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

January 28, 2016

SUBJECT: Removal of Swash Defense Dam, Wilmington Harbor

Mr. Braxton Davis, Director
North Carolina Division of
Coastal Resources
400 Commerce Avenue
Morehead City, North Carolina 28557

Dear Mr. Davis,

This is in response to your letter to COL Kevin P. Landers, Sr., Wilmington District Commander, of November 30, 2015, referencing the State's study of removal of the Swash Defense Dam portion of the Wilmington Harbor Navigation Project. As you are aware, the Swash Defense Dam (SDD) and adjoining New Inlet Dam (NID) were constructed by the U.S. Army, Corps of Engineers (Corps) in the nineteenth century to close New Inlet and make the Cape Fear River more navigable. The two dams function together to protect the river from the creation of an inlet that could cause substantial shoaling in the river. You have been tasked by the North Carolina General Assembly to study the removal of a portion of this project "in order to reestablish the natural hydrodynamic flow between the Cape Fear River and the Atlantic Ocean." Your letter seeks our comment on such a study.

As more thoroughly described in a subsequent section of this letter, the State's proposal to remove the NID/SDD project, possibly in conjunction with an attempt to open an inlet in the area between Federal Point and Bald Head Island, would require at a minimum the following authorizations from the Corps:

- A permit from our Regulatory Division, under both Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §404) and Section 404 of the Clean Water Act (33 U.S.C. §1344), for the removal of the rocks and any associated dredging or shore stabilization.
- An engineering analysis provided by the State, which would be used by our Engineering Branch staff to seek Corps Headquarters approval, pursuant to Section 408 (33 U.S.C. §408), of the alteration of an existing Federal navigation project.
- A document prepared pursuant to the appropriate provisions of the National Environmental Policy Act (NEPA), to support the approvals identified above.

- Associated consultation and approvals under applicable Federal laws related to project-induced effects on Endangered Species, Essential Fish Habitat, cultural resources, marine and nuclear safety, and a variety of other resources potentially affected by the proposed project.
- An agreement between the State of North Carolina and the Corps to formalize the State's permanent commitment to maintain, at the State's sole expense, those portions of the Wilmington Harbor Federal Navigation Project adversely affected by its removal of the NID/SDD element of the navigation project and any associated work.

In this letter, I will explain the purpose and history of the New Inlet Dam and Swash Defense Dam federal navigation project element, identify the processes required for consideration of the dams' removal, and raise important issues that must be considered in any study the State undertakes to examine such removal.

History

The United States Army, Corps of Engineers (Corps) has actively maintained the navigability of the Cape Fear River since 1829. The Lower Cape Fear River, below Wilmington, had historically been navigable to a depth of nineteen feet, but over the first half of the nineteenth century, the river's depth had been reduced to twelve feet. In 1853, the Secretary of War empaneled a commission to study and recommend solutions for the chronic navigation problems encountered in the Lower Cape Fear River. That commission found that one of the clearest problems associated with navigability of the lower river was that the river essentially had two mouths – one between Fort Caswell and Smith (Bald Head) Island, and one at New Inlet several miles north, near what would become Fort Fisher. As New Inlet grew deeper, the depths over the river mouth continued to grow shallower. The commission recommended that efforts begin to reduce the flows through, and eventually to close, New Inlet in order to force the entire discharge of the river out of its southern mouth.

Approval to completely close New Inlet was not granted in 1853, and the Corps was instead directed to close two smaller inlets that had opened up south of New Inlet in the vicinity of Zeke's Island. Between 1853 and 1857, stones were placed south of Zeke's Island in an attempt to close these inlets. The effort was initially successful, but was overwhelmed by a hurricane in 1857, and no further efforts were made until after the Civil War. The Corps received authority to close New Inlet in 1870, and began the process by building a wooden structure connecting Zeke's Island with Smith (Bald Head) Island to the south, and by adding sand to the seaward side of the structure. This process completed in 1877. Meanwhile, the process of building a jetty southward from Federal Point (near the current ferry landing) and across New Inlet itself had begun, beginning with wooden mattresses covered with rip-rap, and finally resulting in a completed stone structure 4,800 feet long. The New Inlet Dam, completed in 1881, was 37 feet from base to top, ranged from 75 to 120 feet wide at the base, and was composed of 181,000 cubic yards of stone. Before work on the New Inlet Dam was complete, a storm breached the Zeke's Island-Smith Island structure in 1877. The Corps began efforts to close the breach in

1881, and eventually was able to complete a more secure structure made of brush and rip-rap overlain with stone. This southern dam, known as the Swash Defense Dam, was completed in 1891, and extends 12,800 feet south from Zeke's Island. Please see Attachment A for more historical information.

Both of these stone features remain today, and serve to protect the navigation channel from the shoaling associated with a major inlet re-opening in the area. For several decades spanning from approximately 1940 until 1998, a small inlet, known as Corncake Inlet, did open adjacent to the Swash Defense Dam, providing regular flushing of the sound behind the dams and a sandier substrate than currently exists. That small inlet closed as a result of Hurricanes Bonnie and Floyd in 1998 and 1999, respectively, and the beach from Fort Fisher to Bald Head Island has remained intact since.

The Wilmington Harbor Project

The current Wilmington Harbor Project connects the Port of Wilmington with the Atlantic Ocean through the Cape Fear River, and also extends upstream of the Port at shallower depths to other commercial shipping terminals. The Project consists of the maintained channel, other related channel improvements, and dredged material disposal facilities along the length of the river and out into the ocean. The channel itself is 44 feet deep across the ocean bar, 42 feet through the Cape Fear River up to the Memorial Bridge in Wilmington, and 32 feet or less upstream of the Bridge. The more recent improvements of the channel, including its deepening to the current depth of 42 feet, have been accomplished pursuant to Project Partnership Agreements between the State of North Carolina and the Corps, who cost share new construction for Federally-authorized project improvements. Operations and Maintenance of the project, which consists primarily of maintenance dredging and improvements to disposal facilities, is paid for by the Federal government. Federal funding for maintenance of the Project was $18 million in 2014, and $14 million in 2015. The mid-river portion of the project, adjacent to the NID/SDD element, is an area of minimal shoaling under current conditions, and is maintained infrequently as shoaling occurs. Please reference the map in Attachment B for a project overview. Current channel conditions are available on our website, at: http://www.saw.usace.army.mil/Missions/Navigation/HydrographicSurveys/WilmingtonHarbor.aspx.

The New State Law

The 2015 North Carolina Appropriations Act (NC Session Law 2015-241, at Section 14.6(h)), seeks removal of a portion of this Federally-constructed navigation improvement. The stated purpose of the law is as follows:

> The General Assembly finds that the New Inlet Dam or "The Rocks" was constructed by the United States Army Corps of Engineers in the late 19th century. The New Inlet Dam is composed of two components, a Northern Component that

> extends from Federal Point to Zeke's Island and a Southern Component that extends southwestward from Zeke's Island and separates the New Inlet from the main channel of the Cape Fear River. The General Assembly further finds that the Southern Component of the New Inlet Dam impedes the natural flow of water between the Cape Fear River and the Atlantic Ocean that occurred prior to emplacement of the dam. The General Assembly further finds that it is necessary to consider removal of the Southern Component of the New Inlet Dam in order to reestablish the natural hydrodynamic flow between the Cape Fear River and the Atlantic Ocean.

The law then proceeds to direct three main activities: 1) notification of the Corps that the State intends to study the removal of a portion of this project; 2) the hiring of a firm to study costs, benefits, and processes for permitting such removal; and 3) requesting approval from the National Oceanic and Atmospheric Administration (NOAA) to realign the boundaries of the Zeke's Island Estuarine Research Reserve to remove the area now occupied by the New Inlet Dam and Swash Defense Dam.

The statement of purpose found in the law does not match our understanding of the New Inlet Dam/Swash Defense Dam (NID/SDD) project. It is important to note the differences between the law's stated purpose and our understanding of the project.

- The Southern Component (Swash Defense Dam) is neither the only, nor the primary portion of the NID/SDD project that separates the historic New Inlet from the Cape Fear River. As described above, it is actually the Northern Component (New Inlet Dam) portion of the project that closed off New Inlet itself. The Swash Defense Dam closed smaller inlets that had emerged in the nineteenth century, partially as a result of the closure of New Inlet to the north.

- It is also clear that *both* components of the NID/SDD project have worked together to keep New Inlet and associated smaller inlets from re-opening south of Federal Point. It is not just the Southern Component of the project that impedes flow between the river and the ocean.

- The phrase "natural flow of water between the Cape Fear River and Atlantic Ocean" implies a natural and stable condition of the river that historical records do not indicate existed for any length of time. Due to the very narrow nature of the peninsula at this point, it is probably safe to assume that several inlets have appeared and closed over the centuries at this location, due to both storm effects and human-induced effects such as boat haul-over.

- If the State's goal is to "reestablish the natural hydrodynamic flow between the Cape Fear River and the Atlantic Ocean" that existed immediately prior to the Corps' efforts to close the inlets in 1853, it is important to remember the conditions as they existed at that time. Specifically, this would entail a New Inlet with a navigable depth of approximately 12-15 feet, and two smaller inlets south of Zeke's Island with depths considerably less than 12 feet throughout. These inlets existed, however, alongside a Cape Fear River that was chronically shoaled between New Inlet and Southport, and was navigable to only a depth of approximately 12 feet across its ocean bar. The introduction of one or more inlets between Federal Point and Bald Head Island would have a substantial, but currently unknown effect on the hydrodynamics and navigability of the current 42-foot navigation project in the Cape Fear River. Please consult the map at Attachment C for an illustration of the river conditions immediately prior to construction of the dams.

Lack of a Clear Proposal

In order for the State to move forward in its efforts to obtain the permits, authorizations, and agreements necessary to alter this project in such a substantial manner, our Regulatory permit process requires that a clear purpose and need for the project be identified. As set forth below, a reasonable analysis of costs or benefits cannot be performed without a clearer understanding of the State's purpose for the removal, or the needs that it will meet. The Corps does not presume to understand the intent of the State when it mandates consideration of "removal of the Southern Component of the New Inlet Dam in order to reestablish the natural hydrodynamic flow between the Cape Fear River and the Atlantic Ocean." Without further clarification, this statement could be interpreted to mean one of the following actions, each of which would entail a very different analysis.

A. **Removal of the Swash Defense Dam (and/or the New Inlet Dam) with no other action contemplated.** While this action would seem to comply most strictly with the State law mandate, it would not actually "reestablish the natural hydrodynamic flow between the Cape Fear River and the Atlantic Ocean," as the beach between Federal Point and Bald Head Island would remain, and no flow would be created. We would presume that the removal of one or both dams would create a condition where erosion or storm action would make the opening of an inlet in this area much more likely, but that re-establishment of flow would occur, if at all, at an uncertain time in the future. Regardless of the lack of immediate flow, the Corps would expect that removal of one or both dams would alter the shoaling patterns in this portion of the Federal navigation project, and substantially increase the potential for storm-induced effects on the river and surrounding lands. The purpose for this effort would need to be articulated, as it has no identifiable navigation benefits, would likely reduce access to recreational beaches, and environmental benefits are uncertain.

B. **Removal of the Swash Defense Dam (and/or the New Inlet Dam) with a modest effort to re-establish a small, non-navigable inlet.** Under this scenario, we would presume that in addition to removing the dams, the State would actually attempt to "reestablish the natural hydrodynamic flow between the Cape Fear River and the Atlantic Ocean," in a manner similar to how an inlet might be formed subsequent to a storm. We would anticipate the historic location of either New Inlet or Corncake Inlet to be the site of this effort, which would entail some amount of dredging to re-establish flow. Under this scenario, we would anticipate that the State does nothing further to maintain the newly-formed inlet, and simply allows it to exist, widen, close, or move as a result of natural forces. We would anticipate that this action would cause immediate and measurable shoaling effects along the Lower Cape Fear River. The purpose for this effort would need to be articulated, as it has no identifiable navigation benefits, would likely reduce access to recreational beaches, and environmental benefits are uncertain.

C. **Removal of the Swash Defense Dam and the New Inlet Dam with establishment of a maintained shallow-draft (14 feet or less) inlet.** Under this scenario, both dams would be removed (as removing only one dam would be ineffective and dangerous for navigation). A navigation channel would be opened in the location of historic New Inlet or Corncake Inlet, and maintained to a consistent depth of somewhere between 6 and 14 feet. Jetties or shoreline armoring may or may not be a part of this proposal, or may become necessary over time. Initially, this scenario would most closely mimic the condition of this area before construction of the two dams. We would therefore expect shoaling in the Lower Cape Fear River similar to that experienced in the early nineteenth century, with immediate and substantial effects to the navigability of the Wilmington Harbor Project. The presumed primary purpose of this project would be recreational and light commercial navigation.

D. **Removal of the Swash Defense Dam and the New Inlet Dam with establishment of a maintained deep-draft navigation channel.** Under this scenario, both dams would be removed (as removing only one dam would be both ineffective and dangerous for navigation). A navigation channel would be opened in the location of historic New Inlet or Corncake Inlet, and maintained to a consistent depth of at least 42 feet, replacing (or, possibly pairing with) the current channel to establish a new deep-water route to the Atlantic Ocean. Jetties or shoreline armoring would almost certainly be necessary, as would a substantial amount of removal of rock, relic forest, or other unknown subsurface conditions along a path several miles long to natural deep water. Current conditions in the Lower Cape Fear River would be altered to the extent that extensive investigation, modeling, and analysis would be required before we could even predict project-induced

effects. The purpose under this scenario would clearly be to support commercial shipping; the need for an alternate or altered channel is unclear.

A clear purpose and need statement would direct the investigation and analysis that will be required of the State and its consultant as it considers moving forward with this proposal. Only with a clearly-defined purpose, and a general idea of the project's scope (possibly similar to that outlined in one of the four scenarios above), may the Corps move forward with the permitting or authorization processes that would be required.

Regulatory Processes

The removal of the rock dam at NID/SDD requires a Department of the Army (DA) permit issued pursuant to Section 404 of the Clean Water Act (33 U.S.C. §1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §404). As part of the permit review process, the Corps would also need to conduct a review pursuant to Section 408 of U.S.C. Title 33, as the project contemplates the physical alteration of an existing navigation project. No meaningful review can begin without a clearly identified project purpose and need, with an associated scope of work for the permit action. Once the proposed project and its purpose are described clearly enough to warrant agency review, the pre-application process can begin, which will also serve as the beginning of the scoping process under the National Environmental Policy Act (NEPA).

Evaluation of your proposed project's effect on the human environment may ultimately warrant NEPA – Environmental Impact Statement (EIS) review procedures. Please refer to 33 C.F.R. Part 325, Appendix B, for a thorough discussion of those procedures. For Regulatory purposes, if the EIS is meant to support a permit decision, we would use our third-party EIS process, with the Corps' involvement in the selection of the appropriate third-party contractor to write the document under our direction, and the State bearing the financial responsibility for the work. Please see Attachment D, Regulatory Guidance Letter 05-08, for more information. The Corps would be the lead Federal Agency for such a document, and NOAA, as a major stakeholder in the reserve property on which the project sits, is likely to be a cooperating agency. Other cooperating agencies may be identified as well, to potentially include the Coast Guard, U.S. Army, and Nuclear Regulatory Commission, as the proposed project may substantially affect the Military Ocean Terminal at Sunny Point (MOTSU), the Brunswick Nuclear Plant, and major shipping lanes. The EIS process would provide a thorough review of your proposal, and would be predicated upon consideration of a reasonable range of practicable alternatives (including the no action alternative) to meet the project purpose.

As part of this process, we would ultimately identify the least environmentally damaging practicable alternative (LEDPA) that meets the project purpose and need, considering costs, logistics, and technology. Additionally, all alternatives would be evaluated for the compliance with various aspects of the regulatory program to include a balancing of the detrimental and beneficial effects of the project on the public interest, as well as compliance with the Section 404(b)1 Guidelines (used to implement Section 404 of the Clean Water Act), and relevant related Federal laws such as the Endangered Species Act, National Historic Preservation Act, Magnuson

Stevens Fisheries Conservation and Management Act, and the Fish and Wildlife Coordination Act, and several Executive Orders governing energy and invasive species. The secondary and cumulative effects of the project on the human and aquatic environment would be thoroughly evaluated. Engineering analysis would likely be required to study the effects of the project on coastal resources. Resource agency coordination would likely result in requests for detailed information on these effects. Significant detrimental effects on aquatic resources, or the identification of a LEDPA that is substantially different from the State's proposed action, would likely result in permit denial.

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. Among those are: conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership, and the needs and welfare of the public. To the extent appropriate, the public interest review will include consideration of additional policies as described in 33 CFR 320.4(b) through (r).

Removal of all or part of the NID/SDD project will physically alter, and substantially influence, the Wilmington Harbor Navigation Project, and therefore requires an engineering analysis under Title 33 of the U.S. Code, Section 408. Depending on the ultimate purpose and design of the proposed project, those effects could be substantial and far-reaching. The result of the Section 408 process could result in a denial of your request, or Regulatory permit conditions requiring specific actions, or, as this is a cost-shared Navigation project entered into between the Army and the State, a modification of the existing Project Partnership Agreement to allow the State to assume financial responsibility for the continued navigability of the Lower Cape Fear River. Please refer to the Attachment E, Section 408 Guidance (EC 1165-2-216, Change 1), for more information about this required analysis.

As mentioned briefly above, the Regulatory processes involved in studying your proposal would necessarily involve evaluation of the resources (natural, cultural, economic, and human) that would be affected by your proposed project. As an integral part of our Regulatory permit process, and in consideration of your project's potential effect on the existing Navigation channel, we would expect, at a minimum, the following analyses to be conducted:

- Coastal Engineering analysis of wave and current patterns in the Lower Cape Fear River
- River discharge and tidal hydraulic analyses for existing and any new inlet configurations
- Shoaling analysis for the Wilmington Harbor project indicating likely project-induced effects
- Analysis of the likelihood for inlet creation and movement

- Discussion of the need for hardened structures
- Appropriate assessment of the Project's effect on military, commercial, and recreational navigation, to include safety considerations, effect on the State Port and MOTSU, as well as any environmental or property considerations associated with boat traffic and boat wake.
- Identification of potentially affected utilities, infrastructure, and subsurface obstructions, and a discussion of the project's potential effects on those features
- Discussion of any potential effects on the nearby nuclear power facility
- Subsurface Geotechnical analysis of any excavated area
- Discussion of anticipated effects of sea level rise on the project and project area, in compliance with the most recent Federal guidance (the Corps' guidance, ER 1100-2-8162, is enclosed as Attachment F)
- Endangered Species Biological Assessment, for terrestrial and aquatic species potentially affected
- Essential Fish Habitat Assessment
- An assessment of project effects on fish and wildlife resources required by the Fish and Wildlife Coordination Act
- An assessment of project effects on water quality and salinity levels
- Cultural Resources investigations and analyses
- Discussion of the project's consistency with CAMA Regulations
- Coastal Barrier Resources Act considerations, as appropriate
- Consideration of the loss of Coastal Reserve property or resources
- Analysis of the potential project's effect on recreational resources
- Discussion of the project's effect on real estate interests, including secondary effects associated with erosion or inlet creation

Unresolved Issues to Address

As your proposal is still presumably being considered and developed, I have enclosed in Attachment G an outline of questions and issues that we would like you to consider as you move forward with any study. The attachment is not a comprehensive list, but rather a brief outline of the issues that raise immediate questions that will be important for our further review. The issues

include those associated with the navigation, environmental, engineering, cultural resource, recreation, coastal resources, and governmental effects of your proposal. Please consider these issues, and use them as a guide for the analysis and answers that we would expect your study to cover.

There are a few items in the outline that I would like to highlight as needing specific attention:

- A matter of importance to our agency is the State's understanding and acknowledgement that, as non-federal sponsor for the Wilmington Harbor Project, North Carolina would need to take responsibility for funding and maintaining the navigable capacity of the Project to the extent that this proposed project might alter such capacity. Please refer to our Section 408 Guidance at Attachment E for more discussion of this issue.

- We understand that at this point, the NC Division of Coastal Management is following the direction of the NC General Assembly as described in the referenced State law. As the State moves forward with this study, we would like to have a clear understanding of which entities are speaking for the State. We are particularly concerned that the State's Executive Branch will be participating in several capacities in this effort:

  1) As the entity carrying out the General Assembly's mandate to study the NID/SDD removal and change Reserve boundaries;
  2) As the Corps' cost-sharing partner in the Wilmington Harbor Project;
  3) As the owner and operator of the State Port at Wilmington;
  4) As the property owner of much of the land affected by the proposed action; and
  5) As the regulatory agency assigned to protect the State's water, fisheries, wildlife, cultural, and coastal resources.

  As such, it will be very important for entities communicating on behalf of the State to clarify which roles they are filling, and which of these interests they represent (and which they do not).

- We trust that DCM understands that the State, even through legislative mandate, cannot constrict reasonable alternatives and approaches that would potentially meet the project purpose and need under applicable Federal law, including CWA and NEPA. A full range of reasonable alternatives and options will need to be studied, to include the "no action" alternative.

Thank you for the opportunity to provide comment on your proposal. As I believe our letter has made clear, the State has much work to do if it is to seriously consider the removal of the New Inlet Dam and/or Swash Defense Dam. Identification of a clear purpose and need is a necessary first step to any meaningful permit review. Please feel free to call or email me at (910) 251-4699,

or justin.p.mccorcle@usace.army.mil, with any questions regarding this comment letter. Questions regarding our Regulatory permit process may be directed to Mr. Tyler Crumbley at (910) 251-4170, or tyler.crumbley@usace.army.mil.

Sincerely,

Justin P. McCorcle
Assistant District Counsel

ATTACHMENTS

A. Excerpts from To Great and Useful Purpose

B. Wilmington Harbor Project Map

C. Copy of 1857 Cape Fear River map

D. Regulatory Guidance Letter 05-08, Subject: Environmental Impact Statements – Third Party Contracting

E. Engineering Circular (EC) 1165-2-216, Change 1, Policy and Procedural Guidance for Processing Requests to Alter U.S. Army Corps of Engineers Civil Works Projects Pursuant to 33 U.S.C. 408

F. Engineering Regulation (ER) 1100-2-8162, Incorporating Sea Level Change in Civil Works Programs

G. Outline of Unresolved Issues

H. ER 1165-2-124, Construction of Harbor and Inland Harbor Projects by Non-Federal Interests

CHAPTER V

Best Ever

It is certain that he commanded those who scourged the waters to utter, as they lashed them, these barbarian and wicked words: "Thou bitter water, thy lord lays on thee this punishment because thou hast wronged him without a cause, having suffered no evil at his hands. Verily King Xerxes will cross thee, whether thou wilt or no. Well dost thou deserve that no man should honour thee with sacrifice; for thou art of a truth a treacherous and unsavoury river." While the sea was thus punished by his orders, he likewise commanded that the overseers of the work should lose their heads. Then they, whose business it was, executed the unpleasing task laid upon them; and other master-builders were set over the work, who accomplished it in the way which I will now describe.

—Herodotus

At the end of the Civil War, North Carolina was defeated, ravaged, and economically desolate. The state's financial system faced collapse. More than 40,000 North Carolina men had lost their lives during the war and were no longer a part of the work force. Slavery no longer existed. The state's transportation system lay in shambles, with millions of dollars worth of railroads, bridges, and roads destroyed. North Carolina's most important rivers were blocked by artificial obstructions planted to deter Yankee vessels. Again, North Carolinians looked to the federal government for assistance in improving the state's waterways.

When the Corps of Engineers resumed work in North Carolina in 1870, the engineers there were under the supervision of Major William P. Craighill, head of the Corps office in Baltimore. A Virginia native, Craighill served with the Union Army during the Civil War, building defensive works in Tennessee, Pennsylvania, and Baltimore. After the war, he remained in Baltimore as District Engineer for most of a quarter-century. Ultimately, he rose to the rank of brigadier general and served as Chief of Engineers, 1895 to 1897. One of the leading engineers of the late 19th century, Craighill oversaw river and harbor work in North Carolina during the critical period following the Civil War.[1]

The engineers supervising the work on the Cape Fear River maintained an office at Smithville (now Southport), rather than Wilmington, in order to be close to the work and in a healthier climate. Captain Charles B. Phillips, Assistant Engineer under Craighill, opened a second office in New Bern in 1878, better to supervise work on the Neuse River and other river and harbor projects in the northern part of the state. Both civilians and military officers oversaw individual projects or groups of projects under the purview of the Corps of Engineers.[2] In the 1870s and 1880s, the most important project in North Carolina was the improvement of the Cape Fear River below Wilmington, in particular the erection of two structures that came to be known as the Rocks—New Inlet Dam and Swash Defense Dam.

