



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DIVISION, GREAT LAKES AND OHIO RIVER
CORPS OF ENGINEERS
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CINCINNATI, OH 45202-3222

CELRD-PD-O

26 AUGUST 2013

MEMORANDUM FOR Huntington District, U.S. Army Corps of Engineers (CELRH-EC, [REDACTED]), 502 Eighth Street, Huntington, WV 25701-2070

SUBJECT: Review Plan for Section 206 Watauga Aquatic Ecosystem Restoration Project

1. References:

a. CELRH-EC, memorandum dated 31 July 2013, subject: Section 206 Watauga Aquatic Ecosystem Restoration Project (Encl 1).

b. Implementation Review Plan, Watauga Aquatic Ecosystem Restoration Project, South Fork New River, Town of Boone, North Carolina, Continuing Authorities Program, Section 206 Project, Huntington District, MSC Approval Date: Pending, Last Revision Date: None (Encl 2).

2. The USACE LRD Review Management Organization (RMO) has reviewed the enclosed Review Plan (RP) and concurs that it describes the scope of review for work phases and addresses all appropriate levels of review consistent with the requirements described in EC 1165-2-214.

3. I concur with the recommendations of the RMO and approve the enclosed RP for the Watauga Aquatic Ecosystem Restoration Project, South Fork New River, Town of Boone, North Carolina.

4. The District is requested to post the RP to its website. Prior to posting, the names of all individuals identified in the RP should be removed.

5. If you have any questions or need additional information, please contact [REDACTED] CELRD-PD-P, at [REDACTED] or [REDACTED], CELRL-PD-O at [REDACTED].

Encls

FAC [REDACTED]
Brigadier General, US Army
Commanding

IMPLEMENTATION REVIEW PLAN

**Watauga Aquatic Ecosystem Restoration Project
South Fork New River, Town of Boone, North Carolina
Continuing Authorities Program
Section 206 Project

Huntington District**

MSC Approval Date: 27 August 2013

Last Revision Date: None



**US Army Corps
of Engineers®**

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1. PURPOSE AND REQUIREMENTS

- a. **Purpose.** This Review Plan defines the scope and level of peer review for the WATAUGA AQUATIC ECOSYSTEM RESTORATION PROJECT (a Section 206 CAP project) implementation document.

Section 206 of the Water Resources Development Act of 1996, Public Law 104-305, authorizes the Secretary of the Army to carry out a program of aquatic ecosystem restoration with the objective of restoring degraded ecosystem structure, function, and dynamic processes to a less degraded, more natural condition considering the ecosystem's natural integrity, productivity, stability and biological diversity. This authority is primarily used for manipulation of the hydrology in and along bodies of water, including wetlands and riparian areas. This authority also allows for dam removal. It is a Continuing Authorities Program (CAP) which focuses on water resource related projects of relatively smaller scope, cost and complexity. Traditional USACE civil works projects are of wider scope and complexity and are specifically authorized by Congress. The Continuing Authorities Program is a delegated authority to plan, design, and construct certain types of water resource and environmental restoration projects without specific Congressional authorization.

Additional Information on this program can be found in Engineering Regulation 1105-2-100, Planning Guidance Notebook, Appendix F.

- b. **Applicability.** This review plan is based on the model Programmatic Review Plan for Section 206 project decision documents, which is applicable to projects that do not require Independent External Peer Review (IEPR), as defined in EC 1165-2-214 Civil Works Review. A Section 206 project does not require IEPR if ALL of the following specific criteria are met:

- The project does not involve a significant threat to human life/safety assurance;
- The total project cost is less than \$45 million;
- There is no request by the Governor of an affected state for a peer review by independent experts;
- The project does not require an Environmental Impact Statement (EIS),
- The project/study is not likely to involve significant public dispute as to the size, nature, or effects of the project;
- The project/study is not likely to involve significant public dispute as to the economic or environmental cost or benefit of the project;
- The information in the decision document or anticipated project design is not likely to be based on novel methods, involve the use of innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices;
- The project design is not anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule; and
- There are no other circumstances where the Chief of Engineers or Director of Civil Works determines Type I IEPR is warranted.

c. **References**

- (1) Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 Dec 2012
- (2) Director of Civil Works' Policy Memorandum #1, 19 Jan 2011

- (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix F, Continuing Authorities Program, Amendment #2, 31 Jan 2007
- (5) Watauga Aquatic Ecosystem Restoration Project, Project Management Plan

d. Requirements. This programmatic review plan was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-214).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this review plan. The RMO for Section 206 design and implementation documents is the home MSC (Great Lakes and Ohio River Division (LRD)). The MSC will coordinate and approve the review plan and manage the ATR. The home District will post the approved review plan on its public website.

