



DEPARTMENT OF THE ARMY
SOUTH ATLANTIC DIVISION, CORPS OF ENGINEERS
ROOM 10M15, 60 FORSYTH ST., S.W.
ATLANTA, GA 30303-8801

REPLY TO
ATTENTION OF:

CESAD-RBT

24 June 2011

MEMORANDUM FOR COMMANDER, WILMINGTON DISTRICT (CESAJ-TS-EE/
GREGORY L. WILLIAMS)

SUBJECT: Approval of the Review Plan for Concord Streams Ecosystem Restoration Project,
Concord, North Carolina

1. References:

- a. Memorandum, CESA-W-TS-EE, 18 May 2011, Subject: Approval of the Review Plan for Concord Streams Ecosystem Restoration Project, Concord, North Carolina (Enclosure).
- b. Memorandum, CECW-P, 19 January 2011, Director of Civil Works' Policy Memorandum # 1, Subject Continuing Authority Program Planning Process Improvements.
- c. EC 1165-2-209, Civil Works Review Policy, 31 January 2010.
- d. WRDA 2007 H. R. 1495 Public Law 110-114, 8 November 2007.

2. The Review Plan for the for Design Plans and Specification and Design Documentation Report for the Concord Streams Ecosystem Restoration Project, Concord, North Carolina dated 17 May 2011 submitted by reference 1.a has been reviewed by this office and is approved in accordance with reference 1.c above. A copy of the approved Review Plan is enclosed.

3. We concur with the conclusion of the District Chief of Engineering that a Safety Assurance Review, also known as a Type II Independent External Peer Review (Type II IEPR), is not required for this Continuing Authority Program (CAP) Section 206 Environmental Protection and Restoration, Aquatic Ecosystem Restoration Project. This project does not have the factors stipulated in Section 2035 Safety Assurance Review, WRDA 2007 H. R. 1495 Public Law 110-114 that need addressing to assure public health, safety, and welfare. The primary basis for the concurrence that a Type II IEPR is not required is the determination that the failure of this Concord Streams Ecosystem Restoration Section 206 Project would not pose a significant threat to human life.

4. This Review Plan presents a justification for an exception to the guidance that the ATR lead to be from outside the home MSC. As authorized by reference 1.b we hereby approve an exception and the ATR lead of the Implementation Documents for this CAP 206 Project may be within SAD.

CESAD-RBT


24 June 2011

SUBJECT: Approval of the Review Plan for Concord Streams Ecosystem Restoration Project,
Concord, North Carolina

5. The District should take steps to post the Review Plan to its web site and provide a link to CESAD-RBT. Before posting to the web site, the names of Corps/Army employees should be removed.

6. The SAD point of contact is Mr. James Truelove, CESAD-RBT, 404-562-5121.

FOR THE COMMANDER:



CHRISTOPHER T. SMITH, P.E.
Chief, Business Technical Division

Encl



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

CESAW-TS-EE

18 May 2011

MEMORANDUM FOR Commander, South Atlantic Division (CESAD-RBT)

SUBJECT: Approval of Review Plan for Concord Streams Ecosystem Restoration Project,
Concord, North Carolina

1. References.

- a. EC 1165-2-209, Civil Works Review Policy, 31 Dec 09 draft
- b. WRDA 2007 H. R. 1495 Public Law 110-114, 08 Nov 07

2. I hereby request approval of the enclosed Review Plan and concurrence with the conclusion that Type II Independent External Peer Review. Safety Assurance Review of this project is not necessary because it does not trigger criteria in references above. Approval of this plan is for the PED Phase of this project. The Review Plan complies with applicable policy and includes our DQC and ATR plans for this project. It is my understanding that non-substantive changes to this Review Plan, should they become necessary, are authorized by CESAD.

3. CESAD-RBT comments on the 28 March 2011 Review Plan have been incorporated in the 17 May 2011 Review Plan enclosed.

4. The District will post the CESAD approved Review Plan to its website and provide a link to CESAD for its use. Names of Corps/Army employees are withheld from the posted version, in accordance with guidance.

