**DEPARTMENT OF THE ARMY**
**U.S. ARMY CORPS OF ENGINEERS, SOUTH ATLANTIC DIVISION**
**60 FORSYTH STREET SW, ROOM 10M15**
**ATLANTA, GA 30303-8801**

CESAD-RBT 09 March 2020

MEMORANDUM FOR Commander, Wilmington District, 69 Darlington Avenue, Wilmington, North Carolina 28403-1343

SUBJECT: Approval of the Review Plan for the Neuse River Goldsboro Section 1135 Environmental Improvements Weir Replacement, City of Goldsboro, North Carolina

1. References:

a. Memorandum, CESAW-ECP-E, 5 February 2020, subject as above.

b. Engineering Circular (EC) 1165-2-217, Water Resources Policies and Authorities Review Policy for Civil Works, 20 February 2018.

2. The Review Plan (RP) for the Neuse River Goldsboro Environmental Improvements Weir Replacement Project and reference 1.a. noted above have been reviewed by South Atlantic Division (SAD). SAD concurs with the conclusion that a Type II Independent External Peer Review (IEPR) of the subject project is not required. The RP is hereby approved in accordance with reference 1.b.

3. SAD concurs with the District's RP recommendation that outlines the requirements for District Quality Control (DQC), Agency Technical Review (ATR), and Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Review. The Safety Assurance Review/Type II Independent External Peer Review is not required. Documents to be reviewed include the 65% Plans and Specifications and the Design Documentation Report (DDR).

4. The South Atlantic Division Office shall be the Review Management Organization for this project.

5. The District should take steps to post the approved RP to its website and provide a link to CESAD-RBT. Before posting to the website, the names of Corps/Army employees should be removed. Subsequent significant changes to this RP, such as scope or level of review changes, should they become necessary, will require new written approval from this office.

6. The SAD point of contact is Ms. Shannon L. Geoly, CESAD-RBT, (404) 562-5121.

DIANA M. HOLLAND
Major General, USA
Commanding

US Army Corps of Engineers®

*Prepared by:*

**SAW District**

**SAD Division**

# PROJECT REVIEW PLAN

**For**

## Preconstruction, Engineering and Design Phase Implementation Documents

**For**

## Neuse River Goldsboro
## Section 1135 Environmental Improvements
## Weir Replacement
## City of Goldsboro, North Carolina

**Wilmington District**

**February 2020**

MSC Approval Date: March 9, 2020

Last Revision Date: n/a

# Section 1
# Introduction

## 1.1 Purpose

This Review Plan (RP) for Neuse River Goldsboro Section 1135 (P2 443378), will help ensure a quality-engineering project is developed by the United States Army Corps of Engineers (USACE) in accordance with EC 1165-2-217, "Review Policy for Civil Works." As part of the Project Management Plan, this RP establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products and lays out a value added process and describes the scope of review for the current phase of work. The EC outlines general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Review, and Policy and Legal Compliance Review. This RP will be provided to Project Delivery Team (PDT), and the DQC, ATR, and BCOES Teams. The technical review efforts addressed in this RP, DQC and ATR, are to augment and complement the policy review processes. The District Chief of Engineering has assessed that the life safety risk of this project is not significant; therefore, a Type II IEPR/Safety Assurance Review (SAR) will not be required, see Paragraph 6.2.

## 1.2 References

- EC 1165-2-217, Review Policy For Civil Works, 20 February 2018
- ER 1110-1-12, Quality Management, 31 March 2011
- ER 415-1-11, Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Reviews, 1 January 2013
- Project Management Plan (PMP)
- Wilmington District Quality Management Plan

## 1.3 Review Management Organization

The USACE South Atlantic Division (SAD) is the Review Management Organization (RMO) for this project. The RMO, in cooperation with the vertical team, will approve the ATR Team members. Wilmington District (SAW) will assist SAD with management of the ATR and development of the charge to reviewers. This RP will be updated for additional project phases and for the construction phase.

