

CEMVS-CO-C

DR 415-1-11

DEPARTMENT OF THE ARMY  
ST. LOUIS DISTRICT, CORPS OF ENGINEERS  
1222 SPRUCE STREET  
ST. LOUIS, MISSOURI 63103-2833

Regulation  
No. 415-1-11

15 November 1999

Construction  
BIDDABILITY, CONSTRUCTIBILITY, OPERABILITY AND  
ENVIRONMENTAL REVIEW

1. **Purpose.** This regulation establishes a system to ensure that the biddability, constructibility, operability and environmental (BCOE) aspects of a project are considered during design and a high degree of BCOE review is integrated into the construction procurement documents for all projects.
2. **Applicability.** This regulation applies to all elements of the St. Louis District responsible for planning, project management, design, contracting, construction and operation of projects.
3. **References.**
  - a. ER 5-1-11 Program and Project Management, 27 Feb 98.
  - b. ER 10-1-3 Organization and Functions, 1 May 96.
  - c. ER 415-1-11 Biddability, Constructibility, Operability and Environmental Review, 1 Sep 94.
  - d. ER 1110-2-1150 Engineering and Design For Civil Works Projects, 31 Mar 94.
  - e. ER 1110-2-1200 Plans and Specifications for Civil Works Projects, 30 Oct 93.
  - f. ER 1180-1-6 Construction Quality Management, 30 Sep 95.
4. **Responsibilities.**
  - a. THE PROJECT MANAGER or OPERATIONS MANAGER will ensure that adequate time to accomplish these review activities, as outlined in paragraph 7, is included in the project baseline schedule. Further, will ensure that adequate design funds for the accomplishment of BCOE reviews are reserved in the baseline budget as negotiated and included in the Project Management Plan in accordance with ER 5-1-11.

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b. **CHIEF OF ENGINEERING**, acting through the Engineering Division Project Engineer, will ensure that BCOE reviews and incorporation or resolution of resulting comments are accomplished, and will provide documents for review and backcheck, evaluate comments and provide feedback on disposition of comments. The Chief of Engineering or a duly authorized representative, Branch Chief or higher, will certify, in writing, that all appropriate BCOE comments have been incorporated in the bid document or satisfactorily resolved and that feedback on all comments has been provided to reviewers.

c. **CHIEF OF ENVIRONMENTAL AND ECONOMICAL ANALYSIS**, acting through the Environmental Coordinator (PM-E), will ensure BCOE reviews are performed, review comments are furnished in accordance with established suspense, and that bid documents are in compliance with environmental commitments including those in the Record of Decision (ROD), FONSI, Section 404 or other permit, and all HTRW concerns. The Chief of Environmental, or a duly authorized representative, Branch Chief or higher, will certify that all appropriate BCOE comments have been incorporated in the bid documents or satisfactorily resolved and that feedback has been provided to reviewers for all comments.

d. **CHIEF OF CONSTRUCTION-OPERATIONS READINESS** acting through the Construction-Operations Division Coordinator, will ensure that BCOE reviews are performed and review comments are furnished in accordance with established suspense, and conduct a backcheck. The Chief of Construction-Operations, Readiness or a duly authorized representative, Branch Chief or higher, will certify, in writing, that all appropriate BCOE comments from CO have been incorporated in the bid documents or satisfactorily resolved and that feedback has been provided to reviewers for all comments.

e. **CHIEF OF CONTRACTING**, acting through the Contracting Officer, will ensure that bid opening is not made prior to the above certification unless the Contracting Officer determines that it is in the best interest of the government to award without incorporation of all comments. A determination and findings signed by the Contracting Officer will be placed in the contract file in place of the certification when award is made without this certification. A sample certification is at Appendix C.

5. **Definitions.** Constructibility and biddability are defined as the ease with which a designed project can be built and the ease with which the contract documents can be understood, bid, administered and executed. Operability refers to the ease with which a project can be operated and maintained. Environmental review refers to the protection of air, water, land, animals, plants and other natural resources from the effects of construction and operation of the project as stated in the Environmental Impact Statement or Assessment, or permits.

6. **General.** Biddability, constructibility, operability and the environment must be emphasized throughout the planning and design process to ensure efficient construction that is environmentally sound, to minimize cost and time growth, to avoid unnecessary changes and claims, as well as to ensure safe efficient operations by the user. However, nothing in this

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concept should be interpreted as a substitute for complete design review for accuracy, adequacy and interdisciplinary coordination of design documents as required by ER 1110-2-1200. The accomplishment of a quality design package requires the cooperation of project management, design, construction and operations personnel each contributing toward a common goal. Through such a coordinated effort, errors, conflicts and operational discrepancies can be minimized, and the most usable facility possible provided to the customer. These principles are applicable to both in-house and Architect/Engineer designs.