Wilmington had played a key role during the Civil War. President Abraham Lincoln proclaimed a blockade of southern ports in 1861, and the Union fleet maintained an effective screen throughout the war, covering most southern harbors. Almost the only vessels that could successfully enter and leave southern ports were swift, shallow-draft blockade runners. Those privately owned vessels sailed between the Confederate states and the British Bahamas, bringing food

and weapons in exchange for southern cotton. Wilmington—one of the blockade runners' favorite ports because the Cape Fear River's two mouths proved difficult to blockade—remained open until late in the war. It was one of the last avenues for supplies available to Robert E. Lee's Army of Northern Virginia. Blockade runners sailed in and out of the river's mouths under the protection of stout defensive works.[3]

Four positions protected the Cape Fear River—Forts Caswell, Johnston, Anderson, and Fisher. The bulwark of the river's defense was the imposing structure of Fort Fisher, an L-shaped earthwork located on Federal Point (renamed Confederate Point during the war), north of New Inlet. Stretching from the river across the peninsula half a mile and then south down the beach for a mile, the fort took its Confederate builders nearly three years to complete. A land-and-sea attack by Union forces on 23-25 December 1864 ended with Fort Fisher intact, still garrisoned by Confederates. About two weeks later, an armada of 60 warships and a detachment of 8,000 men, under the command of Admiral David Dixon Porter and Brigadier General Alfred Terry, launched the heaviest land-and-sea attack of the war. Fort Fisher fell on 15 January 1865 after receiving over 40,000 rounds of Union artillery during the two attacks, which also involved bloody hand-to-hand combat. Union forces entered Wilmington on 22 February, cutting off Lee's last major source of supplies.[4]

New Inlet had been invaluable to Wilmington and the South during the Civil War. When the firing stopped, however, it again became a liability. The depth over the bar continued to decrease, and Wilmington, a busy port during the war, suffered a loss of commerce. Wilmington businessmen again sought assistance from the Army Corps of Engineers. Their leading spokesman was Henry Nutt.

Nutt, a Wilmington businessman, worked with the city's Chamber of Commerce nearly all of his adult life, serving as chairman of the chamber's Committee on River and Harbor Improvements. In 1868, he forwarded a memorial from Wilmington residents to Senator Joseph C. Abbott, who introduced it in Congress. Abbott, labeled a carpetbagger by his political enemies, had fought for the North and was cited for gallantry in the capture of Fort Fisher. He settled in Wilmington after the war to edit the *Wilmington Post*, a Republican weekly. In Congress, Abbott pushed for appropriations to improve the Cape Fear.[5]

Plan of Fort Fisher, 1865

Closing New Inlet

In 1869, Congress authorized a preliminary examination of the river, conducted by Colonel James H. Simpson in August 1869. He concurred with the 1858 commission's findings, "That the first important step in any further attempt to improve the entrance of Cape Fear River is to renew the works for the closing of the small inlets in Zeke's Island and the jetties for the preservation of the outer beach of that island."[6] According to Simpson, those inlets weakened the force of the currents through the original mouth. In that manner they allowed sand from the sea to wash over into the river, to be carried down by the ebb tide and deposited on the bar. He believed that the remains of the works constructed by Woodbury in the 1850s could be used in building the breakwater, and he rather

precisely estimated the breakwater's cost at $256,415.53. The Chief of Engineers approved the project and Congress appropriated $100,000 in 1870. The work on the river proceeded in three phases: closing New Inlet and nearby swashes, removing natural and artificial obstructions, and dredging a channel 12 feet deep.[7]

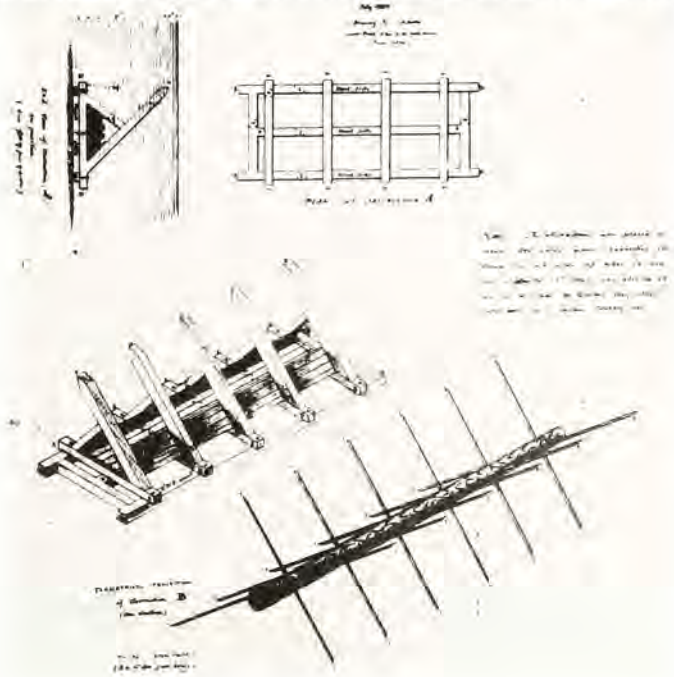
The breakwater, a wooden crib-work, was built across the breach along the same lines as Woodbury's structure of 1855. On 30 June 1873, the final spike was driven, completing 4,403 feet of works connecting Smith's and Zeke's islands. As the breakwater was built, a sand spit followed along on the sea side of the work, always remaining a little behind the superstructure's leading point. The sand spit lay from 40 to 200 feet away from the work, running parallel to the breakwater and leaving between the sand and the structure a body of water that rose and fell with the tides. To fill in the space with sand and protect the crib-work from shipworms, several worn-out flats were sunk at the narrow points of the water and sandbags placed on both sides of the structure. By 1877, the name Zeke's Island was a misnomer because the sand had connected the two islands and closed the breach.[8]

In 1871, Major Craighill asked that a Board of Engineers assemble to discuss the improvement of the Cape Fear. Meeting in Wilmington and New York, the board issued a report recommending the dredging of Bald Head Channel and the closing of New Inlet. At Bald Head, the extreme western point had suffered severe abrasion from the increased flow through the channel as the breach was closed. The jetty built by Woodbury had been completely turned, and a channel more than 200 yards wide had formed between it and the shore. The board advised that nothing be done to protect or repair the jetty.[9]

The main obstacle in the river by 1872 was the "logs," a shoal of relict timber about eight miles below Wilmington. The work done according to Hamilton Fulton's plan forced the river's main channel to seek a new passage over the "logs." But it never managed to find more than a nine-foot channel. A cut through the obstruction seemed to offer the most practical method of deepening the channel.

Phillips chartered a large dredge boat equipped with grappling apparatus to remove the trees. In March 1874, the boat began pulling stumps from the riverbed, but the process took much longer than anticipated. Instead of a shoal with trees washed down by the river, the "logs" was the site of an old cypress swamp. The dredge pulled up stumps as much as eight feet thick. Many of the taller stumps had apparently been hit by the keels of passing vessels. Nonetheless, by 1875 the dredge had cut a channel 245 feet wide and 12 feet deep at low water through the "logs."[10]

The Engineers also removed a set of Confederate man-made obstructions in the river three miles below Wilmington, placed there during the Civil War. Most of them were in rows of grillages, loaded with stone to anchor them in position,



Yankee Catchers were obstructions to navigation placed by the Confederates in parts of the Cape Fear, Neuse, Pamlico and Roanoke rivers.

with ten-by-ten-inch timbers pointing downstream at a 45-degree angle. Mounted on the upstream sides of the grillages and armed with iron points, the timbers lurked just below the low-water mark. As a boat crossed the hazard, the timbers would turn as on a hinge until, as they approached a vertical position, they punctured the vessel's hull. The Confederates had placed 500 yards of the grillages in two rows on the western side of the channel and one row on the eastern side. Scattered around the end of the rows lay a number of other obstructions made of railroad iron, leaving only a narrow passageway. The Engineers removed the hazards in July and August 1875, breaking off the pointed timbers with a hawser attached to a tug pulling upstream, and tackling attached to the temporary yardarm of a chartered schooner.[11]

Besides clearing wartime obstructions, the Corps of Engineers oversaw the dredging of the river by contract and by the Corps' own hopper dredge. The 1873 project for the Cape Fear called for the purchase of a steamer to be fitted out as a suction hopper dredge for work at Bald Head Channel. The following year, the engineers bought a 145-ton, propeller-driven steamer. They equipped her with a nine-inch centrifugal pump and hoppers on the main deck with a total capacity of 40 cubic yards. They also renamed the dredge *Woodbury* in honor of Captain Daniel P. Woodbury.[12]

The *Woodbury* and a dredge belonging to Curtis & Fobes began work on Horseshoe Shoal in 1874. Horseshoe Shoal, on the western side of the river opposite and below New Inlet, was once the site of the river's main channel, which the current from New Inlet gradually drew eastward. The shoal was formed there by the constant meeting and separating of contrary currents. The two dredges cut a nine-foot channel with a bottom width of 100 feet, removing 95,000 cubic yards of material by May 1875.[13]

The *Woodbury* worked on Bald Head Channel in 1874 and 1875, when not engaged at the Horseshoe cut. Not well adapted to working in rough water, the dredge was able to remove, carry over the bar, and dump only 160 cubic yards per day, under good conditions. In June 1875, soundings showed a depth of 11.5 feet at low water at Bald Head, an increase of just 18 inches. But dredging and removal of obstructions were only supplemental to the principal work for the river's improvement—closing New Inlet.[14]

The Board of Engineers had said that the closure of New Inlet was "very desirable and should be attempted as soon as funds are available."[15] The first step in closing the inlet was the erection of a jetty from Federal Point on the northern side of New Inlet, following a line of shoals in a southwesterly direction. Under the supervision of Phillips, a crib-work similar to that used between Smith's and Zeke's islands, loaded with stone to the high-water level, slowly extended out into the inlet. By the time 200 linear feet had been built, a serious deepening had developed ahead of the jetty. Cribs 12 feet deep were required where originally there had been just six feet of water. In November 1873, crews sank the last crib-work in 20 feet of water, only 500 feet from the shore. Phillips decided to halt at that point to determine the effect of the work already completed.[16]

Lower Cape Fear River--area where New Inlet and Swash Defense dams would be constructed.

Henry Bacon, wearing derby and white whiskers, directed the construction of mattresses used as foundations for a rubble stone dam. New Inlet was cut by storm in 1761 and was a convenient passage for blockade runners during the Civil War. The dam closed the inlet to provide a deeper channel in the Cape Fear River, 1876.

Captain Phillips called for proposals for the construction of a foundation or apron across New Inlet. None of the bids opened on 21 June was accepted, but the proposals did provide valuable information on the views of the contractors willing to take on such a risky project. Phillips estimated the cost of closing the inlet at $300,000.[17]

The following August, new proposals were opened and the Corps of Engineers awarded the contract to Bangs & Dolby of New York, for $120,000, to build an apron across the inlet. Bangs & Dolby laid a wood, brush, and stone apron across New Inlet beginning at the end of the 500-foot deflector jetty already in place. The apron comprised a layer of round timbers one foot thick, closely tied, carrying from 8 to 12 inches of brush, and enough stone to make the apron's aggregate thickness four feet. Each section of the "mattress"—the wood-and-brush part of the apron—was 36 feet wide and 36 feet long and was floated out to the proper position and held in place by anchors. Workmen placed stone on the mattress until it sank, after which the required amount of stone was dumped on the mattress to a height of four feet. Bangs & Dolby laid the total length of the apron, 4,352 feet, between 7 October 1875 and 17 June 1876. The apron's width varied from 40 to 70 feet, with an average of 53 feet. The contractor guaranteed the work for one year.[18]

Initially, the structure showed little sign of settlement, but scouring occurred just ahead and on both sides of the apron as it was laid. The scouring formed an irregular channel parallel to the apron and three feet below the original bottom. That caused little concern, however, because sand was also accumulating over the apron, protecting it. The engineer in charge of the work at New Inlet, Henry Bacon, was satisfied with the results.[19]

Bacon, a civilian, replaced Captain Phillips on 1 February 1876. Born in Natick, Massachusetts, in 1822, Bacon had spent most of his life working on railroad construction, in particular the Illinois Central and Boston and Maine lines throughout the Midwest and New England. He moved to Smithville in January 1876 to supervise the construction of the New Inlet Dam and the dredging of the river, and to conduct surveys. He later moved to Wilmington and lived there until his death in 1891.[20]

For the completion of the portion of New Inlet Dam above high water, the Corps awarded Bangs & Dolby a contract for the delivery of 45,000 cubic yards of stone. The first load of stone, from the Magnolia Quarry on the Cape Fear, 14 miles above Wilmington, was dumped on the dam in January 1877. The dumping proceeded from both ends of the apron, working toward the middle. By June 1878, the dam had reached the low-water mark but still lacked a proper width and slope.[21]

Henry Bacon (upper right), *engineer in charge, observed workers using hand tools to uncover stone for use in building the rock dam to close New Inlet. To his right is Colonel Craighill (in civilian clothes) who directed operations in North Carolina from the Baltimore office, c. 1884.*

As the height and width of the dam increased, the scouring on each side also advanced. The overfall of the water formed channels parallel to the dam to a depth of 30 feet below low water and 8 to 12 feet below the dam's original foundation. In addition, the middle sections of the mattress began to settle. The water worked its way between and under the logs of the mattress and gradually lowered the foundation so that for nearly the entire length of the dam the base was 12 feet below low water. Little or no settlement occurred where the mattress lay 14 feet or deeper at low water. As a result of the scouring and settlement, the dam rested on a ridge with deep channels on either side.[22]

Bacon believed the scouring and subsidence left the dam in a more secure state and promised a better chance for the ultimate security and permanence of the structure. But the subsidence also required more stone riprap than had been expected. Bacon decided against widening the mattress foundation or building jetties perpendicular to the dam after crews constructed an experimental 100-foot jetty, without producing any apparent effect.

He proposed merely filling out the slopes with more stone. On the completion of the apron in June 1876, Captain Phillips had estimated that 85,000 cubic yards of stone would be required to bring the closing work to the high-water mark. In a special report in March 1878, he estimated that 62,000 cubic yards already had been placed on the dam and that an additional 80,000 cubic yards would be required to finish the work to high water.[23]

During the dam's construction, a gap had been left to enable light-draft vessels to pass in and out as they had been accustomed to doing for over a century. For "corn crackers," a fleet of small coastal schooners carrying grain to Wilmington from Albemarle Sound, the distance was 64 miles longer by way of the Bald Head mouth than by New Inlet, because of Frying Pan Shoals. The longer route was also more dangerous, forcing the corn crackers to navigate the

hazardous waters off Cape Fear. In spite of protests from the owners of vessels using New Inlet, Bacon decided he could no longer leave the dam unfinished. On 14 June 1879, the Corps of Engineers officially closed New Inlet, and Henry Nutt received the honor of being the first person to walk across it with dry feet.[24]

Once the dam was completed to the project height of two feet above high water, workmen continued to deposit riprap on the dam where it fell onto the slopes. That formed a slope of two to one on the sea side and one and one-half to one on the river side.[25]

A severe gale swept off the top of the dam to the low-water level in August 1879, demonstrating that, as previously supposed, it would be necessary to cover the dam with large stones to assure its permanence. Heavy stones were shipped to Wilmington from Columbia, South Carolina, by rail, then transferred to two large lighters built especially for the task. A steam hoist placed the rock on the dam with the assistance of two hand-worked floating derricks. Workers fitted the stones together to form a smooth surface.[26]

Bacon finished the work on New Inlet Dam in July 1881. As oysters and barnacles solidified the riprap below half tide, the completed structure appeared to be one solid rock 4,800 feet long. The central portion had an average height of 37 feet and a width at the base ranging from 75 to 120 feet. The more than 181,000 cubic yards of stone used to complete the dam was equivalent to a wall eight feet high, four feet thick, and 100 miles long. Occasionally a storm damages the structure, but only minor repairs have been necessary over the past century. The dam continues to separate the waters of the Cape Fear River from the Atlantic.[27]

Swash Defense Dam

Before Bacon and the Corps of Engineers could close New Inlet, a storm opened a breach between New Inlet and the closed Smith's-Zeke's islands swash on 13 April 1877. Because of the fears of many Wilmingtonians that a new inlet had broken through, Bacon wrote a letter, published in the *Wilmington Star*, promising that the Corps of Engineers would not allow a new inlet to develop.[28]

The first attempt to close the new breach by artificial means was made in February 1881. Bacon tried scantling and sheet piling driven by hand, but that proved inadequate. About 35 men had nearly completed the work when the tides caused a difference in level of more than 15 inches on either side. The sheet piling suddenly gave way, and all materials and labors were lost.[29]

Bacon made a second attempt to build a sturdier structure during the spring and summer of 1881. A machine with a 2,000-pound hammer drove over 400 heavy piles eight feet apart in two lines nine feet apart. An accretion of sand on the sea side, the real defense, followed the work as it progressed, and it appeared that the structure would be a success. However, a succession of storms in August and September 1881 broke through the beach on the north side of the breakwater, flanking the defense and forcing its abandonment. To save the work would require contending directly with the ocean, at enormous cost and substantial risk.[30]

Bacon recommended a line of defense extending from Zeke's Island over the shoal water, as nearly as practicable to the line of the neutral currents, thus reducing the tidal differences. After the dam's completion, Bacon anticipated the closing of the swashes by natural processes. The closure of New Inlet tended to increase the tidal currents through the swashes, preventing the natural closure that had occurred before with other swashes.[31]

Following a trip to Galveston, Texas, with Craighill to examine the Corps of Engineers' harbor improvement there, Bacon proposed a mattress similar to that used in Galveston Harbor. Composed entirely of small brush, the mattress would be strong, yet pliable enough to conform to the foundation in all conditions. Bacon hoped that settlement from overfall scouring would be prevented by a mattress of that type. The plan of operations called for a row of mattresses, 40 to 60 feet wide, to be laid along the line earlier proposed, with riprap covering the mattresses to the ordinary high-water mark.[32]

Before a crew of 40 men could complete the mattresses, a major storm, with an average wind velocity of 81 miles per hour for 24 continuous hours, opened a new swash just north of the other two and nearer New Inlet Dam. That forced Bacon to lengthen and adjust the line of mattresses. After several delays Ross and Lara, contractor for the stone, began delivering in December 1884, bringing it from a quarry on Gander Hall plantation, about 12 miles below Wilmington.[33]

The men placed the stone on the mattress to a depth of about ten feet and then waited for the structure to settle. However, the dam settled only 4 to 12 inches. The work proceeded slowly but smoothly over the next few years, hampered only by an occasional storm. By 1891, the entire 12,800 feet of the Swash Defense Dam had been finished to the proper height and width.[34]

The 1870s and 1880s were a period of transition for Wilmington shipping interests. Closing New Inlet drastically reduced the number of coastal vessels docking at Wilmington. Yet, the improvement of the river allowed increasing numbers of larger ships involved in foreign trade to use Wilmington Harbor, as the accompanying table demonstrates.

TABLE

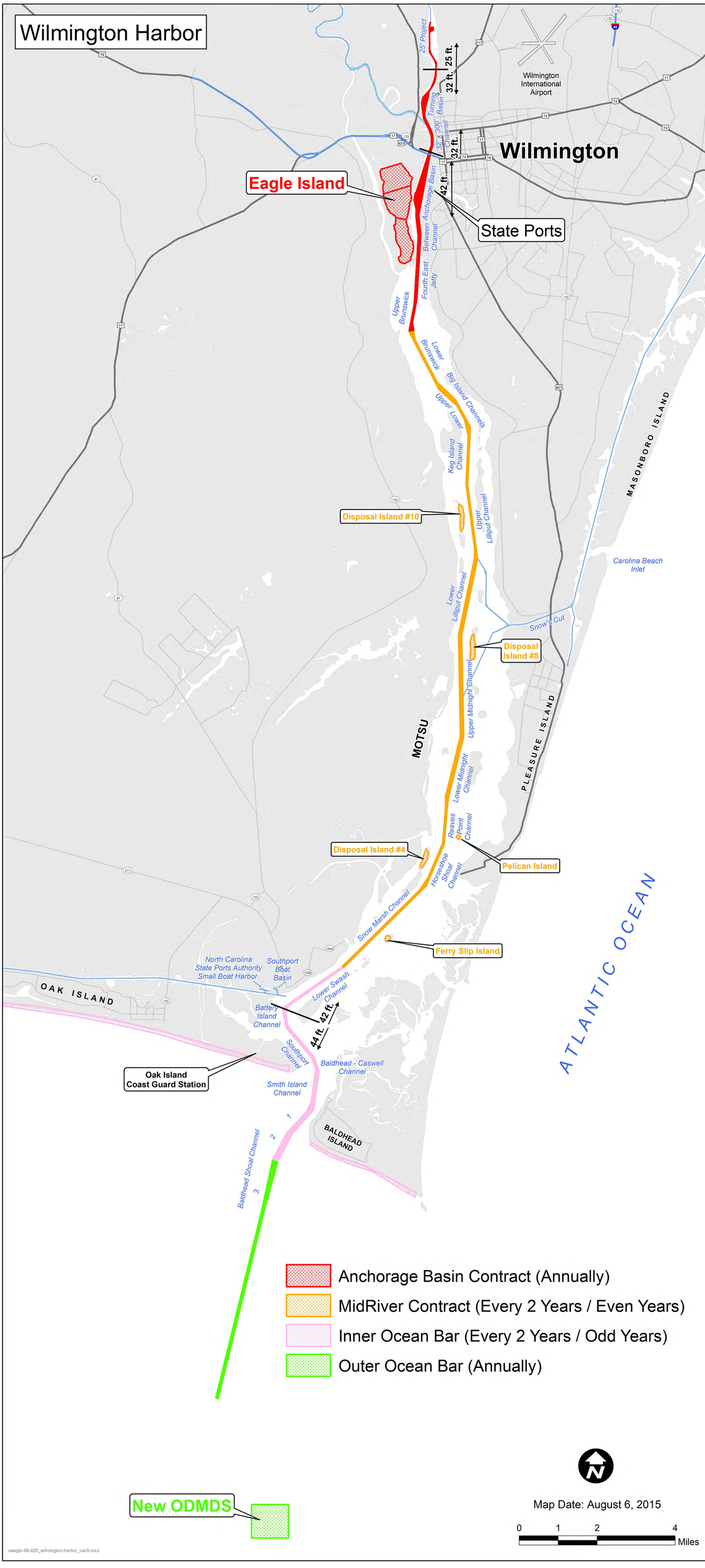
Number of Vessels Over 60 Tons Register Departing Wilmington

Year	Coastwise	Foreign
1870	532	40
1873	446	144
1880	272	316
1885	268	230

[Source: *Annual Report of the Chief of Engineers, 1885.*]

The real magnitude and difficulties of the task of building the dams were not fully appreciated at the outset. Both were much larger and more expensive than originally planned. New Inlet Dam cost $540,000 and Swash Defense Dam $226,000. (Although nearly three times longer than New Inlet Dam, Swash Defense Dam cost less because materials were available nearby, and a smaller volume of stone was used.) Both structures have served their purpose well and still protect the beach in the area. Long after they had proved their value, the Wilmington District received an award in the "Best Ever" category of the 1975 Chief of Engineers Distinguished Design Awards Program, South Atlantic Division, for the design and construction of the "Rocks."[35]

The Rocks today. In commemoration of the 200th anniversary of the U.S. Army Corps of Engineers, the 1975 Chief of Engineers Awards Program was expanded to include special recognition of an outstanding project from each division. South Atlantic Division submitted the New Inlet Dam or "The Rocks" as the best project developed in the Division's history.


Wilmington Harbor
25 Project
25 ft.
32 ft.
Turning Basin
32' Channel
32 ft.
42 ft.
Between Anchorage Basin Channel
Wilmington International Airport
Wilmington
Eagle Island
State Ports
Fourth East Jetty
Upper Brunswick
Lower Brunswick
Big Island Channels
Upper Lower
Keg Island Channel
Upper Lilliput Channel
Disposal Island #10
MASONBORO ISLAND
Carolina Beach Inlet
Lower Lilliput Channel
Snow's Cut
Disposal Island #8
Upper Midnight Channel
MOTSU
PLEASURE ISLAND
Lower Midnight Channel
Reaves Point Channel
Disposal Island #4
Pelican Island
Horseshoe Shoal Channel
Snow Marsh Channel
Ferry Slip Island
ATLANTIC OCEAN
North Carolina State Ports Authority Small Boat Harbor
Southport Boat Basin
OAK ISLAND
Lower Swash Channel
Battery Island Channel
42 ft.
44 ft.
Southport Channel
Baldhead - Caswell Channel
Oak Island Coast Guard Station
Smith Island Channel
1
2
3
Baldhead Shoal Channel
BALDHEAD ISLAND
Anchorage Basin Contract (Annually)
MidRiver Contract (Every 2 Years / Even Years)
Inner Ocean Bar (Every 2 Years / Odd Years)
Outer Ocean Bar (Annually)
New ODMDS
Map Date: August 6, 2015
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US Army Corps of Engineers®

REGULATORY GUIDANCE LETTER

No. 05-08 **Date: 7 December 2005**

SUBJECT: Environmental Impact Statements – Third Party Contracting

1. Purpose and Applicability

a. **Purpose.** To issue guidance regarding the use of the third party contracts for preparing Environmental Impact Statements. This guidance consolidates elements of expired Regulatory Guidance Letters 87-05 and 88-15.

b. **Applicability.** This guidance applies to all permit applications that require preparation of an EIS.

2. General Considerations

a. **Background.** 40 CFR 1506.5(c) provides for use of third party contracts in the preparation of agency Environmental Impact Statements (EISs). In its "Forty Questions" issued in the Federal Register on 23 March 1981, CEQ indicated the term "third party contract" referred to contractors paid by the applicant but selected by the agency. 40 CFR 1506.5(c) further stipulates that the contractor must execute a disclosure statement prepared by the agency to avoid any conflict of interest. If the document is prepared under contract, the responsible agency must participate in the preparation and shall independently evaluate the statement prior to its approval. The agency must also take full responsibility for the scope and contents of the document.