# Section 2
# Project Description

## 2.1 Project Background

The overall goal of the Neuse River Goldsboro Section 1135 Environmental Improvements project is to modify the existing, original Federal project for improvement of the environment. The original Federal

project was constructed for the purpose of flood control along a segment of the Neuse River. In 1941, Congress authorized the excavation of a cutoff channel approximately 6,400 feet long to bypass about 7.1 miles of the main stem of the Neuse River. Within the cutoff, a low head weir was constructed to divert portions of the main stem flow into the cutoff channel during higher flows. The original weir has undergone several repairs through its project life. The original timber pile design was replaced with the sheet metal piles in 1968. Additional riprap was added to the downstream face of the weir in 1983. In 2007, the City of Goldsboro replaced the riprap on the upstream and downstream face of the weir. Finally, in 2015, the City of Goldsboro constructed a new Section 408 sheet pile weir 5-feet downstream of the original weir. The City built the temporary weir due to the severely deteriorated state of the original Federal project weir.

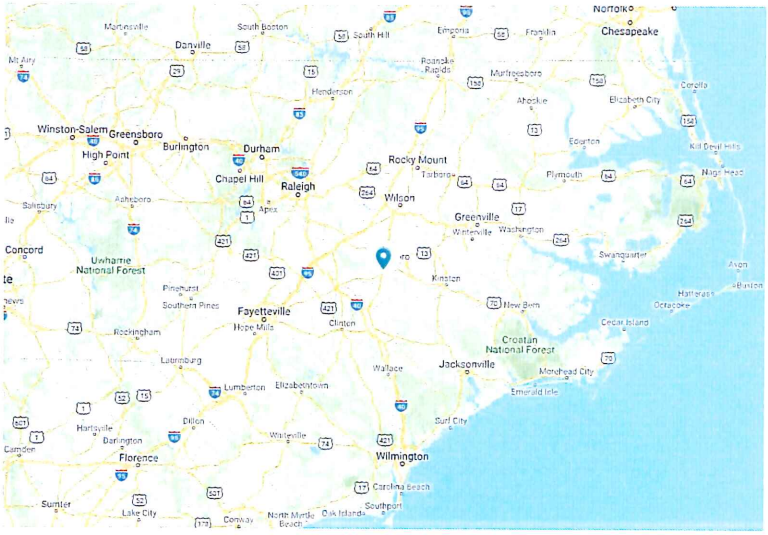


Image: Project Location

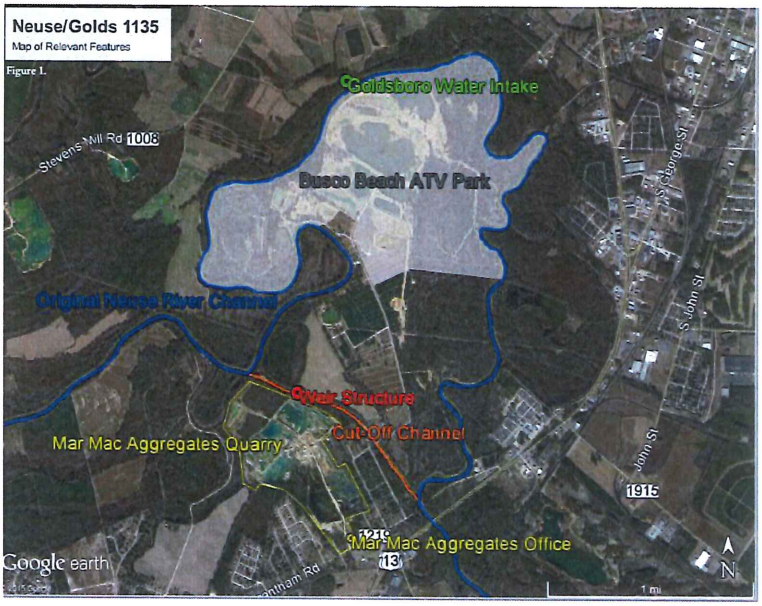


Image: Vicinity Map

## 2.2 Project Description

The Neuse River Goldsboro Section 1135 Environmental Improvements project includes the construction of a new sheet pile weir structure to elevation 58.0 feet NAVD 88. This is two feet higher than the existing temporary Section 408 weir constructed by the City of Goldsboro in 2015. The location of the new weir will be approximately 25-feet downstream of the City's temporary weir. As part of construction, the original Federal weir will be cut off below grade. The City of Goldsboro's temporary weir will be removed as a part of the Federal project at the City of Goldsboro's expense. New riprap will be installed upstream, downstream and along the channel side slopes. The flood risk management benefits of the federally authorized project are not impacted.

## 2.3 Project Authorization

The project was authorized under the authority of Section 1135, Project Modifications for Improvement of the Environment, of the Water Resources Development Act (WRDA) of 1986, as amended (P.L. 99-662). Section 1135 authorizes USACE to initiate investigations and modify structures and operations of water resources projects constructed by the USACE for the purpose of improving the quality of the environment, as long as such modifications are feasible and consistent with authorized project purposes and will improve the quality of the environment in the public interest.

## 2.4 Project Sponsor

Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, policy and legal compliance, BCOES, and SAR reviews. There will not be in-kind contributions for this effort. The non-Federal sponsor for the project is the City of Goldsboro.