3. PROJECT INFORMATION

a. Decision Document. The Watauga Aquatic Ecosystem Restoration Project decision document was prepared in accordance with ER 1105-2-100, Appendix F. The Detailed Project Report (DPR) and Environmental Assessment (EA) are complete; the DPR was approved in June 2009.

Project Location: The project is located on lands owned by Appalachian State University in the Town of Boone, Watauga County, North Carolina along the South Fork of the New River.

Project Background. This stream restoration project is proposed because continuing development within the watershed and large storm events have caused river instability, including unprecedented streambank erosion in the South Fork of the New River. As a result, the upper New River is experiencing severe sediment loading causing a degradation of the stream and components of the aquatic habitat.

Project Description. A stream restoration project is proposed for approximately 4,000 feet of the South Fork of the New River. A variety of river restoration techniques were formulated to address the severely eroding and failing riverbanks in the project reach. The proposed project will restore habitat quality to a reach of river currently degraded by insufficient depth, lack of shade, siltation and sedimentation, and lack of in-stream habitat diversity. Also, the project includes eradication of invasive species, establishment of native species, restoration of adjacent wetlands, and creation of bottomland hardwood areas.

b. Factors Affecting the Scope and Level of Review.

From an engineering standpoint, the project is not complex in nature. There are no electrical or mechanical features, nor is there any concrete placement. However, there are some factors that affect how the project is implemented:

The South Fork of the New River is a trout stream so care will need to be taken to minimize impacts to the stream. In addition, the project lies in the heart of Appalachian State University's intramural soccer and softball fields so consideration of the University's needs must also be taken into account.

Most risks affecting the project schedule surround these two aspects of the project. Based on when construction occurs, there may have to be more care used to protect the trout or to work around activities at the ball fields.

The project does not pose any threat to human life and there is no request by the Governor for a peer review by independent experts. The project will not likely involve any public dispute. Based on previous public meetings, all comments are very positive in favor of the project because it will improve water quality and fish habitat. Improved fish habitat could also lead to economic benefits for the region because of increased trout fishing.

The project design is based on proven methods and materials for armoring the banks such as root-balls, brush mattresses and lumber slab bundles. These materials are being used instead of stone slope protection so that the banks are stabilized in a more natural way.

The project design does not require unique construction sequencing or an overlap of design and construction. The construction duration will be short – between 2-3 months – if weather permits.

- c. **In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC and ATR, similar to any products developed by USACE.

Project stakeholders are the Town of Boone, Appalachian State University, NC Natural Resources Commission, and the National Committee for the New River. The local cost-sharing sponsor for this project will be the Town of Boone. The local sponsor will pay 35% of the total implementation costs, which amount includes provision of all LERRDs (lands, easements, rights-of-way, relocations, and disposal); 100% of any OMRR&R (operations, maintenance, repair, rehabilitation, and replacement) costs in accordance with the decision document and cost-sharing agreements; and 50% of recreational features (kiosks, signs, benches, and access paths).

4. DISTRICT QUALITY CONTROL (DQC)

All implementation documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC. Products to undergo ATR include plans and specifications.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all implementation documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and

results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

a. Products to Undergo ATR. ATR will be performed throughout the study in accordance with the regional Quality Management System. Certification of the ATR will be provided prior to contract advertisement and award. Products to undergo ATR include plans and specifications.

