possible solutions, and propose tentative hydraulic improvements. The Design-Builder shall provide a final scour analysis at the Roubidoux Creek Bridge.

The drainage system shall be designed in accordance with the MoDOT Project Development Manual and other design manuals as outlined in Section 5.3 of this Scope of Work.

The Design-Builder shall perform the drainage design for all drainage features on the project. All design work shall be documented in a Hydraulics Report including the size and location of drainage and stormwater treatment structures.

6.11.2 Design Criteria

6.11.2.1 General

These criteria have been developed to provide a summary of methodologies and standards to be used for the design of this project.

The drainage system includes all inlets, manholes, storm sewers, ditches, culverts, and other hydraulic and erosion control appurtenances required to:

1. Properly direct the storm runoff disrupted or generated by the roadway and its associated construction.

2. Protect the roadway slopes and ditches from damage by erosion.
3. Maintain clear traffic lanes for the design storm.

Drainage design is based on the US Customary English units as defined in these criteria.

These criteria are provided for guidance and are no substitute for experience or engineering judgement.

6.11.2.2 Design Specifications

The following publications are to be used in conjunction with these criteria, as guides in developing the plans for this project.

1. MoDOT Project Development Manual, 2000.
2. MoDOT Bridge Manual, 2001
3. Missouri Standard Specifications for Highway Construction, 1999 and Special Provisions.
4. Missouri Standard Plans for Highway Construction, October 2001
5. "Drainage of Highway Pavements", FHWA Hydraulic Engineering Circular No. 12, March 1986.
6. "Hydraulic Design of Highway Culverts", FHWA Hydraulic Design Series No. 5, Sept. 1985.
7. "Hydraulic Design of Energy Dissipators for Culverts and Channels", FHWA Hydraulic Engineering Circular No. 14, Sept. 1983.
8. "Design of Bridge Deck Drainage," Publication No. FHWA-SA-92-010.

6.11.2.3 Hydrologic Analysis

1. Methodology
The following methods will be used for computing stormwater runoff peak discharges and volumes:

Drainage area less than 200 acres - Rational Method

Drainage area equal to or greater than 200 acres - USGS Rural Regression Equations from MoDOT guidelines, HEC-1 or HEC-HMS, for F.I.S. streams with detailed studies, consideration will be given to the study discharges.

2. Rational Method - the following form of the rational method formula will be used:

$$Q = kCiA$$

where: Q = peak discharge, cfs
 k = dimensionless coefficient to account for antecedent precipitation
 C = runoff coefficient (dimensionless)
 i = rainfall intensity, in/hr
 A = watershed area, acres

- A. The following dimensionless coefficient will be used to account for antecedent precipitation; except the product of the k times C shall not exceed 1.0.

<u>Return Period (yrs)</u>	<u>k</u>
10 and less	1.0
25	1.1
50	1.2
100	1.25

- B. The runoff coefficient is a function of soil type and land use of the watershed. The following coefficients will be used:

<u>Description</u>	<u>Coefficient "C"</u>
Paved Surfaces	0.90
Highway Slopes & Ditches	0.35

For other land uses/zoning for 5-year and 10-year design, refer to the runoff coefficients listed in table 9-02.2 of MoDOT Project Development Manual. Refer to section 9-02.4 for the 25-year, 50-year, and 100-year flood peaks.

- C. The design intensity is a function of storm duration, the frequency, and the geographic location. The storm duration is defined as the time of concentration. See MoDOT Project Development Manual section 9-02.4(1)(c).

- D. Time of Concentration: $T_c = KL^{0.77} S^{-0.385}$

Where: T_c = the time of concentration (min)
 $K = 0.0078$
 L = the length of the principal watercourse from outlet to divide (ft)
 S = the slope between the minimum and maximum elevation (ft/ft)

Or: $T_c = 5$ minutes, whichever is greater

- E. The rainfall intensity, duration and frequency curves, for the project, can be found in Figure 9-02.9 of the MoDOT Project Development Manual.

3. For areas equal to or larger than 200 acres, the following methods are acceptable:

- A. USGS Rural Regression Equations for Region II from MoDOT Project Development Manual.
- B. US Army Corps of Engineers, Hydrologic Engineering Center HEC-1 or HEC-HMS

C. FEMA discharges when applicable.

6.11.2.4 Bridge Deck Drainage

1. Method used to estimate design flow - Rational Method.
2. Design Frequency – slab drains should be designed for a 25-year frequency rainfall
3. Time of Concentration - 5 minutes
4. Method used for Inlet Analysis - "Drainage of Highway Pavements" FHWA HEC-12, along with information acquired from the 1995 University of Missouri Rolla report "Scupper Interception Efficiency." Grate inlets at low points shall have a 50% clogging factor. Also see MoDOT Bridge Manual, section 3.3, Slab Drains.
5. Manning's "n"
 - A. Concrete pavement and shoulder 0.016
 - B. Asphaltic concrete pavements and shoulders 0.016
6. Intensity values for Missouri vary from 8.00 in/hr to 8.5 in/hr for the given frequency and time period. Therefore, a value of 8.5 in/hr is recommended for use. If local IDF curves are deemed more appropriate by the MoDOT hydraulic engineer in the Bridge Division, they may be applied.
7. Allowable Spread - the most restrictive of these criteria control.
 - a. The maximum allowable spread on any bridge with a 3 ft. or more shoulder width should be taken as 6 ft from the face of the barrier. If the shoulder width is less than 3 ft., the spread should be the shoulder width plus 3 feet from the face of the barrier.
 - b. Maximum depth of water at the barrier shall not exceed 0.45 feet.
8. Design efficiency as directed in the MoDOT Bridge Manual, section 3.30.

6.11.2.5 Ditches

1. Method used to estimate design flow - Rational Method.
2. Design Frequency - 10 years.
3. Design Methodology - as directed in the MoDOT Project Development Manual, section 9-03.

6.11.2.6 Culverts

1. Method used to estimate flow – See section 6.11.2.3
2. Design Frequency – 25 years
3. Design Methodology - as directed in the MoDOT Project Development Manual, section 9-06.
4. Minimum Size
 - A. Pipe culvert
 - i. Mainline – 24"
 - ii. Drive entrances and side roads – 18"

- B. Box culvert 4 ft. x 4 ft.
- 5. Minimum top of culvert – 12 in. below bottom of subbase.
- 6. Outlet Protection - as directed in the MoDOT Project Development Manual, section 9-04.
- 7. Culverts with a total span of 20 ft. or greater will be considered bridge class structures.

6.11.2.7 Bridges and Bridge Class Structures

1. Method used to estimate flow – see section 6.11.2.3
2. Design Frequency
 - A. Roubidoux Creek - 100 years
 - B. Tunnel Hollow Creek – 50 years (check 100 year)
3. Design Methodology – as directed in the MoDOT Bridge Manual, section 8.2; Backwater analysis using the US Army Corps of Engineers computer program HEC-RAS.
4. Minimum clearance between design highwater elevation and the lowest elevation of superstructure:
 - A. 2 feet for drainage areas 20 square miles or larger.
 - B. 1 foot for drainage areas less than 20 square miles.
 - C. 0 foot for box culverts.
5. Maximum backwater:
 - Roubidoux Creek – 1 foot
 - Tunnel Hollow Creek – 1 foot at exit of Fort Boundary

Verify that local jurisdiction does not require a more stringent backwater value. Backwater is the difference between the normal water surface elevation and the water surface levels resulting from the roadway embankment and the bridge opening. The normal water surface elevation is the elevation of the water surface across the flood plain without the bridge or roadway embankment.

6. Bridge scour to be analyzed using FHWA HEC-18 "Evaluating Scour at Bridges".

6.11.3 Hydraulic Report

The Design-Builder shall be responsible for preparing the Draft and Final Hydraulics Report. The Hydraulics Report shall contain detailed calculations as well as rationale for selecting all drainage system elements. The Hydraulics Report shall be stamped by a professional engineer registered in the State of Missouri, and three (3) copies shall be submitted prior to preparing the drainage plans.

6.11.4 Drainage Designs

The Design-Builder shall prepare drainage plans, profiles, details, and structure notes in accordance with the MoDOT Project Development Manual and other MoDOT provided information. The facilities shall be designed to effectively drain the Project. The Design-Builder shall prepare plans and details for stormwater detention/treatment facilities for runoff from within

the Project limits with minimal impacts to existing environmental features including wetlands and roadside vegetation. The Design-Builder shall prepare structure note sheets and backup calculations for these sheets in accordance with the MoDOT Project Development Manual.

Pipe sizes, lengths and other summary data shall be provided per the MoDOT standard pipe summary sheet. Drainage plan and profile drawings shall be developed which cover the entire project limits. Additional drawings shall be provided to document drainage details that are not defined in the MoDOT Standard Drawings. All drainage design drawings shall conform to MoDOT Project Development Manual.

Design reviews shall be in accordance with the QC/QA Plan Requirements. The final design submittal shall include the location of culverts, catch basins and manholes, with profiles or details showing all invert elevations and proposed finished grade elevations above the top of pipe.

The Design-Builder shall prepare design and construction documents for drainage features including, but not limited to:

- A. Drainage culverts and underpass structures
- B. Catch basins, manholes and connector pipes
- C. Drainage Pipe and Concrete Box Culvert Summary Sheets
- D. Drainage details
- E. Drainage culvert profiles
- F. Biofiltration Swales
- G. Retention/Detention Basins/Wet ponds

6.11.4.1 Storm Drain Systems

Runoff falling within the limits of the project, storm water draining into the project site, and additional drainage identified in the drainage documents for inclusion with the project shall be collected and conveyed to an existing storm drain system, or an on-site system.

Any connector pipes requiring lengthening shall be extended in kind by the Design-Builder. Connector pipe installations with less than two (2) feet of cover from the crown of the pipe to the bottom of the pavement shall be encased with a lean concrete backfill.

6.11.4.2 Inlets, Catch Basins and Pipes

Any inlet, or pipe that will not become part of the final drainage system can be removed or abandoned in place. Any such abandonment shall be done in accordance with MoDOT Standard Specifications with the following addition: Any void that may remain as a result of abandoning a drainage feature shall be filled with lean concrete or an equivalent material to guarantee that no settlement will occur as a result of the void. Catch basins that will not become part of the final drainage system shall be removed.

6.11.4.3 Connections to Existing Systems

The Design-Builder shall develop plans and specifications for connections with existing storm drain systems. These details shall be reviewed prior to making any connections. The existing drainage pattern shall not be impeded in any way that would impact the safety of the traveling public during the construction of the project.

6.11.4.4 Pipe

Pipe alternates shall be in accordance with the MoDOT Project Development Manual. Broken back pipe culverts, meeting the requirements of the MoDOT Standards, are acceptable.

6.12 Construction

Construction of this project shall be in accordance with the regulations and procedures of Executive Order 11988, Floodplain Management, and should be in accordance with the standards and criteria of the National Flood Insurance Program.

Roubidoux Creek is considered a MDC Agency Management Area for trout management waters. In-stream activities and any activities that potentially create runoff to the creek must be avoided from November 15 to February 15 of any year.

In case of a national emergency where the Fort Leonard Wood base is closed and the Contractor cannot work, additional days to complete the project will be provided, but no additional fee will be allowed.

6.13 Roadside Restoration Design

The Design-Builder shall design and construct certain roadside restoration elements for the purpose of restoring roadside impacts and traffic/pedestrian island areas in accordance with the Special Provisions in the Request for Proposal.

Approximately 13.5 acres of hardwood re-forestation and special seeding/planting will be required on the roadway slopes.

Design-Builder (or their representative) shall have current registration in Missouri as a Landscape Architect for all work outlined in this section.

6.14 Traffic Engineering Design

6.14.1 Roadway Illumination

This section covers the illumination of the designated portion of West Gate Access Road and intersection with Indiana and Pulaski Avenues. Design submittals shall be in accordance with the requirements of Section 01012 of this Request for Proposal.

6.14.1.1 Design Criteria

The design shall be based on the following criteria:

- A. Illumination shall be furnished and installed per all State and local codes, and per MoDOT Project Development Manual.
- B. Illumination shall be shielded where there are adjacent business or residential concerns. The required illumination density shall be according to the MoDOT Project Development Manual.
- C. The designer shall comply with MoDOT's current illumination policy and provide a complete set of roadway illumination Construction Documents including, but not limited to:
 1. Complete roadway illumination including West Gate Access Road and intersection with Indiana and Pulaski Avenues.
 2. Sign Lighting (if applicable).

- D. Existing electrical services shall be upgraded, as needed, for new illumination. If a new or upgraded existing electrical service is needed, the Design-Builder shall coordinate with USACE and submit the necessary design information for the new or upgraded electrical service to the Resident Engineer. USACE will obtain any Service Agreements from the electric company.

6.14.1.2 Illumination Design

The Design-Builder shall prepare preliminary plans for the illumination. The plans shall be drawn to MoDOT standards. The plans shall include the following minimum information:

- A. Luminary pole locations.
- B. Load center locations.
- C. Power source.
- D. Conduit and conductor schedule.
- E. Voltage drop calculations (design analysis).
- F. Panelboard Schedule
- G. Luminarie Schedule
- H. Photometric Data
- I. Pole Base Foundations

All existing above and below ground utilities are also to be included in the preliminary illumination plan.

In addition, lighting calculations shall be submitted in hard copy and on computer disc.

USACE shall review the preliminary design before the Design-Builder may commence final design.

6.14.1.3 Construction

The Design-Builder shall submit as-built plans, product manuals and shop drawings for the illumination system, as required by this Request for Proposal, after construction is complete. Final acceptance will not be granted until this material is submitted.

6.14.2 Signing and Delineation

The Design-Builder shall prepare signing plans, signing specifications, and signing details for this project. The signing plans, specifications, and details shall be prepared using the MoDOT Project Development Manual and MUTCD. The Design-Builder shall submit to USACE preliminary sets of signing plans and signing specifications showing existing signing, signs to be removed or relocated, and proposed locations for new signing. These design submittals shall be in accordance with the requirements of Section 01012 of this Request for Proposal.

The Design-Builder shall design, furnish and install all signing on the project to provide guidance ensuring the safe and efficient movement of traffic. The Design-Builder shall prepare designs for signing that are consistent with current signing practice and in conformance with the Manual on Uniform Traffic Control Devices (MUTCD), 2000.

Non-standard signs shall be detailed on the signing plans following the layouts given in the above referenced documents.

6.14.2.1 Design Criteria

The materials utilized for delineation shall be installed per the MoDOT Standard Specifications.

Construction Signing shall be per Part VI of the Manual on Uniform Traffic Control Devices (MUTCD) and the guidelines found within the MoDOT Project Development Manual. Work Zone Traffic Control Plans shall be submitted to and approved by the USACE prior to implementation.

6.14.2.2 Signing

The Design-Builder shall develop a signing plan for the project, which includes all necessary signs for the mainline, and intersections including but not limited to guide, regulatory and warning signs. This plan shall also include signing for areas outside of the project limits that will be affected by the construction.

6.14.2.3 Sign Layout

Guide signs layouts shall be done in accordance with the latest revision of the MoDOT Signing Policy and Standards.

6.14.2.4 Design Plans

The design shall include a signing plan and sign specification sheets giving the location of the sign, the size of the sign, the legend of the sign, and the mounting type.

Prior to fabrication of any sign elements, a guide sign concept plan with proposed formats shall be submitted to the USACE for review. In addition, any modifications made to "R" and "W" series signs shall be submitted to the USACE for review.

6.14.2.5 Construction

Positive guidance by the use of existing, interim and new signing shall be provided for the traveling public at all times during construction to ensure safe and informed operation while traffic is maintained on the affected roadways. The traffic control plan submitted by the Design-Builder shall address the use of interim signing and pavement markings during the transition from existing to new signing.

6.14.3 Intersection Signalization

The Design-Builder shall prepare construction documents for installation of traffic signals. The Design-Builder shall design, furnish and construct traffic signals at the intersection of West Gate Access Road and Indiana/Pulaski Avenues. The Design-Builder shall design the intersection and traffic signals to optimize vehicle levels of service, minimize delay, and accommodate pedestrians, as necessary. The signals shall be constructed within existing right-of-way limits. All preformed loop detection shall be placed in new pavement per MoDOT Standard Specifications and the Manual on Uniform Traffic Control Devices (MUTCD), 2001.

The Design-Builder shall upgrade existing electrical services, as needed, for the new signals. If a new or upgraded existing electrical service is needed, the Design-Builder shall coordinate with USACE and submit the necessary design information for the new or upgraded electrical service to the USACE Resident Engineer. USACE will obtain any Service Agreements from the electrical company once the Design-Builder submits the required information.

6.14.3.1 Design Criteria

Traffic signals shall be designed using the following criteria:

- A. The signal controller shall be a Type 170 B. Signals shall be furnished and installed

per current MoDOT Design Standards and Standard Specifications and the MUTCD.

- B. The Design-Builder shall furnish and install all signal equipment. ALL signal equipment shall be new and conform to MoDOT standards and specifications and the MUTCD. The Design-Builder shall only use MoDOT pre-approved signal poles. No special pole designs shall be used for this project.

6.14.3.2 Design Plans

The Design-Builder shall prepare preliminary design plans for the traffic signals. The plans shall be drawn to MoDOT Standards. The plans shall include the following minimum information:

- A. Lane geometry, striping and queue lengths
- B. Signal pole locations
- C. Signal head locations
- D. Types of signal faces
- E. Controller location
- F. Power source
- G. Type and location of detection
- H. Pole and conductor schedule
- I. Wiring Diagrams
- J. Phasing Diagrams
- K. Standard Mounting Details

The Design-Builder shall submit the preliminary design for review as outlined in Section 01012 prior to purchasing equipment.

The 100% Design shall contain full plans as required to construct and operate the signalized intersections. This shall include all requirements for the efficient operation of the traffic signal.

6.14.3.3 Construction

The Design-Builder shall conduct burn-in and testing of all traffic signal hardware and assure its functionality prior to field installation.

The Design-Builder shall notify USACE fourteen (14) calendar days prior to scheduled start of operation of any traffic signal. The Design-Builder shall inspect the traffic signal installation. The start of operation of the traffic signal does not constitute final acceptance of the traffic signal installation. Final acceptance will be made after satisfactory field inspection by USACE staff and receipt of as-built documentation.

6.14.4 Work Zone Traffic Control

The Design-Builder shall prepare construction staging plans, detour plans and coordinate a Work Zone Traffic Control Meeting.

6.14.4.1 Construction Staging and Traffic Control Plans

The Design-Builder shall prepare construction staging plans, detour plans, site specific traffic control plans, and typical plans and details in accordance with the MoDOT Project

Development Manual MUTCD, and other MoDOT provided information. Construction staging shall be developed, along with detour and signing plans. Construction signing and temporary illumination systems (if required) shall be shown on site specific traffic control plans.

Traffic control plans shall be approved by an engineer licensed in the State of Missouri with traffic expertise, prior to actual construction that will affect traffic. The Design-Builder shall submit a preliminary set of traffic control plans to the USACE Resident Engineer for review and comment 10 business days prior to implementation.

6.14.4.2 Detour Plans

The Design-Builder shall prepare any detour plans required for detouring Missouri Avenue and Pulaski Avenue onto local roadways. It shall be the Design-Builder's responsibility to obtain detour agreements from local agencies for use of local roadways for traffic detours. All detours shall have an asphalt or concrete pavement surface.

6.14.4.3 Work Zone Traffic Control Meeting

The Design-Builder shall schedule a Work Zone Traffic Control (WZTC) Meeting. At a minimum, the following personnel shall be invited to the Work Zone Traffic Control Meeting: 1) City of Waynesville, 2) Fort Leonard Wood, 3) all Emergency Services providers, 4) Local Law Enforcement, 5) MoDOT, and 6) USACE's Resident Engineer. The personnel invited to the WZTC Meeting shall be notified two weeks in advance of the Meeting. The Design-Builder shall document all issues discussed in the WZTC Meeting, and their respective solutions.

6.15 Right-of-Way/Easements

Easement within the boundaries of Fort Leonard Wood will require a permit that will be obtained from the USACE. Right-of-way/easement outside of the Fort Leonard Wood boundaries will be established and obtained by MoDOT. The preliminary right-of-way/easement shown is based on the toe of slope provided in the Design-Build documents. The final right-of-way/easement will be based on the final design footprint provided by the Design-Builder.

The Design-Builder will be responsible for the final right-of-way/easement determination and preparation of final right-of-way/easement plans. Right-of-way/easement coordinates and land areas shall be computed by the Design-Builder for use by the USACE.

The Design-Builder will be responsible for providing all final right-of-way/easement field surveys including monumentation posts as per MoDOT requirements. FLW will furnish and install the monumentation plaques at a later date.

6.15.1 Right-of-Way/Easement Requirements Determination

The Design-Builder shall determine the requirements for new right-of-way/easement rights. Right-of-way/easement rights can include, but are not limited to, new right of way, access rights, and slope or temporary construction easements.

The Design-Builder shall submit to USACE, in writing, the proposed right-of-way/easement requirements. The proposed right-of-way/easement requirements shall be submitted in triplicate to USACE for review and shall include the following:

- A. A letter indicating the project name, contract number, project location, originator of report (Firm's Name), submittal date and submittal type.

- B. A plan of sufficient scale and detail to show the existing and proposed roadway right-of-way and easements.
- C. Type of acquisition required including estimates of the final right-of-way/easement with enough definition to identify all ownerships that will be affected. The proposed requirements should be large enough to cover all possible right-of-way/easement needs for this project and the proposed future 4-lane roadway.

6.15.2 Right-of-Way/Easement Acquisition

Based on the requirements provided by the Design-Builder, USACE will:

- A. Approve final right-of-way/easement plans and associated documents prepared by the Design-Builder necessary for right-of-way acquisition
- B. Acquire necessary right-of-way/easement.
- C. Obtain the necessary authority to proceed with the various phases of property acquisition.
- D. Prepare the necessary data for project clearance letters.

6.16 Construction Specifications

The MoDOT Standard Specifications for Highway Construction 1999 (English Version), and all current Special Provisions, shall be used by the Design-Builder as a minimum requirement for materials and construction requirements modified as necessary by the Design-Builder to address project specific needs. The Design-Builder shall prepare the construction specifications for Materials and Construction items and procedures not adequately covered by MoDOT's Standard Specifications, maintaining or improving the level of quality represented therein. All references to the roles of the parties described in the Standard Specifications are understood to be as described in the Contract Provisions. Final construction specifications shall be prepared by (or under the direction of) a Professional Engineer registered in the State of Missouri. USACE will review and provide over-the-shoulder comments on all submittals of construction specifications. USACE has the right to reject construction specifications, if they do not meet the requirements described in the Scope of Work.

6.17 Cooperation between Contractors

The contractor's attention is directed to the MoDOT roadway contract on Route H that will be under construction within the duration of this project. This project is scheduled to be let in the Fall of 2002. The project will consist of grading, drainage, paving and bridges for a 5-lane highway from 0.2 miles north of I-44 to one mile south of I-44.

Other projects that could be occurring simultaneously with the West Gate Access Road project include, but may not be limited to the following:

- A. West Gate entrance including building, parking and additional lane paving (FLW)
- B. Overhead transmission relocation along existing Route H (Sho-Me Power)

Full cooperation of the contractors involved in these improvements, in careful and complete coordination of their respective activities in the area, will be required. Each contractor involved shall so schedule and conduct their work as to avoid unnecessary inconvenience and delay to another and shall conduct their work in such a manner as not to damage work being performed or completed by another. When necessary for proper execution of work, each contractor shall permit the other access through the overlapping areas.

The USACE shall not be responsible for any damages or claims arising because of inconvenience, delay or loss experienced, caused or contributed to by the Design-Builder because of the presence and operations of other contractors working within the limits on the same project. The Design-Builder, as well as other contractors, shall schedule and conduct work so as not to interfere with or cause unnecessary inconvenience or delay to their respective operations within the limits of the same project.

7.0 Contract Administration

The work in this contract shall be administered in accordance with this section of the Scope of Work.

7.1 United States Army Corps Of Engineers

USACE's Resident Engineer shall:

- A. Conduct ongoing reviews of the Design-Builder's progress in performing the work and ensure timely comments from the technical units.
- B. Review the Design-Builder's billings
- C. Review and evaluate the Design-Builder's requests for extension of time and supplemental agreements
- D. Review all correspondence with public agencies prior to the Design-Builder's mailing of any correspondence.
- E. Provide a single point of contact for all questions, requests, and submittals
- F. Coordinate project scheduling between the Design-Builder and USACE, coordinate USACE oversight of QA activities, and coordinate documentation reviews by USACE.
- G. Review and process progress payments
- H. Other duties as agreed upon by the Design-Builder and the USACE

7.2 Design-Builder

The Design-Builder shall:

- A. Establish, furnish and maintain suitable design and construction office facilities in the vicinity of the project, to serve as the project office for the duration of the project in the location specified in the Design-Builder's Technical Proposal.
- B. Maintain an adequate on-site staff of qualified support personnel to perform the work necessary to complete the project.
- C. Establish internal accounting methods and procedures for documenting and monitoring project costs.
- D. Provide project costs as required to USACE for purposes of monitoring Design-Build pilot projects.
- E. Establish and maintain contract administration procedures, which shall include preparation of supplemental agreements and requests for time extensions as well as administration of subcontracts.
- F. Include the complete project name and number on all correspondence related to this contract.
- G. Participate in design consensus, status and team building meetings with all appropriate participants at the start, on a monthly basis during the project development period and

as needed to maintain the design schedule. If requested by the USACE Resident Engineer, the Design-Builder shall act as the lead.

- H. Assume complete responsibility for the accuracy and completeness of Construction Documents and related design prepared under this project.
- I. Submit requests for progress payments along with the supporting documentation
- J. Other duties as agreed upon by the Design-Builder and USACE.

7.3 Pre-Construction Meeting and Construction Documentation

The Design-Builder is responsible for obtaining, maintaining, and monitoring for compliance all documents and records required in the contract provisions. Prior to start of construction work, a Coordination Meeting as specified in Section 01451, paragraph 3.3, shall be held to review quality control and documentation requirements.

7.4 Activity Meetings

Prior to the start of any work activity the Design-Builder shall hold an Activity Meeting to ensure that all project personnel have a thorough understanding of work to be done. Work activities generally correspond to the sections of the Standard Specifications, such as clearing and grubbing, earthwork, aggregate base, and asphalt/concrete paving, or a definable feature of work such as pre-paving conference, pre-pour conferences for bridge decks, etc. The Activity Meeting should include discussions relating to what will be accomplished, by whom it will be performed, and where, when, and how the work will be done. The Activity Meetings are to ensure that all parties have the same understanding of the design intent, have the appropriate plans, specifications and any special details, and are aware of safety regulations and procedures that need to be followed. At this time the QC inspection checklist for this activity should be reviewed. Activity Meetings shall be scheduled several days in advance of the actual work beginning on an activity to allow for additional preparation if necessary. The Activity Meetings shall be planned and conducted by the Design-Builder CQC System Manager. Minutes of the meeting shall be taken to document any clarifications and understandings related to the construction of the item that are not documented elsewhere. Activity Meetings are classified as Hold Points and shall be identified in the Design-Builder's QC plan.

Typical Activity Meeting Content

Scope (Design Criteria and Intent, Constraints)

Applicable Documents

Work Activity Outline and Schedule (What, Where, Who, When, and How)

Staking Plan

Safety Regulations and Procedures

Traffic Control Plan

Coordination with Utilities

Inspection Plan/Quality Control Procedures

Status of Submittals

Acceptance Criteria

Basis of Payment

Examination of Work Area

Examination of Stored Material

Open Discussion

7.5 Design-Builder Sampling and Testing

Design-Builder field and laboratory sampling and testing shall be performed as specified in the MoDOT Standard Specifications and Material Manuals. Sampling and testing shall be performed by qualified testing personnel as defined in this section and in Section 01451, paragraph 3.4.3 of this Request for Proposal. Representative samples shall be randomly obtained by the Design-Builder at specified frequencies and locations as shown in Appendix E, Table 2. The Design-Builder shall furnish copies of all test results to USACE within 24 hours of acquiring the sample or the next day of business.

The Design-Builder shall provide to USACE a testing plan for each material as required by Section 01451, Contractor Quality Control. The testing plan shall be developed using the Random Numbers Table (Appendix E, Table 3) or a comparable random selection process such as ASTM D 3665 and reflect the proposed total project quantity. The sampling location and subplot quantity (testing lot quantity) shall be as shown in Appendix E, Table 2 for the material being tested.

Reference Section 01451, paragraph 3.7, of this Request for Proposal for additional testing requirements.

7.5.1 Testing Technicians

Testing technicians shall have a minimum of 2 years experience and have successfully completed the MoDOT Technician Certification Program as defined in the MoDOT Materials Manual (or approved equivalent). Technicians shall have completed Level 2 certification for testing procedures in soils, aggregates, asphalt and concrete. Additional requirements for testing personnel are defined in Section 01451, paragraph 3.4.3.

The testing technicians performing the field and laboratory sampling and testing shall be employed by the Design-Builder or agents laboratory and supervised by the CQC System Manager as described in Section 01451, paragraph 3.4.2.

7.5.2 Design-Builder Laboratories

All sampling and testing shall be performed by a laboratory that meets the requirements of Section 01451, paragraph 3.7.2 of this Request for Proposal.

7.5.3 Records

The Design-Builder shall prepare test reports as required by Section 01451, paragraph 3.7.1.e of this Request for Proposal. The Design-Builder shall also prepare, maintain, and submit to the Engineer completed test records and final materials certification in accordance with the requirements of the MoDOT Construction Manual .

7.5.4 Acceptance of Small Quantities of Materials

USACE may elect to accept small quantities of materials without normal sampling and testing frequencies. The determination to accept materials using this provision rests solely with USACE. Structural Concrete will not be considered under the small quantity definition.

USACE may use the acceptance criteria for small quantities stated in the MoDOT Pre-Acceptance List (PAL) of Materials and Sources.

Questions that the USACE will consider prior to use of small quantity acceptance are:

- A. Has the material been previously approved?

- B. Is the material certified?
- C. Is there a current mix design or reference design?
- D. Has it been recently tested with satisfactory results?
- E. Is the material structurally significant?

Small quantity acceptance may be accomplished by visual identification, material certification or other methods. Acceptance of small quantities of materials by these methods must be fully documented. Documentation of materials under these methods must be provided by the Design-Builder accepting the material. For visual documentation, an entry should be noted on field records with a statement as to the basis of acceptance of the material and approximate quantity involved.

Small quantity acceptance may be used for any proposal quantity of the following uses:

- A. Driveways
- B. Road approaches
- C. Paved ditches and slopes

7.5.5 Verification Sampling and Testing

USACE or its designated agent shall perform sampling and splitting of materials for verification testing. Verification samples shall be randomly obtained.

When the differences of certain attributes of a material between the Design-Builder's test results and USACE's verification test results exceed the values shown in Appendix E, table 1, placement of those materials shall be halted until the Design-Builder can demonstrate that the material is within the required specifications.

7.6 Quality Control Inspections

Quality control inspections shall be conducted by the Design-Builder as described in Section 01451, paragraph 3.6 of this Request for Proposal

7.6.1 Witness and Hold Points

Witness and Hold Points are to be established where notification of USACE is required for USACE's option of observing or visually examining a specific work operation or test. Witness Points are points identified within the inspection plan, which require notification of USACE. Work may proceed beyond a Witness Point with or without participation by USACE provided proper notification has been given. Hold Points are mandatory verification points identified within the inspection plan beyond which work cannot proceed until mandatory verification is performed and a written release is granted by USACE. Witness and Hold Points should be identified in the construction process where critical characteristics are to be measured and maintained, and at points where it is nearly impossible to determine the adequacy of either materials or workmanship once work proceeds past this point. All Activity Meetings shall be included in the Design-Builder's CQC Plan as Hold Points.

7.6.2 Coordination and Notification

The Design-Builder shall designate a primary point of contact for notifications for inspection at Hold Points and Witness Points. An alternate individual may be designated to function in this capacity in his/her absence. USACE will also designate one individual to handle responses to the Design-Builder with written reports or releases for Hold Points and Witness Points.