# Section 3
# District Quality Control

## 3.1 Requirements

All implementation documents (including supporting data, analyses, reports, environmental compliance documents, water control manuals, etc.) shall undergo DQC in accordance EC 1165-2-217. A DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the PMP. DQC will be performed on the Plans and Specifications (P&S) and the Design Documentation Report (DDR) in accordance with SAW's quality management process. DQC comments and responses will be documented in DrChecks$^{SM}$. DQC Certification will be verified by the Agency Technical Review Team.

See Attachment 1, Table 5 for the DQC Lead, reviewers, and reviewers' disciplines.

## 3.2 Documentation

Documentation of DQC activities is required and will be implemented by the process described in paragraph 3.1. The DQC shall be certified by the Engineering Branch Chief.

## 3.3 DQC Schedule and Estimated Cost

Although DQC is always seamless, the following milestone reviews are scheduled in Table 1. The cost for the DQC is approximately $15,000.

| Project Phase/Submittal | Review Start Date | Review End Date |
|---|---|---|
| DQC 35% Review | 12/9/2019 (A) | 12/20/2019 (A) |
| DQC 65% P&S Review | 3/18/2020 | 3/24/2020 |
| DQC Final P&S Review | 5/13/2020 | 5/27/2020 |

*Table 1 DQC Schedule*

# Section 4

# Agency Technical Review

## 4.1 Requirements

All implementation documents (including supporting data, analyses, reports, environmental compliance documents, water control manuals, etc.) shall undergo ATR in accordance EC 1165-2-217. ATR reviews will occur seamlessly, including early involvement of the ATR team for validation of key design decisions, and at the scheduled milestones as shown in Section 4.6. A site visit will not be scheduled for the ATR Team. The ATR will be conducted by individuals and organizations that are external to SAW. The ATR team leader will be a USACE employee outside of SAD. The required disciplines and experience are described below:

## 4.2 Documentation of ATR

Documentation of ATR will occur using the requirements of EC 1165-2-217. This includes the four part comment structure and the use of DrChecksSM.

## 4.3 Products to Undergo ATR

The ATR team will review the 65% Plans, Specifications, and DDR.

## 4.4 Required Team Expertise and Requirements

ATR teams will be established in accordance with EC 1165-2-217. The following disciplines will be required for ATR of this project:

**ATR Lead:** The ATR team lead is a senior professional outside the home MSC with extensive experience in preparing Civil Works documents and conducting ATRs. The lead has the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer

for a specific discipline, in this case, Civil Engineering, Geotechnical Engineering, Hydraulics & Hydrology Engineering, or Environmental.