b. Required ATR Team Expertise.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional preferably with experience in preparing Section 206 design and implementation documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. Typically, the ATR lead will also serve as a reviewer for a specific discipline (geotechnical engineering). The ATR Lead MUST be from outside LRD.
Geotechnical Engineer	The reviewer should be a senior level engineer with experience in stream bank stabilization and restoration as well as development of sustainable wetlands. Specific expertise using biotechnical slope stabilization methods is required. Professional registration (P.E.) is preferred.
Civil Engineer	The reviewer should be a senior level engineer with experience in civil/site work as well as development of sustainable wetlands. Professional registration (P.E.) is preferred.
Cost Engineer	The reviewer should have experience in the application of scientific principles and techniques to problems of cost estimating, cost control, business planning and management science, profitability analysis, project management, and planning and scheduling is required. Cost engineers pre-certified by the MCX will conduct the cost estimate ATR. The MCX will provide the Cost Engineering MCX certification.
Planning/Biologist	The ATR team member should be a senior Biologist or Ecologist and should have experience in reviewing Section 206 plans and in conducting ATR. The member should have the technical skills to review the plans and documents to accomplish stream bank restoration and development of sustainable wetlands. The team member must have experience reviewing projects in accordance with federal regulations and policy, specifically the National Environmental Policy Act (NEPA).
Real Estate	The ATR team member should be a senior Realty Specialist with expertise in reviewing Section 206 or similar plans and in conducting ATR. The member should have the technical

	<p>knowledge and experience to review the real estate requirements necessary to accomplish stream bank restoration and development of sustainable wetlands. The team member must have experience reviewing projects in accordance with Federal real estate law, regulations, and policy.</p>
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c. **Documentation of ATR.** DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be 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 DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-2-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- 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 the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); 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.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed prior to the District Commander signing the final report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR may be required for design and implementation documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-214, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- **Type I IEPR.** Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-214.
 - **Type II IEPR.** Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. This applies to new projects and to the major repair, rehabilitation, replacement, or modification of existing facilities. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.
- a. Decision on IEPR.** Based on the information and analysis provided in the preceding paragraphs of this review plan, the project covered under this plan is excluded from IEPR because it does not meet the mandatory IEPR triggers and does not warrant IEPR based on a risk-informed analysis.

In accordance with EC 1165-2-214, a Type II IEPR (SAR) is not required for the following reasons:

- 1)** Project features, as discussed in Section 3 above, do not pose a significant threat to human life.

- 2) This project is reversing damage to the environment that has already occurred. A complete failure of this project, which is not probable, would likely result in a continuation of the baseline conditions.
- 3) This project does not include the major repair, rehabilitation, replacement, or modification of existing facilities nor is this a hurricane and storm risk management or flood risk management project.
- 4) The nature of this project does not include work in any existing underground mines, or construction of mine shafts, or tunnels.

b. Products to Undergo Type II IEPR. Not applicable.

c. Required Type II IEPR Panel Expertise. Not Applicable.

d. Documentation of Type II IEPR. Not Applicable.

7. POLICY AND LEGAL COMPLIANCE REVIEW

The Detailed Project Report (DPR) was reviewed throughout the study process for compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

8. COST ENGINEERING DIRECTORY OF EXPERTISE (MCX) REVIEW AND CERTIFICATION

Regional cost personnel that are pre-certified by the Cost Engineering MCX (located in Walla Walla District) will conduct the cost engineering ATR. The MCX will provide the Cost Engineering MCX certification. The RMO will coordinate with the Cost Engineering MCX on the selection of the cost engineering ATR team member.

9. REVIEW SCHEDULES AND COSTS

- a. DQC Schedule and Cost.** The cost for DQC is included in the costs for PDT activities and is not broken out separately. DQC will occur seamlessly during and throughout the development of the plans and specifications. Quality checks and reviews occur during the development process and are carried out as a routine management practice.
- b. ATR Schedule and Cost.** The design for the Watauga Aquatic Ecosystem Restoration Project is not complex but will undergo required ATR prior to transmittal of the P&S to Construction (see Attachment 2). The cost of ATR is estimated to be approximately \$20,000.
- c. Type I and Type II IEPR Schedule and Cost.** Not applicable.

10. PUBLIC PARTICIPATION

State and Federal resource agencies may be invited to participate in the study covered by this review plan as partner agencies or as technical members of the PDT, as appropriate. Agencies with regulatory review responsibilities will be contacted for coordination as required by applicable laws and procedures. The ATR team will be provided copies of public and agency comments.