The time necessary to respond to the notification for inspection at Hold and Witness Points shall be stated in the Design-Builder's CQC Plan and mutually agreed to by both the Design-Builder and USACE.

7.6.3 Hold Points

The following are mandatory Hold Points for inspections to be performed by USACE. The Design-Builder may wish to include others.

7.6.3.1 Bridges and Structures (including all foundations)

1. Prior to all concrete placements
 - a) USACE will check that the Design-Builder has completed the following:
 - (1) Documentation is present for rebar (Mill Cert. or Mfg. Cert.)
 - (2) Rebar clearances have been checked.
 - (3) Rebar size, spacing and splices have been checked.
 - (4) Roadway deck steel is properly supported
 - b) USACE will perform the following independent inspections or checks.
 - (1) Spot check deck steel for proper clearance to finish deck elevations
 - (2) Spot check form dimensions
 - (3) Check that concrete mix design has been reviewed by USACE
 - (4) Pre-placement meeting held
 - (5) Curing procedures agreed on and equipment available, including backups
2. Girders
 - a) USACE will perform the following independent inspections or checks.
 - (1) Check that girders have been inspected and released for shipment by USACE
 - (2) Spot check that camber of each has been field determined and properly calculated in final grades
3. For shaft foundations, USACE will review the Crosshole Sonic Logging (CSL) test results after the first shaft constructed at each bridge or wall to verify shaft integrity.
4. For spread footings and walls, USACE will inspect footing excavation base prior to concrete pour to verify that soil/rock encountered is consistent with the Geotechnical Report.

7.6.3.2 Pavements & Bridge Decks

1. Concrete: Pre-pour conference

The following elements will be discussed:

- a) Mix Design reviewed for conformance with specifications,
- b) Aggregate sources have proper qualifications i.e. LA Wear, gradation, etc.
- c) Proper equipment available, i.e. screed, broom and curing bridges
- d) Certifications have been received for each lot of curing compound

- e) Proper testing equipment available, beam molds, stinger, etc.
- f) Provisions for checking grade lines ahead of paving operation
- g) Station stamps available and layout properly marked
- h) Dowel bar and tie bar placement
- i) Emergency covering material available in case of sudden rain

2. Asphalt Paving: Pre-paving conference

The following elements will be discussed:

- a) Mix Design developed in conformance with specifications,
- b) Aggregate sources used have proper qualifications i.e. LA Wear, degradation, etc.
- c) Stockpile of tested aggregate necessary to pave the project
- d) QC sampling and testing by random method discussed
- e) Compaction test sites determined on random basis
- f) Traffic control
- g) Hours of operation
- h) Weather & surface temperature limitations
- i) Paving methods - pick up machine, trucks, material transfer devices
- j) Load limits
- k) Clear zones
- l) Adjust drainage apertures and utilities
- m) Tack Coat applications
- n) Statistical evaluation policies
- o) Options on use of rollers
- p) Grade control, transverse and longitudinally
- q) QC sampling and testing

7.6.4 Witness Points

The following are Witness Points for inspections or checks that USACE may elect to perform. The Design-Builder may wish to include others.

7.6.4.1 Pipe Installations

USACE shall be given the opportunity to check that the Design-Builder has completed the following, prior to backfilling the item:

1. Culverts
 - a) Compaction tests reports for bedding and backfill zones available
 - b) Material Certificates for materials where appropriate

7.6.4.2 Compaction

USACE shall be given the opportunity to check the following Design-Builder work:

1. Embankment
 - a) Compaction - minimum one test / lift
 - b) Optimum Moisture
2. Backfill Zones
 - a) Compaction - minimum one test / lift / installation
3. Surfacing
 - a) Compaction - minimum one test / lift

7.6.5 Performance Verification of Project Geotechnical Elements/Features

The Design-Builder's CQC plan shall include inspection and verification tests to determine the integrity of foundation structures and elements and to verify that their performance is as anticipated from the design. For drilled shaft foundations where water or slurry is present above the base of the shaft, Crosshole Sonic Logging (CSL) testing shall be conducted to verify the integrity of the shaft.

Walls shall be designed for expected total and differential settlements based on site geotechnical analyses. The Design-Builder's CQC plan shall include inspection, wall face tolerance and deflection measurements, and verification and proof tests for anchors and soil nails, to determine the integrity of foundation structures and wall elements, and to verify that the wall performance is as anticipated from the design.

The Design-Builder shall utilize geotechnical instrumentation as necessary and as recommended in the Geotechnical Report to verify the performance of areas of significant cuts or fills regarding deformation and stability, in particular where soft or otherwise unstable ground is present, or to control filling or cutting rates to maintain stability. An instrumentation and monitoring plan, including criteria, which will be used to determine acceptance, shall be included in the Design-Builder's CQC plan.

If soil densification or other foundation soil stabilization techniques are used, the Design-Builder's CQC plan shall address how the integrity and success of the soil densification technique will be investigated, monitored, and compared to the intended design.

7.6.6 Surveillance Inspection

USACE shall have the right to conduct surveillance inspection to verify the adequacy of the Design-Builder's inspection activities. Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness or any other cause shall be removed immediately and replaced in an acceptable manner when found.

7.6.7 USACE Inspected and Tested Items

USACE using its own resources will provide inspection and testing of the following.

7.6.7.1 Fabrication Inspection

The inspection of project specific fabricated items will be accomplished by USACE using its own forces. To facilitate these inspections the Design-Builder will promptly notify USACE of the intended fabricator and provide two (2) copies of the "Approved" Shop Drawings. The fabricated items to be inspected, include but are not limited to the following:

1. Treated timber and lumber except guardrail post and blocks
2. Treated piling
3. Epoxy coated rebar
4. Anchor bolts shipment
5. Bridge bearings
6. Miscellaneous items that are shop welded
7. Miscellaneous galvanized steel items
8. Culvert pipe equal to or greater than 30" in diameter
9. Precast concrete panels
10. Prestressed concrete girders
11. Steel for bridges
12. Traffic signal and illumination standards
13. Utility vaults
14. Metal drainage castings

7.6.7.2 Electrical Systems

USACE electrical inspectors will conduct inspection of lighting and signalization electrical systems for acceptance. USACE's Electrical Inspectors will accomplish the inspection of the electrical circuitry.

The inspection of electrical items by the Design-Builder shall be limited to the following:

- A. Foundation for luminaries, signal poles, and service and controller cabinets,
- B. Erection of the luminaries and signal poles,
- C. Underground conduit placement and detector loop placement.

SECTION 01100 - GENERAL**PART 1 GENERAL**

1.1 INQUIRIES Pursuant to SECTION 00100 paragraph titled "Instructions to Offerors--Competitive Acquisition", any inquiries regarding this Invitation, before bids are opened, should be addressed to the District Engineer, Kansas City District, Corps of Engineers, 760 Federal Building, Kansas City, Missouri 64106, ATTN: Mrs. Pamela Wellons. Inquiries for which oral explanation or advice on the plans and specifications will suffice may be referred to Mr. Dennis Denker by calling Area Code 816-983-3184. Telephone calls concerning the mailing of plans and specifications should be made to Contracting Division at Area Code 816-983-3975. Collect telephone calls will not be accepted. (KCDO APR 84)

1.2 INFORMATION REGARDING PROPOSAL MATERIAL. Proposals must be submitted upon Government standard bid form (STANDARD FORM 1442 (Rev. 4-85)). Wherever in the proposal the words "invitation" and "bid" occur, they shall be deemed to refer to "solicitation" and "offer," respectively.

1.3 TIME FOR ACCEPTANCE BY THE GOVERNMENT OF PROPOSALS: All offerors submitting proposals in response to this request agree that the Government shall have not less than the number of days listed on the SF 1442 to accept any proposal, after the date indicated for receipt of proposals. In the event the Government cannot award a contract within this period, the Government may, at their option, extend the date for acceptance of proposals, and any or all offerors may resubmit their price proposals.

1.4 DISPOSAL OF PROPOSALS: After award of the construction contract, proposal sets may be destroyed or may be kept for record. Proposal sets that are kept for records will be for Government use. Disclosure of proposal material, in whole or in part, outside the Government will be restricted only if the provisions of paragraph "Restriction on Disclosure and Use of Data" are in effect.

1.5 MANDATORY VEHICLE REGISTRATION

- a. Effective 1 September 2001, all motor vehicles within the boundaries of Fort Leonard Wood, Missouri, utilized by the Contractor and/or his employees (POVs included) must be registered with the Law Enforcement Command (LEC). Vehicle registration is a Department of the Army requirement.
- b. All motor vehicles will be registered utilizing Department of Defense temporary vehicle passes or decals with expiration dates and installation identification. Registration will be coordinated through the Ft. Leonard Wood Area Office.
- c. A Department of Defense temporary pass or decal will be issued for each registered vehicle. Contractors and Contractor employees will be issued a pass or decal depending upon the length of time of the contract. For contractors of a year or more in duration, an annually renewable decal will be issued. For those contracts of less than one year, a temporary pass will be issued. Contractor personnel who are eligible to register as retired military or dependent of military must register in such a manner.
- d. Required documentation for registration consists of the following:

- Current valid drivers license
- State vehicle registration
- State safety inspection (if required by state of registration)
- Proof of insurance
- Motorcycle safety course (applicable to motorcycle registration only)
- Military, civilian or contractor identification
- Letter of employment verification (submitted on Company letterhead)

- e. Decals must be permanently affixed to the vehicle. Authorized location is the upper center of the windshield, under the rear view mirror (right front post for motorcycles). All individuals are responsible for their decals. If the vehicle is sold, traded, incapacitated in any way, or employment is terminated, the

individual must remove (scrape decal off window) the decal and return it to LEC and they will destroy the sticker. All temporary passes and decals must be returned before final pay will be processed.

1.6 SUPERINTENDENCE OF SUBCONTRACTORS:

(a) The Contractor shall be required to furnish the following:

(1) If more than 50% and less than 70% of the value of the contract work is subcontracted, one superintendent shall be provided at the site and on the Contractor's payroll to be responsible for coordinating, directing, inspecting and expediting the subcontract work. This superintendent is an additional person above that required under the FAR Contract Clause 52.236-6.

(b) If the Contracting Officer, at any time after 50% of the subcontracted work has been completed, finds that satisfactory progress is being made, he may waive all or part of the above requirement for additional superintendence subject to the right of the Contracting Officer to reinstate such requirement if at any time during the progress of the remaining work he finds that satisfactory progress is not being made.

1.7 IDENTIFICATION OF EMPLOYEES: The Contractor shall be responsible for furnishing to each employee and for requiring each employee engaged on the work to display identification as may be approved and directed by the Contracting Office. All prescribed identification shall immediately be delivered to the Contracting Officer, for cancellation upon the release of any employee. When required by the Contracting Officer the Contractor shall obtain and submit fingerprints of all persons employed or to be employed on the project.

1.8 APPLICATION OF WAGE RATES:

The inclusion of the Davis-Bacon Act General Wage Decision or the Service Contract Act Wage Determination in the solicitation is a statutory requirement. It is not a representation by the U.S. Army Corps of Engineers that any specific work task can be performed by any specific trade. Which work tasks can be performed by what trades depends on and is determined by the prevailing area practice for the local area where the contract is being performed. It is the sole responsibility of the **offeror** to determine and comply with the prevailing area practice. Inquiries regarding a prevailing area practice should be directed to the Corps of Engineers, Contractor Industrial Relations Specialist (telephone number 816-983-3723) or to the Department of Labor Regional Wage and Hour Division.

Heavy and Highway:

Application of wage rates and fringe benefits: For the application of wage rates and fringe benefits contained in the Decisions of the Secretary of Labor, attached to and a part of this contract, Highway rates apply to the construction, alteration or repair of roads, streets, highways, runways, taxiways, alleys, trails, paths, parking areas, and other similar projects. All other construction is considered Heavy Construction.

1.9 PAYMENTS TO SUBCONTRACTORS: The Contractor's attention is directed to CONTRACT CLAUSE titled "Payment Under Fixed-Price Construction Contracts." In addition to the requirements set forth in the referenced paragraph, the Government will reimburse the Contractor, upon request, for amount of premiums paid by the subcontractors for performance and payment bonds (including coinsurance and reinsurance agreements, when applicable) after the Contractor furnishes evidence of full payment to the surety.

1.10 PAYMENTS TO CONTRACTOR (KCD MAY 90 - FORMERLY FAR 52.2/9101(a)): The following is an example of a Contractor's release of claims clauses required to comply with the provisions of paragraph (h) of the CONTRACT CLAUSE 52.232-5 titled "Payments Under Fixed-Price Construction Contracts":

RELEASE OF CLAIMS

The undersigned Contractor under contract dated _____, 20__, between the United States of America and said Contractor for the _____ located at _____, in accordance with paragraph (h) of the CONTRACT CLAUSE titled "Payments Under Fixed-Price Construction Contracts" of said contract, hereby releases the United States, its officers, agents, and employees from any and all claims arising under or by virtue of said contract or any modification or change thereof except with respect to those claims, if any, listed below:

(Here itemize claims and amounts due.)

1.11 PROSPECTIVE CONTRACTOR RESPONSIBILITY. Each bidder shall furnish, within 3 calendar days after receipt of request therefor, data which will show the bidder's ability to perform the work or services required by this Invitation for Bids. Such data shall include as a minimum: Bank certification of financial capability, or a financial statement not over 60 days old, which will be treated as confidential (if over 60 days old, a certificate shall be attached thereto stating that the financial condition is substantially the same or, if not the same, the changes that have taken place); names of commercial and financial reporting agencies from whom credit reports may be obtained; trade creditors; name and address of bonding company; business and construction experience; past record of performance of Government contracts; and construction plant and equipment available for this job, with resume of work in progress or other data that will assure that the bidder is in a position to perform the work within the time specified.

In addition, if the bid exceeds \$1,000,000, the bidder shall furnish upon request, a certified statement listing:

- (a) Each contract awarded to him within the preceding three-month period exceeding \$1,000,000 in value with brief description of the contract.
- (b) Each contract awarded to him within the preceding three-year period not already physically completed and exceeding \$5,000,000 in value with brief description of the contract.
- (c) If the prospective Contractor is a joint venture, each joint venture member will be required to submit the above defined certification. There shall also be furnished any other available information which will serve to substantiate the bidder's qualifications as a responsible prospective Contractor. (KCD APR 84)

1.12 PERFORMANCE OF WORK BY CONTRACTOR. Bidder's attention is directed to SPECIAL CLAUSE 52.236-1 titled "Performance of Work by Contractor." The successful bidder will be required to furnish the Contracting Officer, a description of the work which he will perform with his own organization (e.g., earthwork, paving, etc.), the percentage of the total work this represents, and the estimated cost thereof. Such description of work to be performed by the Contractor's own organization shall be furnished to the Contracting Officer within 10 days after award of the contract.

1.13 LABORATORY AND TESTING FACILITIES: The Contractor shall provide and maintain all measuring and testing devices, laboratory equipment, instruments, transportation, and supplies necessary to accomplish the required testing. All measuring and testing devices shall be calibrated at established intervals against certified standards. The Contractor's measuring and testing equipment shall be made available for use by the Government for verification of their accuracy and condition as well as for any inspection or test desired pursuant to the CONTRACT CLAUSE titled "Inspection of Construction." The location of the laboratory shall be convenient to the site such that test results are available prior to proceeding with the next sequential phase of the work. (KCD)

1.14 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER:

- (a) This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the CONTRACT CLAUSE titled "Default: (Fixed Price Construction)." In order for the Contracting Officer to award a time extension under this clause, the following conditions

must be satisfied:

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

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

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

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY

WORK DAYS BASED ON (5) DAY WORK WEEK

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
(14)	(8)	(5)	(6)	(7)	(8)	(6)	(5)	(6)	(4)	(3)	(10)

(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 work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph b, above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the CONTRACT CLAUSE titled "Default (Fixed Price Construction)." (ER 415-1-15)

1.15 **REQUIRED INSURANCE SCHEDULE:** In accordance with CONTRACT CLAUSE titled "Insurance - Work On A Government Installation," the Contractor shall procure and maintain during the entire period of his performance under this contract the following minimum insurance.

<u>Type</u>	<u>Amount</u>
Workmen's Compensation State Statute	coverage complying with applicable
Employers' Liability	minimum amount of \$100,000.00
General Liability on Comprehensive Form of Policy	minimum limits of \$500,000 per occurrence for bodily injury which includes, but is not limited to, insurance for all work required herein
Comprehensive Automobile Liability	minimum limits of \$200,000 per person and \$500,000 per occurrence for bodily injury, and \$20,000 per occurrence for property damage

(End of clause)

1.16 INTERRUPTIONS TO UTILITY SERVICES: A schedule showing the approximate times of interruptions of utility services and roads shall be submitted approximately 30 days in advance of interrupting services to make connections. Where it is necessary to interrupt services to make connections and the period of interruption will last more than 2 hours, the connections shall be performed on Saturday or Sunday, unless otherwise approved by the Contracting Officer. Final arrangements shall be made with the Contracting Officer at least 72 hours in advance of the scheduled times of interruptions.

1.17 COOPERATION BETWEEN THE CONTRACTOR AND UTILITY COMPANIES: Relocation of utilities by the utility companies listed below will be necessary concurrently with the work under this contract. All coordinating shall be through, or with the knowledge of, the Contracting Officer. (KCD)

(a) Coordination: The Contractor shall coordinate and schedule the work in cooperation with each utility company, to minimize delays and interferences. After receipt of notice to proceed, the Contractor shall notify each utility company and make the necessary arrangements for the utility relocation. The Contractor shall also notify each utility company 30 days in advance of commencing construction work within the vicinity of the utility line.

(b) Payment: The Contractor shall pay all costs in connection with the relocations, and shall furnish the Government itemized invoices showing the actual costs billed to and paid by him in full for each utility relocation. The Government will adjust the contract lump sum price for each utility relocation under CONTRACT CLAUSE titled "Changes" from the lump sum amount listed below to the actual amount paid by the Contractor to the respective utility company.

Example

(1) Relocation of telephone lines by Continental Telephone Company, El Dorado Springs, Missouri 64744 (Mr. Clifford McDaniel, Manager, Telephone 417-876-2111): \$24,700.

(2) Relocation of transmission line by Missouri Public Service Company, General Office, Kansas City, Missouri 64138 (Mr. Bernard, Office Manager, Telephone 816-353-5003): \$2,000.

1.18 DATE OF SAFETY AND HEALTH REQUIREMENTS MANUAL (EM 385-1-1):

(a) This paragraph applies to contracts and purchase orders that require the contractor to comply with EM 385-1-1 (e.g., contracts that include the Accident Prevention clause at FAR 52.236-13 and/or other safety provisions). EM 385-1-1 and its changes are available at <http://www.hq.usace.army.mil> (at the HQ homepage, select Safety and Occupational Health). The contractor shall be responsible for complying with the current edition and all changes posted on the web as of the effective date of this solicitation.

(b) Section 06.I of EM 385-1-1 is deleted. Job hazard analysis for confined space entry procedures is still required, as per 01.A.09 of EM 385-1-1. OSHA Standards 29 CFR 1910.146 or 29 CFR 1926 shall apply.

(c) Before initiation of work at the job site, an accident prevention plan, written by the prime contractor for the specific work and hazards of the contract and implementing in detail the pertinent requirements of EM 385-1-1, will be reviewed and found acceptable by designated Government personnel.

1.19 COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) The Contractor shall comply with OSHA standards as well as the most current edition of the Corps of Engineers Safety and Health Requirements Manual (EM 385-1-1). The OSHA standards are subject to change and such changes may affect the Contractor in his performance under the contract. It is the Contractor's responsibility to know such changes and effective dates of changes. (KCD APR 84)

1.20 CONSTRUCTION EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE

Whenever a modification or equitable adjustment of contract price is required, the Contractor's cost proposal for equipment ownership and operating expenses shall be as set forth in SPECIAL CLAUSE titled "Equipment Ownership and Operating Expense Schedule." A current copy of EP 1110-1-8 "Construction Equipment Ownership and Operating Expense Schedule" can be ordered from the Government Printing Office (GPO) by calling Telephone No. 202-512-1800.

1.21 **SUBMITTALS:**

(a) Submittal Procedures. See Division One SECTION: SUBMITTAL PROCEDURES, and SECTION 01780: CLOSEOUT SUBMITTALS.

(b) Purchase Orders: Each purchase order issued by the Contractor or his subcontractors for materials and equipment to be incorporated into the project, shall be maintained on file at the Contractor's field office for inspection and review by Government representatives. Each purchase order shall (1) be clearly identified with applicable DA contract number, (2) carry an identifying number, (3) be in sufficient detail to identify the material being purchased, (4) indicate a definite delivery date, and (5) display the DMS priority rating. At the option of the Contractor, the copies of the purchase orders may or may not indicate the price of the articles purchased. (MRD Ltr 22 Oct 74)

1.22 **DAMAGE TO WORK (1966 MAR OCE)**: The responsibility for damage to any part of the permanent work shall be as set forth in the CONTRACT CLAUSE titled "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 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 will 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 CONTRACT CLAUSE titled, "Changes," of the contract, 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.

1.23 **WORK ADJACENT TO ROADS AND HIGHWAYS**: Where the construction work is on or adjacent to, or involves hauling over public or private roads, streets, or highways, all herein referred to as "roads," the said roads shall, except as otherwise specified or directed, be kept open for traffic at all times during the construction period. Further, the Contractor shall, during said construction, provide, erect and maintain warning signs, lanterns or torches or other safety devices and, when necessary, provide flagmen for protection of traffic to the satisfaction of the Contracting Officer and local authorities. The Contractor shall keep the right-of-way of the roads free of debris that might be caused to accumulate thereon by his operations, and upon completion of the work, shall clean up the said roads and repair any damage to the roads occasioned by his operations under this contract to the satisfaction of the Contracting Officer and local authorities having jurisdiction. The drainage from the roads shall not be obstructed by the construction work. The Contractor shall be responsible for obtaining and paying for all permits required for operation on all roads.

1.24 **APPROVED EQUAL**: The drawings and the TECHNICAL PROVISIONS of these specifications may, in some instances, refer to certain items of equipment, material, or article by trade name. **Unless stated as specific requirements**, references of this type shall not be construed as limiting competition, but shall be regarded as establishing a standard of quality. In this respect, the Contractor's attention is directed to CONTRACT CLAUSE titled "Material and Workmanship."

1.25 **SCHEDULE OF WORK**: The Contractor's attention is directed to CONTRACT CLAUSE titled "Schedule for Construction Contracts," wherein if, in the opinion of the Contracting Officer, the Contractor

falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer.

1.26 UPKEEP OF ROADWAY AREAS WITHIN A MILITARY INSTALLATION WHICH THE CONTRACTOR USES: In addition to the requirements in CONTRACT CLAUSE titled "Operations and Storage Areas," the Contractor shall comply with the following requirements: Where the construction work is on or adjacent to, or involves hauling over public roads, streets, or highways located on a military installation, all herein referred to as "roads," the said roads shall except as otherwise specified or directed, be kept open for traffic at all times during the construction period. The Contractor shall keep the roads including adjacent construction site free of debris including litter, waste construction material, mud etc., that might be caused to accumulate thereon by his operations, and upon completion of the work, shall clean up the said roads and construction site and repair any damage occasioned with his operations under this contract to the satisfaction of the Contracting Officer. The drainage from the roads shall not be obstructed by the construction work.

1.27 PROTECTION OF UTILITY LINES:

(a) It shall be the Contractor's responsibility to protect all existing utility lines from damage during excavation for utilities systems. Any damage resulting to existing utility systems shall be repaired by the Contractor, to the satisfaction of the contracting officer, at no additional cost to the Government.

(b) All requests for access and/or locations must be made through the Contracting Officer's Representative (COR) or Resident Engineer. The Director of Public Works will work directly with the Resident Engineer to provide timely information to the Contractor.

1.28 MODIFICATIONS PRIOR TO DATE SET FOR OPENING BIDS. The right is reserved, as the interest of the Government may require, to revise or amend the specifications or drawings or both prior to the date set for opening bids. Such revisions and amendments, if any, will be announced by an amendment or amendments to this Invitation for Bids. If the revisions and amendments are of a nature which requires material changes in quantities or prices bid or both, the date set for opening bids may be postponed by such number of days as in the opinion of the issuing officer will enable bidders to revise their bids. In such cases, the amendment will include an announcement of the new date for opening bids. (KCD APR 84)

1.29 EXPEDITING NOTICE TO PROCEED. Notwithstanding the requirements of Block 12 on page 00010-1 of SECTION 00010 and SECTION 00100 paragraph titled "Late Submissions, Modifications, and Withdrawals of Bids," in order to expedite award of contract and issuance of NOTICE TO PROCEED, it is requested that an officer of the company or corporation determined to be the successful bidder shall appear in the office of the Commander, Kansas City District, Corps of Engineers, 757 Federal Building, 601 East 12th Street, Kansas City, Missouri, for signing contract documents. Therefore, upon written acceptance of this bid, mailed or otherwise furnished within 60 calendar days after the date of opening of bids, it is requested that the successful bidder shall within 48 hours after receipt of notification appear in the office of the Commander and execute Notice to Proceed documents, and give performance and payment bonds on Government Standard forms 25 and 25A with good and sufficient surety. It is also requested that the successful bidder furnish insurance certificates required in SPECIAL CLAUSE titled "Required Insurance Schedule" at this time.

1.30 UNEXPECTED HAZARDOUS SUBSTANCES OR UNEXPLODED ORDNANCE (UXO): In the event that suspected hazardous substances or UXO are revealed during construction activities, all such construction activities in the immediate area shall be immediately suspended. Hazardous substances for purposes of this specification only, shall be defined as CERCLA hazardous substances, infectious or radioactive wastes, asbestos or oil. The Contractor shall leave the materials undisturbed and shall immediately report the find to the Contracting Officer's Representative (COR) so that proper authorities can be notified. The Contractor shall not resume construction activities in the vicinity of the suspected hazardous substances or UXO until written clearance is received from the COR. Identification and removal of any such materials will be conducted in accordance with all Federal, state and local

environmental laws and regulations according to the CONTRACT CLAUSE titled "Differing Site Conditions."

1.31 **SURVEY MARKERS:** Reference is made to CONTRACT CLAUSE titled "Permits and Responsibilities", Chapter 60 of the Missouri Revised Statutes 1969, and rules titled "Maintenance of the Original US Public Land Survey Corners" adopted by the Division of Geology and Land Survey, Missouri Department of Natural Resources. The Contractor shall be responsible for removing and relocating survey markers. Relocation shall be performed by a professional registered Land Surveyor.

1.32 **DISPOSAL OF WASTE:** All construction and/or demolition waste shall be disposed of off-base in accordance with all applicable Federal, State and local regulations, including "Chapter 260, RSMO" of the "Missouri Department of Natural Resources."

1.33 **EXCAVATION NOTIFICATION:** Prior to any excavation on either public or private properties, Missouri law requires that you notify all owners and operators of underground facilities in your dig site. Missouri One Call System (MOCS) can help you comply with the law; "Chapter 319, RSMO" of the "Missouri Department of Natural Resources," by calling this one toll-free number 1-800-344-7483.

1.34 **HOT WORK PERMIT**

(a) The current Post Fire Regulations, AR 420-90, "Fire Prevention and Protection" and FLW Supplements to AR 420-90 are by this reference made a part of this solicitation and resultant contract. The Contractor's operations shall conform to all applicable portions of those documents. All personnel entering on duty as Contractor's employees shall be instructed in the fire prevention program of the Post and shall be advised of the requirement of the Post fire Regulations as they pertain to this particular contract.

(b) The Contractor shall obtain a written "Hot Work Permit" (DA Form 5383-R) prior to commencing all hot work outside an approved shop area. Permits will be issued by the Fort Leonard Wood Fire Department, (314) 596-0883, after all necessary precautions have been taken, such as wetting down the area, protection of combustible material, and positioning of first aid fire extinguishers of proper type and class. Permits must be obtained in advance for use of open flame devices, such as blow torches, portable furnaces, tar kettles, or gas and electric welding and cutting equipment. Preparation and protection for such areas are the responsibility of the Contractor accomplishing the work. An inspection conducted by the Fire Department prior to commencing work may be required; however, the Contractor shall conduct an inspection of the area at least 30 minutes after completion of all work. The Contractor shall be liable for any fire loss to Government property attributable to negligence on the part of the Contractor, including failure to comply with fire prevention measures prescribed by terms of this contract.

(c) The Fire Prevention-Protection Division is responsible for monitoring the Contractor in the area of fire prevention and advising the Contracting Officer of all deficiencies. The Contracting Officer will alert the Contractor if a violation is a fire hazard or fire protection deficiency.

(d) This provision in no way authorizes anyone other than the Contracting Officer to commit the Government to changes in the terms of the contract.

1.35 **UTILITY/DIGGING PERMITS**

(a) General. The Contractor must obtain an excavation permit from the Directorate of Public Works (DPW) prior to digging on Fort Leonard Wood. This allows for the proper marking of existing utilities, thereby preventing damages and outages to those utilities.

(b) Procedures. The Excavation Permit Request and the Utilities Flagging Request are one and the same. The contractor will use FLW Form 364 to initiate all flagging requests. A copy of FLW Form 364 is attached. The Contractor will be required to request flagging at least ten calendar days in advance of when he plans to dig in an area. He will indicate the area to be flagged, the resulting utility outage from

this flagging effort, and the requirement date on the Excavation Permit which he submits to the Corps of Engineers Area Office (FM-WD). FM-WD turns the request over to the DPW on the same day as well. FM-WD and the DPW will both keep track of when the request was received and when the permit was issued. These dates will be reconciled at the weekly coordination meeting. It is the Contractor's responsibility to route the digging permit through the appropriate offices.

(1) The Contractor will be required to call 1-800-DIG-RITE to get the telephone company to mark its lines. This is in addition to the utilities to be marked by the DPW.

(2) The DPW, through its O&M contractor, will flag all other utilities and return the approved Excavation Permit to FM-WD. The Corps of Engineers QA representative and the Contractor will jointly mark up their individual contract drawings to document the flagging.

(3) Once the flagging is registered, the Contractor is responsible for replacing missing markings.

(4) If the utilities are not flagged within 10 calendar days of the submittal to the DOW, contract drawings will be used for showing utilities locations. Post utilities drawings will be used as backup.

(c) Accidental Cuts. If the utility is cut within a zone of 3 feet either side of the markings or, if there is no marking, the location shown on the drawings, the contractor will be required to repair the utility at his own expense. If the utility is cut outside of this 6-foot-wide zone, the DPW will be responsible for repairing the utility.

(d) Initial Flagging. **The Contractor will be required to submit a plan within 5 days after award showing all areas to be excavated within the first fourteen calendar days of construction.** This plan will be provided to the DPW and used to flag the required utilities to allow the Contractor to proceed with site work immediately after issuance of Notice to Proceed (NTP).

1.36 **MISSOURI SALES AND USE TAX (JUL 1997).** In accordance with FAR Clause 52.229, notice is given that the contract price excludes the Missouri sales tax and compensating (use) tax on all sales of tangible personal property and materials purchased by the Contractor or subcontractors for the construction of projects, including repairing or remodeling facilities, for the United States. In accordance with Section 144.062, RSMo., the Contracting Officer will issue and furnish to the Contractor an exemption certificate (example copy appears at the end of this section) for this project with the Notice to Proceed. The Contractor and the subcontractors will use the exemption certificate for this project in the purchase of supplies, materials and furnishings for incorporation in the project. The Contractor and the subcontractors shall furnish a copy of such certificate to all suppliers/materialmen from whom such purchases are made, and the suppliers shall execute invoices covering the same bearing the number of such certificate. (KCD OC)

1.37 **INSTALLATION ACCESS DURING LABOR DISPUTES**

(a) Subject to the limitations outlined in paragraphs (b) and (c), the Contractor may generally seek Access to the installation for the performance of the contract utilizing any entrance to the installation open to public transportation.