**Civil Engineer** – Reviewer shall be a registered professional engineer with 5 years minimum experience including design of channel improvements to include diversion channels, embankment armoring, and other erosion control measures.

**Geotechnical Engineer** - Reviewer shall be a registered professional engineer with 5 years minimum experience including experience in subsurface investigations, rock and soil mechanics, internal erosion, slope stability evaluations, erosion protection design, and earthwork construction.

**Hydraulics & Hydrology Engineer** - Reviewer shall be a registered professional engineer with 5 years minimum experience including experience in the field of hydraulics and hydrology and have a thorough understanding of open channel dynamics and/or computer modeling techniques that will be used such as HEC-RAS. Experience with diversion channels and embankment armoring design is required.

**Environmental** - The environmental reviewer should be experienced in National Environmental Policy Act (NEPA) process and analysis, and have a biological or environmental background.

## 4.5 Statement of Technical Review Report

At the conclusion of each ATR effort, the ATR team will prepare a Statement of Technical Review Report with a completion and certification memo. The report will be prepared in accordance with EC 1165-2-217.

## 4.6 ATR Schedule and Estimated Cost

The preliminary ATR milestone schedule is listed in Table 2. The cost for the ATR is approximately $20,000.

| Project Phase/Submittal | Review Start Date | Review End Date | Site Visit |
|---|---|---|---|
| ATR 65% P&S Review | 3/25/2020 | 4/21/2020 | n/a |

*Table 2 ATR Schedule*

# Section 5
# BCOES Review

## 5.1 Requirements

The value of a BCOES review is based on minimizing problems during the construction phase through effective checks performed by knowledgeable, experienced personnel prior to advertising for a contract. BCOES requirements must be emphasized throughout the planning and design processes for all programs and projects, including during planning and design. This will help to ensure that the government's contract requirements are clear, executable, and readily understandable by private sector bidders or proposers. It will also help ensure that the construction may be done efficiently and in an environmentally sound manner and that the construction activities and projects are sufficiently sustainable. Effective BCOES reviews of design and contract documents will reduce risks of cost and time growth, unnecessary changes and claims,

as well as support safe, efficient, sustainable operations and maintenance by the facility users and maintenance organization after construction is complete.

All implementation documents (including supporting data, analyses, reports, environmental compliance documents, water control manuals, etc.) shall undergo BCOES review in accordance ER 415-1-11 and ER 1110-1-12. BCOES reviews are done during design for a project using the design-bid-build (D-B-B) method or during development of the request for proposal (RFP) for a design-build (D-B) project. The BCOES review results are to be incorporated into the procurement documents for all construction projects.

## 5.2 Documentation of BCOES

The BCOES review will be performed and documented using DrChecks$^{SM}$. The BCOES reviewers will include local sponsors' facility operators and maintenance staff, as well as construction, operations, and environmental staff to improve the BCOES aspects of designs.

# Section 6

# Safety Assurance Review

## 6.1 Requirements

A SAR, also known as a Type II Independent External Peer Review (IEPR), may be required for implementation documents 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. A risk informed decision, as described in EC 1165-2-217, is made as to whether a SAR is appropriate. SARs are managed outside the USACE and shall consider the adequacy, appropriateness, and acceptability of the design and construction activities, assuring public health safety and welfare.

## 6.2 Decision on SAR

The District Chief of Engineering has made a risk-informed-decision that this project does not pose a significant threat to human life (public safety); therefore, a SAR will not be performed.

A risk-informed decision was made as to whether conducting a Type II IEPR is appropriate based on the below consideration factors as outlined in EC 1165-2-217, Section 12 (h) thru (i).

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

*Existing land use in the flood plain contains industrial, cropland, and environmental acreage. There are no residences within the flood plain. The river cutoff channel is bordered by cropland and deciduous forest to the north and by deciduous forest and an aggregate quarry to the south. Current conditions prevent the project from performing as designed, reducing its efficacy. The rehabilitation of this project will not pose a significant threat to human life.*

(2) The project involves the use of innovative materials or techniques and the engineering is based on novel methods, presents complex challenges for interpretations, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices.