Corps Headquarters (HQUSACE) issued Regulatory Guidance Letters (RGLs) 87-05 and 88-15 to address questions about applicant costs, information, and third party contracts for preparing EISs. In 1988, HQUSACE also published its *NEPA Implementation Procedures for the Regulatory Program* (Appendix B, 33 CFR 325) addressing “contracting” and information needs. More recently, in a memorandum dated 17 December 1997, to Commanders, MSCs and District Commands, Subject: *Guidance on Environmental Impact Statement Preparation, Corps Regulatory Program*, the HQUSACE Director of Civil Works established third party contractors as the primary method for EIS preparation.

b. **Practice.** While RGLs 87-05 and 88-15 have expired, HQUSACE has instructed Corps districts that the guidance provided therein remains generally valid since neither of the expired RGLs has been superseded by regulations or other RGLs. Districts currently use these expired RGLs, Appendix B, and the 1997 memorandum as guidance for third party contracting to prepare EISs.

3. Guidance.

a. Third party contracting is the primary method for preparing all or part of our project-specific EISs. Programmatic EISs may involve a third party contract; however, any decision to a programmatic EIS must be reviewed and approved by CECW-OR before a commitment is made.

b. The district will identify the required information for the EIS and specify the necessary qualifications of the third-party contractor. However, a district will not become involved in the specifics of non-federal contracting procedures. For example, a district should not review a bid list, specifying requirements for competition, or choose the actual method of procurement (i.e. bidding vs. negotiation). Using the applicant's order of preference, the district will select from the applicant's list the first contractor that is fully acceptable to the District.

c. The district will approve in writing the third-party contractor and a scope of work. Approval of the contractor and scope of work should occur before the award of the third-party contract. To avoid any conflict of interest, and before the selected third party contractor can work on the EIS, the contractor must also execute a disclosure statement, prepared by the district, specifying that the contractor has no financial or other interest in the outcome of the project.

d. The district is responsible for ensuring that the information provided by the contractor is consistent with Corps statutory requirements to take a hard, objective look at the public interest and environmental factors. The district will also take full responsibility for the scope and contents of the EIS, directing the contractor as necessary to make certain that its work is acceptable. The district will regularly participate in the preparation of the document and independently evaluate the information to ensure that it is technically adequate and not biased. The district has the final determination whether the data provided is adequate and accurate.

e. This guidance replaces RGLs 87-05 and 88-15 and is to be used in conjunction with 40 CFR 1500-1508, Appendix B of 33 of CFR 325, and the Memorandum to Commanders, MSCs and District Commands, Subject: *Guidance on Environmental Impact Statement Preparation, Corps Regulatory Program*, dated 17 December 1997.

4. Duration. This guidance remains in effect unless revised or rescinded.

for DON T. RILEY
Major General, US Army
Director of Civil Works

DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000

EC 1165-2-216
Change 1

CECW-CP

Circular
No. 1165-2-216

30 September 2015

EXPIRES 31 JULY 2016

Water Resource Policies and Authorities

POLICY AND PROCEDURAL GUIDANCE FOR PROCESSING REQUESTS TO ALTER US ARMY CORPS OF ENGINEERS CIVIL WORKS PROJECTS PURSUANT TO 33 USC 408

1. This Change 1 to EC 1165-2-216, 30 September 2015, revises Appendix G, "Use of Section 214 of WRDA 2000, as amended, for 33 U.S.C. 408" and references to Appendix G in the main text of the EC, to incorporate changes as a result of Section 1006 of the Water Resources Reform and Development Act of 2014 (WRRDA 2014).

2. The changed information is annotated as follows:

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8. f	19
Appendix G	G-1 through G-10

FOR THE COMMANDER:

STEVEN L. STOCKTON, P.E.
Director of Civil Works

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DEPARTMENT OF THE ARMY
US Army Corps of Engineers
Washington, DC 20314-1000

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EXPIRES 31 July 2016

Water Resource Policies and Authorities

POLICY AND PROCEDURAL GUIDANCE FOR PROCESSING REQUESTS TO ALTER US ARMY CORPS OF ENGINEERS CIVIL WORKS PROJECTS PURSUANT TO 33 USC 408

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EXPIRES 31 July 2016

Water Resource Policies and Authorities

POLICY AND PROCEDURAL GUIDANCE FOR PROCESSING REQUESTS TO ALTER US ARMY CORPS OF ENGINEERS CIVIL WORKS PROJECTS PURSUANT TO 33 USC 408

1. Purpose.

a. The purpose of this Engineer Circular (EC) is to provide policy and procedural guidance for processing requests by private, public, tribal, or other federal entities, to make alterations to, or temporarily or permanently occupy or use, any US Army Corps of Engineers (USACE) federally authorized civil works project, referred to as "USACE project" within this document, pursuant to 33 USC 408 (Section 408). Proposed alterations must not be injurious to the public interest or affect the USACE project's ability to meet its authorized purpose.

b. The main body of this EC contains policy applicable to all types of Civil Works projects and an overall step-by-step procedural guide to be tailored at the district level to the appropriate level of detail for a specific Section 408 request. Supplemental guidance including additional procedural, decision-making and coordination detail related to specific infrastructure types (i.e. dams, hydropower, levee systems, channels, and navigation) can be found in Appendices B-E.

c. This EC supersedes the previous policy memoranda on this subject as identified in Appendix A.

2. Applicability. This circular is applicable to all headquarters USACE elements, divisions, districts, laboratories, and field operating activities having civil works planning, engineering, design, construction, and operations and maintenance (O&M) responsibilities. Note that for use in this EC, "district" refers to a USACE district office and "division" refers to a USACE division office. This EC applies to requests for alterations received by districts on or after the date of issuance.

3. Distribution Statement. Approved for public release; distribution is unlimited.

4. References. References for the main EC are in Appendix A.

5. Authority. The authority to grant permission for temporary or permanent alterations is contained in Section 14 of the Rivers and Harbors Act of 1899 and codified in 33 USC 408, titled *Taking possession of, use of, or injury to harbor or river improvements*, and states the following: "*It shall not be lawful for any person or persons to take possession of or make use of for any purpose, or build upon, alter, deface, destroy, move, injure, obstruct by fastening vessels*

thereto or otherwise, or in any manner whatever impair the usefulness of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States, or any piece of plant, floating or otherwise, used in the construction of such work under the control of the United States, in whole or in part, for the preservation and improvement of any of its navigable waters or to prevent floods, or as boundary marks, tide gauges, surveying stations, buoys, or other established marks, nor remove for ballast or other purposes any stone or other material composing such works: Provided, That the Secretary of the Army may, on the recommendation of the Chief of Engineers, grant permission for the temporary occupation or use of any of the aforementioned public works when in his judgment such occupation or use will not be injurious to the public interest: Provided further, That the Secretary may, on the recommendation of the Chief of Engineers, grant permission for the alteration or permanent occupation or use of any of the aforementioned public works when in the judgment of the Secretary such occupation or use will not be injurious to the public interest and will not impair the usefulness of such work."

6. Policy.

a. Alteration. Section 408 authorizes the Secretary of the Army to grant permission for the alteration or occupation or use of the project if the Secretary determines that the activity will not be injurious to the public interest and will not impair the usefulness of the project. Unless otherwise stated, for ease of reference, the use of the term "alteration" in this document also includes "occupation" and "use." For purposes of this document, the words "alteration" or "alter" refers to any action by any entity other than USACE that builds upon, alters, improves, moves, occupies, or otherwise affects the usefulness, or the structural or ecological integrity, of a USACE project. Alterations also include actions approved as "encroachments" pursuant to 33 CFR 208.10.

b. Other Authorizations. A requester has the responsibility to acquire all other permissions or authorizations required by federal, state, and local laws or regulations, including any required permits from the USACE Regulatory Program (Section 10/404/103 permits). In addition, an approval under Section 408 does not grant any property rights or exclusive privileges.

c. Alterations within Project Boundaries. This EC only applies to alterations proposed within the lands and real property interests identified and acquired for the USACE project and to lands available for USACE projects under the navigation servitude.

d. Requesters. A request for Section 408 permission can originate from a non-federal sponsor or an independent requester. For USACE projects with a non-federal sponsor as described in paragraph 6.e., the requester must either be the non-federal sponsor or have the endorsement of the non-federal sponsor prior to a written request, reference paragraph 7.c.(2), being submitted to USACE.

e. Non-Federal Sponsors. The district will provide a hardcopy or electronic copy of this EC to each non-federal sponsor described below:

(1) A non-federal sponsor that has provided assurances pursuant to Section 3 of the Flood Control Act of 1936, as amended (33 USC 701c), or Section 221 of the Flood Control Act of 1970, as amended (42 USC 1962d-5b), is responsible for ensuring that a USACE project is operated and maintained in accordance with requirements prescribed by USACE. Any proposed alteration that would require permission from USACE under Section 408 must be requested by or come through the non-federal sponsor. Accordingly, for improvements, excavations, construction, or changes to local flood protection works referenced in 33 CFR 208.10(a)(4) and (5), approval from USACE under Section 408 (and in accordance to procedures in this EC) must be obtained by the non-federal sponsor. If a USACE project has multiple non-federal sponsors in this category, concurrence in writing must be obtained by all non-federal sponsors prior to USACE approval of a Section 408 request.

(2) For USACE projects that were constructed in whole or in part pursuant to a cost-share agreement with a non-federal sponsor, but are operated and maintained by USACE, the district will obtain written concurrence by each of the non-federal sponsors for the proposed alteration prior to USACE approval of a Section 408 request.

(3) For requested alterations located in inland and intracoastal waterways, the district will issue a public notice to notify users of the waterways, navigation stakeholders, and other interested parties as the district deems appropriate.

f. Routine Operations and Maintenance Activities. Routine operations and maintenance (O&M) activities specified in the O&M manual and performed by the non-federal sponsor or USACE do not require permission from USACE under Section 408.

g. USACE Shoreline Management and Master Planning Programs. Activities contained in 36 CFR 327 do not require review for purposes of Section 408. The processes in 36 CFR 327 ensure that the requested activity will not be injurious to the public interest and will not impair the usefulness of the project. Engineer Regulation (ER) and Engineer Pamphlet (EP) 1130-2-550, Chapter 3, provides the procedures for the USACE Master Plan Program. ER 1130-2-406 provides the procedures for the USACE Shoreline Management Program.

h. Real Estate Outgrants.

(1) Real Estate outgrants are defined in ER 405-1-12, Chapter 8, or subsequent regulation.

(2) Outgrants issued to implement an approved Project Master Plan, including the Shoreline Management Plan or Operational Management Plan, do not require review for purposes of Section 408. See ER/EP 1130-2-550, Chapter 3.

(3) Outgrants issued pursuant to the procedures in ER/EP 1130-2-550, Chapters 16 or 17 ensure the requested alteration in the outgrant request will not be injurious to the public interest and will not impair the usefulness of the project; thus, meeting the intent of Section 408.

However, the USACE team evaluating the outgrant requests involving an alteration to project structures and projects as discussed in Appendices B – E of this EC must consider the additional criteria and factors discussed in those appendices. In addition, the team evaluating outgrant requests will determine if HQUSACE review is required by following the process described in paragraph 6.t. of this EC. If the determination is that HQUSACE review is required, then the outgrant request will require a documented Section 408 decision in accordance with this EC. When a Section 408 decision is required, the Real Estate Contracting Officer will not issue such outgrant unless the appropriate USACE decision maker with delegated authority grants permission for the alteration pursuant to Section 408. Any special conditions included pursuant to Section 408 must be included in the outgrant. If HQUSACE review is not required, then districts may follow procedures in ER/EP 1130-2-550, Chapters 16 or 17 for issuing the outgrant decision.

(4) Outgrant requests not included in ER/EP 1130-2-550, Chapters 16 or 17 require a Section 408 determination in accordance with this EC. The Real Estate Contracting Officer will not issue such outgrant unless the appropriate USACE decision maker with delegated authority grants permission for the proposed alteration pursuant to Section 408. Any conditions included in the grant of permission pursuant to Section 408 must be included in the outgrant.

i. Previously Approved Alterations. All previous approvals granted for alterations, including “encroachments” approved pursuant to 33 CFR 208.10 prior to the date of this EC are not invalidated by this EC.

j. Unauthorized Alterations. The policy of USACE is to pursue enforcement and correction of unauthorized alterations of covered projects. If an unauthorized alteration is discovered, the district, after consulting with the Offices of Counsel and Real Estate, should take the appropriate steps to remedy the unauthorized alteration. The Chief of Regulatory should be notified of any unauthorized alterations so the appropriate course of action can be taken with respect to Section 10/404/103 permits. Specific enforcement steps the district takes will depend on the particular nature of the unauthorized alteration and whether the unauthorized alteration is located on project boundaries where a non-federal sponsor holds the land rights for operations and maintenance. Non-federal sponsors with operations and maintenance responsibilities for the USACE project, reference paragraph 6.e.(1), remain responsible for ensuring no unauthorized alterations are occurring within the project boundaries.

k. Authorized Project Purpose. No granting of permission is allowed under Section 408 for a proposed alteration that would have an effect of deauthorizing a project or eliminating an authorized project purpose.

l. Completeness. Requests must be for complete alterations. A proposed alteration is considered complete if it results in a fully functional element once construction is completed.

m. Design and Construction Standards. A proposed alteration pursuant to Section 408 must meet current USACE design and construction standards. However a requester is not required to bring those portions or features of the existing USACE project that are not impacted by the alteration up to current USACE design standards.

n. Hydrologic and Hydraulics Impacts. As a general rule, proposed alterations that will result in substantial adverse changes in water surface profiles will not be approved.

o. Type I Independent External Peer Review (IEPR). Per EC 1165-2-214, because Section 408 requests are not planning studies, Type I IEPRs are not required.

p. Regulatory Program Coordination.

(1) The granting or denial of permission pursuant to Section 408 is not a permit action handled by the Regulatory Program.

(2) If a proposed alteration also requires authorization pursuant to Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and/or Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972 (Section 10/404/103), district Regulatory and Section 408 personnel must coordinate throughout their respective evaluations.

(3) The decision on a Department of the Army permit application pursuant to Section 10/404/103 cannot and will not be rendered prior to the decision on the Section 408 request.

(4) Regulatory funds can only be used for a Section 10/404/103 action, which may include those actions with an associated Section 408 request. Regulatory staff can use Regulatory funds to participate in joint meetings and internally coordinate portions of shared documents when a Section 408 request also requires a Section 10/404/103 action. Regulatory funds cannot be used to develop or coordinate any components of the Section 408 request independent of a Section 10/404/103 action.

(5) Processing Department of the Army permit applications pursuant to Sections 10/404/103 will be accomplished in accordance with current regulations and guidance.

(6) In cases when a Section 408 request requires division or HQUSACE coordination and/or review, no Section 10/404/103 permit decision documentation will be forwarded to the division or HQUSACE in order to preserve the independent decision-making authority of the District and Division Commanders. The district, however, should ensure that the Section 408 documentation clearly articulates if Section 10/404/103 authorization is required.

q. In-kind Contribution Credit under Section 221 of the Flood Control Act of 1970, as amended (Section 221).

(1) Alterations of a USACE Project with an Ongoing Feasibility Study. There may be cases where a non-federal sponsor wishes to undertake alterations to an existing USACE project for which there is an ongoing USACE feasibility study and seek credit eligibility for those alterations toward its cost share for the not-yet authorized USACE project (under Section 221 of the Flood Control Act of 1970). In such cases, any proposed alteration for which the non-federal sponsor is seeking credit cannot be initiated until the draft feasibility report is released for public review, an in-kind memorandum of understanding (MOU) for the work is executed, and Section 408 permission is issued. Additional authorizations, such as those required pursuant to Section 10/404/103 under the USACE Regulatory Program, may also be required before the non-federal sponsor can initiate any work.

(2) In Kind Contributions for an Authorized USACE Project. In those cases where a non-federal sponsor is undertaking work as an in-kind contribution on an authorized USACE project pursuant to an executed project partnership agreement that provides credit for such work, Section 408 permission is not required.

(3) Detailed guidance on crediting can be found in ER 1165-2-208.

r. Sharing of Sensitive Information. Requesters seeking sensitive information about an existing USACE project to develop a proposed alteration will submit requests for that information in writing. Sensitive information includes information that could pose a security risk or aid those intending to do harm to a USACE project. Examples include but are not limited to design analyses, as-builts or other drawings, specifications, location of deficiencies, operational information, and contingency plans. The office that generated or is responsible for the information requested will review the request in coordination with the district operational security officer, to determine whether it is sensitive. Districts should limit the distribution of sensitive information to only the information that is necessary for the proposed alteration. Districts will advise requesters that the information to be provided is sensitive and direct requesters to provide a list of individuals with whom the information will be shared. Districts will advise requesters that the sensitive information will not be shared with individuals not on the list. Reviewers should work with their District Office of Counsel to determine if a non-disclosure statement is needed. Districts may in some cases have to withhold sensitive information regardless of its necessity for the development of a proposed alteration. Requests for data submitted to USACE by other agencies will not be provided and will be referred to the other agency for a release determination.

s. Categorical Permission. The district, division, and/or HQUSACE have the ability to create a categorical permission for Section 408 that would cover potential alterations that are similar in nature and that have similar impacts. Categorical permissions should be established by providing public notice of the activities covered by the categorical permission. There should be appropriate documentation and analysis developed to determine that the impacts of activities covered by the categorical permission are permissible and that environmental compliance for those activities has been met. Once established, a simplified process to validate application of

the categorical permission and specify any special conditions that may apply on a site-specific basis may be used.

t. Section 408 Decision Level. Certain proposed alterations, once recommended by the district and division, will require a final decision by the Director of Civil Works at HQUSACE. All other decisions on proposed alterations may be rendered by the District Commander unless a Division Commander establishes a regional process that requires that the decision be made by the Division Commander. If the answer to any of the following questions is "yes" and the district and division recommend approval, then the Section 408 request requires HQUSACE level review and decision, reference paragraph 7.c.(7):

(1) Does the proposed alteration require a Type II IEPR, reference EC 1165-2-214?

(2) Does the proposed alteration require an Environmental Impact Statement (EIS) in which USACE is the lead agency?

(3) Does the proposed alteration change how the USACE project will meet its authorized purpose? An example would be a proposed alteration to permanently breach a levee system for ecosystem restoration purposes but raise all structures behind the levee to achieve the same flood risk management benefits. This project still meets the authorized flood risk management purpose, but in a different manner.

(4) Does the proposed alteration preclude or negatively impact alternatives for a current General Investigation (GI) or other study?

(5) Is the non-federal sponsor for a USACE project proposing to undertake the alteration as in-kind contributions eligible for credit under Section 221 of Flood Control Act of 1970, as amended?

(6) Is the proposed alteration for installation of hydropower facilities?

(7) Is there a desire for USACE to assume operations and maintenance responsibilities of the proposed navigation alternation pursuant to Section 204(f) of Water Resources Development Act (WRDA) of 1986?

If the district is unsure, the district should engage the division and HQUSACE, reference Paragraph 9 of this EC, Vertical Teaming.

7. Procedures.

a. District Section 408 Coordinator. The District Commander will designate a Section 408 Coordinator responsible for ensuring processes in this EC are met and to ensure the proper coordination occurs among all the necessary district elements, including but not limited to,

regulatory, real estate, counsel, planning, engineering, programs and project management, and/or operations. The Section 408 Coordinator will also ensure proper coordination among other districts if the USACE project crosses more than one district's area of responsibility. In addition the Section 408 Coordinator will track district expenditures, including funding provided by any non-federal interests, for processing Section 408 requests on a fiscal year basis by funding source.

b. Description. In order to grant permission under Section 408, USACE must determine that the proposed alteration does not impair the usefulness of the USACE project, which includes retaining the project's authorized purpose, and is not injurious to the public interest. Because proposed alterations vary in size, level of complexity, and potential impacts, the procedures and required information to make such a determination are intended to be scalable. Based on the proposed alteration, districts will determine data, analyses and documentation necessary in order to make a determination regarding whether or not the proposed alteration does not impair the usefulness of the project and is not injurious to the public interest. Requirements for data, analyses and documentation may be subject to change as additional information about the Section 408 proposal is developed and reviewed.

c. Step-by-Step Procedures. The procedures have been grouped into nine steps: pre-coordination, written request, required documentation (including environmental compliance, if applicable), district-led Agency Technical Review (ATR), Summary of Findings, division review, HQUSACE review, notification, and post-permission oversight. Not all the steps will be applicable to every Section 408 request. In simple cases, steps may be combined or occur simultaneously. For more complex cases, there may be the need for extensive coordination between the district and requester throughout the process. Supplemental information for these steps specific to dams and reservoirs, hydropower, levees and floodwalls, flood risk management channels, and navigation can be found in the appendix appropriate to the type of infrastructure (Appendices B-E). At any time in the process if the district determines that the requirements will not or cannot be met, the district may deny the request prior to completing all the required steps. If a request is denied, the requester will be advised in writing as to the reasons for denial.

(1) Step 1: Pre-Coordination. Early coordination between USACE, the requester and/or non-federal sponsor, if applicable, is strongly recommended because it will aid in identifying potential issues, focusing efforts, minimizing costs, and protecting sensitive information. Districts shall ensure requesters are provided a hardcopy or electronic copy of this EC.

(2) Step 2: Written Request. The purpose of this step is to document the initiation of the Section 408 process. Information from this step will be used by the district to determine documentation and approval requirements.

(a) All requests for Section 408 permission must be submitted in writing to the District Commander of the appropriate USACE district office having jurisdiction over the USACE

project that would be impacted by the alteration. Each district has the flexibility to determine the format in which this written request is submitted; however,

(b) The written request must include:

i. a complete description of the proposed alteration including necessary drawings, sketches, maps, and plans that are sufficient for the district to make a preliminary determination as to the location, purpose and need, anticipated construction schedule, and level of technical documentation needed to inform its evaluation. Detailed engineering plans and specifications are not required at Step 2, but could be submitted at the same time if available;

ii. a written statement regarding whether the requester is also pursuing authorization pursuant to Sections 10/404/103 and, if so, the date or anticipated date of application/pre-construction notification submittal;

iii. information regarding whether credit under Section 221of the Flood Control Act of 1970, as amended, or other law or whether approval under Section 204(f) of WRDA 1986 is being or will be sought;

iv. a written statement of whether the requester will require the use of federally-owned real property or property owned by the non-federal sponsor; and,

v. a written statement from the non-federal sponsor endorsing the proposed alternation, if applicable.

(3) Step 3: Required Documentation. The purpose of this step is to outline the documentation necessary for the district to determine whether the proposed alteration would impair the usefulness of the project or be injurious to the public interest. The list below is meant to provide an overview of the general requirements, but requirements are scalable to the nature of the proposed alteration.

(a) Technical Analysis and Design. The district should work closely with the requester to determine the specific level of detail necessary to make a decision for a particular alteration request. The minimum level of detail will be 60% complete plans and specifications and supporting technical analysis.

(b) Hydrologic and Hydraulics System Performance Analysis. The purpose of a hydrologic and hydraulics system performance analysis is to determine the potential hydrologic and hydraulics impacts of proposed alterations. Districts will determine if such an analysis is needed and, if so, the appropriate scope of analysis based on the complexity of the proposed alteration. The requester will be responsible for the analysis. Hydrologic and hydraulic system performance analyses will be applied to alterations that alter the hydrologic and/or hydraulic conditions (e.g., reservoir operations, bridge constrictions, hydropower installation, etc.) See Appendix F for

more details regarding the requirements of a hydrologic and hydraulics system performance analysis.