FOR THE COMMANDER:

GREGORY L. WILLIAMS, Ph.D., P.E.
Chief, Engineering Branch

Encl



Review Plan

For

**Concord Streams Ecosystem Restoration Project
Concord, North Carolina**

Design Plans and Specifications and Design Documentation Report

**U.S. Army Corps of Engineers
Wilmington District
Wilmington, North Carolina**

17 May 2011

(Replaces 28 March 2011 Review Plan)

THE INFORMATION CONTAINED IN THIS REVIEW PLAN IS DISTRIBUTED SOLELY FOR THE PURPOSE OF PREDISSEMINATION REVIEW UNDER APPLICABLE INFORMATION QUALITY GUIDELINES. IT HAS NOT BEEN FORMALLY DISSEMINATED BY THE U.S. ARMY CORPS OF ENGINEERS, WILMINGTON DISTRICT. IT DOES NOT REPRESENT AND SHOULD NOT BE CONSTRUED TO REPRESENT ANY AGENCY DETERMINATION OR POLICY.

REVIEW PLAN

Concord Stream Ecosystem Restoration Concord, North Carolina

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1.0 PURPOSE AND REQUIREMENTS

1.1 Purpose

This Review Plan defines the scope and level of quality management review activities for design of the Concord Streams Ecosystem Restoration Project located in Concord, North Carolina. The Quality Management review activities recommended for this project are District Quality Control (DQC) and Agency Technical Review (ATR). A Type II IEPR Safety Assurance Review is not required for this project, as the project purpose is not hurricane and storm risk management or flood risk management, and the project does not have potential hazards that pose a significant threat to human life. The related documents are Implementation Documents that consist of Plans and Specifications (P&S) and a Design Documentation Report (DDR). Upon approval, this review plan will be included into the Project Management Plan as an appendix to the Quality Management Plan.

1.2 References

- ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug. 1999
- ER 1110-1-12, Engineering and Design Quality Management, 30 Sep. 2006
- EC 1105-2-410, Review of Decision Documents, 22 Aug. 2008
- EC 1165-2-209, Civil Works Review Policy, 31 Jan. 2010
- WRDA 2007 H.R. 1495 Public Law 110-114, 8 Nov. 2007
- National Academy of Sciences, Background Information and Confidential Conflict Of Interest Disclosure, BI/COI FORM 3, May 2003
- Quality Control Plan
- Project Management Plan

1.3 Requirements

This review plan was developed in accordance with EC 1105-2-410 and EC 1165-2-209, which establish the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) decision and implementation documents through independent review. The ECs outline two applicable levels of review for this project: District Quality Control, and Agency Technical Review.

- District Quality Control (DQC). DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). It is managed in the home district and may be conducted by staff in the home district as long as they are not doing the work involved in the study, or overseeing contracted work that is being reviewed. Basic quality control tools include a Quality Management Plan providing for seamless review, quality checks and reviews, peer and supervisory reviews, Project Delivery Team (PDT) reviews, etc. The Major Subordinate Command (MSC)/District quality management plans address the conduct and documentation of this fundamental level of review; DQC is not addressed further in this review plan.
- Agency Technical Review (ATR). ATR is an in-depth review, managed within USACE, and conducted by a qualified team outside of the home district that is not involved in the day-to-day production of the

project/product. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The ATR team reviews the various work products and assures that all the parts fit together in a coherent whole. ATR teams will be comprised of senior USACE personnel (Regional Technical Specialists (RTS), etc.), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team shall be from outside the parent MSC.

- Independent External Peer Review (IEPR).

a. General. EC 1165-2-209 provides implementation guidance for both Sections 2034 and 2035 of the Water Resources Development Act (WRDA) of 2007 (Public Law (P.L.) 110-114). The EC addresses review procedures for both the Planning and the Design and Construction Phases (also referred to in USACE guidance as the Feasibility and the Pre-construction, Engineering and Design Phases). The EC defines Section 2035 Safety Assurance Review (SAR), Type II Independent External Peer Review (IEPR). The EC also requires Type II IEPR be managed and conducted outside the Corps of Engineers

b. Type I Independent External Peer Review (IEPR) Determination. A Type I IEPR is associated with decision documents. No decision documents are addressed/covered by this Review Plan. A Type I IEPR is not applicable to the implementation documents covered by this Review Plan.

c. Type II Independent External Peer Review (IEPR) Determination (Section 2035). This stream restoration project does not trigger WRDA 2007 Section 2035 factors for Safety Assurance Review (termed Type II IEPR in EC 1165-2-209) and therefore, a review under Section 2035 is not required. The factors in determining whether a review of design and construction activities of a project is necessary as stated under Section 2035 along with this review plans applicability statement follow.