11. REVIEW PLAN APPROVAL AND UPDATES

The Great Lakes and Ohio River Division is responsible for approving the review plan. Approval is provided by the MSC Commander. The commander's approval should reflect vertical team input (involving district, MSC, and HQUSACE members) as to the appropriate scope and level of review for the project. Like the PMP, the review plan is a living document and may change as the study progresses. Changes to the review plan should be approved by following the process used for initially approving the plan. In all cases the MSCs will review the decision on the level of review and any changes made in updates to the project.

12. REVIEW PLAN POINTS OF CONTACT

Public questions and/or comments on this review plan can be directed to the following points of contact:

- [REDACTED] Project Manager, [REDACTED]
- [REDACTED] Lead Project Engineer, [REDACTED]
- [REDACTED] Chief, Quality Management, [REDACTED]
- [REDACTED] Review Management Organization Representative, [REDACTED]

ATTACHMENT 1: TEAM ROSTERS.

TABLE 1: Product Delivery Team		
Functional Area	Name	Office
Project Manager	[REDACTED]	CELRH
Lead Engineer/ Civil	[REDACTED]	CELRH
Geotechnical	[REDACTED]	CELRH
Construction	[REDACTED]	CELRH
Hydrology and Hydraulics	[REDACTED]	CELRH
Planning/ Biologist	[REDACTED]	CELRH
Cost Engineering	[REDACTED]	CELRH
Real Estate	[REDACTED]	CELRH
Project Analyst	[REDACTED]	CELRH

TABLE 2: Agency Technical Review Team		
NAME	DISCIPLINE	OFFICE
[REDACTED]	Geotechnical, ATR Lead	CEMVK-EC-D
[REDACTED]	Civil	CELRP-EC-NC
[REDACTED]	Planning/Biologist	CELRN-PM-P
[REDACTED]	Cost	USACE-NWW Cost Engineering
[REDACTED]	Real Estate	CELRP-EC-RA

Vertical Team

The Vertical Team consists of members of the HQUSACE and Great Lakes & Ohio River Division Offices. The Vertical Team plays a key role in facilitating execution of the project in accordance with the PMP. The Vertical Team is responsible for providing the PDT with Issue Resolution support and guidance as required. The Vertical Team will remain engaged seamlessly throughout the project via teleconferences as required and will attend In Progress Reviews and other key decision briefings as required. The District Liaison [REDACTED], CELRD-PDS-H, is the District PM’s primary Point of Contact on the Vertical Team.

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the plans and specifications for the Watauga Aquatic Ecosystem Restoration Project, Town of Boone, North Carolina. The ATR was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-214. During the ATR, 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 obtained, and reasonableness of the results, including whether the product meets the customer’s needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrCheckssm.

SIGNATURE

[Redacted]
ATR Team Leader
CEMVK-EC-D

Date

SIGNATURE

[Redacted]
Project Manager
CELRH-PM-PP-P

Date

SIGNATURE

[Redacted]
Review Management Organization Representative
CELRD-RBT

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: [Describe the major technical concerns and their resolution.](#)

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

SIGNATURE

[Redacted]
Chief, Engineering and Construction Division
CELRH-EC

Date

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CAP	Continuing Authorities Program	O&M	Operation and maintenance
CSDR	Coastal Storm Damage Reduction	OMB	Office and Management and Budget
DPR	Detailed Project Report	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DQC	District Quality Control/Quality Assurance	OEO	Outside Eligible Organization
MCX	Directory of Expertise	OSE	Other Social Effects
EA	Environmental Assessment	PCX	Planning Center of Expertise
EC	Engineer Circular	PDT	Project Delivery Team
EIS	Environmental Impact Statement	PAC	Post Authorization Change
EO	Executive Order	PMP	Project Management Plan
ER	Ecosystem Restoration	PL	Public Law
FDR	Flood Damage Reduction	QMP	Quality Management Plan
FEMA	Federal Emergency Management Agency	QA	Quality Assurance
FRM	Flood Risk Management	QC	Quality Control
FSM	Feasibility Scoping Meeting	RED	Regional Economic Development
GRR	General Reevaluation Report	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RTS	Regional Technical Specialist
ITR	Independent Technical Review	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act