(c) Environmental Compliance.

i. A decision on a Section 408 request is a federal action, and therefore subject to the National Environmental Policy Act (NEPA) and other environmental compliance requirements. While ensuring compliance is the responsibility of USACE, the requester is responsible for providing all information that the district identifies as necessary to satisfy all applicable federal laws, executive orders, regulations, policies, and ordinances. NEPA and other analysis completed to comply with other environmental statutes (e.g. Endangered Species Act) should be commensurate with the scale and potential effects of the activity that would alter the USACE project. The district will work with the requester to determine the requirements, which will be scaled to the likely impacts of the proposed alteration and should convey the relevant considerations and impacts in a concise and effective manner.

ii. The NEPA compliance process should be completed in an efficient, effective and timely manner consistent with guidance issued by the Council on Environmental Quality on March 6, 2012 entitled *Improving the Process for Preparing Efficient and Timely Environmental Reviews under the National Environmental Policy Act.* NEPA compliance should follow the process set forth in 40 CFR Parts 1500-1508 and the USACE civil works NEPA implementing regulations found in 33 CFR Part 230. Documentation for Section 408 requests do not require the same level of analysis or documentation needed for planning studies and, therefore, Appendix A and other portions of Part 230 specific to planning studies do not apply. However, in some cases, documentation from studies may be used to inform a Section 408 decision, such as a report that would be required for Section 204(f) of the Water Resources Development Act of 1986.

iii. For any final Environmental Impact Statement (EIS) or Environmental Assessment (EA) or other environmental compliance document, the requester's proposal will be identified as the "requester's preferred alternative."

iv. USACE has jurisdiction under Section 408 only over the specific activities or portions of activities that have the potential to alter a USACE project. Therefore, if a proposed alteration is part of a larger project (and/or its associated features) that extends beyond the USACE project boundaries, the district should determine what portions or features of the larger project USACE has sufficient control and responsibility over to warrant their inclusion in the USACE environmental review. The scope of analysis for the NEPA and environmental compliance evaluations for the Section 408 review should be limited to the area of the alteration and those adjacent areas that are directly or indirectly affected by the alteration. For example, a pipeline can extend for many miles on either side of the USACE project boundary. In this example, the scope of analysis would likely be limited to the effects of the pipeline within the USACE project boundary, but would not address those portions of the pipeline beyond the USACE project boundary. In contrast, a proposal to alter a levee system might require USACE to examine that

proposal's potential effects on the reliability of the levee system to provide flood risk reduction to the area behind the levee system itself. As a general rule, if there are features of a larger project occurring outside of the USACE project boundaries that are so intimately connected to the features of the larger project altering a USACE project that they cannot be meaningfully distinguished (e.g., a setback levee that is located outside of the original project boundary of the levee being replaced), the USACE Section 408 NEPA document should be broad enough to address all those effects. Generally, elements of the larger project that are not intimately connected to the features that would alter the USACE project (e.g., concessions being constructed off USACE property by the same entity requesting permission to construct boat access to a USACE reservoir) should not be included in the USACE environmental review.

v. Only reasonable alternatives need to be considered in detail, as discussed in the CEQ NEPA regulations at 40 CFR Part 1502.14. Reasonable alternatives must be those that are feasible, and such feasibility must focus on the accomplishment of the underlying purpose and need (of the requester) that would be satisfied by the proposed federal action (granting of permission for the alteration). For Section 408 requests, reasonable alternatives should focus on two scenarios: 1) no action (i.e., no proposed alteration in place) and 2) action (i.e. proposed alteration in place). Thus, examination of alternative forms of a proposed alteration that the requester has not proposed should only be included to the extent necessary to allow a complete and objective evaluation of the public interest and informed decision regarding the alteration request.

vi. Districts must make diligent efforts to involve the public in the decision-making process, including soliciting appropriate information from the public to inform the environmental analysis and public interest determination. For the purposes of Section 408 requests that are expected to have less than a significant effect on the human or natural environment, a public notice soliciting input will serve as the method of advising all interested parties of the proposed alteration for which permission is sought and by which information necessary to inform USACE's evaluation and review is solicited. As such, this public notice must be circulated to the public as early in the evaluation of a proposed alteration as possible to generate meaningful public and agency input to inform the evaluation and decision-making processes. Generally, Section 408 EAs should not be circulated for public comment. In circumstances where a proposed alteration is associated with a current study or other uncommon circumstances, the decision to circulate the Section 408 component of that EA will be approved by the Division Commander or the Division Commander's designee. Any decision to circulate an EA/Finding of No Significant Impact (FONSI) for a Section 408 request that also requires a Section 10/404/103 permit decision must be coordinated with the Regulatory Program to ensure that only information pertinent to non-Regulatory Program matters is included in the documented to be circulated.

vii. A number of categorical exclusions that allow completion of the NEPA process in an efficient manner for those activities that individually and cumulatively would not result in significant effects on the environment are included in 33 CFR 230.9. For example, categorical exclusions in 33 CFR 230.9(b) and (i) may have applicability to some of the smaller scale

activities that may be encountered under Section 408. Real estate grants for rights-of-way as referenced in 33 CFR 230.9(i) should be broadly interpreted to include grants of rights-of-way by either USACE or the non-federal sponsor. A categorical exclusion may be used for Section 408, provided that care is taken to ensure that the proposed alteration is within the intended scope of the specific categorical exclusion used and extraordinary circumstances that may require the preparation of an EIS or EA have been taken into consideration. It is recommended that the applicability and use of the categorical exclusion be documented in accordance with recent CEQ guidance, *Establishing, Applying and Revising Categorical Exclusions under the National Environmental Policy Act.*

viii. The district should use, to the extent possible, any NEPA documentation that may already exist for the federal project. In some cases NEPA documentation has already been completed through an existing or ongoing civil works study. The districts should use the information to the extent feasible and supplement the existing information as needed.

ix. If the proposed alteration is covered by an EIS in which USACE is a cooperating agency, the district may adopt or supplement that EIS and develop a Record of Decision (ROD) that is specific to the proposed alteration. For hydropower alterations, USACE and FERC have entered into an MOU for meeting NEPA requirements (see Appendix C).

(d) Real Estate Requirements. A list of all real property interests required to support the proposed alteration must be provided, including those in federally managed lands and those owned by the requester. If a non-standard estate is proposed, the district must follow the normal approval requirements outlined in EC 405-1-11 and Chapter 12, ER 405-1-12 or subsequent regulation. Maps clearly depicting both existing real estate rights and the additional real estate required must also be provided. If the lands are under the control of the Army, the applicant will work with the district to determine lands impacted. Additional information may be needed. If it is determined that an outgrant of Army land is required, a *Report of Availability and Determination of Availability* must be completed by the district in accordance with AR 405-80 and Chapter 8, ER 405-1-12 or subsequent regulation.

(e) Discussion of Executive Order 11988 Considerations. The district may require the requester to submit sufficient data in order that the district may conduct its analysis in accordance with ER 1165-2-26 to ensure that the proposed alteration is compliant with EO 11988. The request should be assessed as to whether there would be induced development in the floodplain as a result of the proposed alteration and address the positive and negative impacts to the natural floodplain functions.

(f) Requester Review Plan Requirement. The district has the flexibility to decide whether or not the requester must prepare a review plan for the alteration for district approval. A review plan is required when a Type II Independent External Peer Review (IEPR) is required. If the district determines, by following procedures in EC 1165-2-214, a Type II IEPR is required, then at minimum the requester is required to submit a Type II IEPR review plan. The Risk

Management Center (RMC) will be the Review Management Organization (RMO) and is required to endorse in writing all review plans for Type II IEPRs to ensure that the review plans reflect a level of review commensurate with the scope and scale of the proposed alterations. All requester-generated review plans for Type II IEPRs will be approved by the Division Commander.

(g) Operations and Maintenance. Requesters must identify any operations and maintenance requirements needed throughout the life of the proposed alteration and the responsible entity for the operations and maintenance into the future. For instances when there may be a desire for USACE to assume or incorporate operations and maintenance of the proposed alteration as part of its responsibilities for the USACE project being modified, a justification must be provided. See Appendix E for federal assumption of maintenance associated with navigation features. Any alteration to a project operated and maintained by a non-federal sponsor and for which an update to the operations and maintenance manual is required, the non-federal sponsor will provide USACE with sufficient information to update the O&M manual. The modified O&M manual will be subject to environmental compliance in the same manner as the requested alteration. The non-federal sponsor will acknowledge in writing their continued responsibility to operate, maintain, repair, rehabilitate and replace the USACE project at no cost to the government and will hold and save the government free from all damages arising from construction, operation, maintenance, repair, rehabilitation, and replacement of the project.

(h) Other Information. Based on the alteration request, the district may require the requester to provide additional information to complete its evaluation.

(4) Step 4: District-Led Agency Technical Review.

(a) District Review Plans. The purpose of the district review plans is to define the requirements, procedures, and specific details of how the district-led Agency Technical Review (ATR) will be conducted for Section 408 proposals. In addition, district decisions about required documentation, Type II IEPRs and approval level should be documented in the review plans. Districts have the option to develop an overarching review plan, called a Procedural Review Plan, that establishes the review procedures to be used for Section 408 requests similar in nature and that have similar impacts. Procedural Review Plans must be endorsed in writing by the Risk Management Center and approved by the Division Commander. Otherwise, the district will develop an alteration-specific review plan to be approved by the Division Commander.

(b) District-led Agency Technical Review. For the purposes of Section 408, the purpose of a district-led ATR is to determine if requirements set forth in this EC have been met. Reviewers can be from the home district. If lacking the appropriate expertise, the district should supplement their staff with outside subject matter experts through appropriate communities of practice, centers of expertise, or other offices. Review teams should be comprised of reviewers with the appropriate independence and expertise to conduct a comprehensive review in a manner commensurate with the complexity of the Section 408 proposal. It should be noted, DrChecks

can be used for Section 408 ATRs, but it is not required. The ATR team will make the following determinations:

i. Impair the Usefulness of the Project Determination. The objective of this determination is to ensure that the proposed alteration will not limit the ability of the project to function as authorized and will not compromise or change any authorized project conditions, purposes or outputs. All appropriate technical analyses including geotechnical, structural, hydraulic and hydrologic, real estate, and operations and maintenance requirements, must be conducted and the technical adequacy of the design must be reviewed. If at any time it is concluded that the usefulness of the authorized project will be negatively impacted, any further evaluation under 33 USC 408 should be terminated.

ii. Injurious to the Public Interest Determination. Proposed alterations will be reviewed to determine the probable impacts, including cumulative impacts, on the public interest. Evaluation of the probable impacts that the proposed alteration to the USACE project may have on the public interest requires a careful weighing of all those factors that are relevant in each particular case. The benefits that reasonably may be expected to accrue from the proposal must be compared against its reasonably foreseeable detriments. The decision whether to approve an alteration will be determined by the consideration of whether benefits are commensurate with risks. If the potential detriments are found to outweigh the potential benefits, then it may be determined that the proposed alteration is injurious to the public interest. This determination is not the same as the "contrary to the public interest determination" that is undertaken pursuant to Sections 10/404/103. Factors that may be relevant to the public interest depend upon the type of USACE project being altered and may include, but are not limited to, such things as conservation, economic development, historic properties, cultural resources, environmental impacts, water supply, water quality, flood hazards, floodplains, residual risk, induced damages, navigation, shore erosion or accretion, and recreation. This evaluation should consider information received from the interested parties, including tribes, agencies, and the public.

iii. Legal and Policy Compliance Determination. A determination will be made as to whether the proposal meets all legal and policy requirements. District Office of Counsel concurrence is required. The compliance determination for any Section 10/404/103 permit decision associated with the proposed alteration is separate from and will not be included in this compliance determination.

(5) Step 5: Summary of Findings. Upon completion of the district ATR and demonstration of environmental compliance, the district will develop a Summary of Findings (content and format scalable to the alteration) to summarize the district rationale and conclusions for recommending approval or denial. The Summary of Findings will serve as the basis for the final decision on the proposed alteration. If the district determines that HQUSACE approval is required, the district will submit the Summary of Findings to the division for review. The Summary of Findings will be signed by the District Commander (or designee) and contain the following, if applicable:

(a) Summary of rationale and conclusions for recommending approval or denial;

(b) Written request;

(c) A physical and functional description of the existing project, including a map;

(d) Project history and authorization;

(e) Impact to the usefulness of the USACE project determination;

(f) Injurious to the public interest determination;

(g) Policy Compliance certification;

(h) Certification of Legal Sufficiency from District Office of Counsel;

(i) Certification by the Chief of the District Real Estate Division that the real estate documentation is adequate;

(j) A description of any related, ongoing USACE studies (if applicable), including how the proposed alteration may impact those studies;

(k) Summary of any changes to the O&M manual. If the district has determined that USACE would assume O&M responsibilities as part of its responsibilities for the USACE project, include the rationale and any anticipated increase in USACE O&M costs.

(l) Summary of any changes to a project partnership agreement (PPA) or local cooperation agreement (if applicable);

(m) Applicable environmental compliance documentation including but not limited to NEPA documentation, Endangered Species Act (ESA) documentation, and other necessary documentation;

(n) Finding of No Significant Impact (FONSI) or Record of Decision (ROD) (These will be signed concurrently with the Section 408 decision. If HQUSACE approval is required, these will be draft and will be signed by the Director of Civil Works);

(o) Summary of the acceptance and use of funds pursuant to Section 214 *or Section 139(j)*, if applicable, as outlined in Appendix G; and,

(p) Any additional final conclusions or information, including any associated controversial issues.

(6) Step 6: Division Review (if required).

(a) Upon receipt of the district prepared Summary of Findings for HQUSACE review and decision, the division will review the submittal and provide comments to the district within 30 days unless the division notifies the district that additional review time is needed. The division will review the Summary of Findings for policy compliance and legal sufficiency; quality assurance and completeness; identification of conflicts with ongoing studies; and confirmation of the need for HQUSACE review and decision. The district is responsible for addressing division comments prior to submission to HQUSACE. The timeline required to address comments may vary depending on significance of the division comments. If the division decides the district may approve the Section 408, that rationale should be documented as part of the administrative record.

(b) The Division Commander will either deny the Section 408 request or recommend approval to HQUSACE. If the division denies the request, this decision will be transmitted to the district. If the division recommends approval, the division will forward an electronic copy of the Summary of Findings and the Division Commander's recommendation to the appropriate HQUSACE Regional Integration Team (RIT). This may be forwarded to HQUSACE during the publication period of the final EIS (if an EIS is required for the alteration).

(7) Step 7: HQUSACE Review (if required).

(a) Upon receipt of the Section 408 submittal from the division, the RIT will forward the Summary of Findings and division recommendation to the HQUSACE Office of Water Project Review (CECW-PC) for a policy compliance review. The RIT will ensure that the appropriate reviewers include engineering and other appropriate subject matter experts such as navigation, levee safety, dam safety, real estate and environmental. HQUSACE will review and provide comments within 30 days, unless HQUSACE notifies the division that additional review time is needed. The timeline required to address comments will vary depending on significance of the HQUSACE comments. The RIT will coordinate the results, as needed, to correct or improve the package as necessary to address concerns. The district is responsible for addressing HQUSACE comments or coordinating with the requester for comment resolution.

(b) The RIT will draft the final HQUSACE decision memorandum for the Director of Civil Work's signature.

(c) If the Summary of Findings contains a draft FONSI, the Director of Civil Works will sign the FONSI concurrently with the Section 408 decision, if permission is granted.

(d) If the Summary of Findings contains a draft ROD, HQUSACE will not finalize the Section 408 decision sooner than 30 days after the publication of the final EIS and the district has transmitted an updated draft ROD. HQUSACE will finalize the ROD concurrently with the Section 408 decision.

(e) The RIT will provide the final HQUSACE decision memorandum and signed FONSI or ROD, if applicable, to the division that will in turn provide the decision to the district.

(8) Step 8: Notification. The District Commander is responsible for providing a written notification to the requester for all Section 408 requests, regardless of the decision level. Appendix H contains an example letter.

(a) If the final decision is to deny the request, the requester will be advised in writing as to the reason(s) for denial.

(b) If the final decision is to approve the request, the District Commander will provide a written approval document. In situations where the district also is evaluating a Section 10/404/103 permit application, the district may forward the Section 408 decision letter with the Section 10/404/103 permit decision, once it is made. For cases involving a categorical permission, the written approval will be validation that the categorical permission is applicable.

(c) Special Conditions. For approved alterations, the District Engineer may include special conditions. Examples of special conditions may include:

i. The requester must obtain approval by the district of 100% plans and specifications prior to construction.

ii. The requester must have both the Section 408 permission and appropriate real estate document prior to construction.

iii. The requester must obtain the appropriate Section 10/404/103 permits prior to construction.

iv. The requester must be responsible for implementing any requirements for mitigation, reasonable and prudent alternatives, or other conditions or requirements imposed as a result of environmental compliance.

v. Note, in the event of any deficiency in the design or construction of the requested activity, the requestor is solely responsible for the remedial corrective action, and any permission granted under Section 408 should explicitly state this responsibility.

(9) Step 9: Post-Permission Oversight.

(a) Construction oversight. The district should develop procedures for monitoring construction activities. The purpose is to ensure the Section 408 permittee is constructing the alteration in accordance with the permission conditions. Any concerns regarding construction should be directed to the Section 408 permittee (and the non-federal sponsor if the Section 408

permittee is not the non-federal sponsor) for resolution. Oversight should be commensurate with the level of complexity of the alteration.

(b) As-builts. Drawings showing alterations as finally constructed will be furnished by the Section 408 permittee to the district after completion of the work. As-builts must be provided within 180 days of construction completion.

(c) Operations and Maintenance (O&M) Manual Updates. The Section 408 permittee and/or non-federal sponsor is required to provide the district with sufficient information to update the O&M manual, as required. O&M manual updates may range from simple removal and replacement of paragraphs or entirely new manuals depending on the scope and complexity of the alteration. The district is responsible for reviewing and approving or developing any updates needed to the O&M manual as a result of the alteration. At a minimum, the update should include a description of the new features, reference to the Section 408 approvals, as-builts, and instructions regarding O&M of any new features not included in the existing manual. Reference ER 1110-2-401 or ER 1130-2-500 for information on O&M manuals.

(d) Post Construction Closeout. Post construction closeout requires an on-site inspection of the completed alteration. The district may coordinate post construction closeout with the other federal, state or local agency. Where projects require an update to the O&M manual or PPA, the USACE district must conduct the post construction inspection and provide notification to the applicant and non-federal sponsor regarding acceptance or any corrective actions that are required. Notification that the alteration was constructed in accordance with the permit conditions must include a copy of the updated O&M manual.

(e) Administrative Record. The district will keep an administrative record for each Section 408 proposal. The administrative record should include all documents and materials directly or indirectly considered by the decision maker and should be ordered chronologically. It should include documents, materials, and a record of the offices and staff that are pertinent to the merits of the decision, as well as those that are relevant to the decision-making process.

8. Funding. Potential available sources of funds for review activities include:

a. Applicable project-specific appropriated funds in investigations, construction, operations and maintenance, or flood control - Mississippi River and Tributaries may be used for Section 408 reviews that are specific to the applicable project. Vertical team concurrence through division and HQUSACE RIT must be obtained prior to use of investigations or construction funds.

b. For federally authorized levee systems, channels, and dams operated and maintained by a non-federal sponsor, district Inspection of Completed Works funds may be used. In addition, on a case by case basis, for Section 408 requests critical to the functioning of these levee systems,

channels, and dams and for reducing risk to life safety, requests for funding may be submitted to the HQUSACE Levee Safety Program Manager;

c. For federally authorized navigation projects, district project condition surveys funds may be used if the navigation projects do not have funding within their operations and maintenance account;

d. Funding for district coordination on Federal Energy Regulatory Commission (FERC) Activities. The funding for district coordination regarding FERC activities related to non-federal hydropower development will be provided by HQUSACE. Districts should request funding from HQUSACE through their respective division in coordination with their designated FERC Hydropower Coordinators. The request will be processed at HQUSACE through their respective regional integration team and forwarded to the HQUSACE Hydropower Business Line Manager, CECW-CO-H, for final approval and processing;

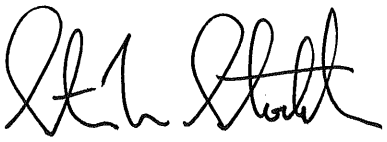
e. Funding to Process Section 408 Requests under Section 214. Funds may also be accepted under the authority of Section 214 of WRDA 2000, as amended, to expedite the review and evaluation of a Section 408 request. Funds may only be accepted from non-federal public entities. Examples of acceptable uses include, but are not limited to Agency Technical Review, real estate evaluation, copying or other clerical/support tasks, site visits, travel, coordination activities, additional personnel (including support/clerical staff), contracting support for technical services and environmental review and filing the environmental compliance documents. The processes applicable to accepting funds under the authority of Section 214 of WRDA 2000, as amended, are contained in Appendix G.

f. Federal Transportation Projects. In certain circumstances for alterations necessary for federal transportation projects, USACE may accept and expend funds provided by a state DOT agency pursuant to section 6002(j) of Public Law 109-59 (codified at 23 USC 139(j)) provided the Secretary of Transportation finds such review activities directly and meaningfully contribute to an underlying transportation project. In such cases, USACE only may accept funds in amounts necessary for USACE to meet the time limits for environmental review established for the project and may only accept funds for activities beyond the normal and ordinary capabilities permitted by USACE's general appropriations. *The processes applicable to accepting funds under the authority of 23 USC 139(j) are contained in Appendix G;* and,

g. Funding to Process Section 408 Requests under Section 204(b). Water Resources Development Act of 1986, as amended, Section 204(b) allows non-federal interests to contract with USACE to provide technical assistance in obtaining all necessary permits, which includes Section 408 permission, associated with non-federal improvements to navigation features pursuant to Section 204(a) of WRDA 86.

9. Vertical Teaming. Vertical teaming between the district, division, and HQUSACE is encouraged when there is doubt as to the appropriate course of action related to the application of this guidance. Vertical teaming is also recommended to promote early coordination of potential alterations that may have Congressional interest or policy implications. Please coordinate through the appropriate HQUSACE's RIT.

FOR THE COMMANDER:



9 Appendices
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STEVEN L. STOCKTON, P.E.
Director of Civil Works

APPENDIX A

References

This appendix is a list of USACE engineer documents (regulations, manuals, and technical letters) and other USACE and non-USACE appropriate references. The intent is to provide a comprehensive listing of appropriate guidance referenced in the main EC. Appendices B-G each list references specific to that appendix.

Rivers and Harbors Appropriation Act of 1899

Flood Control Act of 1970

Clean Water Act of 1972

Marine Protection, Research, and Sanctuaries Act of 1972

Endangered Species Act of 1973

Water Resources Development Act of 1986

Water Resources Development Act of 2000

Public Law 109-59
Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

Executive Order 11988
Floodplain Management

33 USC 408
Taking possession of, use of, or injury to harbor or river improvements

33 USC 701c
Rights-of-way, easements, etc.; acquisition by local authorities; maintenance and operation; protection of United States from liability for damages; requisites to run-off and water-flow retardation and soil erosion prevention assistance

42 USC 1962d-5b
Written agreement requirement for water resources projects

33 CFR 208.10
Local flood protection works, maintenance, and operation of structures and facilities

33 CFR 230
Procedures for Implementing NEPA

36 CFR 327
Rules and regulations governing public use of water resource development projects administered by the Chief of Engineers

40 CFR 1500-1508
Council on Environmental Quality (NEPA)

AR 405-80
Management of Title & Granting Use of Real Property

ER 405-1-12
Real Estate Handbook

ER 1110-2-401
Operation, Maintenance, Repair, Replacement, and Rehabilitation Manual for Projects and Separable Elements Managed by Project Sponsors

ER 1130-2-406
Shoreline Management at Civil Works Projects

ER 1130-2-500
Partners and Support (Work Management Policies)

ER 1130-2-550
Project Operations - Recreation Operations and Maintenance Policies

ER 1165-2-26
Implementation of Executive Order 11988 on Floodplain Management

ER 1165-2-208
In-Kind Contribution Credit Provisions of Section 221 of the Flood Control Act of 1970, as Amended

EC 405-1-11
Real Estate Acquisition

EC 1165-2-214
Water Resources Policies and Authorities (Civil Works Review)

EP 1130-2-550
Recreation Operations and Maintenance Guidance and Procedures

Council on Environmental Quality (2010)
Establishing, Applying and Revising Categorical Exclusions under the National Environmental Policy Act

Council on Environmental Quality (2012)
Improving the Process for Preparing Efficient and Timely Environmental Reviews under the National Environmental Policy Act

US Army Corps of Engineers 2006 (This EC supersedes this memorandum.)
Policy and Procedural Guidance for the Approval of Modification and Alteration of Corps of Engineer Projects, CECW-PB Memorandum, 23 October 2006

US Army Corps of Engineers 2008 (This EC supersedes this memorandum.)
Clarification Guidance on the Policy and Procedural Guidance for the Approval of Modifications and Alterations of Corps of Engineers Projects, CECW-PB Memorandum, 17 November 2008

US Army Corps of Engineers 2010 (This EC supersedes this memorandum.)
Implementation Guidance for Utilizing Section 214 of the Water Resources Development Act of 2000, as amended, to Accept Funding from Non-Federal Public Entities to Expedite the Evaluation of Permits pursuant to 33 USC 408, CECW-PB Memorandum, 18 June 2010

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APPENDIX B

Dams and Reservoirs (including Navigation Dams)

B-1. Purpose. The purpose of this appendix is to provide supplemental guidance to be used in conjunction with guidance in the main EC for alterations proposed by others to federally authorized dams and reservoirs, including dams associated with navigation locks. This appendix is also applicable to all associated appurtenances to include lands required to ensure reservoir integrity up to the project probable maximum flood (PMF), in addition to structures and canals where failure would release pool. Federally authorized dams include those operated and maintained by USACE. Also included are dams constructed by USACE, but which are operated and maintained by non-federal sponsors and may also be included under the jurisdiction of a State Dam Safety Agency defined by the National Dam Safety Program. For reservoirs, this appendix is applicable to water intake structures and pump stations constructed on USACE-managed lands. See Appendix C for additional information concerning hydropower facilities.