(1) The failure of the project would pose a significant threat to human life.

A Type II IEPR Safety Assurance Review is not required for this project, as the project purpose is not hurricane and storm risk management or flood risk management, and the project does not have potential hazards that pose a significant threat to human life.

(2) The project involves the use of innovative materials or techniques.

The type of instream restoration measures and stormwater facilities proposed for this project have been previously constructed by the Corps of Engineers and are not considered novel or complex. Construction of the instream restoration measures will include channel alignment adjustment, stream bank stabilization, instream structures, etc., which are common construction features for stream restoration projects. The stormwater facilities to be constructed include wet ponds, dry ponds, and bioretention facilities which will treat stormwater runoff from impervious surfaces. The instream restoration measures and stormwater facilities are expected to be constructed using common construction practices and excavation and earth moving equipment.

(3) The project design lacks redundancy.

Not applicable for this Stream Restoration Project

(4) The project has a unique construction sequencing or a reduced or overlapping design construction schedule.

This project's construction does not have unique sequencing or a reduced or overlapping design. The installation sequence and schedule has been used successfully by the Corps of Engineers on other similar works.

2.0 PROJECT INFORMATION AND BACKGROUND

2.1 Project Description

The purpose of the Concord Streams Restoration Project is the restoration of aquatic ecosystem values along two streams (Stricker Branch and Academy Center Branch) in the City of Concord (Cabarrus County), North Carolina. The authority for the USACE to engage in aquatic ecosystem habitat restoration is provided by the Continuing Authorities Program (CAP) Section 206 of the Water Resources Development Act of 1996, as amended.

Existing urbanized development and the threat of future encroaching development are major problems in the subject watersheds. As a result, instream and riparian habitat issues are significant and of primary concern to stakeholders. Environmental conditions and physical processes in their respective watersheds have resulted in degradation of aquatic habitats within the subject streams, as indicated by application of a standardized habitat assessment protocol. Major problems identified include (1) stream incision, which has disconnected aquatic habitats from previously adjoining riparian habitats, (2) streambank erosion, which has destabilized vegetation and contributes sediments to the streams, and (3) accretion of sediments in the streambed due to instream and upland sediment sources. These physical processes have homogenized instream habitats and limited the development of productive instream habitats.

Biodiversity of aquatic species in all target stream reaches is low, and trophic balance is inadequate due to the low abundance of certain species.

The proposed project contains instream restoration measures along 2,000 and 3,450 linear feet of Academy Center Branch and Stricker Branch, respectively, as well as the construction of three stormwater management facilities in each watershed. The stormwater facilities provide not only benefits to restored in-stream habitats, but will also help to ensure the long-term sustainability of the project by reducing forceful, damaging storm-flows to restored reaches. Two of the facilities that will be constructed in the Stricker Branch watershed are stormwater wetlands; the remaining upland stormwater measures are wet detention basins.

3.0 AGENCY TECHNICAL REVIEW

Agency Technical Review (ATR) is undertaken to "ensure the quality and credibility of the government's scientific information" in accordance with EC 1165-2-209 and ER 1110-1-12. An

ATR will be performed on the 95% Plans and Specifications and 95% Design Documentation Report.

ATR will be conducted by individuals and organizations that are external to the Wilmington District (SAW). SAW recommends Mobile District (SAM) as the primary source for the required ATR disciplines due to their extensive experience with projects of this type. The Review Management Organization (RMO), South Atlantic Division (SAD) in this case, will be assisted by the Wilmington District in the selection of ATR members and the ATR Team Leader.