(b) In case of labor unrest, including but not limited to strikes and informational pickets, the installation Garrison or Installation Commander has the right to implement a "reserve gate" plan. Pursuant to such a plan (1) the picketed contractor may be limited to the use of only one gate for all access on and off the installation; and (2) other contractors may be restricted from the use of the gate utilized by the Contractor(s) involved in the labor dispute. For purposes of this clause the term "picketed contractor" shall include all employees, subcontractors, suppliers, materialmen and agents of the contractor involved in the labor dispute.

(c) The choice of gate or gates to be utilized by the picketed Contractor(s) shall rest solely with the Garrison or Installation Commander based on the needs of the Government. Any delay or costs

associated with the inability to use a particular entrance to the installation shall not be grounds for an equitable adjustment. Any entitlement to an extension of the performance period shall be determined pursuant to the Default Clause of the Contract.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

* * * * *

EXCAVATION PERMIT
Fort Leonard Wood, Missouri
(FLW Suppl I to AR 420-17)

REQUESTED BY: (Unit/Activity doing Excavation) _____

POINT OF CONTACT NAME: _____ PHONE NUMBER: _____

DESCRIPTION AND LOCATION OF PROPOSED EXCAVATION: (Include a detailed map or drawing showing location.) _____

GAS (NATURAL)

Reviewer (Signature): _____ Date: _____

EXTERIOR ELECTRICAL CONTRACTOR (High Voltage)

Reviewer (Signature): _____ Date: _____

DPW MAINTENANCE CONTRACTOR

Heat/AG _____
Water/Sewer _____
Electrical (Secondary) _____
Fuel _____

DIRECTOR OF PUBLIC WORKS: _____ Date: _____

ARMY TELEPHONE (DOIM)

Reviewer (Signature): _____ Date: _____

SPRINT TELEPHONE COMPANY (Commercial)
FOR APPROVAL CALL 1-800-DIG-RITE **48 HOUR NOTICE**

RANGE _____ TOWNSHIP _____ SECTION _____
Reviewer (Signature): _____ Date: _____

SPRINT BARRACKS TELEPHONE COMPANY (Commercial)
FOR APPROVAL CALL 329-4603 OR 329-8200

Reviewer (Signature): _____ Date: _____

CABLE TV COMPANY

FOR APPROVAL CALL 336-5284 **48 HOUR NOTICE**

Reviewer (Signature): _____ Date: _____

DOL (J-SIDDS)

Reviewer (Signature): _____ Date: _____

FINAL REVIEWER

Final Reviewer (Signature): _____ Date: _____

FLW Form 364 (Rev 1 Jul 95) Previous Edition Obsolete

EXCAVATION PERMIT

Fort Leonard Wood, Missouri

(Supplement to FLW 364, Excavation Permit)

1. All personnel requesting a form FLW 364, Excavation Permit, must in addition to all other requirements, read and acknowledge by signature the following DPW requirements. Refusal to comply with these requirements will void future requests for an Excavation Permit. Deficiencies to these requirements will result in a request to correct the deficiencies within 30 days. If deficiencies are not corrected, DPW will correct them and a bill for those costs will be presented to the permit holder for payment.
2. All roads shall be bored under, unless prior approval has been granted by the Chief of the Operations Branch, DPW, Building 2222.
3. All disturbed turf areas shall be restored by placing 4 inches of topsoil, fertilizing with 13-13-13 fertilizer at a rate of 4 pounds per 1000 square feet, seeding with a mixture of 90% Turf Type Tall Fescue and 10% annual rye at a rate of 4 pounds per 1000 square feet, and mulching four ways, with clean, weed free, cereal straw. Turf areas are considered all areas that are unsurfaced grounds. Disturbed areas are not limited to areas of the excavation. They also include ruts, gouges, etc., caused by a Contractor's vehicles or equipment.
4. All buried utilities shall include a tracer wire with the utility and, in addition, magnetic tracer tape above the utility, but 12 inches below ground level. The tracer wire shall be terminated in a manner that makes it accessible at all manholes, handholes, pedestals, or other termination points.
5. Magnetic tracer tape shall be placed above any communication line buried 12 inches below ground level.
6. At the finish of work, as-built drawings shall be delivered to the Engineer Design Branch, DPW, Building 2200.
7. Use of Fire Hydrants-The temporary use of fire hydrants as sources of water is not authorized without prior approval by the Fire Department, 596-0886. Fire hydrant connections shall include an approved backflow preventer. Back flow preventers shall either be RPZ (reduced pressure zone) type or a double check valve arrangement. Each backflow preventer shall have a tag with the date that it was last certified by a Certified Technician. The backflow preventer must have been certified within the last year. The Contractor shall furnish and use an approved fire plug wrench to open and close the hydrant. Pipe wrenches shall not be used. When the hydrant is not being used, it shall be shut off. When the need for the hydrant is finished, the hydrant shall be shut off, the temporary connection and backflow preventer shall be removed, the fire hydrant cap shall be replaced, and the Fire Department shall be notified that the hydrant will no longer be used.

Signature of permit requestor: _____

Date of Signature: _____

ROUTING EXCAVATION PERMITS**Points of Contact**

OFFICE NAME	POC	BLDG #	TELEPHONE
Omega Pipeline Company (Natural Gas)	UTILICORP		1-800-282-4916
Vina Construction, Inc. (Exterior Electrical Contractor)	Mr. Ervin Williams	2272	596-0068
Rust Constructors, Inc. (DPW Maintenance Contractor)	MS Jeanne Barnett	2226	596-0074/0693
Directorate of Public Works, Work Management Branch ATZT-DPW-BW	Mr. Harold Campbell Mr. Gary Powell	2200	596-0926 596-1790 FAX 596-0868
Army Telephone (DOIM)	Mr. Bob Lewis MS Ida Allen	404	596-0681 FAX #6-1201
1-800-DIG-RITE (1-800-344-7483) Sprint Telephone Company			
Barracks Phone Service	Mr. Rick Vire	470	329-4603/8200 FAX 329-4586
Cable TV Company St. Robert	MS Susan Hall		336-5284 FAX 336-4556
J-SIDDS Commun/Electronics ATZT-DL-B-M-CE/DOL	Mr. Steve Page	5265	596-0874

EXAMPLE

STATE OF MISSOURI

PROJECT EXEMPTION CERTIFICATE FOR EXEMPT ENTITY CONSTRUCTION

UNITED STATES OF AMERICA

NAME OF EXEMPT ENTITY

ADDRESS

CITY _____ STATE ____ ZIP

TAX IDENTIFICATION NUMBER (None required)

PROJECT IDENTIFICATION NUMBER

PLEASE PROVIDE THE PROJECT LOCATION AND A BRIEF DESCRIPTION BELOW:

CONTRACT DATE

CERTIFICATE EXPIRATION DATE

Contractors are required to provide a copy of this project exemption certificate to their vendors.

This project exemption certificate does not allow contractors to purchase machinery, equipment, or tools used in fulfilling this contract, tax exempt.

Suppliers accepting this project exemption certificate are required to render to the contractor invoices bearing the name of the exempt entity and the project identification number.

An exempt entity that fails to revise the expiration date on this certificate as necessary to complete any work required by the contract will be liable for any sales tax determined due as a result of an audit of the contractor.

The Contractor shall provide this project exemption to all subcontractors purchasing construction materials for this project.

SIGNATURE OF AUTHORIZED AGENT

EXHIBIT A

SECTION 01312A

QUALITY CONTROL SYSTEM (QCS)

1.1 GENERAL

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

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

1.1.1 Correspondence and Electronic Communications

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

1.1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01320A, PROJECT SCHEDULE, Section 01330, SUBMITTAL PROCEDURES, and Section 01451A, CONTRACTOR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

1.2 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on 3-1/2 inch

high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

1.3 SYSTEM REQUIREMENTS

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

Hardware

IBM-compatible PC with 200 MHz Pentium or higher processor

32+ MB RAM

4 GB hard drive disk space for sole use by the QCS system

3 1/2 inch high-density floppy drive

Compact disk (CD) Reader

Color monitor

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

Connection to the Internet, minimum 28 BPS

Software

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

Word Processing software compatible with MS Word 97 or newer

Internet browser

The Contractor's computer system shall be protected by virus protection software that is regularly upgraded with all issued manufacturer's updates throughout the life of the contract.

Electronic mail (E-mail) compatible with MS Outlook

1.4 RELATED INFORMATION

1.4.1 QCS User Guide

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

1.4.2 Contractor Quality Control(CQC) Training

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

1.5 CONTRACT DATABASE

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

1.6 DATABASE MAINTENANCE

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

1.6.1 Administration

1.6.1.1 Contractor Information

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

1.6.1.2 Subcontractor Information

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

1.6.1.3 Correspondence

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

the Contractor will be prefixed with "C".

1.6.1.4 Equipment

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

1.6.1.5 Management Reporting

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

1.6.2 Finances

1.6.2.1 Pay Activity Data

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

1.6.2.2 Payment Requests

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

1.6.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01451A, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.6.3.1 Daily Contractor Quality Control (CQC) Reports.

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

1.6.3.2 Deficiency Tracking.

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

1.6.3.3 Three-Phase Control Meetings

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

1.6.3.4 Accident/Safety Tracking.

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

1.6.3.5 Features of Work

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

1.6.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work

progresses, and shall promptly provide this information to the Government via QCS.

1.6.4 Submittal Management

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

1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts", or Section 01320A, PROJECT SCHEDULE, as applicable. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF) (see Section 01320A PROJECT SCHEDULE). The updated schedule data shall be included with each pay request submitted by the Contractor.

1.6.6 Import/Export of Data

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

1.7 IMPLEMENTATION

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

1.8 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

1.8.1 File Medium

The Contractor shall submit required data on 3-1/2 inch double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of

running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.8.2 Disk or CD-ROM Labels

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

1.8.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

1.9 MONTHLY COORDINATION MEETING

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

1.10 NOTIFICATION OF NONCOMPLIANCE

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

-- End of Section --

SECTION 01320

PROJECT SCHEDULE, CONTRACTOR PREPARED NETWORK ANALYSIS (NAS)

PART 1 GENERAL

1.1 SCOPE

This section covers requirements for Contractor Prepared Network Analysis System, complete.

1.2 GENERAL

The progress chart to be prepared by the Contractor pursuant to the CONTRACT CLAUSE titled "Schedule For Construction Contracts" shall consist of a network analysis system (NAS) as described below. The scheduling of construction is the responsibility of the Contractor and contractor management personnel shall actively participate in development of the network logic diagram so that intended sequences and procedures are clearly understood. The Contractor shall provide the NAS in either Arrow Diagram Method (ADM) or Precedence (PDM) format. The network diagram required for each submission of the NAS shall depict the order and interdependence of activities and the method by which the work is to be accomplished. The approved Project Schedule shall be used to measure the progress of the work, to aid in evaluating time extensions, and provided the basis of all progress payments.

1.3 SUBMITTALS

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

SD-01 Data

Preliminary Network Diagram; GA-RE.

Initial Detailed Network Diagram; GA-RE.

Monthly Reports, Data and Diagrams; GA-RE.

- a. Logic Report
- b. Criticality Report
- c. Cost of Earned Value Report
- d. Summary Network Diagram
- e. Narrative Report
- f. SDEF Data Disk

1.4 BASIS FOR PAYMENT

The schedule shall be the basis for measuring Contractor Progress. Lack of an approved schedule or scheduling personnel shall result in an inability of the Contracting officer to evaluate Contractor Progress for the purposes of payment. Failure of the Contractor to provide all information, as specified below shall result in the disapproval of the entire project Schedule submission and the inability of the Contracting officer to evaluate Contractor progress for payment purposes. In case where Project Schedule revisions have been directed by the Contracting Officer and those revisions have not been included in the Project Schedule, then the Contracting Officer may hold retainage up to the maximum allowed by contract, each payment period, until revisions to the Project Schedule have been made.

PART 2 PRODUCTS

2.1 NETWORK ANALYSIS SYSTEM

2.1.1 Preliminary Network Diagram

The Contractor shall submit within 10 calendar days of the NOTICE-TO-PROCEED a preliminary NAS schedule covering the first 90 days of operation. The preliminary schedule shall be used for payment not to exceed 60 days after notice to proceed.

2.1.2 Initial Detailed NAS

The initial NAS shall be submitted within 40 calendar days after notice to proceed. It shall provide (1) a reasonable sequence of activities which represent work through the entire project and (2) a reasonable level of activity detail. Duration ranges for work activities shall generally be between three and twenty-two workdays. The schedule interval shall extend from notice to proceed through the contract duration specified in SPECIAL CLAUSE titled "Commencement, Prosecution, and Completion of Work" to contract completion date. Completion of the last activity in the schedule shall be constrained by the contract completion date such that if the projected finish of the last activity falls after the contract completion, then the float calculation shall reflect negative float. Interim milestone dates specified shall be so constrained also. Progress payments will be withheld until the Contractor submits an approvable schedule. Since it is understood that the contractor's logic and duration may change between the issuance of the Preliminary NAS and the Initial Detailed NAS, the Contracting Officer shall require a complete and comprehensive accounting of all modifications made to the Preliminary NAS to produce the Initial, Detailed NAS.

2.1.2.1 Format of the Initial Detailed NAS

The diagram shall show a continuous activity flow from left to right. The diagrams shall be 36x48, minimum size unless explicitly modified by the Contracting Officer. The diagrams shall be legible, shall have activities 'grouped' or 'banded' by Project area, building or feature, and shall contain the following information:

- a. Activity number

- b. Activity description
- c. Duration in workdays
- d. Total float in workdays
- e. Logic ties
- f. Clearly marked critical path (s)
- g. 'Banded' or 'grouping' identification on each sheet
- h. Composed and/or milestone dates
- i. Scale of sufficiently large scale to render a legible diagram

Dates shall be shown on the diagram for start of the project, any milestones required by the contract, and contract completion. The critical path shall be clearly identified. Submittal, review, procurement, fabrication, delivery, installation, start-up, and testing of special or long lead-time materials and equipment shall be included in the NAS diagram. Government and other agency activities shall be shown. These include but are not limited to: notice to proceed, approvals, inspections, and utility tie in for phasing requirements. Procurement Activities: Task related to the procurement of long lead materials or equipment shall be included as separate activities in the project schedule. Long lead materials and equipment are those materials that have a procurement cycle of over 90 days. Examples of procurement process activities include, but are not limited to: submittals, approval procurement, fabrications, and delivery.

- a. Activity Identifier: The field known as the activity number or activity ID shall consist of numeric or alpha/numeric entries. Each major building, area or feature of the work shall have blocks of numbers set aside to identify each such feature. These numbers shall generally be ascending with procurement having the lower number sets, with ascending sets of numeric identifiers being applied to activities in the schedule by area, feature or building. Skip numbering shall be used in minimum increments off tens. The smallest set of numeric activity identifiers shall be used, with no spaces, left zero fills or other symbols to be used. The purpose of this requirement is to provide for simple, ascending activity numbers which will facilitate the computerized review and on-going use of the NAS database. The use of CSI codes, special account codes, identifiers or other matrices which the contractor may wish to use, or which are otherwise required herein, shall be input using data code fields other than the activity number/activity ID field.
- b. Building, Area or Feature Codes: At least one alpha/numeric field in the scheduling software shall be used to provide a simple and clear identification of the building, area or feature which is represented by the activity.
- c. Artificial Schedule Constraints: The NAS shall contain no set dates other than those shown in the Contract. The contractor shall review with the Contracting Officer's Representative each proposed set date which the contractor which the contractor proposes to include in the NAS and shall receive explicit approval for each closed date used in the NAS. The use of artificial float constraints such as 'Zero Free Float' or 'Zero Total Float' options are generally prohibited. The use of such features may be considered if fully justified by the contractor

and explicitly approved by the Contracting Officer's Representative prior to its use in the NAS.

d. Other Software Options: If the contractor utilizes a scheduling software system which provides updating options such as 'Retained Logic' and 'Progress Override' the contractor shall use the 'Retained Logic' option for all updates to the NAS.

If the contractor desires to modify the approved NAS logic to correct out of-sequence work, the contractor shall make a request in writing to the Contracting Officer defining the desired modification(s). No unilateral modifications shall be made by the contractor to the approved NAS.

Actual Start and Finish Dates shall not be automatically updated by default mechanisms that may be included in CPM software systems. Actual Start and Finish dates on the CPM schedule shall match those dates provided from the Contractor Quality Control Reports. Failure of the Contractor to document the Actual Start and Finish Dates on the Daily Quality Control Report for every in-progress or completed activity and insure that the data contained on the Daily Quality Control Reports is the sole basis for schedule updating shall result in the disapproval of the Contractor's Schedule and the inability of the Contracting Officer to evaluate Contractor progress for payment purposes.

e. Resources: The contractor shall include in the NAS all major trades and equipment items required to construct the Project. The trades and major equipment items shall be identified by a unique code and the quantity of the resources shall be input into the scheduling software's 'resource' fields. Each Work activity shall have the planned resources identified as described above by specific trade type and/or equipment type. The resource file library and code listing shall be submitted by the contractor with the Initial, Detailed NAS, along with resource usage curves for each, individual resource code, shown by early and late usage as produced by the scheduling software database.

f. Negative Lags: Negative lags shall not be used in the contractor's NAS. If the contractor using PDM scheduling chooses to show-overlapping duration between related activities, start-to-start and finish-to-finish relationships shall be used, with appropriate and justifiable lags. If ADM is used by the contractor, dummies shall have duration of zero.

g. Dangles: The only 'dangling' activities in the network shall be the beginning activity such as 'notice of award' or 'notice to proceed' and the ending activity such as 'contract complete'. A start and/or end 'dangle' is defined as an activity whose start is restrained only by the start date of the project or subproject, and/or whose finish is restrained only by the end date of the overall project or subproject.

h. Anticipated Weather: The contractor's 'holiday' or 'non-work day' file in the scheduling database shall have the anticipated lost weather days as listed herein input as non work days for each month of the calendar. This anticipated weather impact calendar should only be

applied to activities which are subject to weather related delays.

2.1.2.2 Report Formats

The Contractor shall submit a reproducible and two copies of the network diagram at the initial and quarterly updates and three copies of the specified reports at the initial and every monthly update throughout the life of the project. The format of the reports shall contain: Activity Number(s), Activity description, Original Duration, Remaining Duration, Early Start date, Late Start date, Early Finish date, Late Finish date, and Total Float. The three report formats are listed below.

- a. Logic Report: This report shall list all activities sorted according to activity number. Activities shall be printed in ascending order of activity number. Any standard report which lists all activities including restraints in this manner is acceptable. This report shall include the detail information related stated above and shall include and display the preceding and succeeding activities.
- b. Criticality Report: This report shall list all activities sorted in ascending order of total float. Activities which have equal values of total float shall be listed in ascending order of Early Starts.
- c. Cost of Earned Value Report: Cost and/or Earned Value reports shall contain Estimated Earned Value, Percent Complete (based on cost), and Earnings to Date. This report shall compile Contractor's total earned value on the project from the Notice to Proceed until the most recent monthly progress meeting based on agreed progress between the Contractor and the Contracting Officer. Provided that the Contractor has submitted a complete schedule update, this report shall serve as the basis for determining Contractor payment. When the Bidding Schedule includes bid item(s), activities shall be grouped by bid item and then sorted by activity number(s). This report shall subtotal all activities in a bid item and provide a bid item percent complete and then total all bid items to provide a total project percent complete.
- d. Summary Network Diagram: A Summary Bar Chart Network shall be submitted monthly. The summary bar chart shall be limited to 150 activities.

2.2 MONTHLY MEETINGS

A monthly meeting shall be conducted on site attended by the Contractor's project manager and appropriate Contracting Officer's representatives. During this meeting the Contractor shall describe, on an activity by activity basis, all proposed revisions and adjustments to the NAS required to reflect the current status of the project. The Contracting Officer's representative shall approve activity progress, proposed revisions and adjustments, and the use of any optional calculations. The following shall be addressed:

2.2.1 Actual Start and Finish Dates

The actual start and actual finish dates for all activities in progress or

completed as appropriate.

2.2.2 Estimated Remaining Duration

The estimated remaining duration for each activity in progress. Progress calculations must be based on remaining duration for each activity and be in an approved calculation mode. The Estimated Remaining Duration shall not be tie-to the Earned Valve.

2.2.3 Earned Value

The earned value for each activity started but not completed. Payment shall be based on cost of completed activities plus cost to date of in-progress activities.

2.2.4 Logic Changes

All logic changes pertaining to change orders, on which a Notice to Proceed has been issued, Contractor proposed changes in activity sequence or duration, and corrections to schedule logic to avoid out of sequence progress. All logic changes shall be submitted for approval prior to their insertion into the approved NAS.

2.3 UPDATE OF NAS

Following the monthly progress meeting, a complete update of the NAS based on the approved progress, revisions, and adjustments agreed upon at the meeting shall be computed and submitted not later than 5 working days after the meeting. This update shall be subject to approval of the accurate entry of information agreed upon at the meeting. Actual starts and finishes, remaining duration, or percent complete shall not be automatically updated by default dates contained in many CPM scheduling software systems, except that early start for an activity which could start prior to the update. Activities which have posted progress without predecessor activities being completed shall be allowed only on a case by case approval of the Contracting Officer's representative who may require logic changes to correct all such out of sequence progress. No unilateral modifications shall be made to the approved NAS without the explicit approval of the Contracting Officer.

2.4 NARRATIVE REPORT

A narrative report shall be provided with each update of the NAS. This report shall include (1) a description of activities and progress along the four most critical paths, (2) a description of a current and anticipated problem areas or delaying factors and their impact, and (3) an explanation of the corrective actions taken. Only modifications that have been authorized and approved by the Contracting Officer shall be included in the schedule sub-mission. The narrative report shall specifically reference, on an activity by activity basis all changes made since the previous period and relate each change to documented, approved schedule changes. This report, along with the progress update above, shall provide the basis for the Contractor's progress payment request, and the Contractor shall be entitled to progress payments determined from the currently approved NAS

update. If the Contractor fails or refuses to furnish the information and NAS data which, in the sole judgment of the Contracting officer, is necessary for verifying the Contractor's progress, the Contractor shall be deemed not to have provided a progress payment estimate and progress payment will not be made.

2.5 TIME IMPACT "FRAGNET" ANALYSIS

Within twenty calendar days from the notice to proceed of a change, or from the start of the impact of a mutually recognized changed condition, whichever event occurs first, the contractor shall submit a detailed Time Impact 'fragnet' analysis to the Contracting Officer. The Time Impact 'fragnet' will clearly demonstrate all activities associated with the changed condition, including estimated durations, costs, resources and proposed tie-in points of the 'fragnet' into the approved NAS. Should the contractor fail to submit the 'fragnet' analysis within the expired time period as specified above, it shall be mutually agreed between the contractor and the Contracting officer that the changed condition has no time impact. The foregoing shall not be construed to limit the Contracting Officer's authority to issue unilateral modifications to the Contract as provided for herein.

2.6 EXTENSION OF CONTRACT COMPLETION DATE

In the event the Contractor requests an extension of the contract completion date for any other contractual reason, he shall furnish such justification as the Contracting Officer may deem necessary for a determination of the Contractor's right to an extension of time under the provisions of the contract. In such event, the schedule revisions must clearly display that the Contractor has used in full all available float time for the work involved with the request. Actual delays that are found to be caused by the Contractor's own actions or lack of action, and which result in the extension of the projected contract completion date, shall not be cause for extension of the contract completion date. The Contracting Officer may find cause to extend the contract completion date under the contract in the absence of a request by the Contractor when, in the Contracting Officer's judgment, it is equitable.

2.7 EXTENSIONS OF TIME

Total Float is defined as the difference in time between the early start date and the late start date, or the difference between the early finish date and the late finish date. Total Float available in the schedule at any time shall not be considered as for exclusive use by either the Contractor or the Government. Extensions of time for performance of work required under CONTRACT CLAUSES titled, "Changes", "Differing Site Conditions", "Default (Fixed Price Construction)" or "Suspension of Work" will be granted only to the extent that equitable time adjustments for affected activities exceed the total float along their paths.

2.8 DATA DISK

A data disc shall be provided as required by paragraph: Scheduling System Data Exchange Format. The automated scheduling system utilized by the

Contractor shall be capable of providing all requirements of this specification. As many data disk(s) as required in paragraph: Scheduling System Data Exchange Format shall be provided with the Preliminary Schedule, Initial schedule, Monthly Updates, and all NAS revisions or requests for revision.

2.9 SCHEDULING SYSTEM DATA EXCHANGE FORMAT

2.9.1 Application of this Provision

The data exchange format provides a platform for exchanging scheduling and planning data between various software systems. The Data Exchange Format shall allow project management systems to share information with other programs e.g. Resident Management System (RMS). Scheduling information shall be transferred from the contractor's project management system to the Government as described in this section.

2.9.2 Electronic Data Exchange File Required for All Schedule Submissions

2.9.2.1 Schedule Data

The Contractor shall provide schedule data in the Data Exchange Format for each Preliminary, Initial, Monthly NAS Updates, and requests for time extensions or change proposals. The Contractor's failure to provide schedule data in the exact format described herein shall result in disapproval of the entire schedule submission.

2.9.2.2 Transfer of Schedule Data

The entire set of schedule data shall be transferred at every exchange of scheduling data. Thus, for updates to existing projects, the data exchange file shall contain all activities that have not started or are already complete as well as those activities in progress.

2.9.3 Data Transfer Responsibility

The Contractor shall be responsible for Electronic Data Exchange File data that may have been lost or destroyed during transit between the Contractor and the Contracting Officer. If Electronic Data Exchange File data is damaged during transit, then the Contractor shall provide the Contracting Officer with new Electronic Data Exchange File within two (2) working days of notification by the Contracting Officer.

2.9.4 Data Consistency Responsibility

The Contractor shall be responsible for the consistency between the Electronic Data Exchange File and printed reports which accompany schedule submissions. If Electronic Data Exchange File and printed reports which accompany schedule submission differs, in any way, from the printed schedule reports or standard activity coding, then the Contracting Officer shall disapprove the entire schedule submission.

The Contractor shall provide the Contracting Officer with a completely revised, and consistent, schedule submission within 24 hours of

notification of inconsistency by the Contracting Officer.

2.9.5 Creating the Electronic Data Exchange File

The Contractor shall have the option of creating the electronic data exchange file by one of the three following methods.

2.9.5.1 Commercially Available Software

The Contractor shall be required to secure software that meets this requirement. Many commercially available scheduling systems support the standard data exchange format. Under this option the Contractor shall produce his own data translation software. This software shall take the information provided by the Contractor's scheduling system and reformat the data into the Data Exchange Format.

2.9.5.2 Interface Program

Under this option the Contractor shall produce his own data translation software. This software shall take the information provided by the Contractor's scheduling system and reformat the data into the Data Exchange Format.

2.9.5.3 Manual Methods

Under this option the Contractor shall manually reformat his scheduling system report files or create all necessary data by manually entering all data into the Data Exchange Format.

2.9.6 File Transfer Medium

All required data shall be submitted on 3 1/2" diskettes), formatted to hold 1.44 MB of data, under the MS-DOS version 5.0 (or higher) operating system. Higher data densities and other operating systems may be approved by the Contracting Officer if compatible with the Government's computing capability.

2.9.7 File Type and Format

The data file shall consist of a 132 character, fixed format, 'ASCII' file. Text shall be left justified and numbers shall be right justified in each field. Data records must conform, exactly, to the sequence column position, maximum length, mandatory values, and field definitions described below to comply with this standard data exchange format. Unless specifically stated, all numbers shall be whole numbers. All data columns shall be separated by a single blank column.

2.9.8 Electronic Data Exchange File Name

The Contractor shall insure that each file has a name related to either the schedule data date, project name, or contract number. No two Electronic Data Exchange Files shall have the same name through out the life of this contract. The Contractor shall submit his file naming convention to the Contracting Officer for approval. In the event that the Contractor's

naming convention is disapproved, the Contracting Officer shall direct the contract to provide files under a unique file naming convention.

2.9.9 Disk Label

The Contractor shall affix a permanent exterior label to each diskette submitted. The label shall contain the type of schedule (Preliminary Initial, Update, or Change), full project number, project name, project location, data date, name and telephone number of the Contractor's scheduler, and the MS-DOS version used to format the diskette.

2.9.10 Standard Activity Coding Dictionary

The Contractor shall submit, with the initial schedule submission, a consistent coding scheme that shall be used throughout the project for the Activity Codes shown in paragraph: Activity Records of this section. The coding scheme submitted shall demonstrate that each code shall only represent one type of information through the duration of the contract. Incomplete coding of activities or an incomplete coding scheme shall be sufficient for disapproval of the schedule.

2.10 DATA EXCHANGE FILE FORMAT ORGANIZATION

The Data Exchange File Format shall consist of the following records provided in the exact sequence shown below:

Paragraph Record	
Reference Description	Remarks
Volume Record	First Record on Every Data Disk
Project ID Record	Second Record
Calendar Record(s)	Minimum of One Record Required
Holiday Record(s)	Optional Record
Activity Record(s)	Mandatory Record
Precedence Records	Mandatory for Precedence Method
Unit Cost Record(s)	Optional for Unit Cost Projection.
Progress Record(s)	Mandatory for Updates
File End Record	Last Record of Data File

2.10.1 Record Descriptions

2.10.1.1 Volume Record

The Volume Record shall be used to control the transfer of data that may not fit on a single disk. The first record in every disk used to store the data exchange file shall contain the Volume Record. The Volume Record shall sequentially identify the number of the data transfer disk(s). The Volume Record shall have the following format:

Description	Column Position	Max Len.	Required.		
			Value	Type	Just
RECORD IDENTIFIER	1- 4	4	VOLM	Fixed	
DISK NUMBER	6- 7	2	Number		Right

a. The RECORD IDENTIFIER is the first four characters of this record. The required value for this field shall be "VOLM".

b. The DISK NUMBER field shall identify the number of the data disk used to store the data exchange information. If all data may be contained on a single disk, this field shall contain the value of "1". If more disks are required, then the second designated with a "3", and so on. Identification of the last data disk shall not be accomplished with the Volume Record. Identification of the last data disk is accomplished in the PROJECT END RECORD (see paragraph: File End Record).

2.10.1.2 Project ID Record

The Project ID Record is the second record of the file and shall contain project information in the following format:

Description	Column Position	Max. Len.	Required. Value	Type	Just
RECORD IDENTIFIER	1- 4	4	PROJ	Fixed	
DATA DATE	6- 12	7	-	ddmmmyy	See(2)
PROJECT IDENTIFIER	14- 17	4	-	Alpha	Left
PROJECT NAME	19- 66	48	-	Alpha	Left
CONTRACTOR NAME	68-103	36	-	Alpha	Left
ARROW OR PRECEDENCE	105	1	A,P		Fixed
CONTRACT NUMBER	107-112	6	-	Alpha	Left
PROJECT START	114-120	7	-	ddmmmyy	Filled
PROJECT END	122-128	7		ddmmmyy	Filled

a. The RECORD IDENTIFIER is the first four characters of this record. The required value for this field shall be "PROJ". This record shall contain the general project information and indicates which scheduling method shall be used.

b. The DATA DATE is the date of the schedule calculation. The abbreviation "ddmmmyy" refers to a date format that shall translate a date into two numbers for the day, three letters for the month, and two numbers for the year. For example, March 1, 1999 shall be translated into 01MAR99. This same convention for date formats shall be used throughout the entire data format. To insure that dates are translated consistently, the following abbreviations shall be used for the three character month code:

Abbreviation	Month
JAN	January
FEB	February
MAR	March
APR	April
MAY	May
JUN	June
JUL	July

AUG	August
SEP	September
OCT	October
NOV	November
DEC	December

c. The PROJECT IDENTIFIER is the maximum of four-character abbreviation for the schedule. These four characters shall be used to uniquely identify the project and specific update as agreed upon by the Contractor and Contracting Officer. When utilizing scheduling software these four characters shall be used to select the project. Software manufacturers' shall verify that data importing programs do not automatically overwrite other schedules with the same PROJECT IDENTIFIER.

d. The PROJECT NAME field shall contain the name and location of the project edited to fit the space provided. The data appearing here shall appear on scheduling software reports. The abbreviation "Alpha" used throughout paragraph six, RECORD DESCRIPTIONS, refers to an Alphanumeric" field value.

e. The CONTRACTOR NAME field shall contain the Construction Contractor's name edited to fit the space provided.

f. The ARROW OR PRECEDENCE field shall indicate which method shall be used for calculation of the schedule. The value "A" shall signify the Arrow Diagramming Technique. The value "P" shall signify the Precedence Diagramming Technique. The ACTIVITY IDENTIFICATION field of the Activity Record shall be interpreted differently depending on the value of this field (see paragraph 2.10.1.6 b). The Precedence Record shall be required if the value of this field is "P" (see paragraph 2.10.1.6).

g. THE CONTRACT NUMBER field shall directly identify the contract for the project. For example, a complete Government construction contract number, "DACA41-98-C-0001" shall be entered into this field as "980001".

h. The PROJECT START shall contain the date that the project will start or has started. On Government construction projects, this date is the date that the construction contractor acknowledges the Notice to Proceed.

i. The PROJECT END shall contain the data that the contract must complete on or prior to. On Government construction projects, this date is the PROJECT START plus the contract period, typically expressed in a specific number of calendar days.