*This project will utilize methods and procedures used by the Corps of Engineers on other similar works. Installation of sheet pile weir and replacement of stream bank erosion protection for structures is common practice and has been designed by the USACE on many occasions. It is likely that the methods and materials used will be routine.*

(3) The project design requires redundancy, resiliency, and robustness.

*Redundancy, resiliency, or robustness is not required for design.*

(4) The project has unique construction sequencing or a reduced or overlapping design construction schedule, for example, significant project features accomplished using the Design-Build or Early Contractor Involvement delivery systems.

*The project design is not anticipated to require unique construction sequencing, or a reduced or overlapping design construction schedule.*

Based on the discussion above, the District Chief of Engineering, as the Engineer-In-Responsible-Charge, does not recommend a Type II IEPR.

## 6.3 Products to Undergo SAR

Not required.

## 6.4 Required SAR Panel Expertise

Not Required.

## 6.5 Documentation of SAR

Not Required.

## 6.6 Scope, Schedule, and Estimated Cost of SAR's

Not Required.

# Section 7

# Public Posting of Review Plan

As required by EC 1165-2-217, the approved RP will be posted on the District public website (https://www.saw.usace.army.mil/Library/Review-Plans/). This is not a formal comment period and there is no set timeframe for the opportunity for public comment. If and when comments are received, the PDT will consider them and decide if revisions to the RP are necessary.

## Section 8

# Review Plan Approval and Updates

The MSC Commander, or delegated official, is responsible for approving this RP. The Commander's approval reflects vertical team input (involving the District, MSC, and RMC) as to the appropriate scope, level of review, and endorsement by the RMC. The RP is a living document and should be updated in accordance with 1165-2-217. All changes made to the approved RP will be documented in Attachment 3, Table 7 RP Revisions. The latest version of the RP, along with the Commander's approval memorandum, will be posted on the District's webpage and linked to the HQUSACE webpage. The approved RP should be provided to the RMO.

## Section 9

# Engineering Models

The use of certified, validated, or agency approved engineering models is required for all activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, BCOES, policy and legal review, and SAR (if required). Where such approvals have not been completed, appropriate independent checks of critical calculations will be performed and documented. The following engineering models, software, and tools are anticipated to be used:

| MODEL | STATUS |
|---|---|
| MII 4.3 Build 7 (Microcomputer Aided Cost Engineering System) | Certified |
| HEC-RAS 5.0.7 | Certified |
| CWALSHT (CASE Program) | Approved |
| SEEP/W | Approved |

*Table 3 Models and Status*

## Section 10

# Review Plan Points of Contact

| Title | Organization | Phone |
|---|---|---|
| Review Plan, ATR, and QM Process | CESAW-ECP-ED | 910-251-4414 |
| Project Manager (PM) | CESAW-PM | 910-251-4489 |
| South Atlantic Division POC | CESAD-RBT | 404-562-5121 |

*Table 4 RP POC's*

# ATTACHMENT 3

# Review Plan Revisions

| Revision Date | Description of Change | Page/Paragraph Number |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

*Table 7 RP Revisions*

## ATTACHMENT 4

# DQC Certification and ATR Report and Certification Format

## ATR REPORT OUTLINE AND COMPLETION OF AGENCY TECHNICAL REVIEW

**Neuse River Goldsboro**
**Section 1135 Environmental Improvements**
**Weir Replacement**
**City of Goldsboro, North Carolina**

## ATR REPORT OUTLINE

1. **Introduction:**
2. **ATR Team Members:**

   ATR Team Leader
   Civil Engineer
   Hydrology and Hydraulic Engineer
   Geotechnical Engineer
   Environmental Reviewer

3. **ATR Objective:**
4. **Documents Reviewed:**
5. **Findings and Conclusions:**
6. **Unresolved Issues:**