B-2. References. The main USACE reference document is Engineer Regulation (ER) ER 1110-2-1156, Safety of Dams, Policy and Procedures, which includes details on various dam safety activities, including inspections and risk assessments. ER1110-2-1156 also provides a comprehensive list of references for dams for consideration in review of dam design, construction, and operations and maintenance.

a. Section 6 of the Flood Control Act (FCA) of 1944 (P.L. 78-534), Contracts for sale of surplus water at Army projects – Disposition of revenues

b. Water Supply Act (WSA) of 1958 (P.L. 85-500, as amended)

c. EO 11988, Floodplain management

d. 44 CFR 65.10, Mapping of areas protected by levee systems

e. ER 1110-2-1156, Safety of Dams, Policy and Procedures

f. EC 1165-2-214, Civil Works Review

g. See Appendix A for other applicable references

B-3. Policy. The information below supplements policy in Paragraph 6 of the main EC.

a. Coordination with State Dam Safety Agencies. When the request is for the alteration of a dam operated by a non-federal sponsor, the alteration will be reviewed by the State Dam Safety Agency. In these cases the requester must obtain written concurrence of the proposed alteration from the State Dam Safety Agency be required prior to USACE issuing the final Section 408 decision.

b. National Flood Insurance Program (NFIP). The FEMA criteria related to NFIP mapping purposes (44 CFR 65.10, Mapping of areas protected by levee systems) are not USACE design standards and should not be a consideration for the technical analysis or design review. However, the impacts associated with mapping levee, floodwall, or channel projects for the NFIP, such as influences on floodplain management, should be discussed as part of compliance with EO 11988, reference Paragraph 7.c.(3)(e) in the main EC and considered when discussing potential impacts to associated risks.

c. Design and Construction Standards. Paragraph 6.m. in the main body of the EC specifies that a proposed alteration itself must meet current USACE design and construction standards. However, a requester is not required to bring the remaining existing USACE project up to current USACE design standards. An example might be if a requester submitted a proposed alteration for a landside seepage berm, but the dam has erosion issues on the waterside at the same location. The seepage berm would need to meet USACE design and construction standards, but the proposed alteration would not have to also address the waterside erosion if the district has determined that the seepage berm was a complete alteration that is not influenced by the erosion issue.

d. Additional Considerations for Municipal and Industrial (M&I) Water Supply.

(1) Water supply users entering into an agreement under Section 6 of the Flood Control Act (FCA) of 1944 (PL 78-534) or the Water Supply Act (WSA) of 1958 (PL 85-500, as amended) generally will not need a separate Section 408 permission.

(2) For currently authorized M&I water supply storage, Section 408 considerations will be taken into account in the drafting of a M&I water storage agreement and associated real estate instruments. Any requirements related to the user's facilities (intake structures, etc.) will be included in the agreement and related real estate instruments.

(3) For reallocated M&I water supply storage under the 1958 WSA authority, the water supply user must be advised that the reallocation study itself will not specifically address the Section 408 considerations but that Section 408 considerations will be taken into account in the drafting of a water storage agreement and associated real estate instruments. Any requirements for water supply user's facilities (intake structures, etc.) will be included in the agreement and associated real estate instruments.

(4) For surplus water under the authority of Section 6 of the 1944 FCA, Section 408 considerations will be taken into account in the drafting of the surplus water agreement and associated real estate instruments and any requirements for water supply user's facilities (intake structures, etc.) will be included in the agreement and associated real estate instruments.

(5) For M&I water supply intakes of any size to be placed in projects that do not include specifically authorized water supply storage, Section 408 permission will be required. Intakes with fixed infrastructure placed in impoundments without authorized conservation storage will

require Section 408 permission. Section 408 review should include consideration of physical and operational impacts to the project.

B-4. Procedures. The information below corresponds to and supplements the steps in Paragraph 7 of the main EC.

a. Step 1: Pre-Coordination. Ensure involvement of the District Dam Safety Officer (DSO) and Dam Safety Program Manager (DSPM). In addition, the district should inform the requester of any current dam safety modification studies that are ongoing or are being considered that may have compatible objectives with the potential proposed alteration.

b. Step 2: Written Request. Follow procedures in Paragraph 7 of the main EC.

c. Step 3: Required Documentation.

(1) Technical Analysis and Design. The list below is only a guide for information and/or analyses that may be needed to review alterations to dams and reservoirs. It is not intended to list every item that may be needed to make a final Section 408 decision, nor is it intended that every type of analysis be required for all proposals.

(2) Civil. Each submittal should clearly identify the existing condition of the dam and/or appurtenant structures to include plan, profile and design details of the proposed alteration in relation to the existing USACE project. Below are examples of information necessary to understand the existing and proposed conditions.

(a) Alteration location (Vicinity map and specific alteration location)

(b) Applicable datum

(c) Real estate interests, existing and to be acquired, needed for the proposed alteration

(d) Grading plans

(e) Layout plan, profiles, and cross-sections of the proposed alternation

(f) Previous inspection reports to assist in identifying existing deficiencies and their proximity to the proposed alteration

(g) Sections and details

(h) Temporary measures required during construction (bypasses, cofferdams, etc.)

(3) Geotechnical. The following is a list of analyses or information that may be necessary to consider in evaluating geotechnical impacts if proposed alterations alter the dam embankment or penetrate the natural blanket or foundation.

(a) Erosion control (changes in erosive forces on a slope)

(b) Liquefaction susceptibility

(c) Material usage/borrow/waste/transport/hauling

(d) Placement of stockpiles, heavy equipment, or other surcharges

(e) Results of subsurface investigation – boring logs, test pit logs, laboratory test results, etc.

(f) Seepage analysis

(g) Settlement analysis

(h) Stability analysis

(i) Vegetation

(4) Structural. The following is a list of analysis or information that may be necessary to evaluate the impacts of proposed alterations to concrete, sheetpiling, or drainage structures.

(a) Bridges and related abutments

(b) Design analysis for retaining walls and excavation support system

(c) Design of shallow or deep foundations, including bearing capacity and settlement analysis if the construction is located within the line of protection or right-of-way and creates potential seepage problems

(d) Design recommendations for foundations on expansive soils

(e) Diaphragm walls

(f) Gates or other operable features

(g) Other structural components integral to the project

(h) Pier penetrations of levee embankments

(i) Stability analysis including sliding, overturning, bearing, flotation, uplift and any seismic load effects for any alteration to the channel walls and/or flood walls

(j) Structural drainage control methods

(k) Water stops and contraction/expansion joints

(5) Hydrology and Hydraulics. Refer to Appendix F for details on when and how a hydrology and hydraulics system performance analysis should be conducted. Refer to the list below for examples of factors that should be considered when evaluating hydrology and hydraulics impacts.

(a) Changes in inflow

(b) Changes in velocity

(c) Changes in water surface profiles and flow distribution

(d) Consideration of impacts to energy dissipation measures; hydropower generation; sedimentation; or navigation

(e) Scour Analysis

(f) Sediment transport analysis

(g) Upstream and downstream impacts of the proposed alterations

(6) Water Control Management Plan. Alterations may have impacts on how water control structures are operated. In these cases, the alterations should consider any impacts or changes to water control plans that may be necessary. If a change to a water control manual is required, the NEPA document developed for the Section 408 alteration should incorporate appropriate analysis for updating the water control manual. Alterations that will work in conjunction with an existing federal Water Control Manual (WCM) should be documented and incorporated into that WCM. Items to be considered are:

(a) Effects on existing Biological Opinions, Water Quality Certifications, Coastal Zone Management Concurrences, etc. should evaluate project impacts on any legal document, agreement, or requirement that informs water control management by USACE

(b) Impacts/revisions to the operation of USACE facilities or other projects within the basin

(7) Operations, Maintenance and Flood Fighting. Alterations may change operation, maintenance or require special flood fighting procedures.

(a) Effects on existing maintenance access

(b) Effects on maintenance practices

(c) Flood contingency plan during construction, measures proposed to protect area under construction, monitoring of river level, river stage at which plan will be activated, materials and equipment to be used to activate plan, and personnel contact and telephone number to activate plan.

(d) Flood fighting requirements and practices

(e) Special inspection requirements

(8) Potential Failure Mode Analysis. Depending on the proposed alteration, the requester may be required by the district to provide a potential failure mode analysis with the proposed alteration in place.

(9) Requester Review Plan Requirement. If the district determines a Type II Independent External Peer Review (IEPR) is required for the proposed alteration, the Risk Management Center (RMC) will determine based on information provided in the Requester Review Plan for the Type II IEPR if the dam senior oversight group (DSOG) will review the dam alteration. If it is determined that the DSOG review is required, the RMC will inform the division, which will include the requirement for the DSOG review within the approval memorandum, as required in EC 1165-2-214, for the Requester Review Plan to the district. The district should contact the HQUSACE Dam Safety Program Manager to schedule a briefing with the DSOG as soon as possible. Information to be presented should include available risk assessment (Screening for Portfolio Risk Analysis (SPRA) or higher level risk assessments) information and a description of the proposed alteration. The DSOG briefing can occur concurrently with other steps, but should occur before the request is submitted for division review. The RMC will consider the following in determining whether DSOG review is required:

(a) whether the benefits of the alteration are generally commensurate with the risks

(b) whether the alteration potentially worsens or creates new failure modes or risk drivers for the USACE project; and

(c) whether the alteration is exceptionally complex or high risk.

d. Step 4: District-led Agency Technical Review (ATR).

(1) Risk. For dams with SPRA or higher level risk assessment information, districts should take this information into account to determine whether the proposed alteration may increase the risk associated with the project. If a dam does not have a SPRA or a higher level

risk assessment completed, a risk assessment is not required to be conducted prior to making a Section 408 decision.

(2) Alterations Within the Reservoir Area. These proposed alterations require the same level of technical review as alterations to dams. Generally alterations within the reservoir areas will be requested by the water supply non-federal sponsor for intake facilities. These alterations should be reviewed for impacts to life safety, inundation, and intake levels. When reviewing the intake levels, consideration will be given to drought conditions and also to lake level drawdowns for dam safety water control purposes. When alterations are proposed along the reservoir, the alteration will be reviewed for constructability and for potential failure modes related to misoperation, overtopping, foundation failures, alteration-induced subsidence, and other possible incidents that could cause the uncontrolled loss of pool.

(3) The district Dam Safety Program Manager and Dam Safety Officer are required to review and endorse approval or recommend denial of any Section 408 request that modifies a dam.

e. Step 6. Division Review. For dam alterations requiring HQUSACE approval as determined by answering the questions in Paragraph 6.t. of the main EC, the division Dam Safety Program Manager (DSPM) and Dam Safety Officer (DSO), in addition to any additional division reviewers, are required to review and endorse approval or recommend denial.

f. Step 7. HQUSACE Review. For dam alterations requiring HQUSACE approval as determined by answering the questions in Paragraph 6.t. the main EC, the HQUSACE DSPM or designee review, in addition to the Office of Water Project Review, are required to endorse approval or recommend denial.

g. Step 8: In addition to the other notification procedures in Paragraph 7.c.(8) of the main EC, for alterations related to mapping for the National Flood Insurance Program (NFIP), the written approval document will specify that approval does not constitute, nor should it be construed as, an evaluation to determine if NFIP criteria have been met.

h. Step 9: Post – Permission Oversight.

(1) Inspections. Inspections conducted by USACE should document whether approved alterations are being operated and maintained in accordance with the Section 408 approval and O&M manual.

(2) National Inventory of Dams. Districts should ensure that the National Inventory of Dams is updated for USACE dams and appurtenant structures as applicable to capture new or changed features constructed as part of a Section 408 permission.

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Appendix C

Non-Federal Hydropower Development at USACE Facilities

C-1. Purpose. The purpose of this appendix is to provide supplemental guidance to be used in conjunction with guidance in the main EC and Appendix B for requests for alterations of USACE projects by adding conventional and/or non-conventional hydroelectric power generating facilities. Conventional hydroelectric generating facilities are facilities that have a turbine and generator unit combination contained in a powerhouse adjacent to a USACE non-powered dam that provide the potential energy for the powerhouse. A non-conventional facility, such as a hydrokinetic hydroelectric generating unit, typically is not contained in a powerhouse and not adjacent to a dam but could be attached to other USACE civil works structures such as jetties, levees, and navigation channels. This appendix is applicable to requests received from non-federal entities which have been granted a preliminary permit or license by the Federal Energy Regulatory Commission (FERC).

C-2. References.

a. Federal Power Act, as amended

b. ER 1110-2-401, Operation, Maintenance, Repair, Replacement, and Rehabilitation Manual for Projects and Separable Elements Managed by Project Sponsors

c. ER 1110-2-1150, Engineering and Design for Civil Works Projects

d. ER 1110-2-1454, Corps Responsibilities for Non-Federal Hydroelectric Power Development under the Federal Power Act

e. ER 1110-2-1462, Water Quality and Water Control Considerations for Non-Federal Hydropower Development at Corps of Engineers Projects

f. ECB 2008-8, Sharing Technical Information in Support of Non-Federal Hydropower Development

g. US Army Corps of Engineers, Charging and Retaining Fees Charged to FERC Licensees, CECC-G memorandum, 6 June 2006

h. Memorandum of Understanding Between the United States Army Corps of Engineers and the Federal Energy Regulatory Commission on Non-Federal Hydropower Projects, 25 March 2011

i. See Appendix A and B for other applicable references.

C-3. Policy. This information supplements policy in Paragraph 6 of the main EC and Appendix B.

a. USACE and FERC Coordination. USACE and FERC have agreed to work with each other and with other participating agencies or entities, as appropriate to ensure that timely decisions are made and that the responsibilities of each agency are met. Specifically, subject to the availability of resources and in accordance with applicable laws, regulations, Army policies and FERC policies, each agency agrees to: commit to early involvement; participate proactively; share data; communicate informally; attend public meetings; and coordinate on studies of hydropower potential.

b. Sharing of Technical Information. See reference in Paragraph C-2.f. of this appendix.

C-4. Procedures. The information below corresponds and supplements the steps in Paragraph 7 of the main EC.

a. Step 1: Pre-Coordination. When a USACE district receives a written request to modify a USACE civil works project for the addition of hydroelectric generation, the district will confirm that the requester has a valid FERC preliminary permit or license to investigate the potential for adding hydroelectric power facilities to the civil works project. Once validated, the district will initiate coordination with the requester and FERC. Initial coordination should consist of a meeting to discuss the proposed project and inform the requester of any known issues that would impact their proposal, such as any dam safety issues.

b. Step 2: Required Documentation.

(1) National Environmental Protection Act (NEPA) Requirements. Districts should follow NEPA procedures as described in the main EC. In most cases where a requester requests approval for alteration of a USACE civil works structure for the purpose of adding hydroelectric generating facilities, USACE typically acts as a cooperating agency to a lead agency, FERC. Under Section V of the reference in paragraph C-2.g, "…As the agency with the approval/disapproval authority for the licensing of hydropower projects, the FERC shall serve as the lead Federal agency for the preparation of the environmental document" (for non-federal hydropower development at USACE water resources projects). As appropriate, and as resources allow, USACE will assist FERC in the preparation of relevant sections of the environmental document to the extent that the information is necessary for USACE to adopt the document/incorporate portions by reference to support its independent Section 408 decision and/or any other required USACE permit decision (e.g. Section 10/404/103).

c. Step 3: Remaining Procedures. Districts should follow remaining procedures outlined in the main EC and Appendix B.

Appendix D

Levee, Floodwall or Flood Risk Management Channel Projects

D-1. Purpose. The purpose of this appendix is to provide supplemental guidance to be used in conjunction with guidance in the main EC for proposed alterations by others to federally authorized USACE civil works' levee, floodwall, or flood risk management channel projects, including their associated features. Supplemental information for alterations to navigation channels is in Appendix E. If a levee, floodwall, or flood risk management channel is associated with a dam project, Appendix B should be consulted. Common associated features for levee, floodwall, or channel projects include sheetpile walls, berms, relief wells, cutoff walls, foundation, drainage structures, ponding areas, closure structures, pump stations, transitions, and erosion protection.

D-2. References. The following is a list of references containing evaluation processes, design standards, and operations and maintenance procedures that may be relevant to consider for alterations to levee, floodwall, or channel projects.

a. P.L. 84-99, as amended, flood emergencies; extraordinary wind, wave, or water damage to federally authorized hurricane or shore protective structures; emergency supplies of water; drought; well construction and water transportation

b. 33 CFR 208.10, Local flood protection works; maintenance and operation of structures and facilities

c. 44 CFR 65.10, Mapping of areas protected by levee systems

d. ER 500-1-1, Civil Emergency Management Program

e. ER 1110-2-1806, Earthquake Design and Evaluation of Civil Works Projects

f. ER 1110-2-1942, Inspection, Monitoring, and Maintenance of Relief Wells

g. EM 1110-1-1005, Control and Topographic Surveying

h. EM 1110-1-1804, Geotechnical Investigations

i. EM 1110-1-1904, Settlement Analysis

j. EM 1110-2-1418, Channel Stability Assessment for Flood Control Projects

k. EM 1110-2-1601, Hydraulic Design of Flood Control Channels

l. EM 1110-2-1902, Slope Stability

m. EM 1110-2-1906, Laboratory Soils Testing

n. EM 1110-2-1913, Design and Construction of Levees

o. EM 1110-2-1914, Design, Construction, and Maintenance of Relief Wells

p. EM 1110-2-2002, Evaluation and Repair of Concrete Structures

q. EM 1110-2-2007, Structural Design of Concrete-Lined Flood Control Channels

r. EM 1110-2-2100, Stability Analysis of Concrete Structures

s. EM 1110-2-2104, Strength Design for Reinforced-Concrete Hydraulic Structures

t. EM 1110-2-2502, Retaining and Flood Walls

u. EM 1110-2-2504, Sheet Pile Walls

v. EM 1110-2-2902, Conduits, Culverts, and Pipes

w. EC 1110-2-6066, Design of I-Walls

x. ETL 1110-2-583, Engineering and Design: Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures

y. ETL 1110-2-575, Evaluation of I-Walls

z. U.S. Army Corps of Engineers, Policy for Development and Implementation of System-Wide Improvement Frameworks (SWIFs), CECW-HS memorandum, 29 November 2011

aa. U.S. Department of Interior Bureau of Reclamation and US Army Corps of Engineers, Best Practices in Dam and Levee Safety Risk Analysis, 3 December 2012

bb. See Appendix A for other applicable references.

D-3. Policy. The information below supplements policy in Paragraph 6 of the main EC.

a. National Flood Insurance Program (NFIP). The FEMA criteria related to NFIP mapping purposes (44 CFR 65.10, Mapping of areas protected by levee systems) are not USACE design standards and should not be a consideration in the technical analysis or design review. However, the impacts associated with mapping levee, floodwall, or channel projects for the NFIP, such as influences on floodplain management, should be discussed as part of compliance

with EO 11988, reference Paragraph 7.c.(3)(e) in the main EC and considered when discussing potential impacts to associated risks.

b. Completeness. Reference to Paragraph 6.l. in the main EC. An example is one reach of a levee system may require a slurry wall to address seepage and a different reach may require a seepage berm. The slurry wall and seepage berm can be constructed and function independently of each other, and, therefore, could be considered as two complete alterations.

c. Design and Construction Standards. Paragraph 6.m. in the main EC specifies that a proposed alteration itself meet current USACE design and construction standards. However, a requester is not required to bring the remaining existing USACE project up to current USACE design standards. An example is a requester has submitted a proposed alteration for a landside seepage berm for a levee, but the levee has erosion issues on the waterside at the same location. The seepage berm would need to meet USACE design and construction standards, but the proposed alteration would not have to also address the waterside erosion if the district has determined that the seepage berm was a complete alteration that is not influenced by the erosion issue.

D-4. Procedures. The information below corresponds and supplements the steps in Paragraph 7 of the main EC.

a. Step 1: Pre-Coordination. Ensure involvement of the district Levee Safety Officer (LSO) and Levee Safety Program Manager (LSPM).

b. Step 2: Written Request. If a proposed alteration is being requested as part of an approved System Wide Improvement Framework (SWIF), the requester must supply that information within their written request.

c. Step 3: Required Documentation.

(1) Technical Analysis and Design. The list below is only a guide for information and/or analyses that may be needed to review alterations to levee, floodwall, or channel projects. It is not intended to list every analysis or design consideration that may be needed for all proposals.

(2) Civil. Each request should clearly identify the existing condition of the portion of the levee, floodwall, or channel project being altered and include plan, profile and design details of the proposed alteration in relation to the existing USACE project. Below are examples of information that may be necessary to understand the existing and proposed conditions:

(a) Alteration location (Vicinity map and specific alteration location in station or river mile and/or decimal degrees)

(b) Applicable datum

(c) Real estate interests, existing and to be acquired, needed for the proposed alteration

(d) Grading plans

(e) Layout plan, profiles, and cross-sections of proposed alteration

(f) Previous inspection reports to assist in identifying existing deficiencies and their proximity to the proposed alteration

(g) Temporary measures required during construction (bypasses, cofferdams, etc.)

(3) Geotechnical. The following is a list of analyses or information that may be necessary to consider for geotechnical considerations and assessing their impacts if proposed alterations alter the levee, floodwall or channel bank cross-section or penetrate the natural blanket or foundation.

(a) Erosion control (changes in erosive forces on a slope)

(b) Material usage/borrow/waste/transport/hauling

(c) Placement of stockpiles, heavy equipment, or other surcharges

(d) Results of subsurface investigation – boring logs, test pit logs, laboratory test results, etc.

(e) Seepage analysis

(f) Settlement analysis

(g) Stability analysis

(h) Vegetation

(4) Structural. The following is a list of analyses or information that may be necessary to evaluate the impacts of proposed alterations to concrete, sheetpiling, or drainage structures:

(a) Bridges and related abutments

(b) Design analysis for retaining walls and excavation support system

(c) Design of shallow or deep foundations, including bearing capacity and settlement analysis if the construction is located within the line of protection or right-of-way and creates potential seepage problems

(d) Design recommendations for foundations on expansive soils

(e) Diaphragm walls

(f) Gates or other operable features

(g) Other structural components integral to the project

(h) Pier penetrations of levee embankments

(i) Stability analysis including sliding, overturning, bearing, flotation, uplift and any seismic load effects for any alteration to the channel walls and/or flood walls

(j) Structural drainage control methods

(k) Water stops and contraction/expansion joints

(5) Hydrology and Hydraulics. Refer to Appendix F for details on when and how a hydrology and hydraulics system performance analysis should be conducted. Refer to the list below for examples of factors that should be considered when evaluating hydrology and hydraulics impacts.

(a) Changes in velocity

(b) Changes in water surface profiles and flow distribution

(c) Scour analysis

(d) Sediment transport analysis

(e) Upstream and downstream impacts of the proposed alterations

(6) Water Control Management Plan. Alterations may have impacts on how water control structures are operated. In these cases, the alterations should consider any impacts or changes to water control plans that may be necessary. If a change to a water control manual is required, the NEPA document developed for the Section 408 alteration should incorporate appropriate analysis for updating the water control manual. Alterations that will work in conjunction with an existing Federal Water Control Manual (WCM) should be documented and incorporated into that WCM. Items to be considered are:

(a) Effects on existing Biological Opinions, Water Quality Certifications, Coastal Zone Management Concurrences, etc. should evaluate project impacts on any legal document, agreement, or requirement that informs water control management by the USACE

(b) Impacts/revisions to the operation of USACE facilities or other projects within the basin

(7) Operations, Maintenance and Flood Fighting. Alterations may change how a levee, floodwall or channel project is to be operated, maintained or require special flood fighting procedures. Reviews should consider the factors below to determine potential effects.

(a) Effects on existing project access

(b) Special inspection requirements

(c) Effects on maintenance practices

(d) Flood fighting requirements and practices

(e) Flood contingency plan during construction, measures proposed to protect area under construction, monitoring of river level, river stage at which plan will be activated, materials and equipment to be used to activate plan, and personnel contact and telephone number to activate plan

(8) Requester Review Plan Requirement. If the district determines a Type II Independent External Peer Review (IEPR) is required for a proposed alteration to a levee or floodwall project, the Risk Management Center (RMC) will determine based on the information provided in the Requester Review Plan for the Type II IEPR if the Levee Senior Oversight Group (LSOG) will review the proposed alteration. If it is determined that the LSOG review is required, the RMC will inform the division who will include the LSOG review requirement within the final approval memorandum, as required in EC 1165-2-214, for the Requester Review Plan to the District. The district should contact the HQUSACE Levee Safety Program Manager to schedule a briefing with the LSOG as soon as possible. Information to be presented should include available risk assessment (screenings or higher level risk assessments) information and a description of the proposed alteration. The LSOG briefing can occur concurrently with other steps, but should occur well before the request is submitted for division review. The RMC will consider the following in determining whether LSOG review is required:

(a) whether the benefits of the alteration are generally commensurate with the risks

(b) whether the alteration potentially worsens or creates new failure modes or risk drivers for the USACE project; and

(c) whether the alteration is exceptionally complex or high risk.

d. Step 4: District-Led Agency Technical Review (ATR).

(1) Rehabilitation Program. Proposed alterations to federally authorized levees, floodwalls, and channels, must also be evaluated to determine whether the alteration will become an integral component of the project. If it is determined that the proposed alteration will become an integral component of the project that is necessary for proper functioning of the project for its authorized purpose, the completed alteration will be included as a project feature eligible for rehabilitation assistance pursuant to PL 84-99. The district is responsible for making a determination as to whether or not a proposed alteration will become an integral component of the project. Factors to consider will vary depending on the type of infrastructure and the proposed alteration. This determination must be made for all proposed alterations to flood risk management projects, regardless of their status in the Rehabilitation Program at the time of the Section 408 request, to ensure that the proposed alteration is appropriately considered in future decisions about project eligibility for rehabilitation assistance. Examples of such alterations include stability or seepage berms, and changes to the structure type or geometry. For more information on USACE emergency activities and the rehabilitation program, see ER 500-1-1, Emergency Employment of Army and Other Resources – Civil Emergency Management Program.

(2) Risk. For levee and floodwall projects with risk screening or higher level risk assessment information, districts should take this information into account to determine whether the proposed alteration may increase the risk associated with the project. If the project does not have a risk screening or a higher level risk assessment completed, a risk assessment is not required to be conducted prior to making a Section 408 determination.