## 7. Policy.

### a. Scheduling and Funding for BCOE Reviews.

(1) Through the Project Management Plan, the Project Manager or Operations Manager will include adequate time and funds for thorough BCOE reviews based on schedules and funding requirements provided by ED, CO and other technical offices. The Manager will program and furnish sufficient labor funds for all required participants to perform reviews and site visits. ED-D's schedule for preparation of Plans and Specifications will include adequate durations for the following activities: initial review, final P&S for review, BCOE, resolution of comments and BCOE Certification.

(2) As a minimum, the following activities will be included for each project:

#### Initial Review.

Site visit

Review of initial design documents

Identification of environmental and permit requirements

#### Final BCOE Review

Plan-in-hand review

Review of plans and specifications

Ensure sponsor concerns are addressed

Ensure environmental commitments including those in the Section 404 or other permit are met

Ensure real estate or legal commitments negotiated with land owners are met

Ensure utility and other relocations by others are referenced

Ensure external impacts, including flooding, are addressed

Backcheck for resolution of comments

### b. Procedures for Initial BCOE Review

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(1) After the design is sufficiently complete for substantive comment, the initial BCOE Review will be held. When an Initial Design Conference is held, in accordance with ER 1110-2-1150, the initial BCOE Review will be held coincident with the Initial Design Conference.

(2) Members of the Construction, Operations and Environmental staff will meet with ED representatives, preferably on the site of the project, review the overall design concept and note any specific items to be reevaluated or reexamined. Any comments will be submitted in Word software, using the attached format (Appendix B) as a guide, to the ED coordinator. The ED coordinator will prepare a written response to all comments.

**c. Procedures for Final BCOE Review Prior to Request for Bids**

(1) The preliminary sets of plans and specifications are to be distributed by ED-DC after completion of the Independent Technical Review (ITR) and approximately 3 weeks before the review conference.

(2) Each Office or Section will review the specifications and contract drawings prior to the Field Review/Site Visit to determine how existing site conditions affect biddability, constructibility, operability and environmental concerns.

(3) At a minimum, the items listed in Appendix A shall be reviewed.

(4) Each Office or Section will then finalize their comments by the deadline and enter them in Word software using the attached format (Appendix B) as a guide. Comments should be submitted a minimum of 2 days before the review conference to allow ED to have responses available at the review conference. The comments should be forwarded to ED-DC by sending the file electronically via the E-mail system

(5) A BCOE Review Conference will be held in accordance with the Project Management Plan, to discuss controversial issues, and to assure all comments are understood and addressed.

(6) CEMVS-ED-D will provide a written response to each comment indicating whether it was concurred in or not, and if not, why. ED-D's responses to the review comments will be distributed to all elements. Each element will provide feedback to ED-D regarding concurrence or non-concurrence with responses. Unresolved comments will be resolved prior to BCOE certification.

(7) Within 10 days after issuance of the plans and specifications, each element providing comments will review the revised set of plans and specifications to insure that the necessary corrections were made, and notify the ED Project Engineer of any discrepancies identified in the backcheck.

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(8) Following this verification, the BCOE Certification (Appendix C) should be signed.

(9) CEMVS-ED will be responsible for preparing and maintaining the database of repetitive review comments made on each particular type of contract and on each particular specification section.

(10) CEMVS-ED will periodically distribute the list of these comments to the other offices and sections.

d. Attached are the St. Louis District's BCOE Implementation Plan (Appendix D), the Suggested Standard Format for BCOE Review Comments, the BCOE Review Checklist, and BCOE Certification Form.

  
MICHAEL R. MORROW  
COL, EN  
Commanding

**APPENDIXES:**

- A – BCOE Checklist
- B – Standard Format for Comments
- C – BCOE Certification
- D – St. Louis District BCOE Implementation Plan

**DISTRIBUTION:**

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CEMVS-CO-C (20)

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## APPENDIX A BCOE CHECKLIST

1. Items to be addressed in biddability and constructibility reviews performed by the Area Engineer, Resident Engineer and Construction Staff personnel will include, but not be limited to:

a. Accurate depiction and adaptation of design structures and features to site conditions and restrictions such as access, utility availability, drainage, storage, existing underground utilities and general configuration.

b. Appropriateness of contract sequencing, relationship to other work, contract performance time, contractor quality control (QC), submittal requirements and network analysis system provisions for the specific project.

c. Adequacy of working area and storage space and access for all site contractors as well as provisions for coordination to preclude on-site conflicts.

d. Clarity, simplicity and essentiality of the bid schedule.

e. Local availability of special materials and labor skills.

f. Have special installation requirements been addressed?

g. Are the drawings and specifications free of ambiguities?

h. Are essential details and proper verbiage included?

i. Do the specifications include the list of submittals as required by ER 415-1-10?  
Does the list include only submittals which are required to effectively administer the contract?

j. Do the specifications address the impact of the construction on the environment? Is the contractor required to submit an environmental plan addressing how he will mitigate water, air, soil and noise pollution?

k. Do the drawings adequately depict the site environment? Will the project encroach upon wetlands or endangered species habitat? Is erosion control adequately addressed?