2.10.1.3 Calendar Record

The Calendar Record(s) shall follow the Project Identifier Record in every data file. A minimum of one Calendar Record shall be required for all data exchange activity files. The format for the Calendar Record shall be as follows:

Description	Column Position	Max Len.	Required. Value	Type	Just.
RECORD IDENTIFIER	1-4	4	CLDR	Fixed	
CALENDAR CODE	6-6	1	-	Alpha.	Filled
WORKDAYS	8-14	7		SMTWTFS	See (3)
CALENDAR DESCRIPTION	16-45	30		Alpha.	Left

a. The RECORD IDENTIFIER shall always begin with "CLDR" to identify it as a Calendar Record. Each Calendar Record used shall have this identification in the first four columns.

b. The CALENDAR CODE shall be used in the activity records to signify that this calendar is associated with the activity.

c. The WORKDAYS field shall contain the work week pattern selected with "Y" for Yes, and "N" for No. The first character shall be Sunday and the last character Saturday. An example of a typical five-(5) day workweek would be NYYYYYN. A seven-(7) day workweek would be YYYYYYY.

d. The CALENDAR DESCRIPTION shall be used to briefly explain the calendar used. optional Holiday Record(s) shall follow the Calendar record(s). The Holiday Record shall be used to designate specific non-work days for a specific Calendar. More than one Holiday Record may be used for a particular calendar. If used, the following format shall be followed:

Description	Column Position	Max. Len.	Required. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	HOLI	Fixed	
CALENDAR CODE	6- 6	1	-	Alpha.	Filled
HOLIDAY DATE	8- 14	7	-	ddmmmyy	Filled
HOLIDAY DATE	16- 22	7	-	ddmmmyy	Filled
HOLIDAY DATE	24- 30	7	-	ddmmmyy	Filled
HOLIDAY DATE	32- 38	7	-	ddmmmyy	Filled
HOLIDAY DATE	40- 46	7	-	ddmmmyy	Filled
HOLIDAY DATE	48- 54	7	-	ddmmmyy	Filled
HOLIDAY DATE	56- 62	7	-	ddmmmyy	Filled
HOLIDAY DATE	64- 70	7	-	ddmmmyy	Filled
HOLIDAY DATE	72- 78	7	-	ddmmmyy	Filled
HOLIDAY DATE	80- 86	7	-	ddmmmyy	Filled
HOLIDAY DATE	88- 94	7	-	ddmmmyy	Filled
HOLIDAY DATE	96- 102	7	-	ddmmmyy	Filled
HOLIDAY DATE	104- 110	7	-	ddmmmyy	Filled
HOLIDAY DATE	112- 118	7	-	ddmmmyy	Filled
HOLIDAY DATE	120- 126	7	-	ddmmmyy	Filled

a. The RECORD IDENTIFIER shall always begin with "HOLI" and shall signify an Optional Holiday Calendar is to be used.

b. The CALENDAR CODE indicates which work week calendar the

holidays shall be applied to. More than one HOLI record may be used for a given CALENDAR CODE.

c. The HOLIDAY DATE is to be used for each date to be designated as a non-work day.

2.10.1.4 Activity Records

Activity Records shall follow any Holiday Record(s). If there are no Holiday Record(s), then the Activity Records shall follow the Calendar Record(s). There shall be one Activity Record for every activity in the network. Each activity shall have one record in the following format:

Description	Column Posit	Max. Len.	Required. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	ACTV	Fixed	
ACTIVITY IDENTIFICATION	6- 15	10			See(2)
ACTIVITY DESCRIPTION	17- 46	30		Alpha.	Left
ACTIVITY DURATION	48- 50	3		Integer	Right
CONSTRAINT DATE	52- 58	7		ddmmmyy	Filled
CONSTRAINT TYPE	60- 61	2			See(7)
CALENDAR CODE	63- 63	1		Alpha.	Filled
HAMMOCK CODE	65- 65	1	Y.	blank	Fixed
WORKERS PER DAY	67- 69	3		Integer	Right
RESPONSIBILITY CODE	71- 74	4		Alpha.	Left
WORK AREA CODE	76- 79	4		Alpha.	Left
MOD OR CLAIM NUMBER	81- 86	6		Alpha.	Left
BID ITEM	88- 93	6		Alpha.	Left
PHASE OF WORK	95- 96	2		Alpha.	Left
CATEGORY OF WORK	98- 98	1		Alpha.	Filled
FEATURE OF WORK	100-129	30		Alpha.	Left

a. The RECORD IDENTIFIER for each activity description record must begin with the four-character "ACTV" code. This field shall be used for both the Arrow Diagram Method (ADM) and Precedence Diagram Method (PDM) (see paragraph: Activity Records).

b. The ACTIVITY IDENTIFICATION consists of coding that differs, depending on whether the ADM or PDM method was selected in the Project Record (see paragraph: Project ID Record). If the ADM method was selected, then the field shall be interpreted as two right justified fields of five (5) integers each. If the PDM method was selected, the field shall be interpreted as one (1) right-justified field of ten (10) integers or alpha/numeric characters. The maximum activity number allowed under this arrangement is 99999 for ADM and 9999999999 for the PDM method.

c. The ACTIVITY DESCRIPTION shall be a maximum of 30 characters. Descriptions must be limited to the space provided.

d. The ACTIVITY DURATION contains the estimated duration for the activity on the schedule. The duration shall be based upon the workweek designated by the activity's related calendar. Reasonable

durations are required to allow progress of activities to be accurately determined between payment periods. A rule of thumb, that the Contractor should use is less than 2 percent of all non-procurement activities Original Durations shall be greater than 22 workdays.

e. The CONSTRAINT DATE field shall be used to identify a date that the scheduling system may use to modify float calculations. If there is a date in this field, then there must be a valid entry in the CONSTRAINT TYPE field. The CONSTRAINT DATE shall be the same as, or later than, the PROJECT START DATE. The CONSTRAINT DATE shall be the same as, or earlier than, the PROJECT END DATE.

f. The CONSTRAINT TYPE field shall be used to identify the way that the scheduling system shall use the CONSTRAINT DATE to modify schedule float calculations. If there is a value in this field, then there must be a valid entry in the CONSTRAINT DATE TYPE. Other types may be available from specific software manufacturers.

Code Definition

ES The CONSTRAINT DATE shall replace an activity's early start date, if the early start date is prior to the CONSTRAINT DATE.

LF The CONSTRAINT DATE shall replace an activity's late finish date, if the late finish date is after the CONSTRAINT DATE.

g. The CALENDAR CODE, as previously explained, relates this activity to an appropriate workweek calendar. The ACTIVITY DURATION must be based on the valid workweek referenced by this CALENDAR CODE field.

h. The HAMMOCK CODE indicates that a particular activity does not have its own independent duration, but takes its start dates from the start date of the preceding activity (or node) and takes its finish dates from the finish dates of its succeeding activity (or node). If the value of the HAMMOCK ACTIVITY field is "Y", then the activity is a HAMMOCK ACTIVITY.

i. The WORKERS PER DAY. This field may contain the average number of workers expected to work on the activity each day the activity is in progress. The total duration times the average number of workers per day shall equal the contractor's estimate of the total man days of work required to perform the activity.

j. The RESPONSIBILITY CODE shall identify the Subcontractor or major trade involved with completing the work for the activity.

k. The WORK AREA CODE shall identify the location of the activity within the project.

l. The MOD OR CLAIM NUMBER CODE shall be used to uniquely identify activities that are changed on a construction contract

modification, or activities that justify any claimed time extensions.

m. The BID ITEM field shall designate the bid item number associated with the activity. The values of all the various activities shall sum to the amount stated in the Contract Bid Item Schedule.

n. The PHASE OF CONSTRUCTION shall designate the phase to which an activity is connected. This field shall be used for submittals, procurement, fabrication, site work or building or areas within a building, etc.

o. The CATEGORY OF WORK shall be from the following list:

CODE	DESCRIPTION
A	Architectural
C	Civil
E	Electrical
F	Fire Extinguish
H	Hazardous/Toxic
M	Mechanical
P	Plumbing
R	Roofing
S	Structural
T	Safety
X	Administrative

p. The FEATURE OF WORK shall match those in the Resident Management System that is to be used on this project. See the attached RMS data sheets listing some examples of the features of work at the end of this Section.

2.10.1.5 Precedent Record

The Precedence Record(s) shall follow the Activity Records if a Precedence Type Schedule (PDM) is identified in the ARROW OR PRECEDENCE field of the Project Record (see paragraph: Project ID Record). The Precedence Record has the following format:

Description	Column Position	Max. Len.	Required. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	PRED		Fixed
ACTIVITY IDENTIFICATION	6- 15	10	-	Integer	See (2)
PRECEDING ACTIVITY	17- 26	10	-	Integer	
PREDECESSOR TYPE	28- 28	1	S,F,C		Filled
LAG DURATION	30- 33	4	-	Integer	Right

a. The RECORD IDENTIFIER shall begin with the four characters "PRED" in the first four columns of the record.

b. The ACTIVITY IDENTIFICATION identifies the activity whose

predecessor shall be specified in this record. Refer to the Activity Record for further explanation on this field (see paragraph 2.10.1.4b).

c. The PREDECESSOR ACTIVITY number is the number of an activity that precedes the activity noted in the ACTIVITY IDENTIFICATION field.

d. The PREDECESSOR TYPE field indicates the type of relationship that exists between the chosen pair of activities. The PREDECESSOR TYPE field must, as minimum, contain one of the codes listed below. Other types of activity relations may be supported from specific software vendors.

Code	Definition
S	Start-to-Start relationship
F	Finish-to-Finish relationship
C	Finish-to-Start relationship

e. The LAG DURATION field contains the number of days delay between the preceding and current activity.

2.10.1.6 Unit Cost Record

The Unit Cost Record shall follow all Precedence Records. If the schedule utilizes the Arrow Diagram Method, then the Unit Cost Record shall follow any Activity Records. The fields for this record shall take the following format:

Description	Column Position	Max. Len.	Required. Value	Type	Just.
RECORD IDENTIFIER	1-4	4	UNIT		Fixed
ACTIVITY IDENTIFICATION	6-15	10	-	Integer	See (2)
TOTAL QTY	17-29	13	-	8.4	Right
COST PER UNIT	31-43	13	-	8.4	Right
QTY TO DATE	45-57	13	-	8.4	Right
UNIT OF MEASURE	59-61	3	-	Alpha.	Left

a. The RECORD IDENTIFIER shall be identified with the four characters "UNIT" placed in the first four columns of the record.

b. The ACTIVITY IDENTIFICATION for each activity shall match the format described in the activity record (see paragraph 2.10.4b.).

c. The TOTAL QTY is the total amount of this type of material to be used in this activity. This number consists of eight digits, one decimal point, and four more digits. An example of a number in this format is "111111111.1111". If decimal places are not needed, this field shall still contain a ".0000" in columns 25, 26, 27, 28, and 29.

d. The COST PER UNIT is the cost, in dollars and cents, for each

unit to be used in this activity. This number consists of eight digits, one decimal point, and four more digits. An example of a number in this format is "11111111.1111". If decimal places are not needed, this field shall still contain an ".0000" in columns 38, 39, 40, 41, and 42.

e. The QTY TO DATE is the quantity of material installed in this activity up to the data date. This number consists of eight digits, one decimal point, and four more digits. An example of a number in this format is "11111111.1111". If decimal places are not needed, this field shall still contain a ".0000" in columns 53, 54, 55, 56, and 57.

f. The UNIT OF MEASURE is an abbreviation that may be used to describe the units being measured for this activity.

2.10.1.7 Progress Record

Progress Record(s) shall follow all Unit Cost Record(s). If there are no Unit Cost Record(s), then the Progress Record(s) shall follow all Precedence Records. If the schedule utilizes the Arrow Diagram Method, then the Progress Record shall follow any Activity Records. One Record shall exist for each activity in-progress or completed. The fields for this Record shall take the following format:

Description	Column Position	Max. Len.	Required. Value	Type	Just.
RECORD IDENTIFIER	1- 4	4	PROG		Fixed
ACTIVITY IDENTIFICATION	6- 15	10	-	Integer	See(2)
ACTUAL START DATE	17- 23	7	-	ddmmyy	Full
ACTUAL FINISH DATE	25- 31	7	-	ddmmyy	Full
REMAINING DURATION	33- 35	3	-	Integer	Right
ACTIVITY COST	37- 48	12	-	9.2	Right
COST TO DATE	50- 61	12	-	9.2	Right
STORED MATERIAL	63- 74	12	-	9.2	Right
EARLY START DATE	75- 82	7	-	ddmmyy	
EARLY FINISH DATE	84- 90	7	-	ddmmyy	
LATE START DATE	92- 98	7	-	ddmmyy	
LATE FINISH DATE	100-106	7	-	ddmmyy	
FLOAT SIGN	108-108	1	+,-		Fixed
TOTAL FLOAT	110-112	3	-	Integer	Right

a. The RECORD IDENTIFIER shall begin with the four characters "PROG" in the first four columns of the record.

b. The ACTIVITY IDENTIFICATION for each activity for which progress has been posted, shall match the format described in the Activity Record (see paragraph 2.10.4b.).

c. The ACTUAL START DATE is required for all in-progress activities. The ACTUAL START DATE shall be the same as, or later than, the PROJECT START DATE contained in the Project Record (see paragraph 2.10.2h.). The ACTUAL START DATE shall also be the same

as, or prior to, the DATA DATE contained in the Project Record.

d. An ACTUAL FINISH DATE is required for all completed activities. If the REMAINING DURATION of an activity is zero, then there must be an ACTUAL FINISH DATE. The ACTUAL FINISH DATE must be the same as, or later than the PROJECT START date contained in the Project Record. (See paragraph 2.10.2h.). The ACTUAL FINISH DATE must also be the same as, or prior to the DATA DATE contained in the Project Record.

e. REMAINING DURATION is required for all in-progress activities. Activities completed, based on time, shall have a zero (0) REMAINING DURATION.

f. Cost Progress is contained in the field COST TO DATE. If there is an ACTUAL START DATE, then there must also be some value for COST TO DATE. The COST TO DATE shall not be tied to REMAINING DURATION. For example, if the REMAINING DURATION IS "0", the COST TO DATE may only be 95% of the ACTIVITY COST. This difference may be used to reflect 5% retainage for punch list items.

2.10.1.8 File End Record

The File End Record shall be used to identify that the data file is completed. This record shall be the last record of the entire data file. The File End Record shall have the following format:

Description	Column Position	Max Len.	Required. Value	Type	Just.
RECORD IDENTIFIER	1- 33		END		Fixed

a. The RECORD IDENTIFIER for the File End Record shall be "End". No data contained in the data exchange file that occurs after this record is found shall be used.

PART 3 EXECUTION

3.1 TRANSFER OF SCHEDULE DATA INTO RESIDENT MANAGEMENT SYSTEM

The Contractor shall also be responsible for the downloading and uploading of the schedule data into the Resident Management System (RMS) that will be used onto the subject Contract prior to the RMS databases being transferred to the Government as part of the monthly and final payment requests.

3.2 FEATURES OF WORK LISTINGS FOR RMS

The following Features of Work are to be typed as shown into the schedule as it applies to the project. The Feature of Work may have to be broken down as required in the software package selected to be used for obtaining the one 30 character field for the SDEF data exchange.

A/C SYSTEM, UNITARY TYPE

ACCESS FLOORING SYSTEM
ACOUSTICAL TREATMENT, CEILINGS
ADMINISTRATION & MOBILIZATION
ARCH FURNISHINGS, INT/EXT
ASBESTOS ABATEMENT
ASPHALT PAVING
BUILDER'S HARDWARE
BUILDING INSULATION-RIGID/BATT
CAISSONS & PILING
CARPENTRY - FINISH
CARPENTRY - ROUGH
CASEWORK
CAULKING & SEALANTS
CENTRAL REFRIGERATION SYSTEM
ACOUSTICAL TREATMENT, WALLS
COMMUNICATION SYSTEM, PREWIRE
CONCRETE CURBS, GUTTERS, S/W
CONCRETE, CAST-IN-PLACE
CONTAMINATED DEBRIS REMOVAL
CONTRACT MODIFICATIONS, ADMIN
DAMPROOFING / WATERPROOFING
DEMOLITION
DEMOUNTABLE PARTITIONS
DIESEL GENERATORS
DOORS - ACCORDIAN & PARTITION
DOORS - HOLLOW METAL & FRAMES
DOORS - REVOLVING
DOORS - SLIDING ALUMINUM
DOORS - VAULT, SECURITY
DOORS - WOOD & FRAMES
DRYWALL
EARTHWORK - AGG BASE COURSE
EARTHWORK - BORROW AND FILL
EARTHWORK - EXCAVATION
EARTHWORK - GRADING
EARTHWORK - RIPRAP
ELECTRICAL, A.T.S. & BP/ISO SW
ELECTRICAL, AERIAL
ELECTRICAL, HAZARDOUS AREAS
ELECTRICAL, INT PNLBDS & SWGR
ELECTRICAL, INTERIOR - FINISH
ELECTRICAL, INTERIOR - LT FIXT
ELECTRICAL, INTERIOR - ROUGH
ELECTRICAL, LIGHTNING PROTECTN
ELECTRICAL, PRIMRY SWGR & DIST
ELECTRICAL, UNDERGROUND
ELEVATOR SYSTEM
ENERGY MONITORING CNTRL SYSTEM
ENVIRONMENTAL PROTECTION
EVAPORATIVE COOLING SYSTEM
EXTERIOR CEMENT BOARD SYSTEM
FENCING & GATES
FINAL INSPECTION
FIRE DETECTION & ALARM SYSTEMS

FIRE SPRINKLER SYS, UNDERGRND
FIRE SPRINKLER SYS, INTERIOR
FIREPROOFING
FLOOR COVERING, CARPET
FLOOR COVERING, RESILIENT
FOOD SERVICE EQUIPMENT
FORMWORK, STRUCTURAL CONCRETE
FUEL OIL SYSTEMS
GAS PIPING SYSTEM, INTERIOR
GLASS & GLAZING
HEATING SYSTEM, HOT AIR & STM
HOT WATER HEATING SYSTEM
HTW LIQUID DISPOSAL
HTW LIQUID REMOVAL
HTW LIQUID TRANSPORTATION
HTW LIQUID TREATMENT
HTW SOIL DISPOSAL
HTW SOIL TRANSPORTATION
HTW SOIL TREATMENT
HTW SOIL REMOVAL
HVAC CONTROL SYSTEMS
HVAC DUCTWORK SYSTEM
HVAC SYSTEMS
INSTRUMENTATION
IRRIGATION SYSTEM
LABORATORY EQUIPMENT
LANDSCAPING
LATH AND PLASTERING
LATH AND STUCCO
MASONRY
METAL DECKING
METAL FRAMING
METAL STUDS
MISC METALS-CANPS, SCUT, EXP JTS
OIL/WATER SEPARATOR
PAINTING, SEALERS AND STAINS
PAVING, RIGID
PLUMBING, INTERIOR - ROUGH
PLUMBING, INTERIOR - TRIM
POL/WASTE OIL TANK
PRECAST ARCHITECTURAL CONCRETE
RADIO & PUBLIC ADDRESS SYSTEM
ROLLUP/COILING, SHTRS/DRS/GRLS
ROOFING, BUILT-UP
ROOFING, METAL
SALVAGE
SEISMIC PROT FOR MECH & ELECT
SHEETMETAL WORK, ARCHITECTURAL
SIGNAGE, EXTERIOR
SIGNAGE, INTERIOR
SOIL REMEDIATION
SOIL TREATMENT
STEEL JOISTS
STRUCTURAL STEEL

SYSTEMS FURNITURE
TANK REMOVAL, ABOVE-GROUND
TANK REMOVAL, UNDERGROUND
TELEPHONE SYSTEM, EXTERIOR
TELEPHONE SYSTEM, INTERIOR
TEST AND BALANCE, AIR & WATER
THERMAL INSULATION, MECH SYS
THERMAL INSULATION, PIPING SYS
TILE, CERAMIC
TILE, QUARRY
TILE, TERRAZZO
TOILET PARTITIONS/ACCESSORIES
U.G. SITE - GAS
U.G. SITE - SEWER
U.G. SITE - STORM
U.G. SITE - WATER
WALL COVERINGS
WATER TREATMENT EQUIP & SYSTEM
WELLS, EXTRACTION
WELLS, MONITORING
WELLS, WATER
WINDOW WALLS AND DOORS
WINDOWS
WINDOW COVERINGS
X-RAY SHIELDING
FIRESTOPPING
EARTHWORK - CLEARING & GRUBBNG
HOISTS AND CRANES
U.G. SITE - MECHANICAL
LEAD ABATEMENT
PLAYGROUND SAFETY SURFACING
PLAYGROUND EQUIPMENT
FOUNDATION PREPARATION
EXCAVATION (UTILITIES)
EARTHWORK-EXCAVATION TRENCHING
EXT/INT STEEL STUDS & DRYWALL

-- End of Section --

SECTION 01330
SUBMITTAL PROCEDURES
(DESIGN/BUILD)

PART 1 – GENERAL

1.1 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.1.1 Design Submittals

Administrative Contracting Officer review is required for all design. The Government will review all 50% and 95% design submittals for conformance with the technical requirement of the solicitation. Section 01012, Design After Award, covers the design submittal and review process in detail.

1.1.2 Construction Submittals

1.1.2.1 Submittal Definitions

The Submittals described below are those required and further described in other sections of the specifications. Submittals required by the CONTRACT CLAUSES and other non-technical parts of the contract are not included in this section.

SD-01 Data

Work to be Performed by Contractor

Submittal Registers

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

SD-04 Drawings

Submittals which graphically show the relationship of various components of the work, schematic diagrams of systems, details of fabrication, layouts of particular elements, connections, and other relational aspects of the work.

As-Built Drawings

Equipment Layout Drawings

SD-06 Instructions

Contract Clause referred to above.

1.2 GOVERNMENT REVIEWED OR ‘APPROVED’ SUBMITTALS

The Contracting Officer’s Representative conformance review or approval of submittals shall not be construed as a complete check, but will indicate only that the design, general method of construction, materials, detailing and other information appear to meet the Solicitation and Accepted Proposal. Government Review or approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor, under the Design and CQC requirements of this contract, is responsible for design, dimensions, all design extensions, such as the design of adequate connections and details, etc., and the satisfactory construction of all work. After submittals have been reviewed for conformance or approved, as applicable, by the Contracting Officers’ Representative, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.3 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer’s Representative, obtain the Designer of Record’s approval, when applicable, and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. Any “information only” submittal found to contain errors or unapproved deviations from the Solicitation or Accepted Proposal shall be resubmitted as one requiring “approval” action, requiring both Design of Record and Government approval. If the Contractor considers any correction indicated by the Government on the submittals to constitute a change to the contract, it shall promptly provide a notice in accordance with the Contract Clause “Changes” to the Contracting Officer’s Representative.

1.4 WITHHOLDING OF PAYMENT

No payment for materials incorporated in the work will be made if all required Design of Record or required Government approvals have not been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

PART 2 – PRODUCTS

2.1 DESIGN SUBMITTALS

The Contractor shall design submittals in accordance with Section 01012 entitled “DESIGN AFTER AWARD”.

2.2 CONSTRUCTION SUBMITTALS

2.2.1 General

The Contractor shall make submittals as required by the specifications. The Contracting Officer’s Representative may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, the

Contractor's Quality Control (CQC) representative, and the Designer of Record, as applicable above, shall check, approve and stamp, sign and date each item, indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with the manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

2.2.2. Submittal Register (ENG Form 4288)

The Contractor's Designer(s) of Record shall develop a complete list of submittals during design. The Designer of Record shall identify required submittals in the specifications. Use the list to prepare ENG Form 4288 Submittal Register or a computerized equivalent. The list may not be all inclusive and additional submittals may be required by other parts of the contract. The Contractor is required to complete ENG Form 4288 (including columns "a" through "r") and submit to the Contracting Officer for approval within 30 calendar days after Notice to Proceed. The approved submittal register will serve as a scheduling document for submittals and will be used to control submittal actions throughout the contract period. The submit dates and need dates used in the submittal register shall be coordinated with dates in the Contractor prepared progress schedule. Updates to the submittal register showing the Contractor action codes and actual dates with Government action codes and actual dates shall be submitted monthly or until all submittals have been satisfactorily completed. When the progress schedule is revised, the submittal register shall also be revised and both submitted for approval.

2.2.3 Scheduling

Schedule those submittals covering component items forming a system or items that are interrelated to be coordinated and submitted concurrently. Also, schedule Certifications to be submitted with the pertinent drawings. Allow adequate time (a minimum of 30 calendar days exclusive of mailing time) and indicate on the register for Government review or approval. No delay damages or time extensions will be allowed for time lost in late submittals.

2.2.4 Transmittal Form (ENG Form 4025)

Transmittal form (ENG Form 4025) shall be for transmitting both Government approved and information only submittals in accordance with the instructions on the reverse of the form. The Government will furnish blank forms to the Contractor. Properly complete this form by filling out all the heading blank spaces and identifying each item submitted. Exercise special care to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

2.2.5 Submittal Procedure

Make submittals as follows:

2.2.5.1 Procedures

The Government will further discuss detailed submittal procedures with the Contractor at the pre-construction conference.

2.2.5.2 Deviations

On submittals for which the Contractor requests proposed deviations, check the column "variation" of ENG Form 4025. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. As stated above, the Contractor's Designer of Record's approval is required for any proposed deviation. The Government reserves the right to rescind approval of submittals containing unnoted deviations.

2.2.6 Control of Submittals

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register" so the material needed date is not threatened.

2.2.7 Government Conformance Review and Approved Submittals

Upon completion of review of submittals requiring Government approval, the Government will identify the submittals as having received approval by so stamping and dating. The Contracting Officer's Representative will retain 2 copies of the submittal and return 3 copies of the submittal to the Contractor. If the Government performs a conformance review of other Designer of Record approved submittals, the submittals will be identified and returned, as described above.

2.2.8 Information Only Submittals

Normally the Government will not return submittals for information only. No action of the Contracting Officer's Representative is required on information only submittals. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer's Representative from requiring removal and replacement of nonconforming material incorporated in the work; and does not relive the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe. The Government will retain 2 copies of information only submittals.

2.2.9 Stamps

Stamps used by the Contractor's Designer of Record and the Contractor's designed Quality Control person on the submittal data to certify that the submittal meets contract requirements shall be similar to the following (use two stamps for submittals reviewed by both):

CONTRACTOR
(Firm Name)

_____ Approved.

_____ Approved with corrections as noted on
submittal data and/or attached sheet(s).

SIGNATURE: _____

TITLE: (DESIGNER OF RECORD)

DATE: _____

SECTION 01451

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(1999b) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(1998a) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable

to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2 QUALITY CONTROL PLAN

The Contractor shall furnish for review by the Government, not later than 20 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)

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

3.2.2 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.3 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, show drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, or a graduate of construction management, with a minimum of 2 years road and bridge construction experience or a construction person with a minimum of 8 years in road and bridge construction. This CQC System Manager shall be on site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. The CQC System Manager's direct supervisor shall not be the Contractor's Project Manager, Project Superintendent, or any other onsite contractor personnel. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager for the following areas listed in the Experience Matrix below. These individuals shall be directly employed by the prime Contractor and may not be employed by a supplier or sub-contractor on this project; be responsible to the CQC System Manager; be physically present at the construction site during work on the area of responsibility; and have the necessary education and/or experience in accordance with the experience matrix listed herein.

Experience Matrix

Area	Qualifications
Concrete, Pavements, and Soils	Materials Technician with 5 years experience for the appropriate area
Environmental	Graduate Environmental Engineer with 3 yrs experience
Bridge	5 years experience in bridge construction
RMS Data Entry	2 years computer data entry, knowledge of RMS

3.4.4 Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". If the Contractor needs this training, it will be provided by Government personnel after award of a contract.

3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the

Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.

- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 48 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of \$3,500 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of

Engineers Division Laboratory, f.o.b., at the following address:

For delivery by mail:

USACE Research and Development Center
ATTN: Joe Tom, CEERD-SC-E
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

For other deliveries: Same as above.

Coordination for each specific test, exact delivery location, and dates will be made through the Area Office.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

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

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

3.8.2 Pre-Final Inspection

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

3.8.3 Final Acceptance Inspection

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

least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

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

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

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

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

3.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES

1.1 BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.1.1 Bulletin Board

Immediately upon beginning of work, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Contracting Officer. The bulletin board shall be located at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer. Legible copies of the aforementioned data shall be displayed until work is completed. Upon completion of work the bulletin board shall be removed by and remain the property of the Contractor.

1.1.2 Project and Safety Signs

The requirements for the signs, their content, and location shall be as shown on the drawings. The signs shall be erected within 15 days after receipt of the notice to proceed. The data required by the safety sign shall be corrected daily, with light colored metallic or non-metallic numerals. Upon completion of the project, the signs shall be removed from the site.

1.2 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

1.2.1 Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Haul

roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads shall be removed at the Contractor's expense.

1.2.2 Barricades

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

1.3 CONTRACTOR'S TEMPORARY FACILITIES

1.3.1 Administrative Field Offices

The Contractor shall provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

1.3.2 Storage Area

If the trailer and storage area are located at the east end of the project visible from Indiana Avenue, the contractor shall construct a temporary 6 foot high chain link fence around trailers and materials. The fence shall include plastic strip inserts, colored brown, so that the visibility through the fence is obstructed. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Trailers, materials, or equipment shall not be placed or stored outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Contracting Officer away from the vicinity of the construction site but within the military boundaries. Trailers, equipment, or materials shall not be open to the public view with the exception of those items which are in support of ongoing work on any given day. Materials shall not be stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment, shall be parked within the fenced area at the end of each work day.

1.3.3 Supplemental Storage Area

Upon Contractor's request, the Contracting Officer will designate another or supplemental area for the Contractor's use and storage of trailers,

equipment, and materials. This area may not be in close proximity of the construction site but shall be within the military boundaries. Fencing of materials or equipment will not be required at this site; however, the Contractor shall be responsible for cleanliness and orderliness of the area used and for the security of any material or equipment stored in this area. Utilities will not be provided to this area by the Government.

1.3.4 Appearance of Trailers

Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on the military property.

1.3.5 Maintenance of Storage Area

Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas which are not established roadways, such areas shall be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways; gravel gradation shall be at the Contractor's discretion. Grass located within the boundaries of the construction site shall be mowed for the duration of the project. Grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers shall be edged or trimmed neatly.

1.3.6 New Building

Any new building erected for a temporary field office shall be maintained by the Contractor during the life of the contract and upon completion and acceptance of the work shall become the property of the Contractor and shall be removed from the site.