ATR Team Leader. HQUSACE guidance requires that the ATR Team Lead reside outside the home Division that is producing the document, unless an exception is approved by the MSC Commander. For the Implementation Documents covered by this Review Plan for this Project, the ATR Team Lead within SAD is justified for the following reasons:

- (1) The appropriate independence on this project, which is limited to a Federal share under \$5M, can still be obtained with the ATR Lead outside the home district but within SAD.
- (2) SAD has the resident expertise within its jurisdiction to lead and perform this review.
- (3) Efficiencies such as timeliness of review can be gained by an ATR Team Lead being located within SAD.
- (4) The project is low risk, does not involve a significant threat to human life and does not possess any unusual/non-typical safety concerns.

Based on the above justification and since this is a low cost, low risk project, SAW recommends an exception to the guidance that the ATR lead to be from outside the home MSC. The team leader must meet the requirements specified in Paragraph 3.1 below.

3.1 ATR Team Expertise

As stipulated in ER 1110-1-12, ATR members will be sought from the following sources: regional technical specialists (RTS); appointed subject matter experts (SME) from other districts; senior level experts from other districts; Center of Expertise staff; appointed SME or senior level experts from the responsible district; experts from other U.S. Army Corps of Engineers Districts; contractors; academic or other technical experts; or a combination of the above. The ATR Team will be comprised of the following disciplines; knowledge, skills and abilities; and experience levels.

ATR Team Leader. The ATR Team Leader should have experience with Riparian Ecosystem Restoration Projects and have performed ATR Team Leader duties or have been a senior ATR reviewer on a similar type project within the past 5 years. ATR Team Leader can also serve as one of the review disciplines in addition to team leader duties.

Hydrologic Engineering. The team member(s) should be a registered professional with experience in conducting and evaluating stream dynamics and environmental restoration techniques and the implementation of stormwater management BMPs for the purpose of re-establishing a native riparian environment.

Geotechnical Engineering and Engineering Geology. The team member should be a registered professional with experience that includes geologic and geotechnical analyses that are used to support the development of Plans and Specifications for ecosystem restoration projects along riparian corridors.

Civil Engineering. The team member should be a registered professional engineer with civil/site work project experience that includes stormwater management techniques, hydrologic

manipulation of stream corridors, grading and excavation to support re-establishment of conditions conducive to wetland and riparian corridor reconstruction.

Cost Engineering. The team member should have demonstrated experience in the preparation of cost estimates, cost risk analyses and cost engineering, including specific experience with features associated with ecosystem restoration projects.

NEPA Compliance. The team member should have experience in NEPA compliance activities and preparation of Environmental Assessments and Environmental Impact Statements for ecosystem restoration projects along riparian systems.

3.2 Documentation of ATR

DrCheckssm review software will be used to document all ATR comments, responses, and associated resolutions accomplished throughout the review process. Comments have been limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

- (1) The review concern- identify the product's information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern- cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
- (3) The significance of the concern- indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern- identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist. The ATR documentation in DrCheckssm will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical coordination, and lastly the agreed upon resolution. The ATR team will prepare a Review Report which includes a summary of each unresolved issue; each unresolved issue will be raised to the vertical team for resolution. Review Reports will be considered an integral part of the ATR documentation and shall:

- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include an overview for the project information in which the ATR members were charged to reviewer;
- Describe the nature of their review and their findings and conclusions; and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

The ATR may be certified when all ATR concerns are either resolved or referred to U.S. Army Corps of Engineers South Atlantic Division (CESAD) for resolution and the ATR documentation

is complete. Certification of ATR should be completed, based on work reviewed for the 95% submittal. A sample certification is included in this Review Plan (see attachment 2) and ER 1110-2-12.