(3) The district Levee Safety Program Manager and Levee Safety Officer are required to review and endorse approval or recommend denial of any Section 408 request that modifies a levee or floodwall project.

e. Step 6: Division Review. For levee or floodwall project alterations requiring HQUSACE approval as determined by answering the questions in Paragraph 6.t. of the main EC, the division LSPM and LSO, in addition to any additional division reviewers, are required to review and endorse approval or recommend denial.

f. Step 7: HQUSACE Review. For levee or floodwall alterations requiring HQUSACE approval as determined by answering the questions in Paragraph 6.t. of the main EC, the HQUSACE LSPM or designee in addition to the Office of Water Project Review are required to review and endorse approval or recommend denial.

g. Step 8: Notification. In addition to the other notification procedures in Paragraph 7.c.(8) of the main EC, for alterations related to mapping for the National Flood Insurance Program (NFIP), the written approval document will specify that approval does not constitute, nor should it be construed as, an evaluation to determine if NFIP criteria have been met.

h. Step 9: Post-Permission Oversight.

(1) Inspections. Inspections conducted by USACE should document whether approved alterations are being operated and maintained in accordance with the approved Section 408 and/or updated O&M manual.

(2) National Levee Database (NLD). Districts should ensure that the NLD is updated for levee and floodwall projects, as needed, to capture new or changed features constructed as part of a Section 408 permission. The district will provide the requester with the requirements for any needed surveys, including updated centerline information and cross sections, in order to update the project information in the NLD to capture the alterations.

Appendix E

Navigation Channels, Harbors, Locks, Jetties, Bridges, and Features

E-1. Purpose. The purpose of this appendix is to provide supplemental information to be used in conjunction with guidance in the main EC for alterations proposed by others to USACE navigation projects, including channels, harbors, locks, jetties, bridges, and other associated features. Refer to Appendix B for proposed alterations to navigation dams.

E-2. References. The following is a list of references that may be relevant to consider for alterations to navigation features.

a. Section 204 of Water Resources Development Act of 1986, Public Law (PL) 99-662

b. 33 USC 565, River and Harbor Improvement by Private or Municipal Enterprise

c. ER 1110-2-1403, Studies by Coastal, Hydraulic, and Hydrologic Facilities and Others

d. ER 1110-2-1404, Engineering and Design - Hydraulic Design of Deep Draft Navigation Projects

e. ER 1130-2-520, Project Operations - Navigation and Dredging Operations and Maintenance Policies

f. ER 1140-1-211, Non-Department of Defense Reimbursable Services

g. ER 1165-2-124, Construction of Harbor and Inland Harbor Projects by Non-Federal Interests

h. EM 1110-2-1611, Layout and Design of Shallow-Draft Waterways

i. EM 1110-2-1613, Engineering and Design - Hydraulic Design of Deep Draft Navigation Projects

j. EP 1130-2-520, Project Operations - Navigation and Dredging Operations and Maintenance Guidance and Procedures

k. See Appendix A for other applicable references.

E-3. Policy. The information below supplements policy in Paragraph 6 of the main EC.

a. Mission of the Navigation Program. The mission of the USACE navigation program is to provide safe, reliable, efficient, effective, and environmentally sustainable waterborne transportation systems for movement of commerce, national security needs, and recreation. This

mission is accomplished by ensuring adequate project dimensions to provide safe passage of commercial navigation through the federally-authorized navigation project, while minimizing environmental impacts. Accordingly, any proposed alterations to an authorized navigation project must be evaluated to determine that such alteration will not impair the usefulness of the project and will not be injurious to the public interest.

b. Categories of Navigation Alterations. Proposed navigation alterations fall into two categories:

(1) Category 1: Improvements Associated with Water Resources Development Act of 1986, Section 204 (Section 204), Construction of Projects by Non-Federal Interests.

(a) Section 204(a) authorizes a non-federal interest to undertake navigational improvements in harbors or inland harbors of the United States, subject to obtaining any permits pursuant to Federal and State laws in advance of construction. Except for projects or improvements implemented under Section 204(e) and Section 204(f), non-federal interests will be responsible for the operations and maintenance of such improvements. Section 408 applies to these improvements and procedures in this EC must be followed.

(b) When there is a request for USACE to assume operations and maintenance responsibilities of the non-federal improvements pursuant to Section 204(f), processes in ER 1165-2-124 for Section 204(f) approval should be followed. Section 408 permission will also be required; however, the Section 204(f) report prepared for the Secretary of the Army may also serve as the documentation to inform the Section 408 permission decision. In general, the Section 204(f) report will not be submitted to the Assistant Secretary of the Army for Civil Works (ASA(CW)) for approval until after the requests for the Section 408 permission and Section 10/404/103 permit have been approved. In addition, a written agreement addressing the assumption of maintenance is required. To remain eligible for assumption under Section 204(f), the ASA(CW) determinations must be made and the agreement executed prior to initiation of construction, which is defined as award of the first construction contract. Approval by the ASA(CW) is required to grant an exception to policy to allow for solicitation of the construction contract prior to the required approvals, permissions and permits, and agreement.

(c) Section 204(b) allows non-federal interests to contract with USACE to provide technical assistance in obtaining all necessary permits for a non-federal interest to construct navigation improvements pursuant to Section 204(a) if the non-federal interest pays all the costs for such assistance. Authority to provide this assistance has been delegated to the field in accordance with the Support For Others guidance (ER 1140-1-211). This provision may be used to provide assistance for the Section 408 process.

(d) Section 408 is not applicable to construction undertaken by non-federal interests pursuant to Section 204(e).

(2) Category 2: Alterations not included in Category 1, which will follow guidance in this EC.

(a) Project Specific Setbacks. In order to help streamline the coordination and evaluation process, districts are encouraged to develop project specific setback distance criteria that establish minimum distances (adjacent, over, and/or below a navigation feature). The purpose would be to use the pre-determined technical analysis accomplished to determine the setbacks as a way to facilitate an expedited district-led Agency Technical Review (reference Paragraph 7.c.(4)). These criteria would then be used in a manner to determine that if any future construction and maintenance activities occur beyond these distances, then the alteration will likely not impact the federal navigation project nor be injurious to the public interest under Section 408. At a minimum, the following should be considered when developing setbacks:

- Maximum dredging depth and width, to include advanced maintenance, allowable over-depth, and non-pay overdepth
- Top edge of the navigation channel, including appropriate side slopes and overdepth
- Sufficient clearances of equipment needed for dredging the navigation channel to its full depth and width, including side slopes
- Minimum air gap required for lines or structures crossing above the channel
- Weather, tides, flow rates, velocities, and other factors related to the region
- Dredged Material Disposal facility availability

E-4. Procedures. The information below corresponds to and supplements the steps in Paragraph 7 of the main EC.

a. Pre-Coordination (reference step 1 in Paragraph 7 of main EC). Depending on the extent of the proposed alteration, coordination with other agencies such as the U.S. Coast Guard, National Oceanic and Atmospheric Administration (NOAA), USFWS, US EPA, US Navy, etc. may be necessary.

b. The following should be considered when implementing steps 1-8 in Paragraph 7 of the main EC:

(1) Activities proposed in federal navigation channels may also require evaluation by Regulatory pursuant to Section 10/404/103. In accordance with regulations, Regulatory must consider general impacts to navigation in its review of a permit application. A regulatory permit will not be issued if it is not compatible or conflicts with the authorized purpose of a federally authorized project. Therefore, Regulatory and Navigation should coordinate throughout their respective reviews.

(2) The majority of proposed alterations to federal navigation projects that also require Section 10/404/103 authorization are proposals for utility line crossings, boat docks, bulkheads, revetments, dredging, and other similar activities. Generally, Navigation can quickly and easily determine whether these proposed alterations could be constructed to avoid impacts to operation and maintenance of the navigation project (e.g. compare the proposal to approved set-back policies and/or overdepths) and thereby recommend Section 408 approval of an alteration request rapidly.

(a) In these basic cases, Navigation will document the results of their Section 408 evaluation and decision in a brief written letter to be signed by the District Commander, see Appendix H for an example. This letter will serve as the documented Section 408 decision that will accompany the Section 10/404/103 decision in the district file. This letter also can be sent to the requester at the same time with the Section 10/404/103 permit, if granted, so long as the requester and Section 10/404/103 permittee are the same entity and the approval and permit decisions are distinct in the transmittal.

(b) If Navigation determines the proposed alteration must be revised (e.g. installed at deeper depth than that proposed), Navigation will coordinate directly with the requester and copy Regulatory on the correspondence since such an alteration would likely affect the Regulatory evaluation. Likewise, Regulatory should also copy Navigation on any changes to the proposed alteration it may require for Section 10/404/103 purposes.

(c) In instances where the proposed alteration cannot be quickly and easily reviewed as outlined above, such as if technical analyses are warranted, and/or Navigation has determined it cannot approve the proposal under Section 408, the Navigation business line must conduct its review in accordance with the main EC.

c. Step 9: Post-Permission Oversight. Any long-term monitoring and maintenance of the approved navigation alteration will be the responsibility of the Section 408 permittee throughout the life of the alteration and without cost to the government. Navigation will continue to conduct routine inspections, maintenance and monitoring of the USACE navigation project, except for any features added by the Section 408 permittee's alteration. If the Section 408 permittee identifies potential impacts to the USACE project as a result of the construction and/or maintenance of the alteration the Section 408 permittee will notify USACE immediately. If USACE identifies potential impacts from the Section 408 permittee's construction or maintenance/monitoring activities, USACE will notify the Section 408 permittee immediately. USACE will work collaboratively with the Section 408 permittee to identify the appropriate corrective action. The Section 408 permittee will be responsible for implementing the appropriate corrective action as determined by USACE. It should be noted that any proposed corrective action may require a change to the original approved alteration or a new Section 408 request depending on the proposed action. Navigation should engage Regulatory in these discussions in case the impacts and/or corrective actions also require authorization under Section 10/404/103.

Appendix F

Hydrologic and Hydraulics System Performance Analysis

F-1. Purpose.

a. This appendix is intended to outline the requirements for a hydrologic and hydraulics system performance analysis as referenced in paragraph 7.c.(3)(b) of the main EC. The purpose of a hydrologic and hydraulics system performance analysis is to determine the potential upstream and downstream hydrologic and hydraulic impacts of proposed alterations. Districts will determine whether a hydrologic and hydraulics system performance analysis is needed and if so, the appropriate scope of analysis based on the complexity of the proposed alteration. The requester will be responsible for the analysis. This appendix describes when an analysis is required, how to perform the analysis and how to display the data.

b. The hydrologic and hydraulics system performance analysis described in this appendix is not a risk assessment. A risk assessment considers explicitly the performance of the structural flood risk management measures and the consequence of exposure of people and property to the entire range of likely flood events. The hydrologic and hydraulics system performance analysis only considers the likely flood events and the hydraulic loading and assumes the structural measures (dams, levee and floodwall systems, and channels) perform as authorized. It does not consider consequences.

F-2. References.

a. ER 1105-2-101, Risk Analysis for Flood Damage Reduction Studies.

b. EM 1110-2-1619, Risk-Based Analysis for Flood Damage Reduction Studies.

c. U.S. Army Corps of Engineers (USACE) Hydrologic Engineering Center (HEC). 2008. *HEC-FDA Flood Damage Reduction Analysis, User's Manual, Version 1.2.4.*, CPD-72. Hydrologic Engineering Center, Davis, CA.

d. USACE HEC. 2009. Project Report-71 (PR-71). Documentation and Demonstration of a Process for Risk Analysis of Proposed Modifications to the Sacramento River Flood Control Project (SRFCP) Levees.

e. Davis, Darryl W., Beth A. Faber, and J. R. Stedinger. 2008. *USACE Experience in Implementing Risk Analysis for Flood Damage Reduction Projects*, Journal of Contemporary Water Research and Education 140(1):3-14.

F-3. Policy.

a. For the purposes of this appendix, the word “system” is an integrated combination of features, property, and environment that are hydraulically interconnected in which the extent downstream and upstream of the proposed alteration captures the areas expected to be influenced by changes in discharge, volume, or corresponding water surface elevation at the proposed alteration site.

b. System performance analyses will be applied to alterations that alter the hydrologic and/or hydraulic conditions (e.g., reservoir operations, bridge constrictions, etc.) of federally authorized USACE projects. Districts will determine the appropriate scope of analysis based on the complexity of the proposed alteration.

c. The hydraulic analysis will evaluate pre- and post-project water surface elevations, changes in velocity, flow regime, and scour potential.

d. The hydraulic analysis will consider the full range of loading conditions.

e. For loading conditions where flood waters exceed the project’s system capacity, the analysis will assume weir flow.

f. Under no circumstances will the analysis assume breach or malfunction of any existing or altered component of the project system for the flood up to the top of containment as a means of relieving system impacts. The project is to be considered stable and functional to top of containment. The assumption is that the project can be stabilized to the authorized condition. Based on this assumption, fragility curves are not required.

g. Impacts will be determined by comparing performance parameters (annual exceedance probability (AEP), assurance (conditional non-exceedance probability (CNP), etc.) for the existing and authorized conditions, if they are different, to the conditions resulting from the project alteration.

F-4. Strategy.

a. Hydrologic and hydraulics system performance analysis for proposed alterations must assess system performance at the proposed alteration site and at all locations reasonably considered to be affected by the proposed alteration. The procedures described in this appendix are, in general, appropriate, with some adaptation to reflect the effects of hydraulic connectivity.

b. Hydrologic and hydraulics system performance analysis includes the following steps:

(1) Step 1: Define the spatial extent of the system for which hydrologic and hydraulic impacts must be assessed, and select index locations within that extent for the performance analysis.

(a) The extent of the hydraulically interconnected system must be defined as the first step in performance analysis. This extent must be broad enough to include channel reaches and floodplains downstream and upstream of the proposed alteration site that a reasonable analyst would expect to be influenced by changes in discharge, volume or corresponding water surface elevation at the proposed alteration site. Within that extent, impact areas should be identified and index locations selected to allow fair assessment of likelihood of inundation transference. If initial findings show significant impacts at the outer extents represented by the selection of index locations, additional index points may be required out to the locations showing no impacts. Guidance for identifying impact areas and selecting index locations is included in the user's manual for the HEC-FDA (HEC, 2008) software and in EM 1110-2-1619.

(b) Review of hydraulic model results will aid in determining the appropriate extent. For example, examination of computed water surface profiles will identify locations upstream or downstream of a proposed alteration site at which changes in channel geometry at the site will have an impact on water surface elevations. Care must be exercised and results scrutinized to judge if changes in computed elevations are logically related to the changes in channel geometry or if changes seen in the model results are an artifact of computational imprecision. In some cases downstream flows at a confluence will increase for a proposed alteration, but the increase will be due to a change in timing between contributing hydrographs. Consideration should be given to whether the change in timing would be expected to be reflected in historical events, or whether the change in timing is an artifact of the synthetic hydrology developed.

(2) Step 2: Identify the authorized and existing condition (if different) for all features (e.g. levee, floodwall, channel, and/or dams) of that system to serve as the basis for assessing impacts of proposed alterations.

(3) Step 3: Collect or develop the necessary functions and transforms to compute authorized and existing performance at all index locations within the system.

(a) Performance computations are completed on an index location by index location basis following the procedure described in EM 1110-2-1619 and illustrated in Figure F-1. Each of the applicable functions described in Figure F-1 must be developed for each index location. The unregulated discharge-probability function (Figure F-1a) must include all flows that accumulate at the index location, including tributary inflows upstream. The unregulated-regulated flow transform (Figure F-1c) must represent, in the aggregate, the impact of all regulation upstream of the index location. This impact will include the impacts of intentional regulation by upstream reservoirs and diversions, and the incidental impact of regulation if any upstream design features, such as levee systems, overtop and flows onto an adjacent floodplain. The discharge-stage transform (Figure F-1g) is a localized function, representing conditions at each index location, unaffected by upstream conditions, but including perhaps the impact of downstream conditions if backwater influences stage. Finally, the stage-damage relationship (Figure F-1k) is typically used to assess the economic risk. However, for proposed alterations, it is only required to consider hydrologic and hydraulics performance of the system, therefore the stage-damage relationship need not be “real” unless the requester has the information and chooses to include

economic damages. Reference F-2.d. of this appendix contains an example of how to utilize a "dummy" stage-damage relationship.

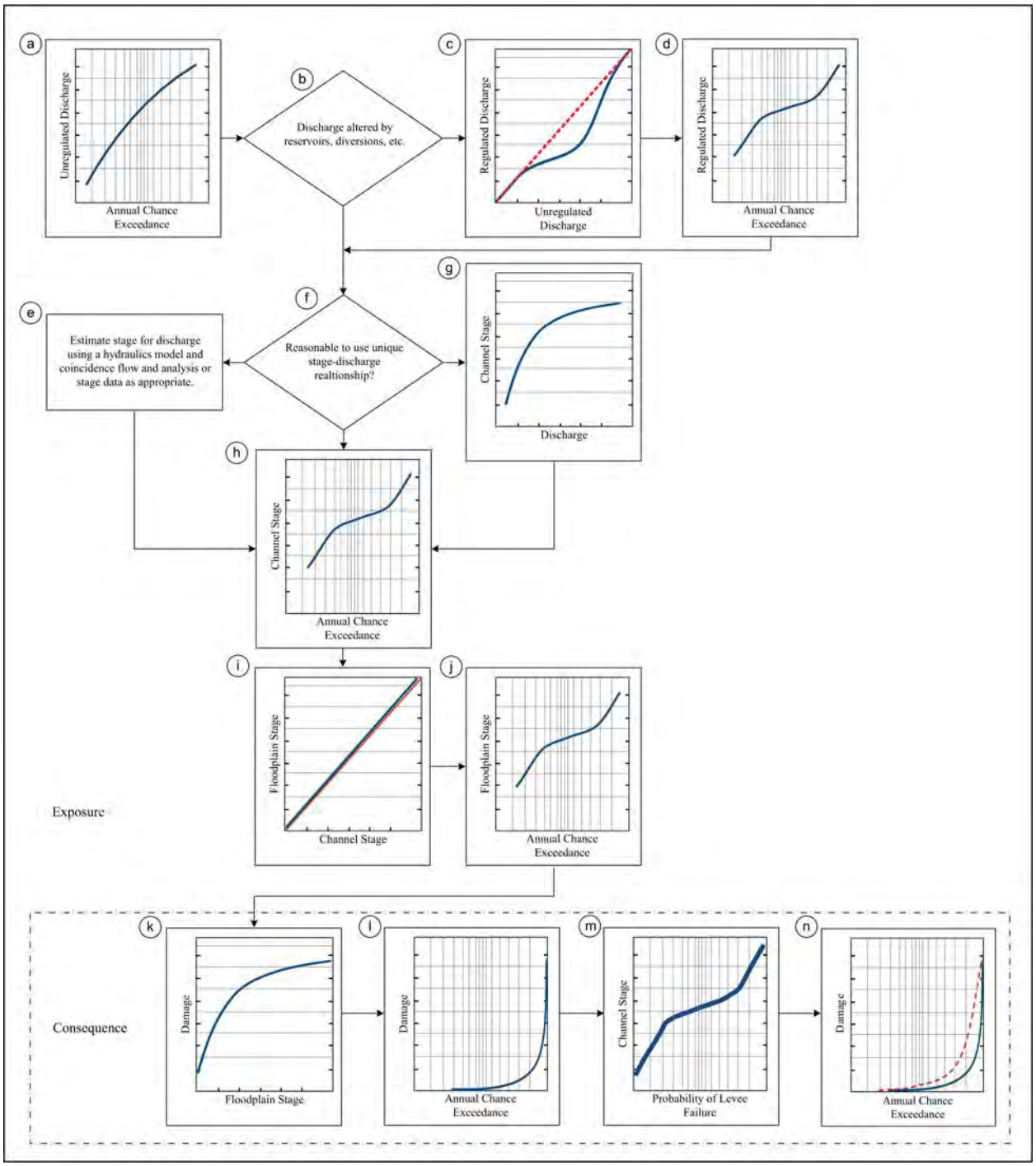

Figure F-1. Schematic of risk computation

(b) In addition to the various functions required for hydrologic and hydraulics system analysis, the uncertainty about each function must be described. This task is completed following the general guidance presented in this appendix and EM 1110-2-1619. However, current policy does not cover how to describe the uncertainty about functions that represent accumulated impacts. For example, the uncertainty about the unregulated to regulated discharge transform at a location downstream of multiple reservoirs must reflect the accumulated uncertainty about joint operation of those reservoirs. If the district needs assistance in determining accumulated impacts, districts should consult experts at Engineer and Research Development Center (ERDC), HEC, or engage the division and HQUSACE, reference paragraph 9 of the main EC, Vertical Teaming.

(4) Step 4: Assess hydrologic and hydraulics performance of the existing and authorized conditions, if they are different, at all index locations. Hydrologic and hydraulics performance is computed location by location within the extent of the system. The software HEC-FDA (HEC, 2008) may be used for this computation. Results may be reported as shown in paragraphs F-4 and F-5.

(5) Step 5: Simulate system behavior and performance with the features of the proposed alteration in place as necessary to revise and modify all functions and transforms throughout the system to reflect changes due to the proposed alteration.

(a) Analysis needed in this step will depend upon the proposed alteration. For example, if the alteration includes the addition of flood storage or changes to the manner in which available storage is operated, a reservoir system simulation model such as HEC-ResSim may be developed and ran with a period of record or selected hypothetical events. Through this model, a new unregulated to regulated discharge transform can be developed.

(b) Similarly, if the proposed alteration includes changes to the channel, for example through levee setbacks, these changes must be simulated to derive new transforms for downstream locations. Those transforms may change as a result of the channel changes.

(c) The system analysis must include a forecast of future hydrologic and hydraulics conditions with proposed alteration features in place. The analysis must consider the effects of reasonably foreseeable future alterations and/or projects throughout the system in conjunction with the proposed alteration.

(6) Step 6: Compute hydrologic and hydraulics conditions with the proposed alteration performance indices at index locations system-wide. Hydrologic and hydraulics performance are computed point by point within the extent of the system. The HEC-FDA software (HEC, 2008) may be used for this computation.

(7) Step 7: Determine if likelihood of inundation is transferred by comparing hydrologic and hydraulics performance indices system-wide. Once various indices of hydrologic and hydraulics performance is computed and reported, system-wide impact of a proposed alteration

can be assessed. For proposed alterations that reduce the likelihood of inundation, the AEP will be less and confidence in reduction in likelihood of inundation will be greater. However, these outcomes may not be true for all index locations within the system; therefore all locations must be assessed. Proposed alterations may have adverse changes, thus shown as increases in AEP and to decreases in assurance at one or more index points. If these adverse changes are determined to be significant, then the proposed alteration likely must be denied. If the district is unsure about determining if adverse impacts are significant, the district should engage the division and HQUSACE, reference paragraph 9 of the main EC, Vertical Teaming.

F-5. Display of Hydrologic and Hydraulics System Performance Reporting.

a. The performance is required to be described. Useful measures of this performance include the following:

(1) Annual exceedance probability for overtopping only. This measure is well represented by the annual exceedance probability computed for a location in the floodplain if that computation includes the entire range of exposure. For example, in the case of a floodplain containing a levee, the annual exceedance probability may be computed considering capacity exceedance due to overtopping only. Uncertainty about all functions must be included in the annual probability computations. Annual exceedance probability must also consider the entire range of discharge or elevation represented by the probability functions, from the $p = 0.50$ to $p = 0.002$ events, for example. Uncertainty about all functions must be included in the annual probability computations. Table F-1 provides a way to describe the performance at each index point in terms of AEP.

Table F-1 AEP

Index Point	Existing AEP	With Alteration AEP	Change in AEP
1			
2			
N			

(2) Assurance for overtopping only for selected flood loading. This performance measure represents the probability that an index point will perform as expected when the system is loaded with a single selected flood. For example, this index of performance may quantify the probability that the system will perform as expected if the flood discharge is 350,000 cfs (9,911 cu m/sec), or if the annual maximum event is a $p = 0.01$ event. The computation must consider uncertainty. Table F-2 provides a way to describe the performance at each index point for various flood events in terms of assurance (also referred to as “CNP”).

Table F-2 Assurance

Index Point	Probability of Annual Event					
	0.02		0.01		0.004	
	Existing	With Alteration	Existing	With Alteration	Existing	With Alteration
1						
2						
N						

In other words, this index of performance shows the probability that the target stage associated with each alteration plan will not be exceeded, given the occurrence of an event of specified annual chance exceedance probability.

b. To improve the understanding of the impacts of the proposed alteration, inundation maps showing flood depths for the two scenarios of 1) without the proposed alteration and 2) with the proposed alteration will be required. The inundation maps will include the location of the proposed alteration and areas within the system where hydrologic and hydraulics impacts may occur.

F-6. Display of System-Wide Hydrologic and Hydraulics Performance and Uncertainty Information. Displaying and reporting of system-wide hydrologic and hydraulics performance and uncertainty will require engineering judgment. Reference F-2.d. of this appendix may be used as an example. There may be challenges in developing consistent system-wide inflow flood-frequency curves with uncertainty; accurately representing reservoir operation rules with attendant uncertainty to develop regulated flow frequency curves; and adequately reflecting the integrity or lack thereof of the system with its associated uncertainty. The reference in paragraph F-2.e. contains further description of the challenges. Displaying and reporting of system-wide hydrologic and hydraulics performance and uncertainty information is an extension of displaying and reporting of hydrologic and hydraulics performance and uncertainty for a single site or impact area.