1.3.7 Security Provisions

Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security of its own equipment; in addition, the Contractor shall notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

1.4 ACCOMMODATIONS FOR GOVERNMENT INSPECTORS

The Contractor shall furnish a temporary office facility with a minimum of 600 square feet of floor space. It shall be located where directed and shall be reserved for Government personnel only. Drinking water facilities, adequate lighting, local commercial telephone service, air conditioning, heating equipment, and a toilet room with water closet, hot and cold water in the lavatory with sewage facilities shall be furnished and maintained by the Contractor. The office shall be furnished with two legal size filing cabinets with four drawers, one drafting table with stool, one plan rack, two desks with desk chairs, one eight foot work

table, and eight chairs. Used furniture, in good condition, will be acceptable. Entrance doors shall be equipped with a substantial lock. The Contractor shall provide janitor service, fuel for the heating facilities, electricity, telephone and water, all at no cost to the Government, except the Contractor will not be liable for Government long-distance calls. **The telephone shall consist of separate voice, fax and data lines. Depending on the location of the temporary office location, the data line may be connected to the Fort Leonard Wood data system with all required connection equipment furnished by the contractor (e.g. of (2) Two Pairgain CAMPUS-RS-Desktop units).** In the event the temporary location is not in an area accessible to the Fort Leonard Wood system, the contractor will furnish the equipment required for that data access. The entire facility, including furniture, will remain the property of the Contractor and shall be removed from the site after completion of the contract.

1.5 PLANT COMMUNICATION

Whenever the Contractor has the individual elements of its plant so located that operation by normal voice between these elements is not satisfactory, the Contractor shall install a satisfactory means of communication, such as telephone or other suitable devices. The devices shall be made available for use by Government personnel.

1.6 CLEANUP

Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away on a daily basis. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material when not in trailers, whether new or salvaged, shall be neatly stacked when stored.

1.7 RESTORATION OF STORAGE AREA

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

-- End of Section --

SECTION 01780A

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

As-Built Drawings; GA-RE.

Drawings showing final as-built conditions of the project. The final CADD as-built drawings shall consist of one set of electronic CADD drawing files in the specified format, one set of mylar drawings, 2 sets of blue-line prints of the mylars, and one set of the approved working as-built drawings.

SD-03 Product Data

As-Built Record of Equipment and Materials; GA-RE.

Two copies of the record listing the as-built materials and equipment incorporated into the construction of the project.

Warranty Management Plan; GA-RE.

One set of the warranty management plan containing information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. The Contractor shall furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

Warranty Tags; GA-RE.

Two record copies of the warranty tags showing the layout and design.

Final Cleaning; GA-RE.

Two copies of the listing of completed final clean-up items.

1.2 PROJECT RECORD DOCUMENTS

1.2.1 As-Built Drawings

This paragraph covers as-built drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working as-built drawings" and "final as-built drawings" refer to contract drawings which are revised to be used for final as-built drawings.

1.2.1.1 Government Furnished Materials

One set of electronic CADD files in the specified software and format revised to reflect all bid amendments will be provided by the Government at the preconstruction conference for projects requiring CADD file as-built drawings.

1.2.1.2 Working As-Built and Final As-Built Drawings

The Contractor shall revise 3 sets of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. These working as-built marked drawings shall be kept current on a weekly basis and at least one set shall be available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes.

Final as-built drawings shall be prepared after the completion of each definable feature of work as listed in the Contractor Quality Control Plan (Foundations, Utilities, Structural Steel, etc., as appropriate for the project). The working as-built marked prints and final as-built drawings will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working and final as-built drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the as-built drawings. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of updated drawings. The working and final as-built drawings shall show, but shall not be limited to, the following information:

a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the as-built drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Valves, splice boxes and similar appurtenances shall be located by dimensioning along the utility run from a reference point. The average depth below the surface of each run shall also be recorded.

b. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

c. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the

Contractor; including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

d. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

e. Changes or modifications which result from the final inspection.

f. Where contract drawings or specifications present options, only the option selected for construction shall be shown on the final as-built prints.

g. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, the Contractor shall furnish a contour map of the final borrow pit/spoil area elevations.

h. Modifications (change order price shall include the Contractor's cost to change working and final as-built drawings to reflect modifications) and compliance with the following procedures.

- (1) Directions in the modification for posting descriptive changes shall be followed.
- (2) A Modification Circle shall be placed at the location of each deletion.
- (3) For new details or sections which are added to a drawing, a Modification Circle shall be placed by the detail or section title.
- (4) For minor changes, a Modification Circle shall be placed by the area changed on the drawing (each location).
- (5) For major changes to a drawing, a Modification Circle shall be placed by the title of the affected plan, section, or detail at each location.
- (6) For changes to schedules or drawings, a Modification Circle shall be placed either by the schedule heading or by the change in the schedule.
- (7) The Modification Circle size shall be 1/2 inch diameter unless the area where the circle is to be placed is crowded. Smaller size circle shall be used for crowded areas.

1.2.1.3 Drawing Preparation

The as-built drawings shall be modified as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working as-built prints, and adding such additional drawings as may be necessary. These working as-built marked prints shall be neat, legible and accurate. These drawings are part of the permanent records of this project and shall be returned to the Contracting Officer after approval by the Government. Any drawings

damaged or lost by the Contractor shall be satisfactorily replaced by the Contractor at no expense to the Government.

1.2.1.4 Computer Aided Design and Drafting (CADD) Drawings

Only personnel proficient in the preparation of CADD drawings shall be employed to modify the contract drawings or prepare additional new drawings. Additions and corrections to the contract drawings shall be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols shall be the same as the original line colors, line weights, lettering, layering conventions, and symbols. If additional drawings are required, they shall be prepared using the specified electronic file format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final as-built drawings shall be identical to that used on the contract drawings. Additions and corrections to the contract drawings shall be accomplished using CADD files. The Contractor shall be responsible for providing all program files and hardware necessary to prepare final as-built drawings. The Contracting Officer will review final as-built drawings for accuracy and the Contractor shall make required corrections, changes, additions, and deletions.

a. CADD colors shall be the "base" colors of red, green, and blue. Color code for changes shall be as follows:

(1) Deletions (red) - Deleted graphic items (lines) shall be colored red with red lettering in notes and leaders.

(2) Additions (Green) - Added items shall be drawn in green with green lettering in notes and leaders.

(3) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes shall be in blue.

b. The Contract Drawing files shall be renamed in a manner related to the contract number (i.e., 98-C-10.DGN) as instructed in the Pre-Construction conference. Marked-up changes shall be made only to those renamed files. All changes shall be made on the layer/level as the original item. There shall be no deletions of existing lines; existing lines shall be over struck in red. Additions shall be in green with line weights the same as the drawing. Special notes shall be in blue on layer #63.

c. When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the Contractor in letters at least 3/16 inch high. All other contract drawings shall be marked either "AS-Built" drawing denoting no revisions on the sheet or "Revised As-Built" denoting one or more revisions. Original contract drawings shall be dated in the revision block.

d. Within 20 days for contracts \$5 million and above after Government approval of all of the working as-built drawings for a phase of work, the Contractor shall prepare the final CADD as-built drawings for that phase of

work and submit two sets of blue-lined prints of these drawings for Government review and approval. The Government will promptly return one set of prints annotated with any necessary corrections. Within 10 days for contracts \$5 million and above the Contractor shall revise the CADD files accordingly at no additional cost and submit one set of final prints for the completed phase of work to the Government. Within 20 days for contracts \$5 million and above of substantial completion of all phases of work, the Contractor shall submit the final as-built drawing package for the entire project. The submittal shall consist of one set of electronic files on compact disc, read-only memory (CD-ROM), one set of 3 mil, digital, eraseable 24-inch by 36-inch mylars, two sets of blue-line prints and one set of the approved working as-built drawings. They shall be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any transactions or adjustments necessary to accomplish this is the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CADD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final as-built drawing files and marked prints as specified shall be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final as-built drawings shall be accomplished before final payment is made to the Contractor.

1.2.1.5 Payment

No separate payment will be made for as-built drawings required under this contract, and all costs accrued in connection with such drawings shall be considered a subsidiary obligation of the Contractor.

1.2.2 As-Built Record of Equipment and Materials

The Contractor shall furnish one copy of preliminary record of equipment and materials used on the project 15 days prior to final inspection. This preliminary submittal will be reviewed and returned 2 days after final inspection with Government comments. Two sets of final record of equipment and materials shall be submitted 10 days after final inspection. The designations shall be keyed to the related area depicted on the contract drawings. The record shall list the following data:

RECORD OF DESIGNATED EQUIPMENT AND MATERIALS DATA

Description	Specification Section	Manufacturer and Catalog, Model, and Serial Number	Composition and Size	Where Used
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1.2.3 Final Approved Shop Drawings

The Contractor shall furnish final approved project shop drawings 30 days after transfer of the completed facility.

1.2.4 Construction Contract Specifications

The Contractor shall furnish final as-built construction contract specifications, including modifications thereto, 30 days after transfer of the completed facility.

1.2.5 Real Property Equipment

The Contractor shall furnish a list of installed equipment furnished under this contract. The list shall include all information usually listed on manufacturer's name plate. The "EQUIPMENT-IN-PLACE LIST" shall include, as applicable, the following for each piece of equipment installed: description of item, location, model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty. A draft list shall be furnished at time of transfer. The final list shall be furnished 30 days after transfer of the completed facility.

1.3 WARRANTY MANAGEMENT

1.3.1 Warranty Management Plan

The Contractor shall develop a warranty management plan which shall contain information relevant to the clause Warranty of Construction in Section 00800.

At least 30 days before the planned pre-warranty conference, the Contractor shall submit the warranty management plan for Government approval. The warranty management plan shall include all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan shall be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below shall include due date and whether item has been submitted or was accomplished. Warranty information made available during the construction phase shall be submitted to the Contracting Officer for approval prior to each monthly pay estimate. Approved information shall be assembled in a binder and shall be turned over to the Government upon acceptance of the work. The construction warranty period shall begin on the date of project acceptance and shall continue for the full product warranty period. A joint 4 month and 9 month warranty inspection shall be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and the Customer Representative. Information contained in the warranty management plan shall include, but shall not be limited to, the following:

a. Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subcontractors, manufacturers or suppliers involved.

b. Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include signals, controllers and transformers.

c. A list for each warranted equipment, item, feature of construction or system indicating:

1. Name of item.

2. Model and serial numbers.
3. Location where installed.
4. Name and phone numbers of manufacturers or suppliers.
5. Names, addresses and telephone numbers of sources of spare parts.
6. Warranties and terms of warranty. This shall include one-year overall warranty of construction. Items which have extended warranties shall be indicated with separate warranty expiration dates.
7. Cross-reference to warranty certificates as applicable.
8. Starting point and duration of warranty period.
9. Summary of maintenance procedures required to continue the warranty in force.
10. Cross-reference to specific pertinent Operation and Maintenance manuals.
11. Organization, names and phone numbers of persons to call for warranty service.
12. Typical response time and repair time expected for various warranted equipment.

d. The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.

e. Procedure and status of tagging of all equipment covered by extended warranties.

f. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

1.3.2 Performance Bond

The Contractor's Performance Bond [shall remain effective throughout the construction period and through the one year project warranty period.

a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.

c. Following oral or written notification of required construction warranty repair work, the Contractor shall respond in a timely manner. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Contracting Officer to proceed against the Contractor.

1.3.3 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Contracting Officer, the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section. Communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty shall be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor shall furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warranted construction, shall be continuously available, and shall be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

1.3.4 Contractor's Response to Construction Warranty Service Requirements

Following oral or written notification by the Contracting Officer, the Contractor shall respond to construction warranty service requirements in accordance with the "Construction Warranty Service Priority List" and the three categories of priorities listed below. The Contractor shall submit a report on any warranty item that has been repaired during the warranty period. The report shall include the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframes specified, the Government will perform the work and backcharge the construction warranty payment item established.

a. First Priority Code 1. Perform onsite inspection to evaluate situation, and determine course of action within 4 hours, initiate work within 6 hours and work continuously to completion or relief.

b. Second Priority Code 2. Perform onsite inspection to evaluate situation, and determine course of action within 8 hours, initiate work within 24 hours and work continuously to completion or relief.

c. Third Priority Code 3. All other work to be initiated within 3 work days and work continuously to completion or relief.

d. The "Construction Warranty Service Priority List" is as follows:

Code 1-Electrical

(1) Traffic Signals.

Code 3-Electrical

(1) Street Lights.

Code 3-Pavement Repairs

Code 3-Bridge Repairs

Code 3-All other work not listed above.

1.3.5 Warranty Tags

At the time of installation, each warranted item shall be tagged with a durable, oil and water resistant tag approved by the Contracting Officer. Each tag shall be attached with a copper wire and shall be sprayed with a silicone waterproof coating. The date of acceptance and the QC signature shall remain blank until project is accepted for beneficial occupancy. The tag shall show the following information.

- a. Type of product/material_____.
- b. Model number_____.
- c. Serial number_____.
- d. Contract number_____.
- e. Warranty period_____ from_____ to_____.
- f. Inspector's signature_____.
- g. Construction Contractor_____.
- Address_____.
- Telephone number_____.
- h. Warranty contact_____.
- Address_____.
- Telephone number_____.
- i. Warranty response time priority code_____.

j. WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

1.4 OPERATION AND MAINTENANCE MANUALS

Operation manuals and maintenance manuals shall be submitted as specified. Operation manuals and maintenance manuals provided in a common volume shall be clearly differentiated and shall be separately indexed.

1.5 FINAL CLEANING

The premises shall be left broom clean. Debris shall be removed from drainage systems. Equipment and fixtures shall be cleaned to a sanitary condition. Paved areas shall be swept and landscaped areas shall be raked clean. The site shall have waste, surplus materials, and rubbish removed. The project area shall have temporary structures, barricades, project signs, and construction facilities removed. A list of completed clean-up

items shall be submitted on the day of final inspection.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

APPENDIX – A

Engineering Considerations and Instructions

Introduction

The ECI is to educate construction field personnel and the design-build contractor about the basis of preliminary design and to alert them of areas of construction that may require special or increased inspection. It is to outline the engineering considerations used to formulate and design the project.

One important general design consideration is the ultimate condition of the West Gate Access Road. Phase 1 of the project, which is what is shown on the included plans, includes the construction of a two-lane road. Ultimately, the roadway will be a four-lane facility. The Phase 1 lanes are the eventual southern lanes of the four-lane design.

Roadway

Based on traffic projections the pavement will be designed as a medium duty pavement using either asphalt or concrete.

A retaining wall is proposed from Sta. 215+00 lt. to Sta. 220+00 lt. to minimize the length of the culvert needed in this area and to eliminate the need for excavation in the landfill.

The landfill in the area of Sta. 220+00 is Korean War era and is reported to hold household waste only. It is recommended that no excavation occur in the area of the landfill without further studies to determine the exact nature of the contents. The current alignment has been set so that only fill occurs on a small portion of the landfill.

The vertical design of the frontage road for access to the private property north of the proposed improvement will need to accommodate the extension of the RCB at Sta. 126+00.

The horizontal alignment has been set to minimize impacts to the 161kV overhead transmission line and the landfill in the area of Sta. 220+00 rt.

The vertical alignment was set to balance the earthwork and to keep the construction limits within the Fort boundary.

Grading for the West Gate entrance area is to be completed as part of this contract. The parking area, additional lane paving and gate building are not included in this contract.

An entrance to a pre-Civil War railroad tunnel is located at approximately Sta. 236+00. Only visual inspection of the entrance has been completed. It is unknown if the tunnel extends completely through the ridge. The construction limits of the present alignment potentially impact the entrance and further investigation by the Design-Builder is recommended.

Bridge Crossing of Roubidoux Creek

Preliminary design was completed for a concrete bridge option and a steel bridge option for the crossing. The overall length of the bridge was set just under 503' in order to satisfy hydraulic criteria. The five-girder system anticipated for each option follows MoDOT's standard bridge section for a 36' roadway. This system as well as the span arrangements that follow was developed assuming the use of materials common to MoDOT bridge construction. The designer may propose alternate materials such as High Performance Concrete and/or a different structural system. A Bridge Memorandum for each alternate is provided in Appendix F.

Concrete Alternative: The concrete span arrangement shown gave consideration to bent locations and superstructure design optimization. The first span was set at 100' to provide tank trail access under the bridge and a buffer zone between the steep left bank of the creek and Bent 2. In order to keep Bent 3 out of the deepest part of the channel, the second span was set

at 120'. This span length maximizes the use of a MoDOT standard Type 7 prestressed concrete section. The Type 7 (Bulb Tee) section is being proposed since it is the largest standard MoDOT prestressed girder. Since the remaining required bridge length could not be crossed in two spans, it was divided into three 93'-4" spans.

Steel Alternative: The steel span arrangement shown also gave consideration to bent locations and superstructure design optimization. The first span, as with the concrete alternative, was set at 100' to provide tank trail access under the bridge and a buffer zone between the steep left bank of the creek and Bent 2. The 165' second span maximizes the efficient use of the proposed 72" deep web section and keeps Bent 3 out of the deepest part of the channel. A 72" web is being proposed for this structure as most steel fabricators can handle this size of section. The final 135' and 100' spans provide the remaining bridge length required to satisfy the hydraulic constraints. The 100'-165'-135'-100' span arrangement provides reasonable interior/exterior span ratios which should result in an economical structure.

Substructure: The substructure components being proposed for these two alternates are integral end bents and three column intermediate bents. The three columns anticipated at each intermediate bent is what have been used on similar projects. Review of the geotechnical report and scour analysis for the span arrangements described, lead to the proposed 4' diameter columns in order to meet k/r criteria set forth in AASHTO.

Drainage

The preliminary drainage design was based on the ultimate four-lane condition, as it will be the worst-case scenario. It is important to keep in mind that not all of the eventual drainage structure length will be completed in Phase 1 (refer to Design Analysis). Any construction must be compatible with the future Phase 2 work. Flowlines for the ultimate condition must work with flowlines for the interim condition. In all cases where the entire length of structure is not being built in Phase 1, preliminary design shows the downstream end being constructed. This is advantageous for those structures requiring energy dissipaters at the outlet. For those structures noted later in the ECI as needing a dropped inlet, a broken back pipe may be the ultimate pipe condition.

Bridge Crossing of Roubidoux Creek

Preliminary design was completed for a concrete bridge option and a steel bridge option for the crossing. The distance between the abutment toes was about 390' with either option to satisfy hydraulic criteria, giving an overall length of bridge of 503'. The issues for consideration, besides the obvious cost issue, are the individual span lengths and location of piers. Objectives with the preliminary bridge layout included keeping piers out of the deepest part of the channel, allowing a buffer zone next to the steep left bank of the creek, and providing tank trail access under the bridge.

It is also suggested that the designer obtain some historical aerial photos of the bridge crossing location to determine meander movement of the creek. The West Gate Access Road bridge crossing is just downstream of a meander bend. Any possible pattern of lateral movement in this bend should be investigated.

RCB Culvert near Sta. 125+70

Preliminary design shows that the backwater caused by the culvert structure is greater than one foot for a relatively short distance upstream. A design variance from MoDOT will be needed.

As mentioned in the Design Analysis, the design outlet velocity of the structure was modeled to be about 22 feet per second. The model uses a constantly sloped RCB invert from one end to the other. In order to avoid the need for an energy dissipater at the RCB outlet, it is recommended that the entrance of the box be sloped for a distance in order to allow reduction of velocity to below 20 feet per second. Alternate designs could be acceptable, but the outlet velocity should be less than 20 feet per second so that riprap can be used to dissipate energy at the outlet instead of an energy dissipater structure.

The gravel outer road of this culvert crossing location, which currently has a small CMP culvert (24" or 30"), is an access road to Mr. Ballard's property. Mr. Ballard currently has another access point originating from the west. The construction of West Gate Access Road will eliminate the western access to Mr. Ballard's property, making the outer road downstream of the Station 125+70 culvert his only means to and from the property. The West Gate project is improving the outer road and providing a connection to the main West Gate Access Road. In order to ensure that the outer road remains usable during higher flow events, it was decided that the 12' x 8' RCB should extend under the outer road as well (refer to plans) to replace the existing CMP. While the cost of the structure is increased by added length, the potential for flooding and erosion along the outer road embankment will be greatly reduced. It is recommended that interior drainage between the main line embankment and the outer road embankment should be handled by Type "S" inlets drained to the box through connector pipes.

RCB Culvert near Sta. 221+50

A determination was made by MoDOT that no excavation could take place in the inactive landfill area south of the crossing. Fill could be placed in the area, but removal of material would not be allowed. Several options were investigated in preliminary design to prevent impact to this area. The chosen design avoids impact and reduces overall structure cost.

A judgment was made to use a 50-year design frequency with a 100-year frequency check because of possible impacts off of the Fort boundary. In addition, the FEMA regulation mapping provides an approximate 100-year flood boundary in the area. The 50-year preliminary design elevation is 829.6 feet, which would impact about 2.0 acres of land upstream of the Fort boundary. The 100-year preliminary elevation is 830.5, which would impact about 2.5 acres of land upstream of the Fort boundary. Three structures exist upstream of the Fort boundary according to the USGS mapping. The lowest elevation of any of the structures appears to be about 830.0 feet. The preliminary existing conditions model shows an elevation of 829.4 feet and 829.7 feet for the 50-year and 100-year flows, respectively. The water surface of the proposed 100-year condition could impact this lowest structure. The other two structures appear to be higher than 830.5 feet. It is recommended to further investigate the structures upstream of the Tunnel Hollow Creek crossing.

Additional Items

The rock lining recommended at the outlet of the Station 89+00 culvert is for erosion protection from the flow travelling down the ditch on the east side of Route H as it changes direction to follow the mainline ditch.

The Environmental Assessment revealed the location of a tunnel in the vicinity of Station 236+00. The preliminary drainage design does not propose a culvert at that location. However, further investigation will be necessary to make sure that water does not drain through the tunnel toward the roadway embankment.

APPENDIX - B

Drainage Design Analysis

General

Introduction

The drainage design analysis is to provide a summary of the engineered drainage features on the West Gate Access Road Project at Fort Leonard Wood. Hydrologic and hydraulic data was produced in accordance with the attached Drainage Design Criteria, dated December 2001. Investigation of existing drainage patterns and proposed grading plans resulted in the decision to provide a bridge crossing of Roubidoux Creek, two multiple-cell box culverts, and seven cross-road culverts along the mainline proposed roadway. Two culverts were also designated for side road connections.

A field investigation of the bridge and box culvert locations was performed and used in conjunction with recent hydraulic surveys. The U.S. Army Corps of Engineers' (COE) river analysis computer program HEC-RAS 3.0 (from the Hydrologic Engineering Center) was used to determine hydraulic parameters at the bridge and box culverts. Haestad Methods' CulvertMaster was used to design all other culvert structures. Following the procedures contained in FHWA Hydraulic Engineering Circular No. 18 (HEC-18) "Evaluating Scour at Bridges", the appropriate depths of scour were computed for the proposed bridge over Roubidoux Creek.

Design Criteria

Drainage design included two general design exceptions provided by MoDOT. Based on the Average Annual Daily Traffic (AADT) count, a 50-year culvert design would typically be used. MoDOT instructed the use of 25-year design on culverts for this project. Additionally, the clearance requirement usually required for bridge-class structures was waived due to inevitable headwater at these structures. While these exceptions are noted, judgement should be used on a case-by-case basis throughout the project to ensure safety and reduce risk.

The controlling federal criteria is covered by the National Flood Insurance Program (NFIP) under the Federal Emergency Management Agency (FEMA). The criteria dictates that, for crossings of streams with detailed FEMA studies and dedicated floodways, no backwater (0.00 feet) is allowed for the 100-year event. If the stream has a detailed study with base flood elevations, but no floodway, then one foot (1.0 foot) of backwater is allowed. The case of having no detailed study and approximate base flood elevations does not have a restriction on backwater under the minimum federal guidelines. Neither the Missouri State Emergency Management Agency (SEMA) nor the City of Waynesville enforces tighter restrictions than the aforementioned guidelines. Therefore, in areas of approximate base flood elevation, design is guided more heavily by sound engineering judgement. Refer to the attached FEMA Flood Boundary and Floodway Map for zone designations that relate to the described conditions and their relation to the project. A numbered A-zone (A8, for example) has a base flood elevation. An unnumbered A-zone has an approximate base flood elevation shown.

MoDOT criteria states that the proposed structures cannot cause more than one foot (1.0 foot) of rise over the natural conditions of the stream at the design discharge. The MoDOT criteria are independent of whether or not the stream is covered by the NFIP under FEMA. MoDOT has indicated that it will grant design exceptions for larger magnitudes of backwater, except for the Roubidoux Creek crossing.

Clearance criteria are given by MoDOT standards for bridge and bridge-class structures, and culverts. A bridge-class structure is a structure with a total width (i.e. including multiple box culvert interior walls) greater than or equal to 20 feet. The required clearance depends on the drainage area, but is either 1 foot or 2 feet for bridges and bridge-class structures. Culverts have a minimum clearance of 0.0 feet. As noted previously, MoDOT has given approval for 0.0 feet clearance on all box culverts (regardless of whether or not they are bridge-class structures).

MoDOT criteria with regard to culvert headwater addresses upstream impacts, freeboard below the roadway shoulder, and a maximum allowable height above the culvert flowline. Generally, the controlling factor for this project was the 12 feet height restriction above the structure flowline.

Bridge Crossing of Roubidoux Creek Near Sta. 166+00

Hydrology

A detailed FEMA study along Roubidoux Creek ends a short distance downstream of the proposed bridge crossing of the West Gate Access Road. The Flood Insurance Study for Pulaski County, Missouri was obtained from the FEMA library of Michael Baker, Jr. Inc. Discharge values were taken from the study for use in the HEC-RAS modeling of the bridge crossing. The 100-year design discharge at the crossing location is 31,500 cfs with a drainage area of 295 square miles.

Hydraulic Modeling

The proposed bridge location is outside of the detailed study and in an unnumbered A-zone. Therefore, there is technically no FEMA backwater limitation. However, the decision was made to provide a 100-year design for the structure based on the significance of the creek and proposed structure in the overall project. The detailed study ends relatively near the bridge crossing and velocities need to remain reasonable to reduce potential scour. As there is no existing structure, a one foot backwater over the existing condition is the backwater control under MoDOT criteria. For a bridge structure with a drainage area of 295 square miles, a two feet water surface clearance below the low-steel of the structure is required.

The HEC-2 model used to produce the published Flood Insurance Study data was obtained in order to have a good starting point for the West Gate Access Road HEC-RAS model. The HEC-2 model was also used as a comparison tool in determining hydraulic parameters of the area. A couple of sections from the model were used as the furthest downstream in the West Gate model. Starting water surface elevations were taken from the original HEC-2 model as a downstream control.

Remaining cross-sections for the HEC-RAS model were created from field surveys and project mapping. Channel roughness factor (Manning's "n") values used in the FEMA model were compared with observed conditions during field reconnaissance. Minor adjustments were made where appropriate in the FEMA sections and values were determined for new cross sections. The model was run for the 10-year, 50-year, 100-year, and 500-year discharges as provided in the FIS.

Two bridge options were modeled for the Roubidoux Creek crossing. The Scope of Work required investigation of a steel bridge and a concrete bridge. With respect to hydraulic analysis, differences between these two alternatives include structure depth, maximum span length, and pier width. As it turned out, clearance was not an issue because the roadway is very high at the bridge location. The steel bridge allowed a longer maximum span length, making it easier to place piers outside the deepest part of the channel (higher velocities). In addition, one less bent was necessary for the steel bridge. The overall pier width was therefore decreased, resulting in slightly less obstruction and energy loss through the bridge.

The hydraulic modeling of the steel bridge and concrete bridge alternatives concluded that about a 390' distance between the abutment toes (resulting in a 503' total bridge length) was necessary to keep the backwater below one foot. The 503' is an actual bridge length, having a smaller hydraulic opening as the result of a 22-degree skew at the crossing. Both options allow for tank crossing under the bridge. For other design considerations, refer to the Engineering Considerations and Instructions (ECI) document.

Drainage design information for the Roubidoux Creek Bridge can be found on the bridge plans. Specific hydraulic modeling information is included in the Calculations section of this report.

Scour Analysis

Following the completion of hydraulic design for the bridge, a preliminary scour analysis was performed. The total scour at any waterway is comprised of three components. These are long-term scour (aggradation/degradation), contraction scour, and local scour. Methodologies outlined in the FHWA Publication "Evaluating Scour at Bridges," Hydraulic Engineering Circular No. 18, November 1995, were used in determining the scour for the 100-year and 500-year (as a check) flood frequencies.

1. Long-term scour (aggradation/degradation) is long-term changes of the creek bottom, which occur either naturally or due to man-made activities. The bridge was not evaluated for long-term scour because not enough information is available to accurately give a determination. Consistent data over many years would be needed for this evaluation.
2. Contraction scour is a result of flow contraction by the roadway approach embankment. This total flow must contract to the main bridge opening from a wide floodplain. The contraction scour prediction for the proposed bridge crossing is shown in the attached summary table (Calculations section) and would occur across the entire section.
3. Local scour is caused by the vortices, which occur when the flow impacts a pier, footing, or abutment. Pier geometry was given by bridge engineers for use in a preliminary estimate of the local scour. In addition, substructure configuration of drilled shafts was considered. The flow depth and velocities were obtained from the HEC-RAS output. All bents have the potential for local scour, and the predicted values for each bridge configuration and discharge are shown in the Calculations section. At the bridge abutments, it is recommended to place riprap as a countermeasure, which will reduce any possible predicted local scour to zero. Enough riprap should be placed to provide protection should the predicted contraction scour take place in the channel.

Conclusions

The hydraulic analysis shows that the configuration of the new bridge structure meets the necessary MoDOT criteria. The hydraulic opening was optimized to produce less than one foot of backwater and give reasonable velocities through the site area. The average design velocity for the preliminary analysis is about 7.5 feet per second.

Scour predictions appear reasonable. Contraction scour is minimal because the constriction of effective flow is not excessive. As a result of the angle of approach, ineffective flow areas exist, mainly on the right overbank. As mentioned above, the bridge is skewed about 22-degrees as it crosses the creek. However, the bents of the bridge are aligned with the flow of the creek to minimize local scour effects and prevent debris build-up. The local pier scour is representative of the pier size and velocities encountered. The depth of total scour should be considered in final pier design and determination of foundation depth.

Box Culvert near Sta. 125+70 – Roubidoux Creek Tributary

Hydrology

As outlined in the attached Drainage Design Criteria, the discharges for modeling the culvert crossing were determined from regression equations. A USGS quadrangle map was used to determine parameters such as length of watercourse, slope, and drainage area. The site has a drainage area of 0.51 square miles.

The FEMA flood plain mapping for Pulaski County, Missouri shows an approximate 100-year flood boundary that extends a very short distance along the tributary where it meets Roubidoux Creek. While engineering judgement suggests that the intent was not to provide regulation for the tributary stream (only that the boundary results from the Roubidoux Creek information), an unnumbered A-zone does not have a FEMA backwater restriction. Therefore, only MoDOT criteria were considered in the design of the structure. According to MoDOT criteria, the design discharge would be the 50-year frequency due to the estimated average annual daily traffic value. However, MoDOT decided that a 25-year design frequency would be adequate for this structure. The 25-year frequency was calculated to be 713 cfs from the Region II regression equation.

HYDRAULIC MODELING

The hydraulic analysis of the culvert crossing was completed in HEC-RAS. The MoDOT design criteria for culvert structures includes the one-foot backwater limitation and a 12 feet headwater height limitation. It was quickly realized that it would not be reasonable to meet the one-foot backwater criteria. A relatively large and expensive bridge would likely be necessary to keep the backwater under one foot. Therefore, while being conscious of possible upstream impacts, it was decided that a MoDOT design variance would be needed for this crossing. Velocities could remain reasonable through a more practical size culvert and the headwater could be kept within 12 feet of the flowline. The only ponding would be on Fort Leonard Wood property.