4.0 ESTIMATED COSTS AND SCHEDULE

4.1 Project Milestones

District Quality Control	Ongoing
District BCOE	4 June 2012
BCOE Certification	3 July 2012
Issue Date	1 Aug 2012
Bid Opening	30 Aug 2012
Construction Contract Award	1 Oct 2012

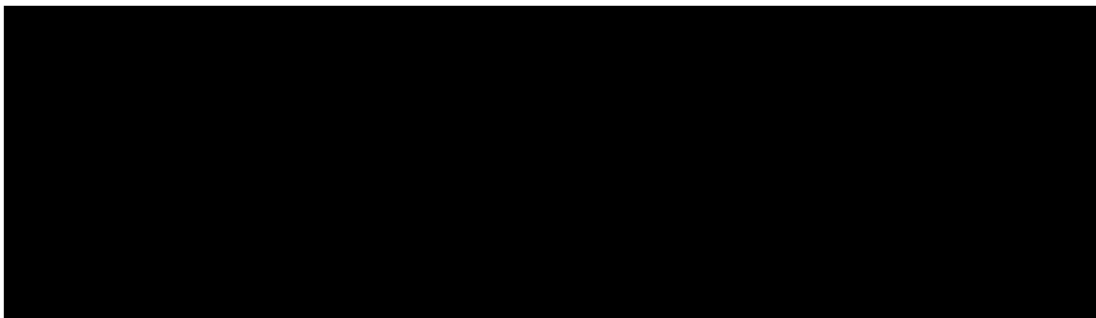
4.2 ATR Schedule and Cost

The ATR will be conducted as indicated below. It is envisioned that each reviewer will be afforded 24 hours review. The estimated cost range is \$20,000. The ATR schedule follows:

ATRT Selected and Resourced (ATR Start)	20 May 2011
ATR Kickoff and ATR Start	31 May 2011
ATRT Completes Comments	3 June 2011
PDT Completes Evaluations	7 June 2011
ATRT Completes Back Checks	10 June 2011
ATR Certification	10 June 2011

5.0 POINTS OF CONTACT

Per guidance, the names of the following individual will not be posted on the Internet with the Review Plan. Their titles and responsibilities are listed below.





5.1 ATR Team Members

ATR members to be determined.

6.0 MSC APPROVAL

The MSC that oversees the home district is the South Atlantic Division and it is responsible for approving the review plan. Approval will be provided by the MSC. The approval should reflect vertical team input (involving district, MSC, and HQUSACE members) as to the appropriate scope and level of review for the pre-construction and engineering design phase. Like a PMP, the Review Plan (RP) is a living document and may change as work progresses. Changes to the RP should be approved by following the process used for initially approving the RP. In all cases the MSCs will review the decision on the level of review and any changes made in updates to the project.

ATTACHMENT 1:

Acronyms and Abbreviations

ATR – Agency Technical Review
BCOE – Biddability, Constructability, Operability and Environmental
CAP – Continuing Authorities Program
CESAD – U.S. Army Corps of Engineers South Atlantic Division
DCP – District Control Plan
DDR – Design Documentation Report
DQC – District Quality Control
EC – Engineer Circular
EIS – Environmental Impact Statements
ER – Engineer Regulations
HQUSACE – Headquarters U.S. Army Corps of Engineers
IEPR – Independent External Peer Review
MSC – Major Subordinate Command
PDT – Project Delivery Team
PMP – Project Management Plan
P&S – Plans and Specifications
RMC – USACE Risk Management Center
RMO – Review Management Organization
RP – Review Plan
RTS – Regional Technical Specialists
SAD – South Atlantic Division
SAJ – Jacksonville District
SAW – Wilmington District
SAR – Safety Assurance Review
SME – Subject Matter Expert
USACE – U.S. Army Corps of Engineers
WRDA – Water Resources Development Act

ATTACHMENT 2:

Completion of Agency Technical Review

The _____ District has completed the *(type of product)* of *(project name and location)*. Notice is hereby given that an Agency Technical Review, appropriate to the level of risk and complexity inherent in the project, has been conducted as defined in the project’s Review Plan. During the Agency Technical Review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained; and reasonableness of the results, including whether the product meets the customer’s needs consistent with law and existing Corps policy. The review also assessed the DQC documentation and made the determination that the DQC activities employed appear to be appropriate and effective. The Agency Technical Review was managed by *(RMO)*. All comments resulting from ATR have been resolved and the comments have been closed in DrCheckssm.

(Signature) _____ (Date)
RMO representative

(Signature) _____ (Date)
ATR Team Leader

(Signature) _____ (Date)
Project Manager

Certification of Agency 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 Agency Technical Review of the project have been fully resolved.

(Signature) _____ (Date)
Chief, Technical Services Division