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Appendix G

Funding Agreements for the Purposes of Reviewing Requests Pursuant to 33 U.S.C. 408

G-1. Purpose. The purpose of this appendix is to provide guidance on the establishment, management, and oversight of funding agreements under two statutory authorities that allow the US Army Corps of Engineers (USACE) to accept and expend funds to expedite the review process for requests to alter USACE civil works projects pursuant to 33 U.S.C. 408, Section 14 of the Rivers and Harbors Appropriations Act of 1899, as amended (Section 408). The first statutory authority is 33 U.S.C. 2352, Section 214 of WRDA 2000, as amended (Section 214). This memorandum incorporates changes as a result of Section 1006 of the Water Resources Reform and Development Act of 2014 (WRRDA). The second statutory authority is 23 U.S.C. 139(j) (Section 139(j)), added to Title 23 of the United States Code by Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU). Districts should select one or the other authority as applicable to the funding agreement. This appendix describes the specific requirements applicable to funding agreements under each authority, and in addition, common requirements that must be included in both types of funding agreement.

G-2. References.

a. 25 USC 479a. Publications of List of Recognized Tribes.

b. 20 USC 139(j). Efficient Environmental Reviews for Project Decision-Making.

c. Section 214 of the Water Resources Development Act of 2000 (Public Law 106-541), as amended (33 USC 2352).

d. Section 404 of the Clean Water Act. Permits for Dredged or Fill Material.

e. Section 10 of the Rivers and Harbors Act Section 10. Obstruction of Navigable Waters, Generally; Wharves, Piers, and Excavations and Filling In.

f. 10 USC 2695. Acceptance of Funds to Cover Administrative Expenses Relating to Certain Real Property Transactions.

g. US Army Corps of Engineers, Updated Implementation Guidance for Section 1006 of the Water Resources Reform and Development Act of 2014 and Guidance on the Use of Funding Agreements within the Regulatory Program, memorandum, 2 September 2015.

G-3. Authority.

a. Section 214 provides that the Secretary of the Army, after public notice, may accept and expend funds contributed by a non-federal public entity, natural gas company, or public-utility company to expedite the permit review process. The authority to accept and expend funds

from non-federal public entities does not expire, unless modified by law. The authority to accept and expend funds from public-utility companies and natural gas companies expires on June 10, 2021, unless otherwise extended or revoked by law.

b. Section 139(j) provides that the Secretary of Transportation may approve a request by a State to provide funds to affected Federal agencies participating in the environmental review process to support activities that directly and meaningfully contribute to expediting and improving transportation project planning and delivery for projects in that State.

G-4. Funding Agreements Pursuant Only to Section 214 of WRDA 2000, as amended.

a. By memorandum dated 29 June 2015, the Secretary of the Army delegated his authority to the Assistant Secretary of the Army for Civil Works. This authority has been re-delegated by memorandum dated 1 July 2015 to the Chief of Engineers and his authorized representatives to, after public notice, accept and expend funds contributed by non-federal public entities, public-utility companies, or natural gas companies to expedite the evaluation of permits under the jurisdiction of the Department of the Army. The Chief of Engineers re-delegated this authority to District and Division Commanders by memorandum dated 3 August 2015. The Administrative Assistant to the Secretary of the Army was provided copies of these delegations on 3 August 2015. These delegations of authority shall remain in effect until 10 June 2021.

b. Although not a limitation on the authority of any official that has been delegated the authority indicated in paragraph G-4.a., in those cases where a proposed action or decision regarding the acceptance of funds contributed by non-federal public entities, natural gas companies, or public-utility companies represents a change in precedent or policy is of significant White House, Congressional, Department of the Army or public interest; or has been or should be of interest or concern to the Assistant Secretary of the Army for Civil Works or the Secretary of the Army for any reason, the following procedure should be followed:

(1) Prior to making a decision on whether to accept and expends funds under Section 214 or rendering a Section 408 decision under a Section 214 agreement, the district shall notify the appropriate HQUSACE Regional Integration Team (RIT) through the division of the circumstances of the action or decision.

(2) The HQUSACE RIT in coordination with the HQUSACE Section 408 proponent for this policy will determine if briefing of Army is required in accordance with the delegation requirements, and arrange an informational briefing, as necessary. Should a briefing be required, the district will hold the decision of concern in abeyance until the briefing is completed.

c. Funding can only be accepted and expended through Section 214 funding agreements to expedite a Section 408 review if the proposed alteration serves a public purpose. Districts must evaluate proposed agreements from non-federal public entities to ensure that the proposed projects serve a public purpose, and districts have discretion in making that determination. It is recognized and allowable that funds provided under a Section 214 agreement with a non-federal public entity may potentially originate from a private entity or a combination of public and

private entities, so long as it is verified that the project serves a public purpose. In the WRRDA 2014 amendments to Section 214, Congress added public-utility companies and natural gas companies as potential parties to funding agreements under Section 214. Congress has determined which activities carried out by public-utility companies and natural gas companies serve a public purpose, as discussed in paragraphs G-4.c.(2) and G-4.c.(3) below.

d. Funding agreements pursuant to Section 214 may be executed with the following entities:

(1) Non-Federal Public Entities. The term "non-federal public entity" is limited to governmental agencies or governmental public authorities, including governments of Federally recognized Indian Tribes, e.g., any Indian or Alaska Native Tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian Tribe pursuant to the Federally Recognized Indian Tribe List Act of 1994 [25 U.S.C. 479(a)]. Typical Section 408 requesting public entities may include: flood risk management districts, water conservation agencies, storm water management agencies, transportation departments, hydropower agencies, and port authorities. Private entities cannot be considered non-federal public entities. If the entity executing the Section 214 agreement is not the non-federal sponsor of the affected project, the executing party must have the endorsement of the non-federal sponsor as outlined in paragraph 6.d. of EC 1165-2-216.

(2) Public-Utility Companies. Public-utility companies include the following two subcategories: (i) electric utility companies, which are companies that own or operate facilities used for the generation, transmission, or distribution of electric energy for sale; and (ii) gas utility companies, which are companies that own or operate facilities used for distribution at retail of natural or manufactured gas for heat, light, or power (other than the distribution only in enclosed portable containers or distribution to tenants or employees of the company operating such facilities for their own use and not for resale). These companies are subject to Federal regulation outside of USACE authorities dating from the 1930's because Congress determined that such companies affected the public interest. Section 214 agreements with public-utility companies, as defined in this guidance, involving Section 408 requests will be limited to proposed alterations involving facilities for the generation, transmission, or distribution of electric energy for sale and facilities used for distribution at retail of natural or manufactured gas for heat, light, or power. Questions about possible exceptions to these limitations or appropriate courses of action should be coordinated through the division to HQUSACE.

(3) Natural Gas Companies. Section 214 also allows for funding agreements to be entered into with a natural gas company. A natural gas company is a company engaged in the transportation of natural gas in intrastate or interstate commerce or the sale of such gas in interstate commerce for resale. The transportation of natural gas in interstate commerce is subject to Federal regulation outside of USACE authorities dating from the 1930's because Congress determined that such activities affected the public interest. Section 408 requests reviewed under a Section 214 agreement with a natural gas company will be limited to alterations involving the transportation of natural gas (inclusive of gas gathering lines, feeder lines, transmission pipelines, and distribution pipelines) and any attendant storage facilities, as

these projects serve a public purpose. Questions about possible exceptions to these limitations or appropriate courses of action should be coordinated through the division to HQUSACE.

e. Funding agreements with municipal electric or gas authorities that meet the definition of non-federal public entity and the definition of public-utility company or natural gas company are not subject to the June 10, 2021, expiration date of the authority for public-utility and natural gas companies because they meet the definition of non-federal public entity.

f. Energy exploration and production activities, such as drilling, hydrofracturing, or mining, are not to be reviewed under Section 214 agreements with public-utility companies or natural gas companies, as these activities do not involve the generation, transmission, or distribution of electric energy or the transportation and/or distribution of natural gas.

g. No funds provided by a federal agency to a non-federal public entity may be accepted by USACE under Section 214 unless the non-federal public entity forwards to USACE a written confirmation from the federal agency that the use of the funds to expedite the evaluation of Section 408 permit applications is acceptable.

h. Activities conducted in accordance with a Section 214 agreement must expedite the Section 408 review process. Expediting the review process could include generally shorter review times as compared to prior to the agreement and the facilitation of a smoother review process through improved coordination and communication or through the development or use of programmatic agreements or standard operating procedures. The expedited review cannot result in an adverse effect on the timeframes for review of other Section 408 requests within the same district, when considered collectively.

G-5. Funding Agreements Pursuant Only to 23 U.S.C. Section 139(j).

a. Section 139(j) only allows for USACE to enter into funding agreements with state agencies. The U.S. Department of Transportation (USDOT) has additionally interpreted the statute as allowing tolling commissions and some Municipal Planning Organizations (MPOs) to be eligible to enter into a funding agreement. Section 139(j) agreements additionally require approval by the Secretary of Transportation, as state agencies are eligible to receive reimbursement with USDOT funds for these agreements. The USDOT has delegated approval of funding agreements down to the division level of either Federal Highways Administration (FHWA) or the Federal Transit Administration (FTA). The USDOT has not interpreted Section 139(j) as allowing other modal administrations (Federal Railroad Administration, Federal Aviation Administration, Maritime Administration) to support agreements with state agencies. Therefore, districts may only enter into a Section 139(j) agreement with highway and/or transit agencies.

b. Activities conducted in accordance with a Section 139(j) agreement must directly and meaningfully contribute to expediting and improving transportation project planning and delivery within the given State. In addition, Section 139(j) restricts the state transportation agency to only provide funds for activities beyond USACE's normal and ordinary capabilities

under its general appropriations. Because transportation project planning and delivery encompasses a variety of activities and reviews, participation in the transportation planning (pre-NEPA) process and streamlining initiatives such as NEPA/Section 408 synchronization efforts are encouraged under Section 139(j), along with activities described in paragraph G-6.a., so long as those activities result in review times that are less than the customary time necessary for such a review. FHWA has provided guidance that the development of programmatic agreements and initiatives satisfies the requirement to reduce time limits as long as the results of those efforts are designed to provide a reduction in review time. Section 139(j) puts the onus on FHWA and FTA to interpret allowable activities under the statute. Districts shall consider FHWA or FTA's approval of a funding agreement as certification that the agreement is compliant with Section 139(j). Section 139(j) agreements must meet FHWA/FTA's standards and requirements contained in this guidance.

c. FHWA or FTA may require documentation of the "customary time" necessary for a review and/or establishment of performance metrics for the agreement to demonstrate it is contributing to expediting and improving transportation project planning and delivery. Districts have discretion on the number and type of performance metrics within an agreement, including which milestones to use to determine time in review (receipt of request, date determined complete, etc.). When considering the quantity and content of any performance metrics for an agreement, the district must consider the potential effect of those metrics on performance management within the whole district. Districts must be cautious to not agree to any performance metrics that would be so onerous or stringent that achieving them comes at the cost of decreased performance for other Section 408 requests in the district.

d. Funding Agreements. A Section 139(j) funding agreement between the district(s) or division(s) and the funding transportation agency must include the projects and priorities to be addressed by the agreement. If the funding transportation agency does not know a list of projects and/or priorities at the time of the agreement, then the funding agreement should describe the process to identify or change projects and/or priorities for the agreement.

G-6. Guidance for Funding Agreements Pursuant to Both Section 214 or Section 139(j).

a. Acceptable Uses of Funds. Prior to expending funds on any activity, the district must determine that the activity contributes to meeting the specific purpose of the appropriate authority.

(1) Examples of acceptable activities that the funds may be expended on include, but are not limited to: district-led Agency Technical Review, real estate evaluation, technical writing, site visits, training, travel, field office set up costs, coordination activities, additional personnel (including support/clerical staff), technical contracting, programmatic tool development and improvement, and acquisition of geographic information system (GIS) data. Funds may also be used to hire contract staff. If contracts are used to develop decision documents or other NEPA documentation, such documents must be drafts only and be reviewed and adopted by the USACE decision maker pursuant paragraph 6.t. of EC 1165-2-216 before a Section 408 decision can be made.

(2) No funds received under Section 214 or Section 139(j) will be used by the Division or District Commanders for their review, recommendation, or decision concerning a Section 408 request.

(3) Section 214 and Section 139(j) will not be used to accept and expend funds to cover administrative expenses related to the issuance of real property instruments required if the Section 408 permission is granted. Those administrative costs for drafting, negotiating, or issuing any necessary real estate instruments will be accepted under the provisions of 10 USC 2695.

(4) Funds will not be used for enforcement activities. However, funds from these agreements may be used for compliance activities, including monitoring and compliance inspections. Enforcement activities must be charged to the applicable appropriations account based on the USACE civil works project.

b. Initial Public Notice for Intent to Accept Funds.

(1) Prior to accepting and expending funds, the division or district must issue a public notice, post the public notice in a clearly identified and easily accessible area (e.g., "Acceptance of Funds for Expediting Section 408 Requests") on its webpage, and distribute the notice to concerned agencies, organizations, and the interested public.

(2) The public notice will describe the entity providing such funds, the USACE authority to accept and expend such funds, the reason for such contributions, how acceptance of the funds is expected to expedite the Section 408 review process, what types of activities the funds will be expended on, what procedures will be in place to ensure that the funds will not impact the division or district's impartial decision making, and information on the impacts, if any, to the district's and division's Section 408 review and evaluation process that is not subsidized by funds contributed. Further, if funds are also intended to be accepted or have been accepted to expedite the evaluation of Section 10/404/103 permit applications for the same proposed alteration and/or by the same non-federal public entity, such intention should be clearly stated in the public notice. The public notice must also include information on the impacts of the proposed funding agreement on the division or district's ability to review other Section 408 requests.

c. Basis for Acceptance of Funds.

(1) Following the review of the comments received in response to the public notice, the Division or District Commander will determine if the acceptance and expenditure of funds is appropriate in consideration of the requirements under the applicable statutory authority, if the division or district will be able to preserve impartial decision making, and if the acceptance and expenditure of funds will not adversely affect review timeframes for other Section 408 requests. A final draft of a funding agreement, see paragraph G-6.d., must be completed to inform the decision.

(2) If the Division or District Commander determines, after considering public comments, that the acceptance and expenditure of the funds is appropriate, the funds may be accepted and expended. This decision will be documented in a Memorandum for the Record (MFR). An informational public notice will be issued regarding the Division or District Commander's decision. The division or district will post the informational public notice on its webpage in the same, easily identifiable and accessible area used for the initial public notice, and distribute the notice to concerned agencies, organizations, and the interested public. The districts must also provide a link on its webpage to the HQUSACE Section 408 webpage at http://www.usace.army.mil/Missions/CivilWorks/Section408 where active funding agreements will be posted.

d. Acceptance of Funds.

(1) Funds may only be accepted after the finalization of the decision MFR and issuance of the public notice of the execution of the funding agreement. Funding agreements will typically be executed in the format of a Memorandum of Agreement (MOA). At a minimum, the agreement must include a scope of work and an itemized budget estimate, address the provision of additional funds if needed, as well as the return of unused funds, and must identify the total annual cost for each federal fiscal year covered by the term of the MOA. The itemized budget estimate must include identification of personnel, hourly rates, indirect labor costs, estimated hours of work, and travel costs related to the MOA scope of work.

(2) Section 408 funding agreements may additionally cover the review of related Section 10/404/103 permits.

(3) Issuance of a new public notice is not required for renewal or modification of a funding agreement if the purpose of the agreement remains the same. For example, a new public notice would not be required if the MOA is amended to extend the term of the agreement, modify the proposed alteration identified in the MOA, adjust the terms of the advance payment contemplated under the MOA, or allow funding to be used for related Section 10/404/103 permit applications. The decision and basis for the renewal or modification should be documented in the MFR described in paragraph G-6.c.(2).

(4) Upon execution of any new, modified, or renewed funding agreement, the district or division shall forward a signed copy of the agreement to the HQUSACE Section 408 proponent for this policy for posting on the HQUSACE Section 408 website at http://www.usace.army.mil/Missions/CivilWorks/Section408.

e. Impartial Decision Making.

(1) Maintaining impartiality in decision making is of utmost importance under any funding agreement. Division and District Commanders must ensure that the acceptance and expenditure of funds from external entities will not impact impartial decision making with respect to application review and any final decision, either substantively or procedurally.

(2) Since Section 408 decisions may be at the Director of Civil Works level or the District Commander level, depending on the estimated magnitude of the impacts of the proposed alterations on the relevant USACE projects, impartial decision making at all review levels must be ensured. In cases where the approval authority is at the level of the Director of Civil Works, and the district has accepted funds, the district, through the division, must provide sufficient information to assure the decision maker that the acceptance and expenditure of funds by the district have not affected the district's or the division's evaluation of the Section 408 request, either substantially or procedurally. This information must be included as part of the Summary of Findings for the Section 408 request.

(3) When a final Section 408 decision has been made either by the Director of Civil Works or District Commander, that decision will be made publicly available on the originating district's webpage in an area clearly identifiable as being for Section 408 reviews funded through Section 214 or Section 139(j).

f. Tracking of Funds. The funds must be accounted for to ensure that they are expended for their intended purpose. Each district will establish a separate account to track receipt and expenditure of the funds in the Corps of Engineers Financial Management System. USACE personnel accomplishing the technical and administrative tasks required to expedite the evaluation of the Section 408 request covered by the MOA will charge their time against a specific account when working on those requests.

g. Annual Reporting. Within 30 calendar days of the conclusion of each fiscal year, district and division Section 408 coordinators will provide to the HQUSACE Section 408 proponent for this policy an annual letter report using the template provided below in G-7, documenting the following:

(1) A list of all active funding agreements during the subject fiscal year, including the date in which the agreement was initiated and whether Section 214 or Section 139(j) was used;

(2) An accounting of the total funds accepted and total funds expended per funding agreement;

(3) A list of all Section 408 decisions issued for the subject fiscal year under each funding agreement;

(4) A quantitative or qualitative assessment of how the use of funds expedited the Section 408 review process for each funding agreement;

(5) A brief description of the process used to ensure impartial decision making for each of the Section 408 decisions issued in the subject fiscal year;

(6) A statement certifying that all funded personnel are aware of and are appropriately trained on the requirements contained in this guidance memorandum; and,

(7) The MFR documenting the District or Division Commander's decision to accept funds for each active funding agreement.

HQUSACE will compile the reports received and provide a combined annual report to the Assistant Secretary of the Army for Civil Works (ASA(CW)). The ASA(CW) will submit the combined annual report to the specified Congressional committees within 90 days of the conclusion of each fiscal year.

G-7. Annual Reporting Template.

SUBJECT: *XXX* District FY 20*XX* Reporting for Funding Agreements to Expedite the Section 408 Review Process

1. Active Funding Agreements: (*In a table format such as below, list all funding agreements by name of the entity the agreement is with that were active during the subject fiscal year. Include initiation date of the agreement in MM/DD/YY format; mark an X in the cell indicating whether Section 214 or Section 139(j) was used; total funds accepted for the entire length of the agreement; total funds accepted for the subject fiscal year per agreement; total funds expended for the subject fiscal year per agreement; and the final Section 408 decision made associated with the agreement if a final decision has been made (mark this "review still pending" if no decision has been made yet).*)

Active Funding Agreement Name of Entity, (select one: non-federal, natural gas company, or public utility company)	Initiation Date	Section 214	Section 139(j)	Total Funds Accepted for the Agreement	Total Funds Accepted this FY	Total Funds Expended this FY	Section 408 Decision

2. Assessment: The goal of these funding agreements is to expedite the Section 408 review process. The following describes how funds from these agreements have been used to expedite the Section 408 review process.

(*Qualitatively or quantitatively describe how the use of the funds expedited the Section 408 review process. Include a separate description for each agreement if different means were used. For example, qualitative examples may include describing the dedication of staff for review, improved communication, and/or faster responses. Quantitative examples may include number of days of review time reduced or percentage of milestones met.*)

3. Impartial Decision Making: While funds may be accepted to expedite the Section 408 review process, the funds must not impact impartial decision making. The following outlines what measures have been taken to maintain impartial decision making for the Section 408 requests under these funding agreements.
(*List and describe all measures in place to monitor impartial decision making. If there were any issues or lapses, indicate so, and what steps were taken to resolve the situation.*)

4. Training: (*Include a statement certifying that all funded personnel are aware of and appropriately trained on the requirements contained within EC 1165-2-216 and this guidance memorandum. A description of training methods should be included*).

Encls (Attach decision MFRs) *XXX* District (or Division) Section 408 Coordinator

Appendix H

Example Section 408 Decision Letter

District Letterhead
(*Date here*)

(*Name and address of requester of determination here*)
[Mr./Ms.] (Full Name of Requester)
(Title of Requester**)**
(Requester Address**)**
(City, State Abbreviation**, and Zip Code)**

Dear [Mr./Ms.] (Last Name of Requester),

The (*district name here*) District of the U.S. Army Corps of Engineers (USACE) has performed an evaluation of your request to (*brief description of proposed alteration*) to (*name of federal project to be altered*) operated and maintained by (*name (s) of non-federal sponsor (s) and/or USACE*) pursuant to Section 14 of the Rivers and Harbors Act of 1899, 33 USC 408 (Section 408). This evaluation was performed in accordance with Engineer Circular (EC) 1165-2-216.

Based on this evaluation, the (*district name here*) District ("grants" or "denies") the request to alter (*name of federal project to be altered*) for the following reasons: (*summarize rationale*). (*Add optional language related to any special conditions*). (*If permission is granted, include the following statement – "As the requestor, you are solely responsible for any remedial action needed to correct any deficiency in the design or construction of the requested alteration.")*

For any questions regarding this evaluation, please contact (*name and title of district Section 408 point of contact here*) at (*contact information here*).

Sincerely,
(Name of District Commander)

(*district name here*)
U.S. Army Corps of Engineers

Enclosures (*Attach supplemental documentation as needed).*

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Appendix I

Acronyms

CFR	Code of Federal Regulation
CEQ	Council on Environmental Quality
EC	Engineer Circular
EP	Engineer Pamphlet
ER	Engineer Regulation
EA	Environmental Assessment
EIS	Environmental Impact Statement
FONSI	Finding of No Significant Impact
IEPR	Independent External Peer Review
M&I	Municipal and Industrial
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
O&M	Operations and Maintenance
PPA	Project Partnership Agreement
ROD	Record of Decision
USACE	United States Army Corps of Engineers
USC	United States Code

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DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000

ER 1100-2-8162

CECW-CE
CECW-P

Regulation
No. 1100-2-8162

31 December 2013

INCORPORATING SEA LEVEL CHANGE IN CIVIL WORKS PROGRAMS

1. Purpose. This Regulation provides United States Army Corps of Engineers (USACE) guidance for incorporating the direct and indirect physical effects of projected future sea level change across the project life cycle in managing, planning, engineering, designing, constructing, operating, and maintaining USACE projects and systems of projects.

2. Applicability. This Regulation applies to all USACE elements having Civil Works responsibilities and is applicable to all USACE Civil Works activities. This guidance is effective immediately and supersedes all previous guidance on this subject.

3. Distribution Statement. This publication is approved for public release; distribution is unlimited.

4. References. Required and related references are at Appendix A. A glossary is included at the end of this document.

5. Geographic Extent of Applicability.

a. USACE water resources management projects are planned, designed, constructed, and operated locally or regionally. For this reason, it is important to distinguish between global mean sea level (GMSL) and local (or "relative") mean sea level (MSL). At any location, changes in local MSL reflect the integrated effects of GMSL change plus changes of regional geologic, oceanographic, or atmospheric origin as described in Appendix B and the Glossary.

b. Potential relative sea level change must be considered in every USACE coastal activity as far inland as the extent of estimated tidal influence. Fluvial studies that include backwater profiling should also include potential relative sea level change in the starting water surface elevation for such profiles, where appropriate. The project vertical datum must be the latest vertical reference frame of the National Spatial Reference System, currently NAVD88, to be held as constant for tide station comparisons, and a project datum diagram must be prepared per EM 1110-2-6056.

This regulation supersedes EC 1165-2-212, dated 1 October 2012

6. Incorporating Future Sea Level Change (SLC) Projections into Management, Planning, Engineering Design, Construction, and Operation and Maintenance of Projects.

a. Research by climate science experts predict continued or accelerated climate change for the 21st century and possibly beyond, which would cause a continued or accelerated rise in global mean sea level. (See Appendix B)

b. The resulting local relative sea level change (SLC) will likely impact USACE coastal project and system performance. As a result, managing, planning, engineering, designing, operating, and maintaining for SLC must consider how sensitive and adaptable 1) natural and managed ecosystems and 2) human and engineered systems are to climate change and other related global changes.

c. Planning studies and engineering designs over the project life cycle, for both existing and proposed projects, will consider alternatives that are formulated and evaluated for the entire range of possible future rates of SLC, represented here by three scenarios of "low," "intermediate," and "high" SLC. These alternatives will include structural, nonstructural, nature-based, or natural solutions, or combinations of these solutions. Alternatives should be evaluated using "low," "intermediate," and "high" rates of future SLC for both "with" and "without" project conditions. The historic rate of SLC (as described in Appendix B) represents the "low" rate. The "intermediate" and "high" rates are based on the following:

(1) The "intermediate" rate of local mean sea level change is estimated using the modified National Research Council (NRC) Curve I and equations 2 and 3 presented in Appendix B (see Figure B-10) and is corrected for the local rate of vertical land movement as discussed in Appendix B.