Cross-sections for the HEC-RAS model were created from field surveys and project mapping. Channel roughness factor (Manning's "n") values were developed from observed conditions during field reconnaissance. Preliminary design analysis resulted in the use of a 12' x 8' concrete box culvert about 550' in length. The 25-year design discharge has a corresponding outlet velocity of about 21.8 feet per second (not including benefit of a drop inlet discussed in

ECI) and causes a maximum backwater of 5.04 feet just upstream of the entrance. The backwater is reduced to less than one foot at a distance of about 250 feet upstream. The clearance required for the culvert structure is 0.0 feet, but the 8 feet height eliminates pressure flow through the culvert. Details of the design can be found in the attached HEC-RAS output. A summary of drainage data is shown on the project plan sheet.

CONCLUSIONS

The hydraulic analysis shows that a design variance will be needed from MoDOT, as the backwater caused by the proposed structure along the Roubidoux Creek tributary is greater than one foot. However, a bridge structure is not economically feasible or reasonable. The only impacts are on Fort property and effects are dissipated quickly.

Box Culvert near Sta. 221+50 – Tunnel Hollow Creek

Hydrology

As outlined in the attached Drainage Design Criteria, the discharges for modeling the culvert crossing were determined from regression equations. A USGS quadrangle map was used to determine parameters such as length of watercourse, slope, and drainage area. The site has a drainage area of 1.81 square miles.

The FEMA flood plain mapping for Pulaski County, Missouri shows an approximate 100-year flood boundary that extends a significant distance along Tunnel Hollow Creek upstream from where it meets Roubidoux Creek. Engineering judgement suggests that the intent was to provide regulation for the tributary stream. However, the unnumbered A-zone does not have a federal backwater restriction. Therefore, MoDOT criteria were the only written criteria on the issue of design discharge. According to MoDOT criteria, the design discharge would be the 50-year frequency due to the estimated average annual daily traffic value. That criterion was reduced on the RCB at Station 125+70, but there were reasons not to do so for this structure. The potential of impact to upstream structures (discussion to follow) and the fact that an approximate boundary was drawn led to the decision for a 50-year frequency design with a check of the 100-year flow. The 50-year design discharge was calculated to be 2,067 cfs from the Region II regression equation.

HYDRAULIC MODELING

The hydraulic analysis of the culvert crossing was completed in HEC-RAS. The MoDOT design criteria for culvert structures include the one-foot backwater limitation (versus natural conditions) and the 12 feet headwater height limitation. .

Almost any culvert option would require a design exception because of the one-foot rise criteria. Going from a relatively wide floodplain to even a multiple cell box culvert would cause greater than one foot of backwater. With that in mind, the targeted design was to bring the backwater down below one foot upon exiting the Fort Leonard Wood property. The boundary line is a relatively short distance upstream of the crossing.

An important consideration for this area is the inactive landfill to the south of the proposed West Gate Access Road. Discussion of the issues concerning the landfill can be found in the attached Engineering Considerations and Instructions (ECI) section. Four options were

investigated as possible solutions to dealing with the landfill area. These four options are discussed in the following paragraphs:

Option 1 - Long Culvert: The vertical alignment would remain the same as it had been previously designed (October, 2001) to optimize the balance of earthwork quantities. In order to stay outside of the limits of the landfill area with channelization, a relatively long culvert would be necessary. As previously mentioned, the targeted design was to bring the backwater down to one foot upon exiting the Fort Leonard Wood property. The modeling for this option resulted in a triple 12' x 8' reinforced concrete box culvert being used. The culvert would be about 1070 feet long (including two horizontal bends) at a cost of about \$1.3 million (as estimated for comparison purposes only for 4-lane ultimate condition). The length of channelization downstream of the culvert would be approximately 275 feet. Riprap protection would be necessary downstream of the outlet to guard against high velocities.

Option 2 - Bridge: The vertical alignment would remain the same as it had been designed. In order to prevent encroachment upon the existing Tunnel Creek channel, a relatively long bridge and retaining wall combination would be necessary. With this option, hydraulic considerations control the placement of the eastern bridge abutment. The western abutment and retaining wall extension were located to prevent the fill encroachment on the channel. The determined bridge length was 690 feet, along with a 480 feet long retaining wall. The cost of the bridge structure was estimated at about \$2.1 million (for 4-lane ultimate condition). No channelization downstream of the bridge would be needed.

Option 3 – Culvert with North Retaining Wall: The vertical alignment would be lowered from its previous design. By doing that, the embankment toe of slope does not encroach upon the creek. A retaining wall on the north side of the Fort property would prevent cut limits from exiting the boundary due to the lowering of the profile. In order to reduce the backwater caused by the culvert to less than 1.0 foot upon exiting the boundary, the culvert would need to be a triple 12' x 8' RCB. The culvert length for this option would be about 600 feet, with a structure cost estimated at about \$750 thousand (for 4-lane ultimate condition). No channelization is required for Option 3, but downstream riprap protection would be necessary. In addition, cost would need to be added for the 480' long retaining wall.

Option 4 – Culvert with South Retaining Wall: The vertical alignment would remain the same as it had been designed for this option. In order to prevent encroachment on the natural creek, a retaining wall would be used on the south side of the roadway. The backwater could be reduced to less than 1.0 foot at the Fort boundary by using a triple 12' x 8' RCB. The culvert length for Option 4 is about 670 feet, with a structure cost estimated at \$1.15 million (for 4-lane ultimate condition). No channelization would be necessary, but additional cost would need to be added for outlet channel riprap and the 680' long retaining wall.

Option 3 was chosen for the preliminary design of the crossing. It allowed for a reduced structure cost and a shorter retaining wall. The project earthwork quantities could be re-worked to accommodate the lowered vertical alignment in this area. The HEC-RAS hydraulic analysis of the bridge crossing shows that a 2.12 feet rise occurs a few hundred feet upstream of the culvert inlet. That increase is reduced to less than one-half of a foot upon exiting the Fort property for the 50-year design. The increase is just under one foot for the 100-year check flow. The headwater height criterion is not violated with the chosen design.

A second consideration for this crossing location is the impact to upstream land. Three structures exist upstream of the Fort boundary according to the USGS mapping. The lowest elevation of any of the structures appears to be about 830.0 feet. The design water surface was kept below this elevation, while the 100-year flow was used to check less frequent water levels. The water surface of the proposed 100-year condition (830.47) could impact this lowest structure. The other two structures appear to be higher than that elevation. Further information can be found in the attached ECI.

Cross-sections for the HEC-RAS model were created from field surveys and project mapping. Channel roughness factor (Manning’s “n”) values were developed from observed conditions during field reconnaissance. The 50-year design discharge has a corresponding outlet velocity of about 19.4 feet per second, dictating the use of channel protection or the use of an energy dissipating device. Rock lining was included in the estimate for this structure and would be the recommended application (up to 20 feet per second). Details of the design can be found in the attached HEC-RAS output and the ECI section.

Conclusions

The hydraulic analysis shows that a design variance will be needed, as the backwater caused by the proposed structure along Tunnel Hollow Creek is greater than one foot. However, a bridge structure is not economically feasible. The chosen preliminary design avoids any impact on the landfill area south of the crossing and minimizes potential impact upstream of the crossing.

Cross-Road Pipe Culverts

The cross-road pipe culverts were analyzed using CulvertMaster. All structures will be reinforced concrete pipe and were designed for the 25-year discharge. The computation of discharge was done using the Rational Method. A composite “C” value was used to include paved and unpaved drainage areas. Time of concentration calculations led to the use of the minimum five minutes for all sites in order to obtain intensity values. The IDT curves for MoDOT District 9 provided those intensity values.

The following table summarizes the results of cross-road drainage analysis:

<u>Stationing</u>	<u>Size</u>	<u>Length (ft)</u>	<u>D.A. (acres)</u>	<u>Discharge (cfs)</u>
89+00	18"	95	1.3	5.99
108+20	42"	610	34.18	115.86
189+70	24"	350	10.25	35.93
195+40	24"	270	8.39	30.70
204+60	24"	400	11.52	39.69
212+35	48"	420	47.95	156.84
276+75	30"	350	17.77	78.67
289+00	18"	60	3.58	15.39
305+80	30"	385	22.41	76.85

Pipe culvert locations were chosen in order to maintain the existing drainage patterns where possible. Existing topography in the area of the project has relatively steep grades, which causes many of the culverts to produce high velocities at their outlet. Often, increasing the size

of the pipe will only decrease the velocity by an insignificant amount. Therefore, energy dissipating structures are recommended at Station 189+70, Station 195+40, Station 204+60, Station 212+35, Station 276+75, and Station 305+80 to reduce the velocity of flow exiting the structures. Design velocities are generally around 25 feet per second. Please refer to the Calculations section for detailed design information on the cross-road structures.

The design of the 30" pipe at Station 276+75 produces velocities in excess of 30 feet per second. The velocity needs to be reduced prior to exiting the culvert in order for the energy dissipater to function correctly. It is recommended to drop the inlet for a distance along a steeper slope and then flatten out the slope for the remainder of the pipe. The result will be a decreased outlet velocity, which can be reduced even further by an energy dissipater or riprap lining. Outlet ditch lining could be used instead of an energy dissipater if the velocity is below 20 feet per second upon exiting the structure.

The culvert at Station 89+00 is crossing the Route H connection to the proposed West Gate Access Road. Preliminary design shows that this is the only culvert necessary to handle the drainage at the intersection. The culvert conveys a relatively small amount of flow, but rock lining is recommended at the outlet. The rock is not for protection against the flow exiting the culvert, but for erosion protection from the flow travelling down the ditch on the East Side of Route H as it changes direction to follow the mainline ditch. The culvert at Station 289+00 is crossing a field entrance (dirt road) to the mainline West Gate Access Road. Minimum pipe sizes are adequate at both of these locations.

All cross-road pipes except those at Station 89+00 and Station 289+00 will be built without the upstream end for Phase 1 construction. The pipes will need to be extended in Phase 2 to match the ultimate design. The inlet control pipes were conservatively designed with a square-edge entrance. No flared end sections will be constructed on the upstream side during Phase 1.

Conclusion

West Gate Access Road has three major crossings and a multiple number of minor crossings. Federal and State criteria have been investigated for application in design. Specifically for the major crossings, each individual situation was considered before a decision was made on final criteria.

The steep grades throughout the project area introduce additional items for consideration. As many areas along the length of the project alignment are in earth cut, interception ditches and levees were investigated. Based on guidelines established in design test cases, each segment of roadway ditch was also evaluated for rock ditch protection.

Preliminary design for the engineered drainage features was completed using a combination of historical data and information, recent hydraulic surveys, and recent field investigation. The main computer analysis tools were HEC-RAS 3.0 and CulvertMaster. Further investigation in certain areas may be needed as noted in this report. As movement is made toward final design of the project, preliminary design should be used as a guide only.

HEC-RAS River: Roubidoux Creek Reach: One Profile: 100-year

Reach	River Sta	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
One	22310	500, slope	31900.00	764.80	783.25	779.76	783.61	0.000830	6.69	8157.94	1308.43	0.29
One	22310	Nat & Survey	31900.00	764.80	783.25	779.76	783.61	0.000830	6.69	8157.94	1308.43	0.29
One	25850	500, slope	31900.00	771.90	786.76	782.60	787.39	0.001390	7.09	5923.72	1418.26	0.37
One	25850	Nat & Survey	31900.00	771.90	786.76	782.60	787.39	0.001390	7.09	5923.72	1418.26	0.37
One	27620	500, slope	31500.00	775.10	789.41	785.63	789.72	0.000965	6.28	8289.93	1191.40	0.30
One	27620	Nat & Survey	31500.00	775.10	789.41	785.63	789.72	0.000965	6.28	8289.93	1191.40	0.30
One	29940	500, slope	31500.00	779.60	792.39		793.22	0.002384	7.84	5078.30	1272.66	0.42
One	29940	Nat & Survey	31500.00	779.60	792.39		793.22	0.002384	7.84	5078.30	1272.66	0.42
One	31170	500, slope	31500.00	783.70	796.00		798.12	0.005993	14.60	3570.83	539.58	0.75
One	31170	Nat & Survey	31500.00	783.70	796.00		798.12	0.005993	14.60	3570.83	539.58	0.75
One	32970	500, slope	31500.00	780.76	801.03	793.68	801.67	0.000910	7.66	7519.00	1550.78	0.32
One	32970	Nat & Survey	31500.00	780.76	801.03	793.68	801.67	0.000910	7.66	7519.00	1550.78	0.32
One	34345	500, slope	31500.00	784.69	802.42	797.01	803.16	0.001584	8.59	6257.34	1933.04	0.40
One	34345	Nat & Survey	31500.00	784.69	802.47		802.86	0.001014	6.89	10349.39	1933.57	0.32
One	34685	500, slope	31500.00	783.99	802.73	797.45	803.93	0.001873	9.91	4592.83	1619.14	0.45
One	34685	Nat & Survey	31500.00	783.99	802.68		803.37	0.001306	8.26	8067.86	1618.29	0.37
One	34707		Bridge									
One	34729	500, slope	31500.00	783.99	803.07	797.45	804.20	0.001719	9.64	4734.80	1624.89	0.43
One	34729	Nat & Survey	31500.00	783.99	802.77		803.43	0.001263	8.15	8206.01	1619.74	0.37
One	35246	500, slope	31500.00	784.20	803.99	798.24	804.99	0.001473	9.33	5431.30	1519.52	0.40
One	35246	Nat & Survey	31500.00	784.20	803.30	798.25	804.17	0.001464	9.04	6964.83	1457.36	0.40
One	36360	500, slope	31500.00	785.95	805.32	801.89	807.59	0.003232	13.34	3561.27	1032.36	0.57
One	36360	Nat & Survey	31500.00	785.95	804.41	801.89	807.21	0.004171	14.60	3106.67	910.19	0.64
One	36660	500, slope	31500.00	786.36	806.73	802.30	808.52	0.002453	12.07	4143.78	1162.54	0.50
One	36660	Nat & Survey	31500.00	786.36	806.38	802.30	808.33	0.002701	12.50	3933.68	1155.42	0.53

HEC-RAS River: Roubidoux Creek Reach: One Profile: 100-year

Reach	River Sta	Plan	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
One	22310	500, slope	783.61	783.25	0.36				12578.77	19321.23	1308.43
One	22310	Nat & Survey	783.61	783.25	0.36				12578.77	19321.23	1308.43
One	25850	500, slope	787.39	786.76	0.63	3.70	0.08		24113.96	7786.04	1418.26
One	25850	Nat & Survey	787.39	786.76	0.63	3.70	0.08		24113.96	7786.04	1418.26
One	27620	500, slope	789.72	789.41	0.31	2.30	0.03	6047.57	10041.81	15410.62	1191.40
One	27620	Nat & Survey	789.72	789.41	0.31	2.30	0.03	6047.57	10041.81	15410.62	1191.40
One	29940	500, slope	793.22	792.39	0.83	3.35	0.16	3749.25	26773.37	977.38	1272.66
One	29940	Nat & Survey	793.22	792.39	0.83	3.35	0.16	3749.25	26773.37	977.38	1272.66
One	31170	500, slope	798.12	796.00	2.12	4.51	0.39	2351.17	17621.36	11527.47	539.58
One	31170	Nat & Survey	798.12	796.00	2.12	4.51	0.39	2351.17	17621.36	11527.47	539.58
One	32970	500, slope	801.67	801.03	0.64	3.39	0.15	9015.60	21263.17	1221.23	1550.78
One	32970	Nat & Survey	801.67	801.03	0.64	3.39	0.15	9015.60	21263.17	1221.23	1550.78
One	34345	500, slope	803.16	802.42	0.74	1.43	0.05	334.99	18271.40	12893.61	1933.04
One	34345	Nat & Survey	802.86	802.47	0.38	1.15	0.03	762.14	14716.11	16021.75	1933.57
One	34685	500, slope	803.93	802.73	1.20	0.54	0.23	1307.96	23639.34	6552.70	1619.14
One	34685	Nat & Survey	803.37	802.68	0.69	0.35	0.15	2621.14	19632.32	9246.54	1618.29
One	34707		Bridge								
One	34729	500, slope	804.20	803.07	1.13	0.00	0.06	1400.18	23481.93	6617.89	1624.89
One	34729	Nat & Survey	803.43	802.77	0.66	0.06	0.01	2671.55	19488.01	9340.44	1619.74
One	35246	500, slope	804.99	803.99	1.00	0.76	0.04	2392.67	22393.32	6714.02	1519.52
One	35246	Nat & Survey	804.17	803.30	0.87	0.63	0.10	1932.94	20833.43	8733.63	1457.36
One	36360	500, slope	807.59	805.32	2.27	2.22	0.38	3294.86	25251.98	2953.17	1032.36
One	36360	Nat & Survey	807.21	804.41	2.81	2.46	0.58	2408.91	26142.60	2948.49	910.19
One	36660	500, slope	808.52	806.73	1.79	0.89	0.05	4352.02	24215.86	2932.12	1162.54

HEC-RAS River: Roubidoux Creek Reach: One Profile: 100-year (Continued)

Reach	River Sta	Plan	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
One	36660	Nat & Survey	808.33	806.38	1.95	1.04	0.09	3971.72	24585.86	2942.41	1155.42

Plan: 500, slope Roubidoux Creek One RS: 34707 Profile: 100-year Opening: Single BR

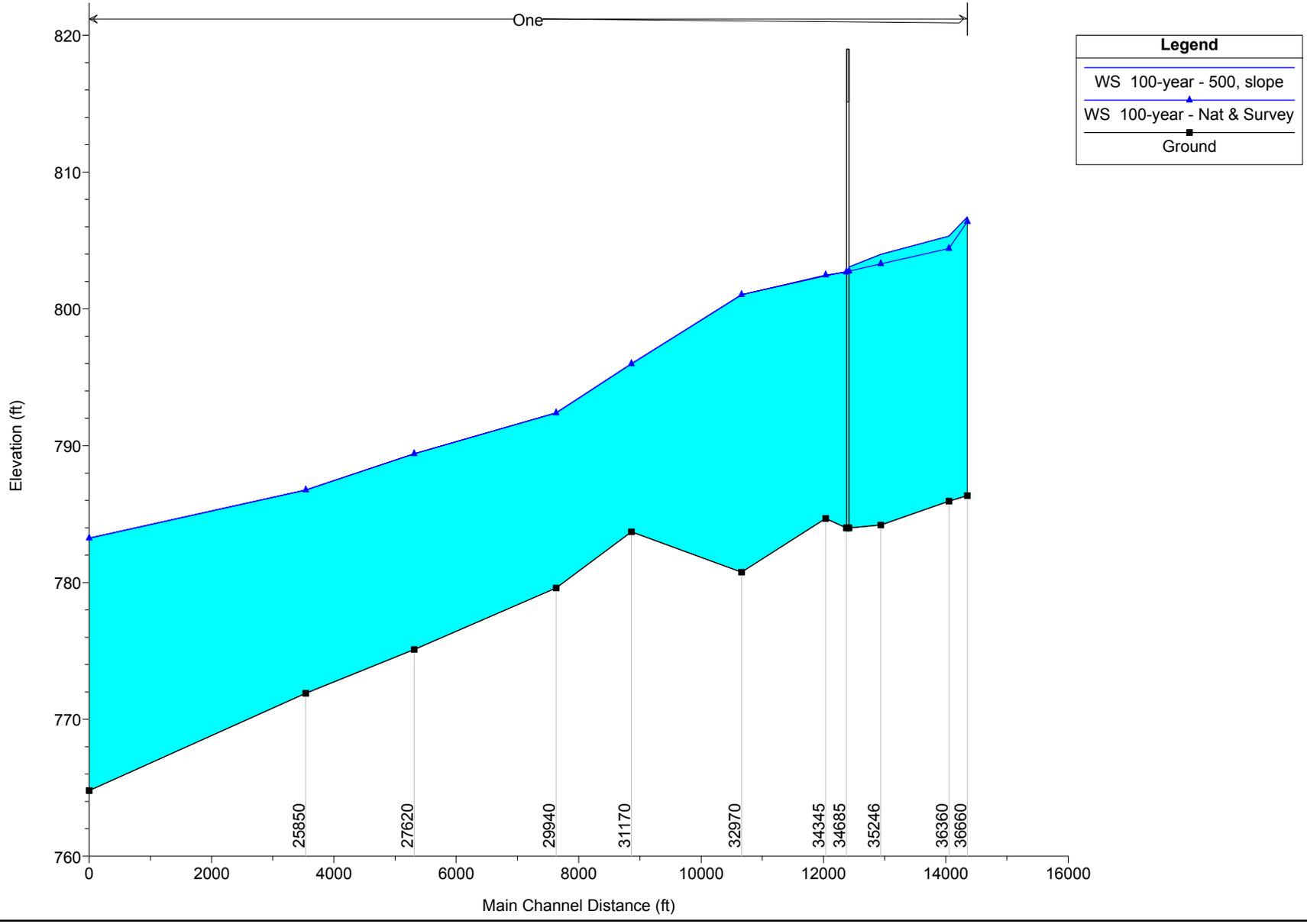
E.G. US. (ft)	804.20	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	803.07	E.G. Elev (ft)	804.13	804.02
Q Total (cfs)	31500.00	W.S. Elev (ft)	802.81	802.65
Q Bridge (cfs)	31500.00	Crit W.S. (ft)	797.53	797.53
Q Weir (cfs)		Max Chl Dpth (ft)	18.82	18.66
Weir Sta Lft (ft)		Vel Total (ft/s)	7.36	7.46
Weir Sta Rgt (ft)		Flow Area (sq ft)	4281.27	4219.92
Weir Submerg		Froude # Chl	0.46	0.47
Weir Max Depth (ft)		Specif Force (cu ft)	36207.31	35665.89
Min El Weir Flow (ft)	818.99	Hydr Depth (ft)	10.93	10.80
Min El Prs (ft)	815.13	W.P. Total (ft)	459.01	457.14
Delta EG (ft)	0.27	Conv. Total (cfs)	628437.8	616827.4
Delta WS (ft)	0.34	Top Width (ft)	391.54	390.67
BR Open Area (sq ft)	8951.81	Frctn Loss (ft)	0.11	0.00
BR Open Vel (ft/s)	7.46	C & E Loss (ft)	0.01	0.08
Coef of Q		Shear Total (lb/sq ft)	1.46	1.50
Br Sel Method	Energy only	Power Total (lb/ft s)	10.76	11.22

Roubidoux Creek - Fort Leonard Wood Plan: 1) 500, slope 2) Nat & Survey

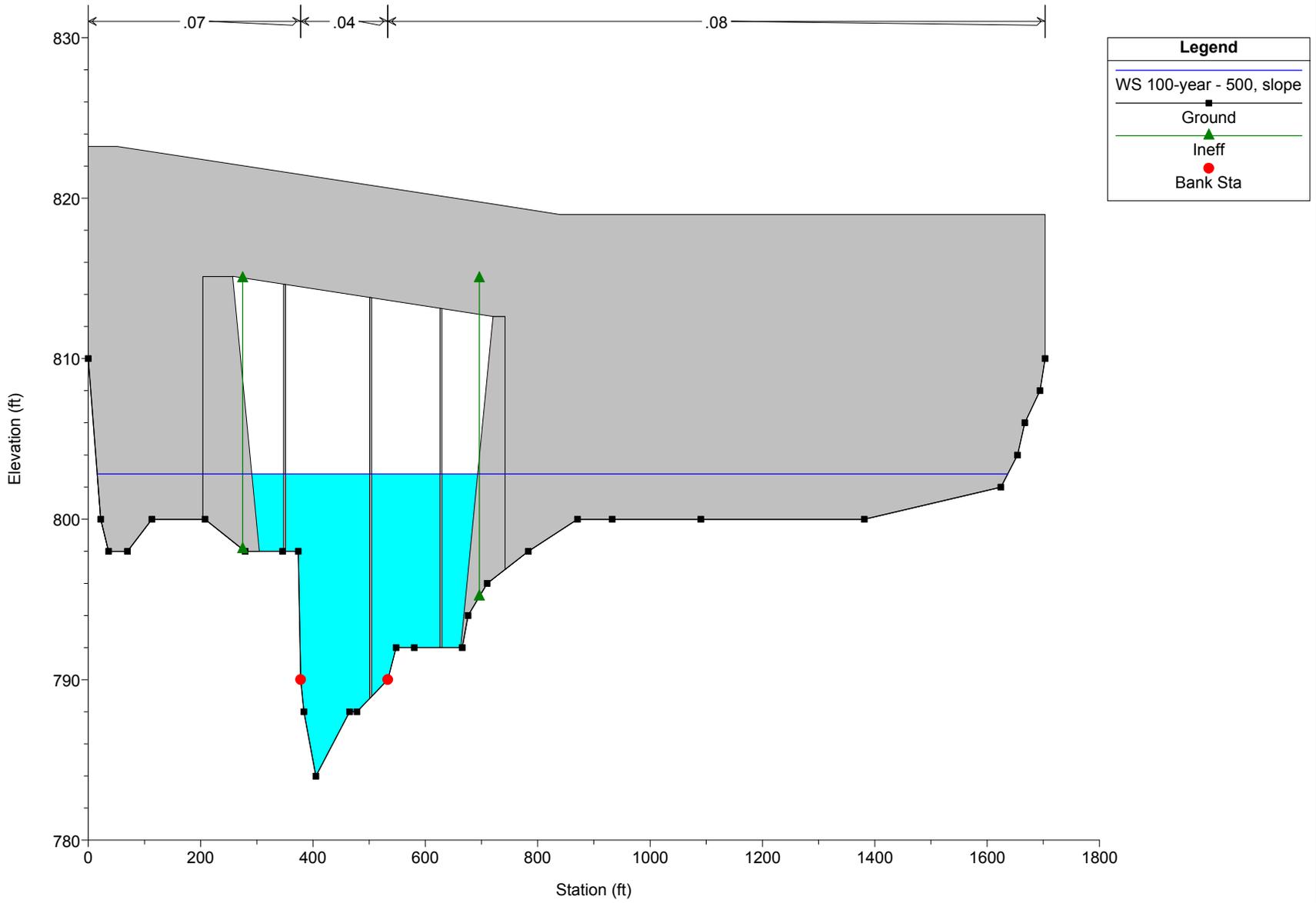
One

Legend

- WS 100-year - 500, slope
- WS 100-year - Nat & Survey
- Ground



Roubidoux Creek - Fort Leonard Wood Plan: 1) 500, slope 2) Nat & Survey



HEC-RAS River: Roubidoux Creek Reach: One Profile: 100-year

Reach	River Sta	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
One	22310	500_0.5_conc	31900.00	764.80	783.25	779.76	783.61	0.000830	6.69	8157.94	1308.43	0.29
One	22310	Nat & Survey	31900.00	764.80	783.25	779.76	783.61	0.000830	6.69	8157.94	1308.43	0.29
One	25850	500_0.5_conc	31900.00	771.90	786.76	782.60	787.39	0.001390	7.09	5923.72	1418.26	0.37
One	25850	Nat & Survey	31900.00	771.90	786.76	782.60	787.39	0.001390	7.09	5923.72	1418.26	0.37
One	27620	500_0.5_conc	31500.00	775.10	789.41	785.63	789.72	0.000965	6.28	8289.93	1191.40	0.30
One	27620	Nat & Survey	31500.00	775.10	789.41	785.63	789.72	0.000965	6.28	8289.93	1191.40	0.30
One	29940	500_0.5_conc	31500.00	779.60	792.39		793.22	0.002384	7.84	5078.30	1272.66	0.42
One	29940	Nat & Survey	31500.00	779.60	792.39		793.22	0.002384	7.84	5078.30	1272.66	0.42
One	31170	500_0.5_conc	31500.00	783.70	796.00		798.12	0.005993	14.60	3570.83	539.58	0.75
One	31170	Nat & Survey	31500.00	783.70	796.00		798.12	0.005993	14.60	3570.83	539.58	0.75
One	32970	500_0.5_conc	31500.00	780.76	801.03	793.68	801.67	0.000910	7.66	7519.00	1550.78	0.32
One	32970	Nat & Survey	31500.00	780.76	801.03	793.68	801.67	0.000910	7.66	7519.00	1550.78	0.32
One	34345	500_0.5_conc	31500.00	784.69	802.42	797.01	803.16	0.001584	8.59	6257.34	1933.04	0.40
One	34345	Nat & Survey	31500.00	784.69	802.47		802.86	0.001014	6.89	10349.39	1933.57	0.32
One	34685	500_0.5_conc	31500.00	783.99	802.73	797.45	803.93	0.001873	9.91	4592.83	1619.14	0.45
One	34685	Nat & Survey	31500.00	783.99	802.68		803.37	0.001306	8.26	8067.86	1618.29	0.37
One	34707		Bridge									
One	34729	500_0.5_conc	31500.00	783.99	803.14	797.45	804.25	0.001688	9.58	4765.27	1626.13	0.42
One	34729	Nat & Survey	31500.00	783.99	802.77		803.43	0.001263	8.15	8206.01	1619.74	0.37
One	35246	500_0.5_conc	31500.00	784.20	804.06	798.24	805.04	0.001446	9.27	5483.16	1621.74	0.40
One	35246	Nat & Survey	31500.00	784.20	803.30	798.25	804.17	0.001464	9.04	6964.83	1457.36	0.40
One	36360	500_0.5_conc	31500.00	785.95	805.36	801.89	807.61	0.003198	13.29	3582.12	1039.32	0.57
One	36360	Nat & Survey	31500.00	785.95	804.41	801.89	807.21	0.004171	14.60	3106.67	910.19	0.64
One	36660	500_0.5_conc	31500.00	786.36	806.75	802.30	808.54	0.002440	12.05	4155.04	1162.79	0.50
One	36660	Nat & Survey	31500.00	786.36	806.38	802.30	808.33	0.002701	12.50	3933.68	1155.42	0.53

HEC-RAS River: Roubidoux Creek Reach: One Profile: 100-year

Reach	River Sta	Plan	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
One	22310	500_0.5_conc	783.61	783.25	0.36				12578.77	19321.23	1308.43
One	22310	Nat & Survey	783.61	783.25	0.36				12578.77	19321.23	1308.43
One	25850	500_0.5_conc	787.39	786.76	0.63	3.70	0.08		24113.96	7786.04	1418.26
One	25850	Nat & Survey	787.39	786.76	0.63	3.70	0.08		24113.96	7786.04	1418.26
One	27620	500_0.5_conc	789.72	789.41	0.31	2.30	0.03	6047.57	10041.81	15410.62	1191.40
One	27620	Nat & Survey	789.72	789.41	0.31	2.30	0.03	6047.57	10041.81	15410.62	1191.40
One	29940	500_0.5_conc	793.22	792.39	0.83	3.35	0.16	3749.25	26773.37	977.38	1272.66
One	29940	Nat & Survey	793.22	792.39	0.83	3.35	0.16	3749.25	26773.37	977.38	1272.66
One	31170	500_0.5_conc	798.12	796.00	2.12	4.51	0.39	2351.17	17621.36	11527.47	539.58
One	31170	Nat & Survey	798.12	796.00	2.12	4.51	0.39	2351.17	17621.36	11527.47	539.58
One	32970	500_0.5_conc	801.67	801.03	0.64	3.39	0.15	9015.60	21263.17	1221.23	1550.78
One	32970	Nat & Survey	801.67	801.03	0.64	3.39	0.15	9015.60	21263.17	1221.23	1550.78
One	34345	500_0.5_conc	803.16	802.42	0.74	1.43	0.05	334.99	18271.40	12893.61	1933.04
One	34345	Nat & Survey	802.86	802.47	0.38	1.15	0.03	762.14	14716.11	16021.75	1933.57
One	34685	500_0.5_conc	803.93	802.73	1.20	0.54	0.23	1307.96	23639.34	6552.70	1619.14
One	34685	Nat & Survey	803.37	802.68	0.69	0.35	0.15	2621.14	19632.32	9246.54	1618.29
One	34707		Bridge								
One	34729	500_0.5_conc	804.25	803.14	1.11	0.00	0.08	1419.67	23448.92	6631.41	1626.13
One	34729	Nat & Survey	803.43	802.77	0.66	0.06	0.01	2671.55	19488.01	9340.44	1619.74
One	35246	500_0.5_conc	805.04	804.06	0.99	0.75	0.04	2423.40	22339.60	6737.00	1621.74
One	35246	Nat & Survey	804.17	803.30	0.87	0.63	0.10	1932.94	20833.43	8733.63	1457.36
One	36360	500_0.5_conc	807.61	805.36	2.25	2.18	0.38	3334.10	25213.03	2952.87	1039.32
One	36360	Nat & Survey	807.21	804.41	2.81	2.46	0.58	2408.91	26142.60	2948.49	910.19
One	36660	500_0.5_conc	808.54	806.75	1.78	0.88	0.05	4372.43	24196.07	2931.50	1162.79