2. Items of operability reviews to be addressed by the responsible operations personnel will include, but not be limited to:

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- a. **Architectural compatibility with existing facilities and established plans.**
  - b. **Adequacy of size and configuration of proposed facilities to meet the expected function or mission and inclusion of all necessary features.**
  - c. **Compatibility of proposed installations and equipment with existing facilities for ease of maintenance and replacement.**
  - d. **Adequate size of mechanical equipment and maintenance spaces to facilitate maintenance.**
  - e. **Ease of maintenance and upkeep of planting and landscaping.**
  - f. **Adequacy of position indicators on operating equipment.**
  - g. **Adequacy of periodic inspection capability and ability to accomplish periodic maintenance.**
  - h. **Provision of features for safe, efficient and economic operation including maximum energy conservation.**
  - i. **Appropriate level of operation sensitivity and/or complexity.**
  - j. **Design provides for operations which will be environmentally safe.**
3. **The Project Manager will ensure sponsor concerns are addressed.**
  4. **The PM-E Environmental Coordinator will ensure environmental commitments, including those in the 404 or other Permit, ROD or FONSI, and all HTRW issues are addressed.**
  5. **The RE Coordinator and Office of Counsel will ensure real estate or legal commitments negotiated with landowners are met.**
  6. **The Project Manager, RE Coordinator and Engineering Division Relocation Coordinator will ensure utility and other relocation by others are referenced.**
  7. **Construction-Operations, Readiness Division's Area Engineer will ensure external impacts, including flooding, are addressed.**

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**APPENDIX B**  
**STANDARD FORMAT FOR COMMENTS**

**CONSTRUCTION BRANCH**  
Standard Format for  
Biddability/Constructibility/Operability  
and Environmental Review Comments

FROM:

TO:

PROJECT:

DATE:

Bidding Schedule Page 2, Item 15.3a "Misc Concrete" item not identified in specs page 3A-2, 2A.1 or drawings

Section 2F-3.A.1 Paragraph does not delineate total testing requirements for soil in lifts as required by ASTM xxxx.

Drawing Sheet 12/13 Elevation view of MCC does not show cabinet lighting as called out in Section 16A-2.3.A.

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**APPENDIX C  
SAMPLE CERTIFICATION**

**BCOE Certification**

Project Title:

Solicitation Number:

Scheduled Bid Opening Date:

I certify that all appropriate biddability, constructibility, operability and environmental comments received and reviewed by this office by     (Date)     have been incorporated into the bid package. Feedback has been provided to reviewers for all comments.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chief, Engineering Division

\_\_\_\_\_  
Date

\_\_\_\_\_  
Chief, Environmental & Economics  
Analysis Branch

\_\_\_\_\_  
Date

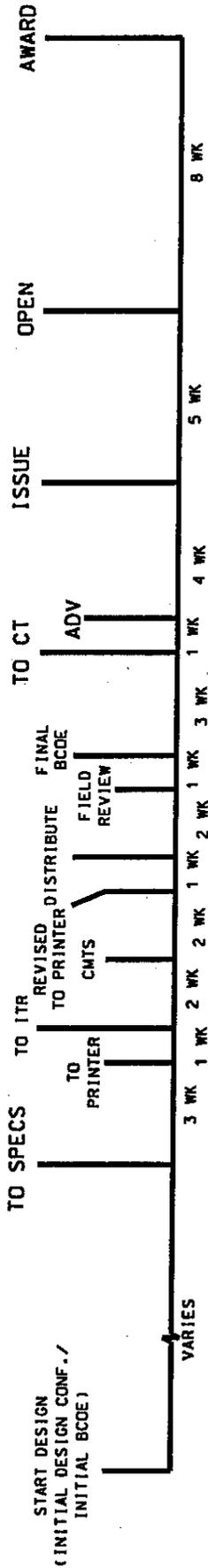
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Chief, Construction-Operations  
Readiness Division

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**APPENDIX D**  
**ST. LOUIS DISTRICT BCOE IMPLEMENTATION PLAN**

1. At the completion of the Feature Design Memorandum or substantive design, the District will have an initial concept review with all elements including Engineering Division, Construction-Operations Readiness Division and Project Management, including PM-E.
2. Approximately five (5) weeks before advertisement of Solicitation, the District will have a field review conference with Engineering Division, Construction-Operations Readiness Division and Project Management, including PM-E. Field review conferences are not mandatory for each project,
3. After completion of the Independent Technical Review and approximately four (4) weeks before advertisement of a Solicitation, the District will have a specification review conference with all elements involved including Engineering Division, Construction-Operation Readiness Division and Project Management, including PM-E.
4. Approximately three (3) weeks before advertisement, CEMVS-ED-DC will initialize the BCOE certificate which will coincide with responses to comments.
5. If a project is "shelved" for more than six (6) months, an additional specification review conference will be held approximately four (4) weeks before advertisement.
6. The elements will be given approximately two (2) weeks of review time before the specification review conference. The review package will consist of preliminary plans and preliminary specifications. The preliminary specifications include Special Clauses and Technical Provisions.

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# TYPICAL P&S SCHEDULE