

**APPENDIX F
INDEPENDENT TECHNICAL REVIEW (ITR)**

F-1. All engineering and design products shall have an independent technical review (ITR). The ITR team shall be established when work as started on a product and shall conduct such reviews as necessary to insure that the product is consistent with established criteria, guidance, procedures, and policy. The ITR process shall be a continuous process with reviews coordinated with the PDT to minimize lost design effort.

F-2. The ITR team shall document its actions and recommendations; furnishing the PDT reports at critical points during project formulation, design, and construction. Five review options are available to districts for conducting independent technical reviews. The reviews may be conducted within the district, by another district(s), by Centers of Expertise, by USACE teams, or by contract.

F-3. A statement of technical and legal review should be completed for all final products and final documents. In the case of decision documents forwarded to HQUSACE for review a statement of technical and legal review should accompany both draft and final documents. A sample statement of technical and legal review is included as enclosure 1 to this appendix. The statement shown is a sample. Districts may modify the sample to include PDT members and IRT team members or to include other functional chiefs or the District Commander. These modifications shall be justified and included in the QCP. Also, when the ITR is preformed by contract, the appropriate members of the contractor's staff shall sign the statement.

F-4. In developing an ITR and quality control program, the Districts are encouraged to prepare a standard guideline for independent technical review. This document could be used as a stand alone guide for the ITR teams on small projects and as a guide for developing the quality control plan for large projects. A sample guideline is included as enclosure 2 to this appendix.

**ENCLOSURE 1 TO APPENDIX F
STATEMENT OF TECHNICAL AND LEGAL REVIEW
SAMPLE**

COMPLETION OF INDEPENDENT TECHNICAL REVIEW

The District has completed the (type of study) of (project name and location). Notice is hereby given that an independent technical review, that is appropriate to the level of risk and complexity inherent in the project, has been conducted as defined in the Quality Control Plan. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions was verified. This included review of assumptions; methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing Corps policy. The independent technical review was accomplished by (an independent district team/personnel from XX District/by A-E contractor).

(Signature)
Technical Review Team Leader

(Date)

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW:

Significant concerns and the explanation of the resolution are as follows:

(Describe the major technical concerns, possible impact, and resolution)

As noted above, all concerns resulting from independent technical review of the project have been considered. The report and all associated documents required by the National Environmental Policy Act have been fully reviewed.

(Signature)
Project Manager

(Date)

(Signature)
Chief, Planning Division

(Date)

(Signature)
Chief, Engineering Division

(Date)

(Signature)
Chief, Operations Division

(Date)

(Signature)
Chief, Real Estate Division

(Date)

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CERTIFICATION OF LEGAL REVIEW:

The report for _____, including all associated documents required by the National Environmental Policy Act, has been fully reviewed by the Office of Counsel, District and is approved as legally sufficient.

(Signature)
District Counsel

(Date)

**ENCLOSURE 2 TO APPENDIX F
GUIDELINES FOR INDEPENDENT TECHNICAL REVIEW**

F2-1. OBJECTIVES.

F2-1.1. There are six primary objectives of engineering technical review.

- F2-1.1.1. To ensure that the engineering concepts are valid,
- F2-1.1.2. To ensure that the recommended plan is feasible and will be safe and functional,
- F2-1.1.3. To ensure that a reasonable cost estimate has been developed,
- F2-1.1.4. To ensure that the engineering analysis is correct,
- F2-1.1.5. To ensure that it complies with engineering policy requirements, and
- F2-1.1.6. To ensure that it complies with accepted engineering practice within USACE.

F2-1.2. Reviewers must identify any significant deficiency. Comments should be limited to those that are required to ensure adequacy of the product; it is not the reviewer's responsibility to enforce personal preferences.

F2-1.3. A secondary review objective is to ensure that the recommended plan is an economical solution.

F2-1.4. The following simple checklist should be used as the basis for performing engineering technical reviews:

SAMPLE BASIC CHECKLIST FOR ENGINEERING TECHNICAL REVIEW

Is the proposed solution safe, functional, constructible, economical, and reasonable?

Does the design follow USACE engineering criteria? (If not, have proper waivers been obtained?)

Are appropriate analysis methods being used?

Are the basic design assumptions valid?

Are the calculations initialed by designers and checkers, and are results essentially correct?

For the current phase of the project, is the engineering content sufficiently complete, and does it provide an adequate basis for the baseline cost estimate?

Is the documentation adequate?

F2-1.5. Technical reviewers should not comment on inconsequential items, such as the following:

INAPPROPRIATE TECHNICAL REVIEW COMMENTS

Spelling, grammar, format or language in the report. (This type of comment may be made informally, in parallel with the official technical review process.)

Minor numerical errors, which do not affect adequacy of the results.

Alternate design solutions or analysis methods, where the designers have already used appropriate methods to develop an adequate solution.

Any other issues which will not add value by making the project safe, functional, or more economical.

F2-2. REVIEW PROCEDURES. The Chief of Engineering should provide written objectives and procedures for use by independent technical review teams. The chief is also responsible for selecting qualified review team members, appointing a team leader, and in cooperation with the project manager providing the time and funding resources necessary for an adequate review. The team leader should discuss with the team their responsibilities and objectives. When the review is completed, the team leader should verify that each comment is appropriate. When comments seem inappropriate, the team leader should discuss them with the reviewer, and should have inappropriate comments withdrawn by the reviewer. The team leader should also eliminate any mutually conflicting comments, and consolidate similar or related comments. The final review comments should be submitted to the design team for resolution.

F2-3. COMMENT RESOLUTION. Use of the guidelines identified in paragraph F2-1, and the procedures in paragraph F2-2, should result in a reasonable volume of review comments. Comments do not necessarily have to be complied with, but each comment must be resolved, not ignored. When the designer disagrees with a comment, the best means of resolution is a discussion between designer and reviewer. When this does not result in an appropriate resolution, the issue should be elevated through the designer's chain of command. The review team does not have authority to enforce comments, authority for comment resolution lies in the design chain of command. The Chief of Engineering in the responsible design district is the final authority for resolution of engineering technical review comments. The design team leader and the review team leader should jointly ensure that each comment has been resolved. The final comments, and the resolution of these comments, should be included in the district's project documentation. Significant issues raised by the reviewers, and the resolution of these issues, should be included with the submittal of the decision document.

F2-4. CERTIFICATION. A certification by Project Manager, the Chief of Engineering and other functional chiefs that the issues raised by the technical review team have been resolved is required. This certification must be included with submittal of decision documents and should be included with the design documentation for subsequent phases of design.

F2-5. ARCHITECT-ENGINEERS. When engineering work is performed under contract, ITR is still essential components of the process. Frequently, the AE contract includes provisions for providing QC, including ITR. In these cases, the contract should define the scope for proper execution of these requirements.