HEC-RAS River: Roubidoux Creek Reach: One Profile: 100-year (Continued)

Reach	River Sta	Plan	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
One	36660	Nat & Survey	808.33	806.38	1.95	1.04	0.09	3971.72	24585.86	2942.41	1155.42

Plan: 500_0.5_conc Roubidoux Creek One RS: 34707 Profile: 100-year

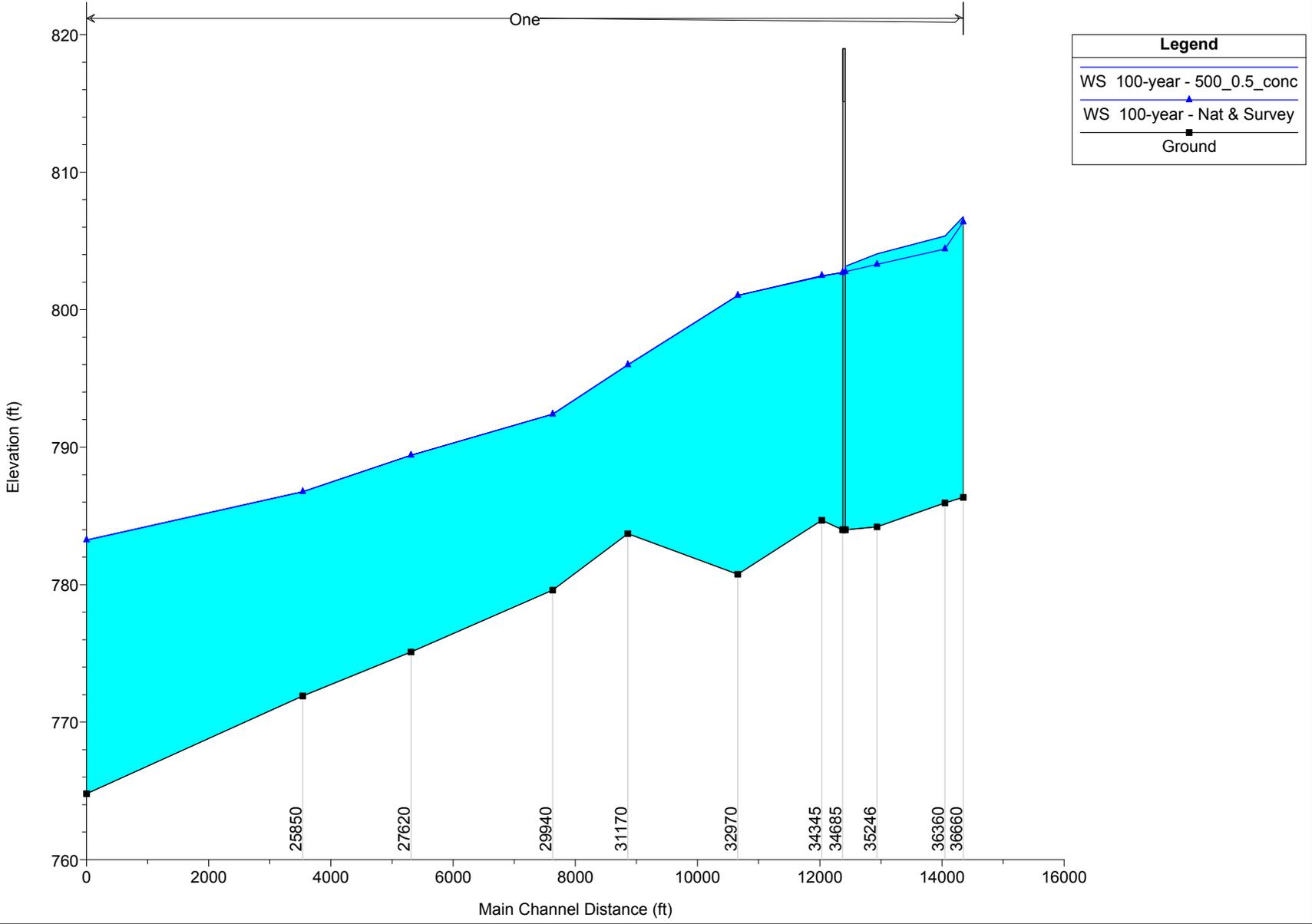
E.G. US. (ft)	804.25	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	803.14	E.G. Elev (ft)	804.17	804.05
Q Total (cfs)	31500.00	W.S. Elev (ft)	802.79	802.63
Q Bridge (cfs)	31500.00	Crit W.S. (ft)	797.59	797.59
Q Weir (cfs)		Max Chl Dpth (ft)	18.80	18.64
Weir Sta Lft (ft)		Vel Total (ft/s)	7.45	7.56
Weir Sta Rgt (ft)		Flow Area (sq ft)	4230.91	4165.56
Weir Submerg		Froude # Chl	0.47	0.48
Weir Max Depth (ft)		Specif Force (cu ft)	36021.64	35450.66
Min El Weir Flow (ft)	818.99	Hydr Depth (ft)	10.91	10.76
Min El Prs (ft)	815.13	W.P. Total (ft)	480.24	477.89
Delta EG (ft)	0.32	Conv. Total (cfs)	611925.3	599800.4
Delta WS (ft)	0.41	Top Width (ft)	387.95	387.01
BR Open Area (sq ft)	8869.58	Frctn Loss (ft)	0.11	0.00
BR Open Vel (ft/s)	7.56	C & E Loss (ft)	0.01	0.11
Coef of Q		Shear Total (lb/sq ft)	1.46	1.50
Br Sel Method	Energy only	Power Total (lb/ft s)	10.85	11.35

Roubidoux Creek - Fort Leonard Wood Plan: 1) 500_0.5_conc 2) Nat & Survey

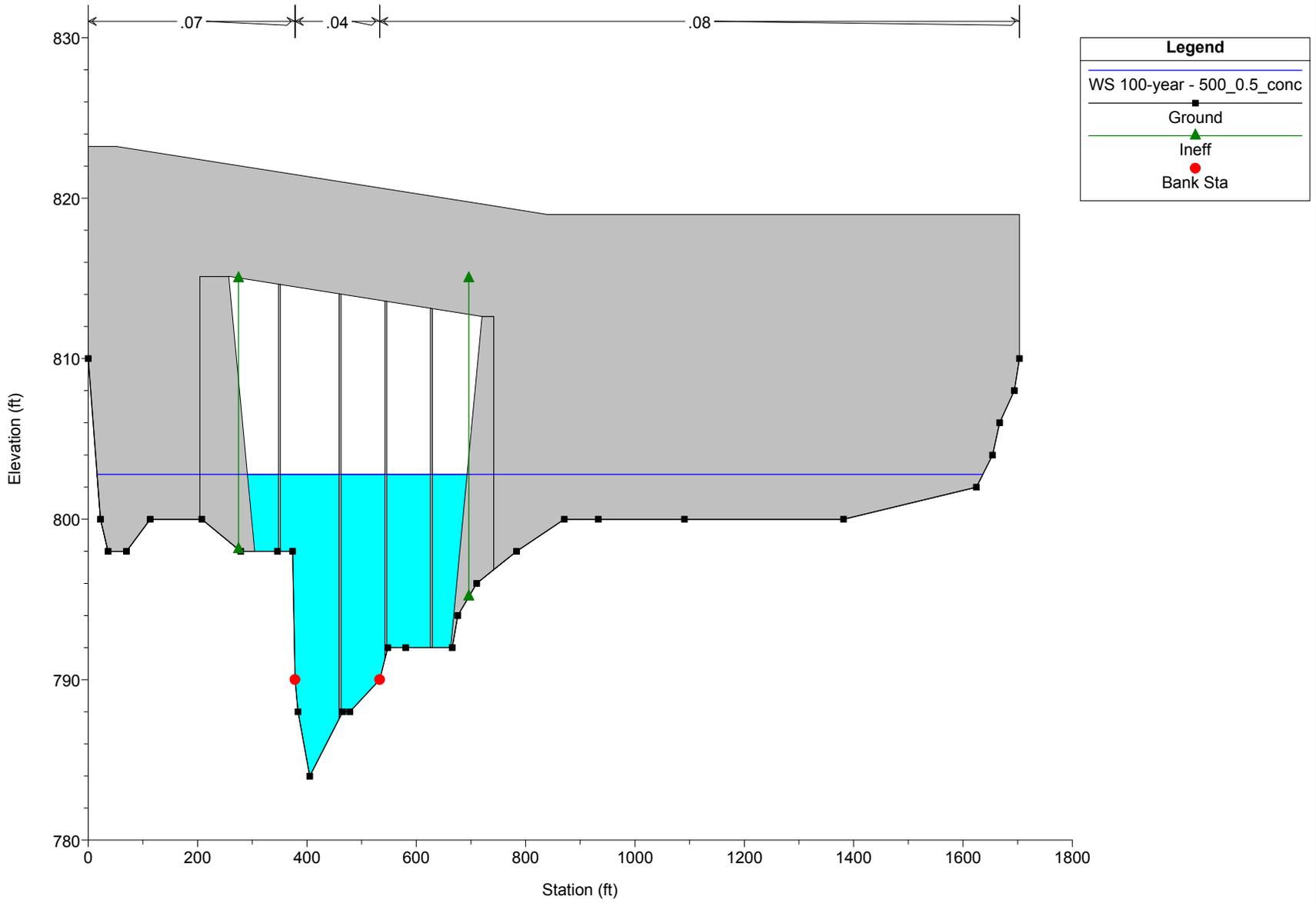
One

Legend

- WS 100-year - 500_0.5_conc
- WS 100-year - Nat & Survey
- Ground

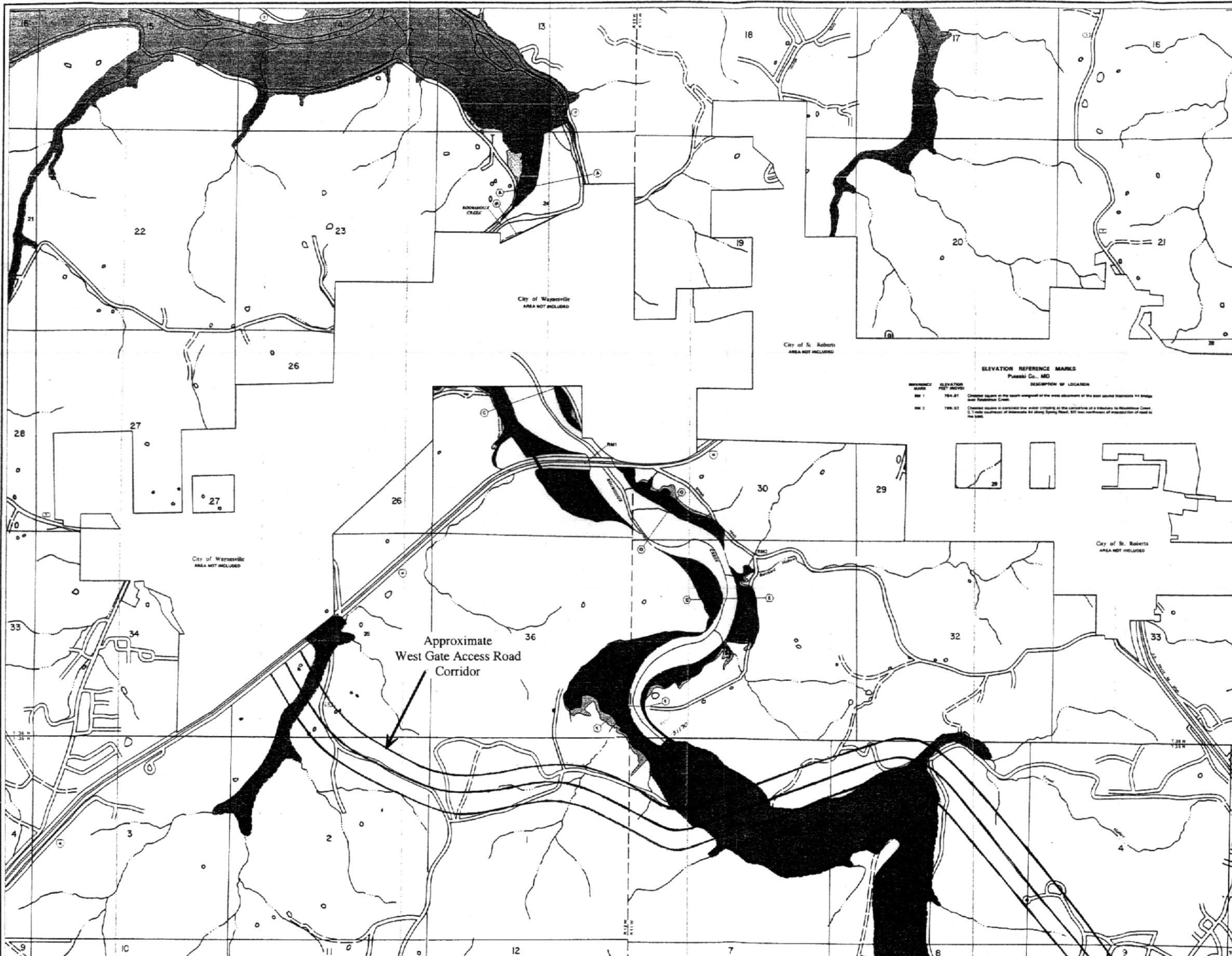


Roubidoux Creek - Fort Leonard Wood Plan: 1) 500_0.5_conc 2) Nat & Survey



APPENDIX – C

Flood Plain Map



KEY TO MAP

- 100-Year Flood Boundary
- 100-Year Flood Boundary
- 100-Year Flood Boundary
- 100-Year Flood Boundary
- Approximate 100-Year Flood Boundary
- Cross Section Line
- Location Reference Mark
- Blue Mile

NOTES TO USER

Boundaries of the floodways were computed in cross sections and interpolated between cross sections. The floodways were based on hydraulic computations with regard to requirements of the Federal Emergency Management Agency.

This map was prepared in furtherance of flood plain management activities only; it may not show all special flood hazard areas in the community or all streamwise floodway sections of the flood plain. Refer to the latest official Flood Insurance Rate Map for authoritative areas of special flood hazard.

Floodway widths in some areas may be too narrow to show in scale. Refer to Figure 10-11, which shows floodway width in detail at 1/250 scale.

For planning map users, an advisory panel map index.

ELEVATION REFERENCE MARKS
Pulaski Co., MO

REFERENCE MARK	ELEVATION FEET ABOVE SEA LEVEL	DESCRIPTION OF LOCATION
RM 1	794.81	Center square in the north wing of the west abutment of the east spaned highway #4 bridge over Rockhouse Creek.
RM 2	796.33	Center square in concrete low water crossing at the confluence of a tributary to Rockhouse Creek, 2.7 miles southeast of Interstate 44 along Spring Road, 500 feet northwest of intersection of road to the left.

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY
FLOOD BOUNDARY AND
FLOODWAY MAP

PULASKI COUNTY,
MISSOURI
(UNINCORPORATED AREAS)

PANEL 90 OF 175
SEE MAP INDEX FOR PANELS NOT PRINTED

COMMUNITY-PANEL NUMBER
290826 0090

EFFECTIVE DATE:
APRIL 17, 1965



Federal Emergency Management Agency

APPENDIX - D

Monumentation List

Project Benchmarks used by M J Harden (converted to NAVD 88)

1. B.M. – FLW BH 46
Brass cap set in concrete on the East Side of Iowa Avenue, east of Forney Army Airfield.
Elev. = 1158.12
2. B.M. – FLW BH 85 – Range 4
Brass cap set in concrete on the north side of asphalt road, west of a gravel drive, north of Range 4 Elev. = 1158.98

SURVEY NOTES

1. The centerline staking which currently exists in the field was set to facilitate preliminary design and to assist in accessing and surveying Geotechnical borings. Due to alignment changes after the stakes were set, the staked positions do not reflect the final alignment shown on these plans and should not be used.
2. Per MJ Harden:
3. “Only points which have been referenced should be used for control. All others should only be used for checking purposes.”
Reference ties are available for MJH control points:
507, 521, 522, 525, 528, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 545, and 546.
3. All MJH control points are a ½” rebar with alloy cap except 525 which is a spike, and 533, which is a found brass disc set in concrete (FLW survey point BH 27)

SECTION CORNERS AND MoDOT CONTROL POINTS

Point Description	MoDOT ground North	MoDOT ground East	Project ground North	Project ground East
N 1/4 COR. SEC. 2 - 35 - 12	715562.5736	1721811.6271	715561.7148	1721809.5608
S 1/4 COR. SEC. 35 - 36 - 12	715561.9779	1721845.1609	715561.1192	1721843.0945
MoDOT Traverse Point 1149	715558.9060	1722020.2233	715558.0472	1722018.1566
MoDOT GPS Point 0002	715414.3757	1721979.0840	715413.5172	1721977.0176
N 1/16TH COR. NE 1/4 SEC. 2	715539.3265	1723121.6081	715538.4678	1723119.5402
NE COR. SEC. 2 - 35 - 12	715515.7358	1724430.9102	715514.8771	1724428.8407
SE COR SEC. 35 - 36 - 12	715514.8205	1724476.8893	715513.9618	1724474.8197
MoDOT Traverse Point CP-8	714907.3277	1722937.5325	714906.4698	1722935.4640

MoDOT Conversion Factor (CAF) = .9998992

MJ Harden and Project Conversion Factor (CAF) = .9999004

MJH 9880-000 Fort Leonard Wood Road Alignment

POINT	MOD_EAST	MOD_NORTH	ELEV.	SP_EAST	SP_NORTH	LATITUDE	LONGITUDE
501	1721878.337	715745.111	943.876	1721706.838	715673.823	37 47 55.64502	-92 13 7.14442
503	1722162.746	713680.985	922.568	1721991.219	713609.902	37 47 35.22146	-92 13 3.67883
505	1723843.378	714447.249	1030.958	1723671.683	714376.090	37 47 42.75567	-92 12 42.71304
507	1727440.828	713852.882	942.385	1727268.775	713781.782	37 47 36.76801	-92 11 57.92069
509	1729966.472	712567.750	1060.978	1729794.167	712496.778	37 47 23.98225	-92 11 26.51053
511	1731195.717	714265.075	800.236	1731023.290	714193.934	37 47 40.72088	-92 11 11.12708
513	1733320.583	712527.390	802.771	1733147.944	712456.422	37 47 23.47151	-92 10 44.73057
515	1733626.485	713742.890	821.284	1733453.816	713671.801	37 47 35.47710	-92 10 40.86785
517	1736088.428	714846.116	986.787	1735915.514	714774.917	37 47 46.29822	-92 10 10.14991
519	1736531.750	713081.907	812.214	1736358.791	713010.884	37 47 28.84245	-92 10 4.70512
521	1737605.172	714716.157	822.477	1737432.107	714644.971	37 47 44.96008	-92 9 51.26031
522	1738303.739	713699.960	834.270	1738130.604	713628.875	37 47 34.88949	-92 9 42.60349
523	1739170.566	713626.694	1042.748	1738997.345	713555.617	37 47 34.13409	-92 9 31.80847
525	1740761.774	711139.972	1120.086	1740588.394	711069.142	37 47 9.49351	-92 9 12.10116
527	1741499.623	709317.185	1122.018	1741326.170	709246.537	37 46 51.44705	-92 9 2.99517
528	1743607.818	709506.385	1149.318	1743434.155	709435.718	37 46 53.23877	-92 8 36.72800
529	1743813.807	710002.481	1146.966	1743640.123	709931.765	37 46 58.13522	-92 8 34.13874
531	1745528.831	708606.255	1071.315	1745354.976	708535.678	37 46 44.26742	-92 8 12.84462
532	1744462.288	708486.982	1124.250	1744288.540	708416.417	37 46 43.12905	-92 8 26.13405
533	1744938.145	707269.903	1141.023	1744764.349	707199.459	37 46 31.07939	-92 8 20.26582
534	1740204.333	711749.831	1106.270	1740031.009	711678.941	37 47 15.54271	-92 9 19.01672
535	1739722.119	711847.807	1105.525	1739548.843	711776.907	37 47 16.52880	-92 9 25.01890
536	1741325.269	711199.548	1134.106	1741151.833	711128.713	37 47 10.06175	-92 9 5.07941
537	1742423.413	709164.762	1149.475	1742249.868	709094.129	37 46 49.90600	-92 8 51.49625
538	1742960.247	709547.808	1161.181	1742786.648	709477.137	37 46 53.67259	-92 8 44.79180
539	1731879.106	713217.878	801.216	1731706.611	713146.841	37 47 30.34595	-92 11 2.65774
540	1731697.863	713796.620	802.473	1731525.386	713725.526	37 47 36.07323	-92 11 4.89120
541	1725140.193	713923.536	1057.282	1724968.369	713852.429	37 47 37.53862	-92 12 26.57804
542	1725567.713	713931.040	1052.949	1725395.846	713859.932	37 47 37.59954	-92 12 21.25193
543	1723161.376	714852.537	1021.194	1722989.749	714781.338	37 47 46.78290	-92 12 51.19383
544	1723839.085	714402.194	1030.435	1723667.391	714331.040	37 47 42.31041	-92 12 42.76825
545	1730896.272	713788.568	799.285	1730723.875	713717.475	37 47 36.02023	-92 11 14.87729
546	1734215.718	713733.851	868.851	1734042.990	713662.763	37 47 35.36763	-92 10 33.52795

Horizontal = Missouri Central Zone NAD83/97 modified US Feet, CAF = 0.9999004, Vertical = NAVD 1988

APPENDIX – E

QC/QA Reference Tables

Table 1
Allowable Tolerance for Non-statistical Materials
Design-Builder QC Testing vs. USACE Verification Testing

Soils	
TEST	VERIFICATION TEST vs. Design-Builder TEST, +/-
Plasticity Index (AASHTO T90)	3
#200 Sieve, % (AASHTO T27/11)	1.5
Optimum Moisture, % (AASHTO T265)	1.0
Proctor Density, lbs/ft ³ (AASHTO T99)	2.0
Compaction, % (MoDOT TM-40)	2.0
Aggregate (Base, Subbase, Backfill, and Mineral Aggregates)	
TEST	VERIFICATION TEST vs. Design-Builder TEST, +/-
Sieve Analysis (Non-statistical Item) AASHTO T 27/11	
No. 4 sieve & larger	5.0 ¹
No. 6 sieve to No. 10 sieve	4.0 ¹
No. 10 sieve to No. 80 sieve	3.0 ¹
No. 80 sieve and No. 200 sieve	2.0 ¹
Sand Equivalent (AASHTO T 176)	5
Optimum Moisture, % (AASHTO T255)	1.0
Proctor Density, lbs/ft ³ (AASHTO T99)	2.0
Compaction, % (MoDOT TM-40)	2.0
Portland Cement Concrete	
TEST	VERIFICATION TEST vs. Design-Builder TEST, +/-
Slump of Concrete (AASHTO T119)	
¾ inch Max. Aggregate and Specified Slump 3 inch or less	½
1 1/2 inch Max. Aggregate and Specified Slump greater than 3 inch	1.0
Air Content, % (AASHTO T152)	1.0
Temperature, °F (AASHTO T 309)	1

¹ When the specification stated is either a maximum or minimum value the tolerance shall be 20% of that value not to exceed 5% points. Except that the maximum specification plus the tolerance value cannot exceed 100, neither can a minimum specification minus the tolerance value be less than zero.

Table 2 - Minimum Testing Requirements

General Notes:

1. The Verification lot size is base on a ratio of 1 verification test for each five (5) acceptance tests performed by the Design-Builder.
2. The Design-Builder may reduce the sub-lot size by up to 25%. The verification lot size will reflect this change.
3. One verification sample will be obtained from each of the first three Design-Builder's sublots, and then one verification sample for each subplot quantity stated in these tables.

Compaction Standards (Subgrade – Embankment, Granular Embankment, Backfill, and Surfacing)				
Type of Test	Point of Sampling	Minimum Testing Frequency		Statistical Acceptance
		D-B	USACE	
Moisture-Density Curve AASHTO T 99, T 272,	Material Source (AASHTO T2)	D-B to develop density standards for each material type used on project using AASHTO T99, T272	Samples of material, curve(s) developed from the material to be provided to MoDOT, which may verify as needed	N/A

Compaction – Subgrade, Embankment, Granular Embankment and Borrow* (Gravel, Select & Common)				
Type of Test	Point of Sampling	D-B Sub-lot Size (Test Purpose)	USACE Sub-lot Size (Test Purpose)	Statistical Acceptance
Compaction MoDOT TM-40	Roadway (AASHTO T2)	1 per 2500 C.Y. (Plus 1 Test per 500 L.F. of Cut Section) (Acceptance)	1 per 12,500 C.Y. (Plus 1 Test per 2500 L.F. of Cut Section) (Verification)	Yes

Granular Embankment Borrow (Gravel, Select, & Common) Sand Drainage Blanket, Gravel Base				
Type of Test	Point of Sampling	D-B Sub-lot Size (Test Purpose)	USACE Sub-lot Size (Test Purpose)	Statistical Acceptance
Gradation AASHTO T 27/11 (Calculate Dust Ratio for Gravel Base)	Roadway (AASHTO T2)	1 per 4,000 tons or 2,000 C.Y. or change in material source (Acceptance)	1 per 20,000 tons or 10,000 C.Y. (Verification)	Yes
Plasticity Index AASHTO T 90 (Common Borrow only)	Material Source (AASHTO T2)	1 per 4,000 tons or 2,000 C.Y. or change in material source (Acceptance)	1 per 20,000 tons or 10,000 C.Y. (Verification)	No
Sand Equivalent AASHTO T 176	Roadway (AASHTO T2)	1 per 4,000 tons or 2,000 C.Y. or change in material source (Acceptance)	1 per 20,000 tons or 10,000 C.Y. (Verification)	Yes
Granular Surfacing				

Type of Test	Point of Sampling	D-B Sub-lot Size (Test Purpose)	USACE Sub-lot Size (Test Purpose)	Statistical Acceptance
Gradation AASHTO T 27/11	Roadway (Windrow) (AASHTO T2)	1 per 4,000 tons or 2,000 C.Y. or change in material source (Acceptance)	1 per 20,000 tons or 10,000 C.Y. (Verification)	Yes
Sand Equivalent AASHTO T 176	Roadway (Windrow) (AASHTO T2)	1 per 4,000 tons or 2,000 C.Y. or change in material source (Acceptance)	1 per 20,000 tons or 10,000 C.Y. (Verification)	Yes
Compaction MoDOT TM-40	Roadway (AASHTO T2)	1 test per 1000 L.F. per layer (Acceptance)	1 test per 5000 L.F. per layer (Verification)	Yes

Gravel Backfill Foundations, Walls, Pipe Zone Bedding, and Sand Drains				
Type of Test	Point of Sampling	D-B Sub-lot Size (Test Purpose)	USACE Sub-lot Size (Test Purpose)	Statistical Acceptance
Gradation AASHTO T 27/11	Crusher Belt, Stockpile or Jobsite (AASHTO T2)	1 per 1,000 tons or 750 C.Y. or change in material source (Acceptance)	1 per 5,000 tons or 4000 C.Y. (Verification)	Yes
Sand Equivalent AASHTO T 176	Crusher Belt, Stockpile or Jobsite (AASHTO T2)	1 per 1,000 tons or 750 C.Y. or change in material source (Acceptance)	1 per 5,000 tons or 4000 C.Y. (Verification)	Yes
Compaction MoDOT TM 40, AASHTO T224,	In-Place	1 test per 200 C.Y., Minimum 1 test per layer per backfill installation (Acceptance)	1 test per 1000 C.Y. (Verification)	Yes

Gravel Backfill for Drains				
Type of Test	Point of Sampling	D-B Sub-lot Size (Test Purpose)	USACE Sub-lot Size (Test Purpose)	Statistical Acceptance
Gradation AASHTO T 27/11	Crusher Belt, Stockpile or Jobsite (AASHTO T2)	1 per 100 tons* or 75 C.Y., minimum of one per project (Acceptance)	1 per 500 tons or 400 C.Y. (Verification)	Yes

Coarse Concrete Aggregates				
Type of Test	Point of Sampling	D-B Sub-lot Size (Test Purpose)	USACE Sub-lot Size (Test Purpose)	Statistical Acceptance
Gradation AASHTO T 27/11	Crusher Belt, Stockpile (AASHTO T2)	1 per 1,000 tons or 1000 C.Y. of Concrete, min. 1 per project per material source (Acceptance)	1 per 5,000 tons or 5,000 C.Y. (Verification)	No

Fine Concrete Aggregates				
---------------------------------	--	--	--	--

Type of Test	Point of Sampling	D-B Sub-lot Size (Test Purpose)	USACE Sub-lot Size (Test Purpose)	Statistical Acceptance
Gradation AASHTO T 27/11	Crusher Belt, Stockpile (AASHTO T2)	1 per 1,000 tons or 1000 C.Y. of Concrete , min. 1 per project per material source (Acceptance)	1 per 5,000 tons or 5,000 C.Y. (Verification)	No
Fineness Modulus AASHTO T 27/11	Crusher Belt, Stockpile (AASHTO T2)	1 per 1,000 tons or 1000 C.Y. of Concrete , min. 1 per project per material source (Acceptance)	1 per 5,000 tons or 5,000 C.Y. (Verification)	No

Structural Concrete and Grouts				
Type of Test	Point of Sampling	D-B Sub-lot Size (Test Purpose)	USACE Sub-lot Size (Test Purpose)	Statistical Acceptance
Slump AASHTO T 119	Pump Discharge or Truck Chute AASHTO T 141	Test until 2 successive loads in spec, then 1 per every 5 loads there after (Acceptance)	Spot Check Design-Builder testing activities using checklists. Run 1 per 5 D-B Tests (Verification)	No
Temperature AASHTO T 309	Pump Discharge or Truck Chute AASHTO T 141	Test until 2 successive loads in spec, then 1 per every 5 loads there after (Acceptance)	Spot Check Design-Builder testing activities using checklists. Run 1 per 5 D-B Tests (Verification)	No
Entrained Air AASHTO T 152	Pump Discharge or Truck Chute AASHTO T 141	Test until 2 successive loads in spec, then 1 per every 5 loads there after (Acceptance)	Spot Check Design-Builder testing activities using checklists. Run 1 per 5 D-B Tests (Verification)	No
Compressive Strength AASHTO T 23	Pump Discharge or Truck Chute AASHTO T 141	Compressive Test cylinders to be Fabricated by the Design-Builder at point of air testing, transported to the nearest MoDOT Testing facility for testing by MoDOT. 1 set per 50 C.Y., min. 1 set per day. (Acceptance)		Yes

Paving Concrete				
Type of Test	Point of Sampling	D-B Sub-lot Size (Test Purpose)	USACE Sub-lot Size (Test Purpose)	Statistical Acceptance
Slump AASHTO T 119	Ahead of Slip Form AASHTO T 141	Test until 2 successive tests in spec, then 1 per every 2500 SY or fraction thereof (Acceptance)	Spot Check Design-Builder testing activities. Run 1 per 5 D-B Tests (Verification)	No
Temperature AASTO T 309	Ahead of Slip Form AASHTO T 141	Test until 2 successive tests in spec, then 1 per every 2500 SY or fraction thereof (Acceptance)	Spot Check Design-Builder testing activities. Run 1 per 5 D-B Tests (Verification)	No
Entrained Air AASHTO T 152	Ahead of Slip Form AASHTO T 141	Test until 2 successive tests in spec, then 1 per every 2500 SY or fraction thereof (Acceptance)	Spot Check Design-Builder testing activities. Run 1 per 5 D-B Tests (Verification)	No
Compressive Strength AASHTO T 23	Ahead of Slip Form AASHTO T 141	Compressive Test cylinders to be Fabricated by the Design-Builder at point of air testing, transported to the nearest MoDOT Testing facility for testing by MoDOT. Fabrication to be observed by MoDOT. 1 set 2500 SY or fraction thereof. (Acceptance)		*

Hot Mix Asphalt				
Type of Test	Point of Sampling	D-B Sub-lot Size (Test Purpose)	USACE Sub-lot Size (Test Purpose)	Statistical Acceptance
AC Content MoDOT TM-51, AASHTO T 308	Trucks @ Plant AASHTO T 168	1 per 800 tons Min. 1 per day Split to be provide to MoDOT Central Lab (Acceptance)	1 per 4000 tons (Verification)	Yes
Gradation AASHTO TP 30	Trucks @ Plant AASHTO T168	1 per 800 tons Min. 1 per day Split to be provided to MoDOT Central Lab (Acceptance)	1 per 4000 tons (Verification)	Yes
Theoretical Max. Specific Gravity and Density AASHTO T 209	Trucks @ Plant AASHTO T 168	1 per day (Acceptance)	1 per 5 D-B tests (Verification)	No
Moisture MoDOT TM-53	Trucks @ Plant AASHTO T 168	1 per 800 tons Min. 1 per day Split to be provided to MoDOT Central Lab (Acceptance)	1 per 4000 tons (Verification)	No
Gyratory Compaction AASHTO TP 4, PP 28 (SuperPave Mixes only)	Trucks @ Plant AASHTO T 168	1 per 800 tons Min. 1 per day Split to be provided to MoDOT Central Lab (Acceptance)	1 per 4000 tons (Verification)	No
Compaction MoDOT TM-41	Roadway AASHTO T 168	5 In-place density determinations per 400 ton lot. Min 1 per day (Acceptance)	5 In-place density determinations per 2000 ton lot. Min 1 per project (Verification)	Yes

Liquid Asphalt				
Type of Test	Point of Sampling	D-B Sub-lot Size (Test Purpose)	USACE Sub-lot Size (Test Purpose)	Statistical Acceptance
Paving Asphalt AASHTO T 40	Plant	1 per 1600 tons of HMA ship to MoDOT Central Lab (Acceptance)	N/A (Verification)	No
Liquid Asphalt AASHTO T 40	Truck	1 per every other load delivered to project, ship to MoDOT Central Lab (Acceptance)	N/A (Verification)	No

Mineral Aggregate for HMA				
Type of Test	Point of Sampling	D-B Sub-lot Size (Test Purpose)	USACE Sub-lot Size (Test Purpose)	Statistical Acceptance
Soundness AASHTO T96	Cold Feed Belt, (AASHTO T2)	1 per 1,600 tons (Acceptance)	1 per 8000 tons (Verification)	Yes
Sand Equivalent AASHTO T 176	Cold Feed Belt, (AASHTO T2)	1 per 1,600 tons (Acceptance)	1 per 8000 tons (Verification)	Yes
Sand Equivalent AASHTO T 176	Crusher Belt, (AASHTO T2)	1 per 1,000 tons (Acceptance)	1 per 5,000 tons (Verification)	Yes
Soundness AASHTO T96	Crusher Belt, (AASHTO T2)	1 per 1,000 tons (Acceptance)	1 per 5,000 tons (Verification)	Yes

Table 3
Random Numbers Table
for Selecting Test Locations and Test Unit*

SEQUENCE	X	Y												
1	0.290	0.33	21	0.712	0.17	41	0.172	0.87	61	0.768	0.32	81	0.477	0.85
2	0.119	0.43	22	0.193	0.17	42	0.430	0.87	62	0.893	0.37	82	0.267	0.44
3	0.694	0.32	23	0.976	0.69	43	0.704	0.19	63	0.504	0.66	83	0.933	0.28
4	0.722	0.47	24	0.997	0.63	44	0.009	0.18	64	0.043	0.31	84	0.974	0.87
5	0.784	0.39	25	0.930	0.44	45	0.552	0.17	65	0.284	0.39	85	0.600	0.46
6	0.953	0.15	26	0.657	0.69	46	0.626	0.29	66	0.196	0.15	86	0.591	0.19
7	0.576	0.14	27	0.761	0.27	47	0.144	0.62	67	0.742	0.66	87	0.165	0.77
8	0.069	0.74	28	0.389	0.69	48	0.246	0.13	68	0.941	0.43	88	0.668	0.41
9	0.691	0.86	29	0.751	0.20	49	0.055	0.40	69	0.531	0.31	89	0.327	0.29
10	0.973	0.44	30	0.191	0.77	50	0.678	0.66	70	0.478	0.56	90	0.473	0.51
11	0.328	0.50	31	0.006	0.50	51	0.762	0.65	71	0.228	0.37	91	0.598	0.58
12	0.468	0.78	32	0.456	0.23	52	0.285	0.28	72	0.008	0.48	92	0.373	0.69
13	0.183	0.44	33	0.367	0.85	53	0.347	0.87	73	0.002	0.17	93	0.244	0.24
14	0.669	0.36	34	0.025	0.73	54	0.962	0.75	74	0.330	0.42	94	0.831	0.14
15	0.971	0.71	35	0.299	0.33	55	0.203	0.60	75	0.089	0.20	95	0.178	0.45
16	0.336	0.37	36	0.194	0.25	56	0.803	0.35	76	0.434	0.43	96	0.821	0.46
17	0.314	0.78	37	0.936	0.37	57	0.672	0.17	77	0.832	0.71	97	0.124	0.62
18	0.508	0.44	38	0.231	0.71	58	0.306	0.20	78	0.044	0.73	98	0.580	0.57
19	0.347	0.20	39	0.050	0.74	59	0.223	0.83	79	0.235	0.28	99	0.037	0.24
20	0.877	0.85	40	0.584	0.43	60	0.166	0.58	80	0.271	0.62	100	0.700	0.59

*The test unit may be cubic yards for concrete or aggregates, tons HMA, surfacing and other aggregates.
 Use only the "X" values for selecting a sampling unit for concrete, aggregates, HMA.
 Use the last two digits from the nuclear gauge daily standard count or other random method to enter the number table.

APPENDIX - F

**Bridge Memorandum
and TS&L Drawings**

BRIDGE MEMORANDUM

Sheet 1 of 1

DIST. 9 BRIDGE NO. --
JOB NO. -- STATION CL Bent 2 Sta. 164+92.53
PROJECT ROUTE -- DATE 12/13/2001
Pulaski COUNTY ROUTE West Gate Access Road OVER Roubidoux Creek
FINAL LAYOUT 100'-120'-93'-93'-93' Prestressed Concrete I-Girders SKEW 22° Right Ahead
GRADE -0.5%, P.V.T. Sta. 160+50.00 Elev. 823.23

FILL EXCEPTION Sta. 163+91.18± Sta. 168+93.87± ALIGNMENT Tangent on structure
BEGINNING STATION 163+91.18 LOADING HS20 modified, with alternate military
PRESENT BRIDGE None
TRAFFIC HANDLING None Required

RIGHT-OF-WAY REQUIRED No Extra Required for Bridge
ROADWAY WIDTH: 36'-0" Unsymmetrical (2 lanes at 12' + 1 - 8' shoulder and 1 - 4' shoulder) + 2 - 16" Safety Barrier Curbs

GENERAL NOTES:

Skew: 22° Right Ahead (All bents parallel)
Bent 2 - Sta. Tie Sta. 164+92.53
Design span lengths measured along CL Eastbound West Gate Access Road
Cross-slope data: -2% each lane from profile grade
Profile Grade and Stationing at CL Eastbound West Gate Access Road
Guardrails required at each end of bridge (Roadway item)
Slope Protection - 2'-0" rock blanket at each end bent (Roadway item)
Provide 25'-0" Approach Slabs at ends of bridge. (Bridge item)
Use System G (Gray) coating on structural steel.
Use typical 4"x8" slab drains, as required.
Design Speed = 50 mph
DesignYear (2022) - ADT=27,710; ADTT=2,771
Utilities on the bridge are not required.
Roadway lighting supports are required.
Substructure: End Bents - Integral; Intermediate Bents - Open Concrete
Wingwall lengths are: 24'-0" (End Bent 1 North)
24'-0" (End Bent 1 South)
24'-0" (End Bent 6 North)
24'-0" (End Bent 6 South)

Hydrologic Information:

Terrain is rolling.
Drainage Area = 295.0 sq. mi. Design High Water Elev. = 802.79 ft.
Design Frequency = 100 year Estimated Backwater = 0.95 ft.
Design Discharge = 31,500 cfs Overtopping Frequency = >500 year
Floodplain Development Permit is required.
Revetment/slope: Rock Blanket Slope Protection at End Bents
End Fills: Earth Fill at End Bents, 3:1

From Bridge Office Date _____

From District Office Date _____

From Design-Builder Date _____

Date _____

Construction Cost Estimate \$ _____

HYDROLOGIC DATA

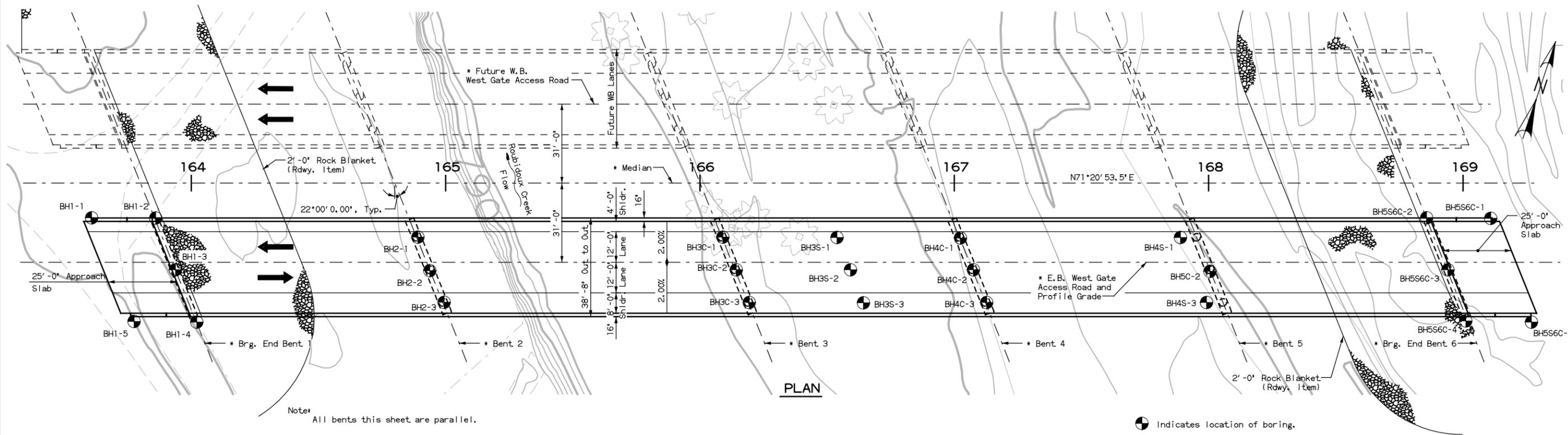
Drainage Area = 295 sq. mi.
Design Frequency = 100 yr.
Design Discharge = 31,500 cfs
Average Design Velocity = 7.56 fps
Design High Water Elev. = 802.79 ft.
Design Backwater = 0.95 ft.
Ordinary High Water Elevation = 786.9 ft.

- BENCHMARKS**
- B.M. - FLW BH 46
Brass cap set in concrete on the East Side of Iowa Avenue, east of Forney Army Airfield.
Elev. = 1158.12
 - B.M. - FLW BH 85 - Range 4
Brass cap set in concrete on the north side of asphalt road, west of a gravel drive, north of Range 4
Elev. = 1158.98

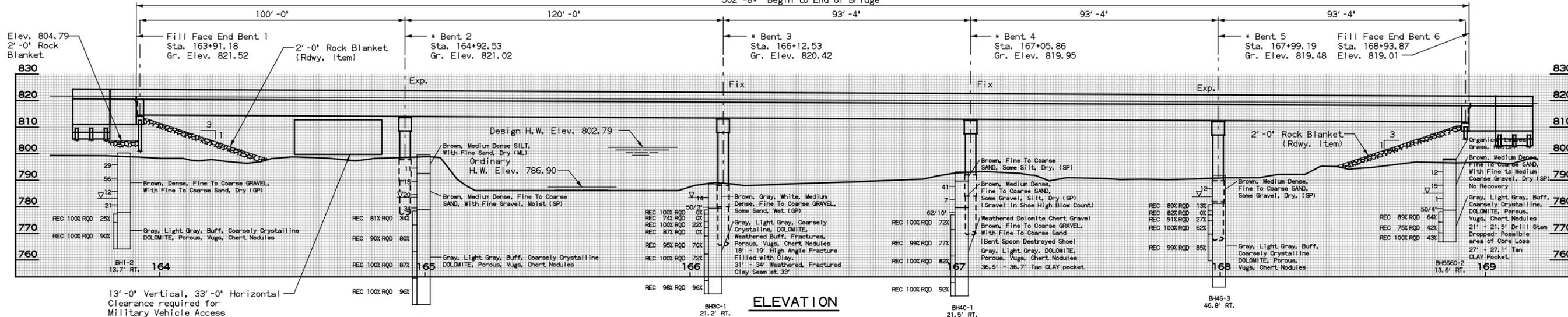


PROFILE GRADE

Note:
For Typical Boring details, see Sheet No. 57.

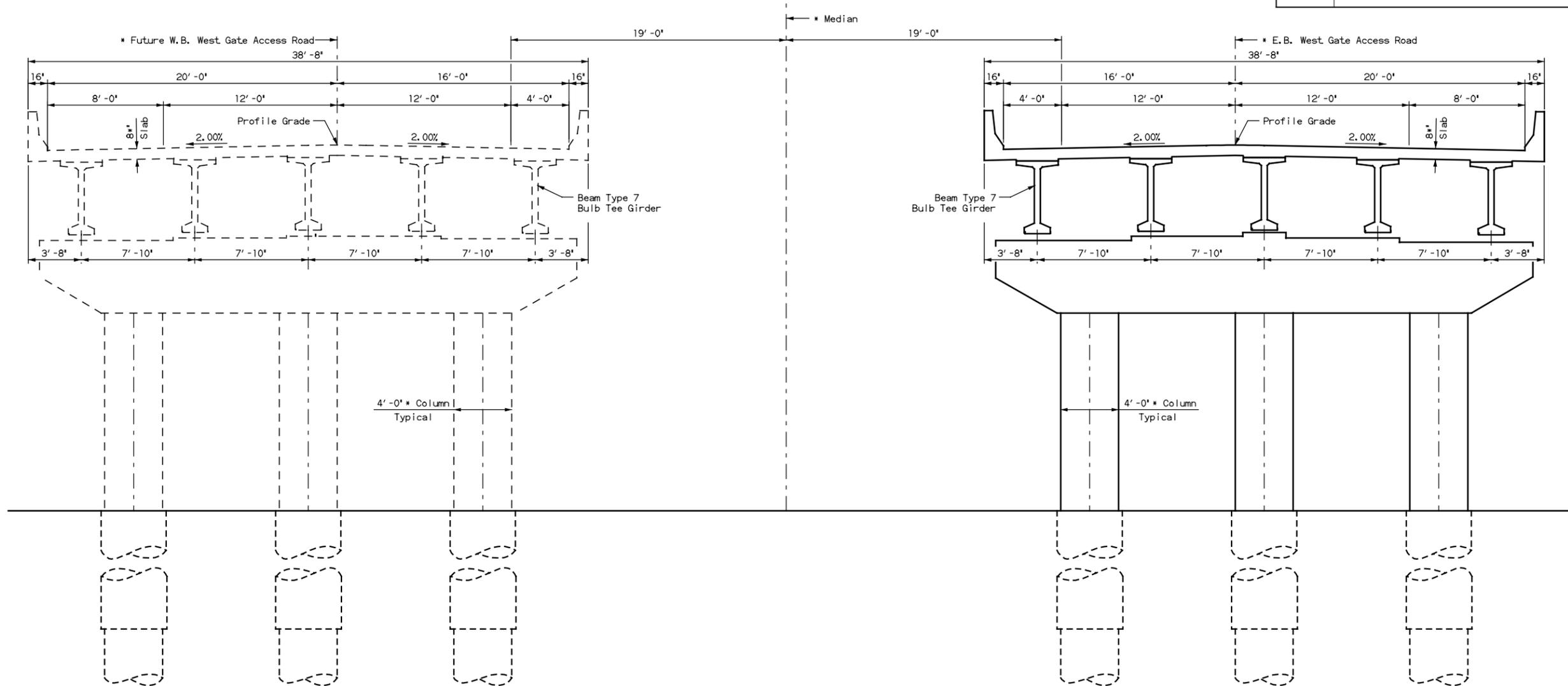


(100' - 120' - 93'-4' - 93'-4' - 93'-4') Prestressed Concrete I-Girders
Skew 22°00'00.0" Right Ahead
502'-8" Begin to End of Bridge

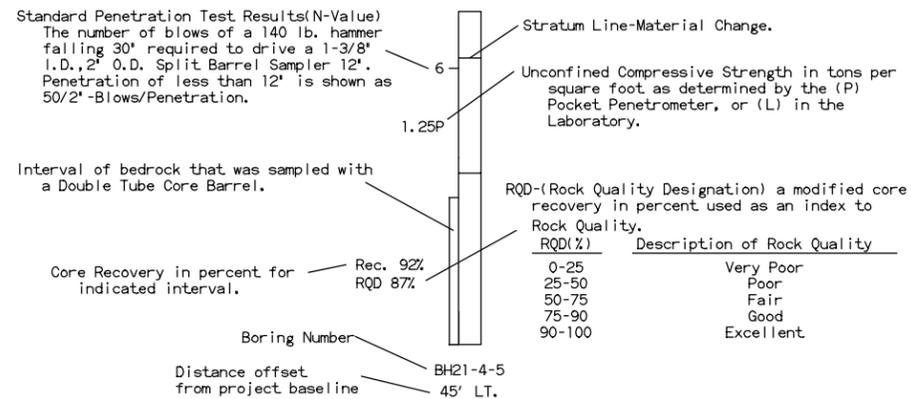


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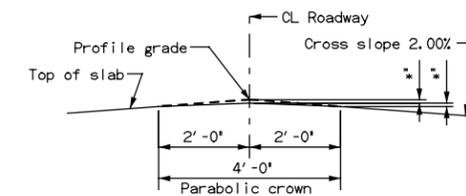




TYPICAL BORING



TYPICAL SECTION



TYPICAL PARABOLIC ROUNDING AT CROWN

BRIDGE MEMORANDUM

Sheet 1 of 1

DIST. 9 BRIDGE NO. --
JOB NO. -- STATION CL Bent 2 Sta. 164+92.53
PROJECT ROUTE -- DATE 12/13/2001
Pulaski COUNTY ROUTE West Gate Access Road OVER Roubidoux Creek
FINAL LAYOUT 100'-165'-135'-100' Continuous Composite Plate Girders SKEW 22° Right Ahead
GRADE -0.5%, P.V.T. Sta. 160+50.00 Elev. 823.23

FILL EXCEPTION Sta. 163+91.18± Sta. 168+93.87± ALIGNMENT Tangent on structure
BEGINNING STATION 163+91.18 LOADING HS20 modified, with alternate military
PRESENT BRIDGE None
TRAFFIC HANDLING None Required

RIGHT-OF-WAY REQUIRED No Extra Required for Bridge
ROADWAY WIDTH: 36'-0" (2 lanes at 12' + 1 - 8' shoulder and 1 - 4' shoulder) + 2 - 16" Safety Barrier Curbs

GENERAL NOTES:

Skew: 22° Right Ahead (All bents parallel)
Bent 2 - Sta. Tie Sta. 164+92.53
Design span lengths measured along CL Eastbound West Gate Access Road
Cross-slope data: -2% each lane from profile grade
Profile Grade and Stationing at CL Eastbound West Gate Access Road
Guardrails required at each end of bridge (Roadway item)
Slope Protection - 2'-0" rock blanket at each end bent (Roadway item)
Provide 25'-0" Approach Slabs at ends of bridge. (Bridge item)
Use System G (Gray) coating on structural steel, unless weathering steel is used.
Use typical 4"x8" slab drains, as required.
Design Speed = 50 mph
DesignYear (2022) - ADT=27,710; ADTT=2,771
Utilities on the bridge are not required.
Roadway lighting supports are required.
Substructure: End Bents - Integral; Intermediate Bents - Open Concrete
Wingwall lengths are: 24'-0" (End Bent 1 North)
24'-0" (End Bent 1 South)
24'-0" (End Bent 5 North)
24'-0" (End Bent 5 South)
Hydrologic Information:
Terrain is rolling.
Drainage Area = 295.0 sq. mi. Design High Water Elev. = 802.81 ft.
Design Frequency = 100 year Estimated Backwater = 0.91 ft.
Design Discharge = 31,500 cfs Overtopping Frequency = >500 year
Floodplain Development Permit is required.
Revetment/slope: Rock Blanket Slope Protection at End Bents
End Fills: Earth Fill at End Bents, 3:1

From Bridge Office Date _____

From District Office Date _____

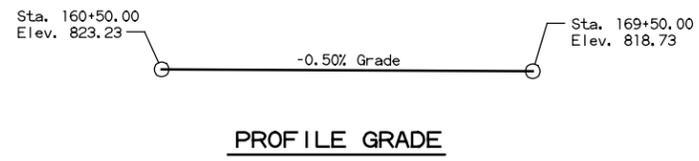
From Design-Builder Date _____ Construction Cost Estimate \$ _____

Date _____

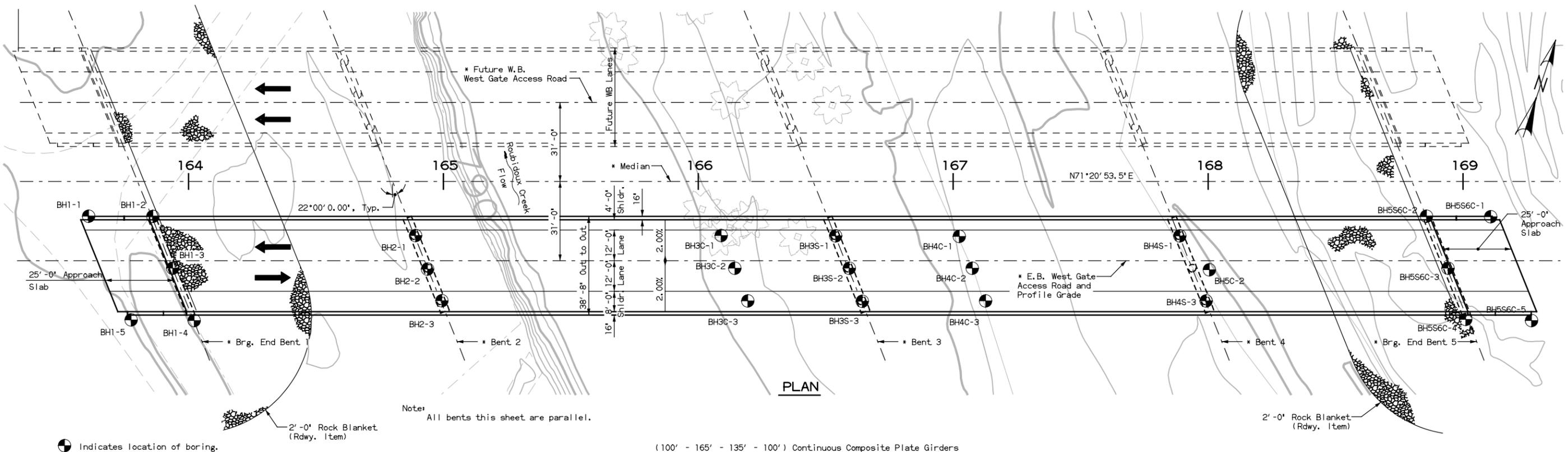
HYDROLOGIC DATA

Drainage Area = 295 sq. mi.
Design Frequency = 100 yr.
Design Discharge = 31,500 cfs
Average Design Velocity = 7.46 fps
Design High Water Elev. = 802.81 ft.
Design Backwater = 0.91 ft.
Ordinary High Water Elevation = 786.9 ft.

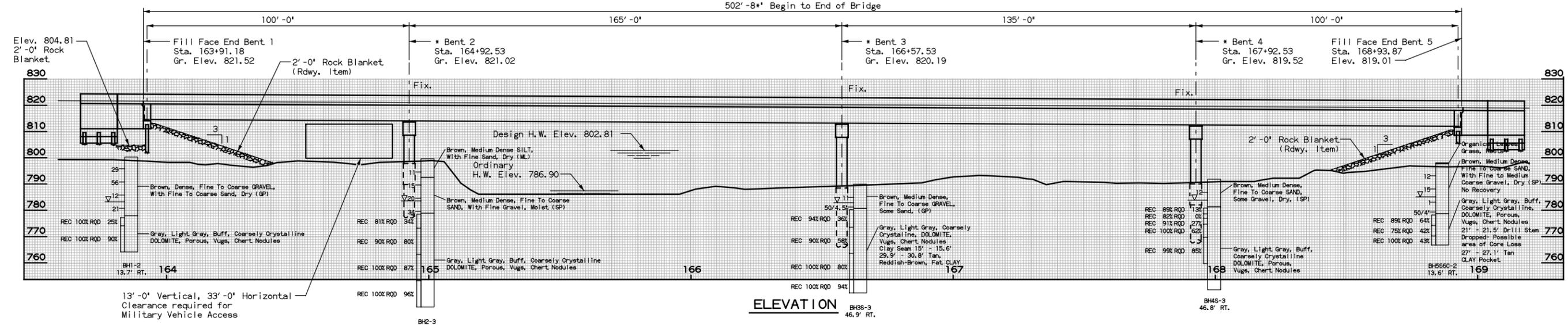
- BENCHMARKS**
- B.M. - FLW BH 46
Brass cap set in concrete on the East Side of Iowa Avenue, east of Forney Army Airfield.
Elev. = 1158.12
 - B.M. - FLW BH 85 - Range 4
Brass cap set in concrete on the north side of asphalt road, west of a gravel drive, north of Range 4
Elev. = 1158.98



Note: For Typical Boring details, see Sheet No. 54.

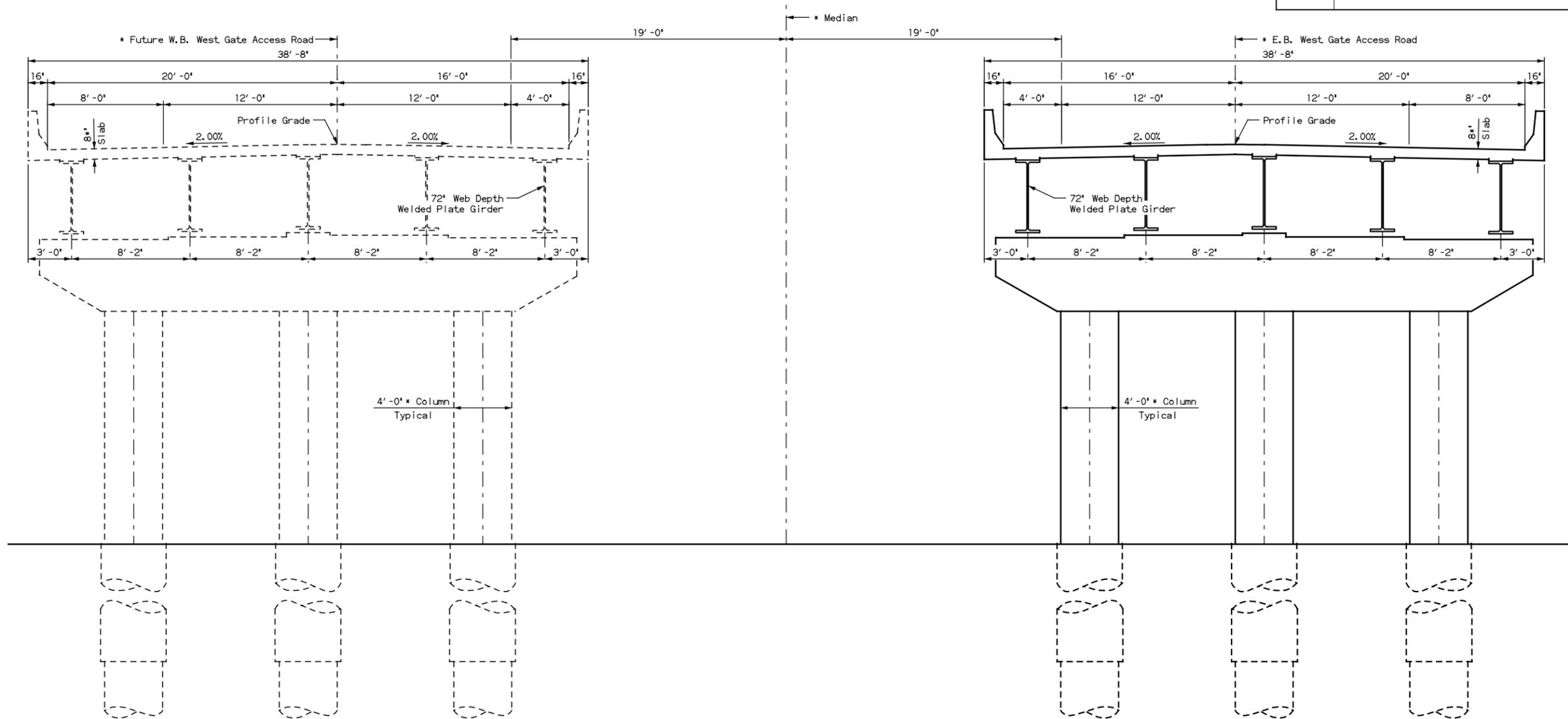


(100' - 165' - 135' - 100') Continuous Composite Plate Girders
Skew 22°00'00.0" Right Ahead
502'-8" Begin to End of Bridge

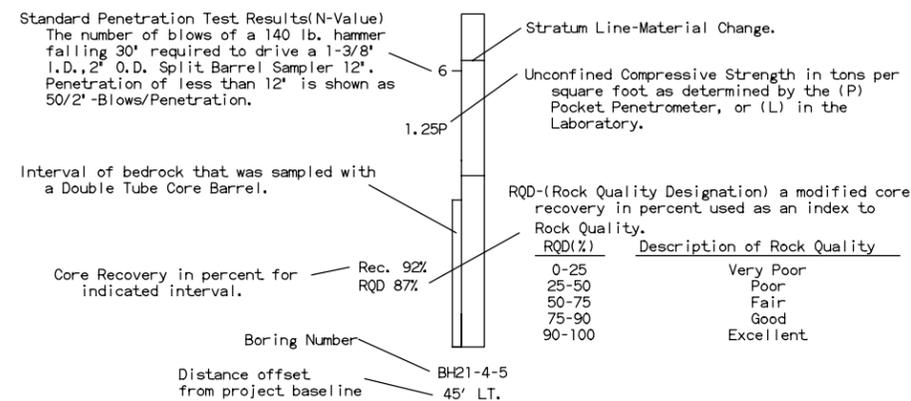


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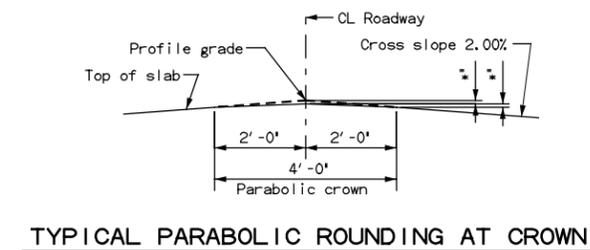




TYPICAL BORING



TYPICAL SECTION



TYPICAL PARABOLIC ROUNDING AT CROWN

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