(2) The "high" rate of local mean SLC is estimated using the modified NRC Curve III and equations 2 and 3 in Appendix B (see Figure B-10) and is corrected for the local rate of vertical land movement as discussed in Appendix B. This "high" rate exceeds the upper bounds of IPCC estimates from both 2001 and 2007 to accommodate the potential rapid loss of ice from Antarctica and Greenland, but it is within the range of values published in peer-reviewed articles since that time (see Figure B-1).

(3) The low, intermediate, and high scenarios at NOAA tide gauges can be obtained through the USACE on-line sea level calculator at http://www.corpsclimate.us/ccaceslcurves.cfm.

d. Once the three rates have been estimated, the next step is to determine how sensitive alternative plans and designs are to these rates of future local mean SLC, how this sensitivity affects calculated risk, and what design or operations and maintenance measures should be implemented to adapt to SLC to minimize adverse consequences while maximizing beneficial effects. Alternative plans and designs are formulated and evaluated for three SLC possible futures. Alternatives are then compared to each other, and an alternative is selected for

recommendation. The approach to formulation, comparison, and selection should be tailored to each situation. The performance should be evaluated in terms of human health and safety, economic costs and benefits, environmental impacts, and other social effects. There are multiple ways to proceed at the comparison and selection steps. Possible approaches include:

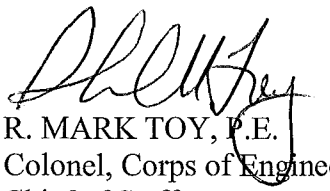
(1) Working within a single scenario and identifying the preferred alternative under that scenario. That alternative's performance would then be evaluated under the other scenarios to determine its overall potential performance. This approach may be most appropriate when local conditions and plan performance are not highly sensitive to the rate of SLC.

(2) Comparing all alternatives against all scenarios rather than determining a "best" alternative under any specific future scenario. This approach avoids focusing on an alternative that is only best under a specific SLC scenario and prevents rejecting alternatives that are more robust in the sense of performing satisfactorily under all scenarios. This comprehensive approach may be more appropriate when local conditions and plan performance are very sensitive to the rate of SLC.

(3) Reformulating after employing approaches (1) or (2) to incorporate robust features of evaluated alternatives to improve the overall life-cycle performance.

e. Plan selection should explicitly provide a method to address uncertainty, describing a sequence of decisions allowing for adaption based on evidence as the future unfolds. Since Civil Works projects typically have an actual physical life far beyond the period of economic analysis, careful consideration of adaptability is an important consideration in project formulation and development. Decision makers should not presume that the future will follow any one of the SLC scenarios exactly. Instead, analyses should determine how the SLC scenarios affect risk levels and plan performance, and identify the design or operations and maintenance measures that could be implemented to minimize adverse consequences while maximizing beneficial effects.

FOR THE COMMANDER:



R. MARK TOY, P.E.
Colonel, Corps of Engineers
Chief of Staff

2 Appendices:
APPENDIX A: References
APPENDIX B: Technical Supporting Material
Glossary

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APPENDIX A

References

A-1. Required References.

a. USACE Publications.

ER 1105-2-100
Planning Guidance Notebook (22 APR 2000).
http://www.publications.usace.army.mil/USACEPublications/EngineerRegulations/tabid/16441/u43546q/313130352D322D313030/Default.aspx

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USACE Climate Change Adaptation Policy Statement, 3 June 2011.
http://www.corpsclimate.us/docs/USACEAdaptationPolicy3June2011.pdf

b. Federal Government Publications.

CCSP 2009
Climate Change Science Program (CCSP) (2009) *Synthesis and Assessment Product 4.1: Coastal Sensitivity to Sea level Rise: A Focus on the Mid-Atlantic Region.* A report by the U.S. Climate Change Program and the Subcommittee on Global Change Research [J. G. Titus (Coordinating Lead Author), E. K. Anderson, D. Cahoon, S. K. Gill, R. E. Thieler, J. S. Williams (Lead Authors)]. Washington, DC: U.S. Environmental Protection Agency. (http://www.climatescience.gov/Library/sap/sap4-1/final-report/default.htm

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National Oceanic and Atmospheric Administration (2010b) *Mean Sea Level Trends, San Diego, CA.* Center for Operational Oceanographic Products and Services, NOAA. http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9410170.

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APPENDIX B

Technical Supporting Material

B-1. Background on Sea Level Change.

a. In the preparation of this document USACE has relied on climate change science performed and published by agencies and entities external to USACE. The conduct of science as to the causes, predicted scenarios, and consequences of climate change is not within the USACE mission as a water resources management agency. USACE has been proactive, however, in working closely with science agencies to develop actionable science that can inform planning and engineering decisions. USACE climate change adaptation guidance will be periodically reviewed and revised as new information becomes available.

b. USACE water resources management projects are planned, designed, constructed, operated, and maintained locally or regionally. SLC can cause a number of impacts in coastal and estuarine zones, including changes in shoreline erosion, inundation or exposure of low-lying coastal areas, changes in storm and flood damages, shifts in the extent and distribution of wetlands and other coastal habitats, changes to groundwater levels, and alterations to salinity intrusion into estuaries and groundwater systems (e.g., CCSP 2009). At any location, changes in local relative sea level (LRSL) reflect the integrated effects of global mean sea level (GMSL) change plus local or regional changes of geologic, oceanographic, or atmospheric origin. Atmospheric origin refers to the effects of the climate oscillations such as the El Niño-Southern Oscillation (ENSO) and the North Atlantic Oscillation (NAO), which in turn impact coastal SLC at decadal time scales. It is important to understand the processes resulting in changes to GMSL.

(1) Global Sea Level Change. Global (eustatic) SLC is often caused by the global change in the volume of water in the world's oceans in response to three climatological processes: 1) ocean mass change associated with long-term forcing of the ice ages ultimately caused by small variations in the orbit of the earth around the sun; 2) density changes from total salinity; and most recently, 3) changes in the heat content of the world's ocean, which recent literature suggests may be accelerating due to global warming. Global SLC can also be caused by basin changes through such processes as seafloor spreading. Thus, global sea level, also sometimes referred to as global mean sea level, is the average height of all the world's oceans. Global sea level rise is a specific type of global SLC that climate models are forecasting to occur at an accelerated rate and is the topic of much of the discussion in this document. NOAA (2010) contains detailed information on GMSL; other publications provide a similar discussion (Church et al. 2007, NRC 2012).

(2) Relative Sea Level Change. Relative (local) SLC is the local change in sea level relative to the elevation of the land at a specific point on the coast. Relative SLC is a

combination of both global and local SLC caused by changes in estuarine and shelf hydrodynamics, regional oceanographic circulation patterns (often caused by changes in regional atmospheric patterns), hydrologic cycles (river flow), and local and/or regional vertical land motion (subsidence or uplift). Thus, relative SLC is variable along the coast. Relative SLC affects many applications, since the contribution to the local relative rate of rise from global sea level rise is expected to increase. Some areas, as discussed later in this chapter, are experiencing relative sea level fall, which can also have ecological and societal impacts. Some localized areas exhibit a more dramatic relative SLC trend than is generally observed globally unless data are filtered to account for local geophysical anomalies.

B-2. Determination of Historic Trends in Local MSL.

a. The planning, design, construction, operation, and maintenance of USACE water resource projects in and adjacent to the coastal zone must consider the potential for future accelerated rise in GMSL to affect the local MSL trend. At the same time, USACE project planners and engineers must be aware of the *historic* trend in local MSL, because it provides a useful minimum baseline for projecting future change in local MSL. Awareness of the historic trend of local MSL also enables an assessment of the impacts that SLC may have had on regional coastal resources and problems in the past.

b. Historic trends in local MSL are best determined from tide gauge records. The NOAA Center for Operational Oceanographic Products and Services (CO-OPS) provides historic information and local MSL trends for tidal stations operated by NOAA/NOS in the U.S. (see http://www.co-ops.nos.noaa.gov/index.shtml). NOAA CO-OPS has been measuring sea level for over 150 years, with tide stations operating on all U.S. coasts through the National Water Level Observation Network. The Permanent Service for Mean Sea Level (PSMSL), which is a component of the U.K. Natural Environment Research Council's National Oceanographic Centre, has been collecting, publishing, analyzing, and interpreting sea level data from the global network of tide stations since 1933. Global sea level data can be obtained from PSMSL via their website (http://www.psms.org). PSMSL should be considered as a source of information for non-U.S. stations that are not represented by NOAA-NOS. Using PSMSL data, NOAA-NOS also provides sea level trend estimates for stations identified by the Global Sea Level Observing System (GLOSS) community using the same methodology used for all U.S. stations (http://tidesandcurrents.noaa.gov/sltrends_global.shtml). Note that the periods of record for PSMSL gauges vary; some gauges have shorter periods of record than are recommended for relative SLC trend analysis. Figure B-1 illustrates the following conclusions:

(1) Most of the Atlantic and Pacific coasts of the lower contiguous 48 states have had sea level rise trends between 0 and 3 mm/yr (or 0 and +0.3 meters per century) (green symbols).

(2) The highest rates of local MSL rise in the U.S. have occurred along the Gulf Coast in the Mississippi River delta region at 9–12 mm/yr (or 0.9–1.2 meters per century) (red symbols), with significant rises in Texas and the mid-Atlantic (3–6 mm/yr or 0.3–0.6 meters per century).

(3) On the other hand, most stations in Alaska exhibit a falling trend of local MSL. Local mean sea level is falling relative to the land in many glacial fjords in Alaska because of local land vertical rebound after loss of the weight of the glaciers.

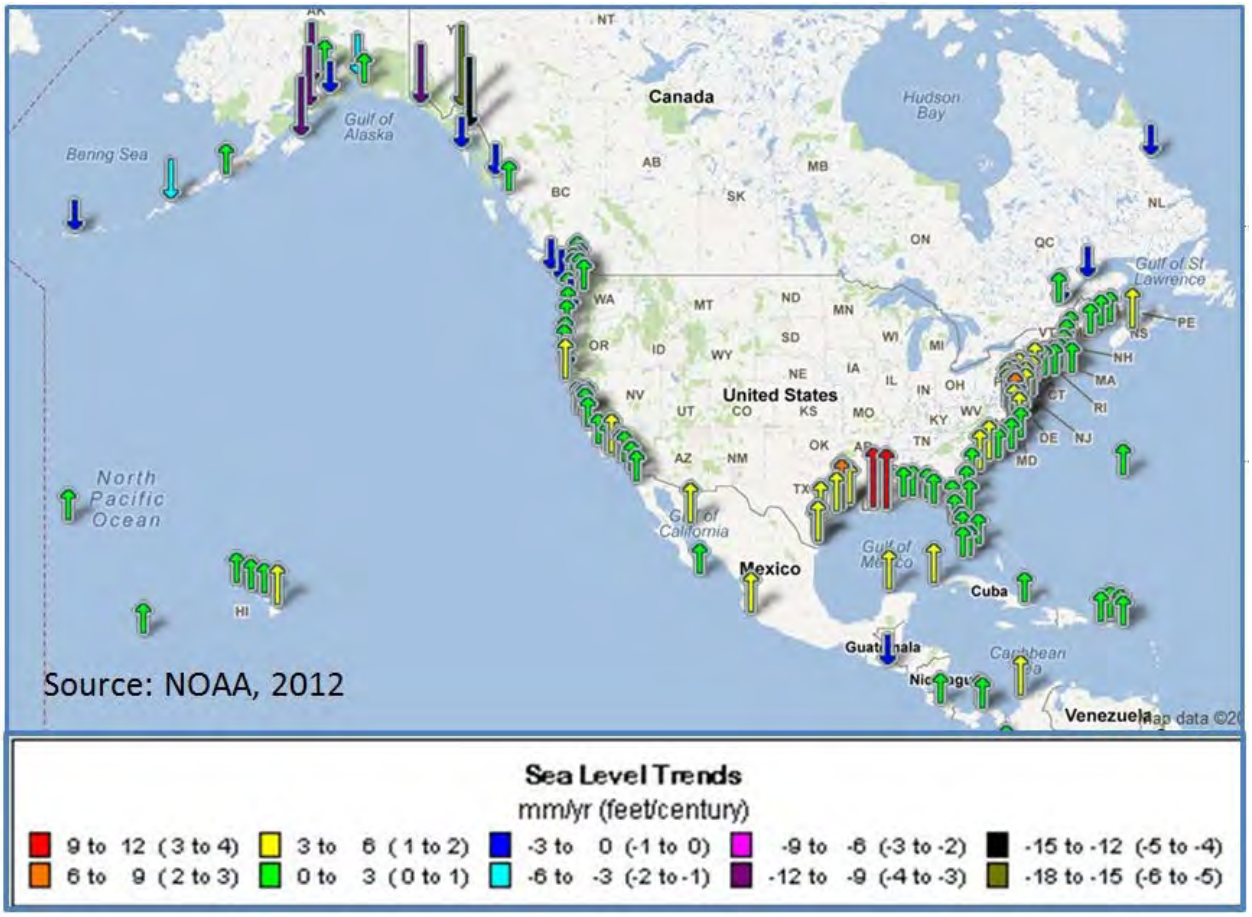

Figure B-1. Mean sea level trends for U.S. tide stations computed by NOAA for 128 long-term water level stations using a minimum span of 30 years of observations at each location. See http://tidesandcurrents.noaa.gov/sltrends/sltrends.shtml for updated information.

c. It is important to consider the length of tide station record required to obtain a robust estimate of the historic relative mean SLC. The length of the record is important because inter-annual, decadal, and multi-decadal variations in sea level are sufficiently large that misleading or

erroneous sea level trends can be derived from periods of record that are too short. (Douglas 2001, Zervas 2009). For example, Breaker and Ruzmaikin (2013) observed that decadal-scale variability can induce scatter into calculated acceleration rates for periods that are shorter than about 40 years.

d. The Manual on Sea Level Measurement and Interpretation (Intergovernmental Oceanographic Commission 1985, 2012) suggests that a tidal record should be of at least of two-tidal epoch duration (about 40 years) before being used to estimate a local MSL trend. Time series of 50–60 years are preferred in order to have reasonable confidence intervals for determining trends (Douglas 2001). Figure B-2 (from Zervas et al. 2009) shows the relationship between period of record and the standard error of the trend for selected U.S. tide stations. Note the significant decrease in standard error approximately at the 40- or 50-year period of record. Record lengths shorter than 40 years in duration could have significant uncertainty compared to their potential numerical trend values of a few millimeters per year. Using trends in relative mean sea level from records shorter than 40 years is not advisable. If estimates based on shorter terms are the only option, then the local trends must be viewed in a regional context, considering trends from simultaneous time periods from nearby stations to ensure regional correlation and minimize anomalous estimates. The nearby stations should have records that are long enough (greater than 40 years) to determine reasonable trends, which can then be compared to the shorter, local sea level records. Experts at NOAA-NOS should be able to assist when periods of record are short or records are otherwise ambiguous.

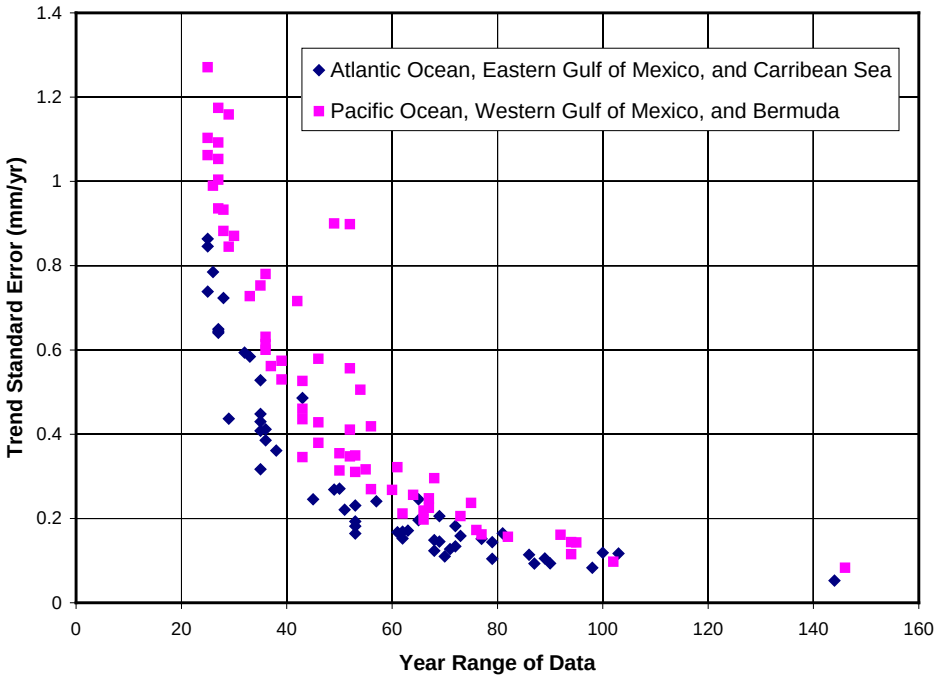

Figure B-2. Standard error of linear trend of sea level change vs. period of record for U.S. tide stations. (From Zervas et al. 2013.)

e. Standard Error of Estimate. For project planning and design supporting the entire project life cycle, the actual standard error of the estimate should be calculated for each tide gauge data trend analysis, and the estimates should not be used as the sole supporting data.

(1) For many locations along the U.S. Atlantic and Gulf of Mexico coastlines, tide station data are likely to have adequate spatial density and record duration to permit extrapolations between stations with an adequate degree of confidence.

(2) Recognized exceptions are the coastlines between Mobile, Alabama, and Grand Isle, Louisiana, and in Pamlico/Albemarle Sounds, North Carolina, which contain no acceptable long-term tide gauge records.

(3) Coastal Louisiana is subject to the highest rates of subsidence in the nation. Where a tide gauge is close to a project but has a short historical data duration, and another tide gauge is farther away but has a longer historical data duration, a tidal hydrodynamics expert (e.g., from NOAA-NOS) should be consulted as to the appropriate use of the closer tide gauge data.

f. Confidence Limits. Current information on the magnitude and confidence limits based on standard error of the estimate of trends for NOS tide stations is available online at http://tidesandcurrents.noaa.gov/sltrends/slrmap.html. Figure B-3 shows the Atlantic coast.

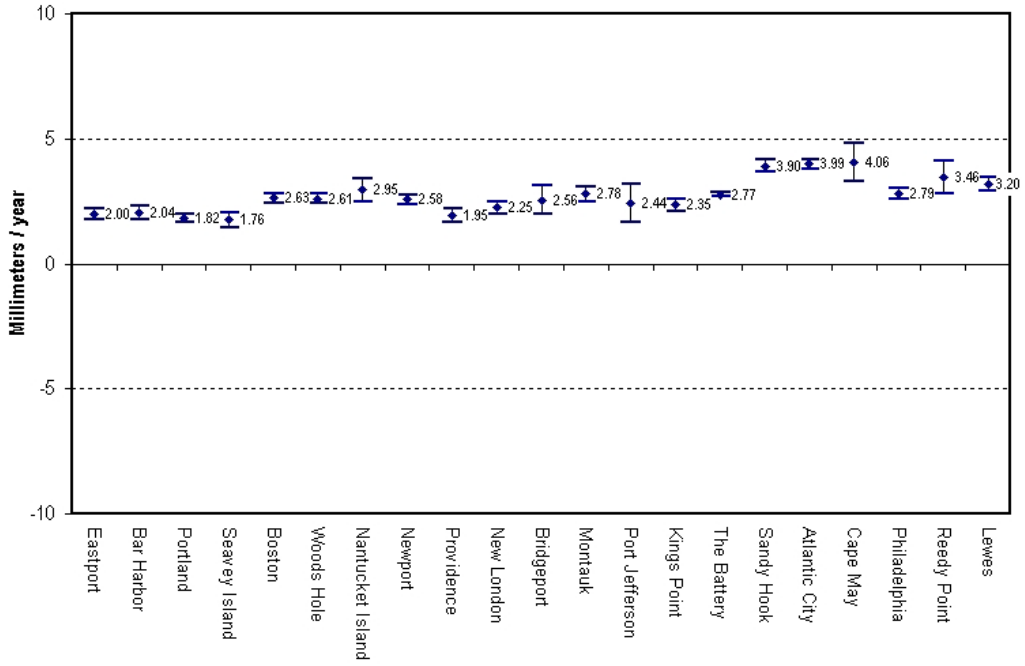

Figure B-3. Magnitude and confidence limits of trends for northern Atlantic coast NOS tide stations. [Zervas (2009), http://tidesandcurrents.noaa.gov/sltrends/index.shtml].

B-3. Regional Sea Level Change. Regional SLC rates should be evaluated as well as rates of local SLC and global SLC. The estimate of trends for NOS tide stations available online at http://tidesandcurrents.noaa.gov/sltrends/slrmap.html provides a sense of the regional variability of relative sea level trends around the coast. The graphical display of the data shows significant regional correlation of sea level trends, but in some instances the wide confidence limits also limit that interpretation. In many regions, a large component of the relative sea level trend can be due to vertical land motion, from either land subsidence or land isostatic rebound and deformation. The areas of maximum vertical land motion can generally be regionally described. For instance, in the coastal Louisiana and Texas region and the southeast Alaska region, the vertical land motion component dominates the trend. The graphical products from the satellite altimeter missions also demonstrate the regional variability of SLC. Although the average for the entire globe is approximate 3.0 mm/yr, there is significant regional variability, with some areas exhibiting neutral or even negative sea level trends. For the U.S., this is the case for much of the West Coast and Gulf of Alaska, for instance. Although the satellite altimeter average global rate is often used to suggest recent acceleration in rates of global sea level rise, the actual local or regional rate may be much different. Areas that could experience regional rates different than global rates include the northern Gulf of Mexico, the Gulf of Maine, and the Gulf of Alaska.

B-4. Estimating Future Change in Local MSL.

a. In USACE activities, analysts shall consider what effect changing relative sea level rates could have on design alternatives, economic and environmental evaluation, and risk. The analysis shall include, as a minimum, a low rate that shall be based on an extrapolation of the historical tide gauge rate, and intermediate and high rates that include future acceleration of GMSL. The analysis may also include additional intermediate rates, if the project team desires [e.g., the high rate from Parris et al. (2012)]. The sensitivity of each design alternative to the various rates of SLC shall be considered. Designs should be formulated using the wide body of currently accepted design criteria for each applicable mission area.

b. Uncertainty Over Time. The use of sea level rise scenarios as opposed to individual scenario probabilities underscores the uncertainty in how local relative sea levels will actually play out into the future. The use of “curves” is mathematically smooth, but it is unlikely that actual variations will have that attribute. The uncertainty is magnified when the responses of coastal systems and processes are considered or when the combined effects of sea level rise and altered storm frequency or intensity are evaluated.

c. The 1987 NRC report recommended that feasibility studies for coastal projects consider the high probability of accelerating GMSL rise and provided three different scenarios. NRC (1987) described these three scenarios using the following equation:

$$E(t) = 0.0012t + bt^2 \quad (1)$$

in which *t* represents years, starting in 1986, *b* is a constant, and *E(t)* is the eustatic sea level change, in meters, as a function of *t*. The NRC committee recommended that "projections be updated approximately every decade to incorporate additional data." At the time the NRC report was prepared, the estimate of global mean sea level change was approximately 1.2 mm/year. Using the current estimate of 1.7 mm/year for GMSL change, as presented by the IPCC (2007a), results in this equation being modified to be:

$$E(t) = 0.0017t + bt^2 \quad (2)$$

(1) The three scenarios proposed by the NRC result in global eustatic sea level rise values, by the year 2100, of 0.5 meters, 1.0 meters, and 1.5 meters. Adjusting the equation to include the historic GMSL change rate of 1.7 mm/year and the start date of 1992 (which corresponds to the midpoint of the current National Tidal Datum Epoch of 1983–2001), instead of 1986 (the start date for equation 1), results in updated values for the variable b being equal to 2.71E-5 for modified NRC Curve I, 7.00E-5 for modified NRC Curve II (not used in the USACE analysis but provided here for completeness), and 1.13E-4 for modified NRC Curve III. The year 1992 is used to start these curves because 1992 is the center year of the NOAA National Tidal Datum Epoch (NTDE) of 1983–2001. The NTDE is the period used to define tidal datums (Mean High Water, for instance, and local MSL) (Flick et al. 2011).

(2) Manipulating equation (2) to account for the fact that it was developed for eustatic sea level rise starting in 1992, while projects will actually be constructed at some date after 1992, results in equation (3):

$$E(t_2) - E(t_1) = 0.0017(t_2 - t_1) + b(t_2^2 - t_1^2) \quad (3)$$

where t_1 is the time between the project's construction date and 1992 and t_2 is the time between a future date at which one wants an estimate for sea level change and 1992 (or $t_2 = t_1$ + number of years after construction) (Knuuti 2002). For example, if a designer wants to know the projected eustatic sea level rise at the end of a project's period of analysis, and the project is to have a fifty-year life and is to be constructed in 2013, $t_1 = 2013 - 1992 = 21$ and $t_2 = 2063 - 1992 = 71$.

(3) The low, intermediate, and high scenarios for NOAA tide gauges can be obtained through the USACE on-line sea level calculator at http://www.corpsclimate.us/ccaceslcurves.cfm.

(4) Figure B-4 illustrates an example of the three sea level rise curves for a location in Grand Isle, Louisiana.

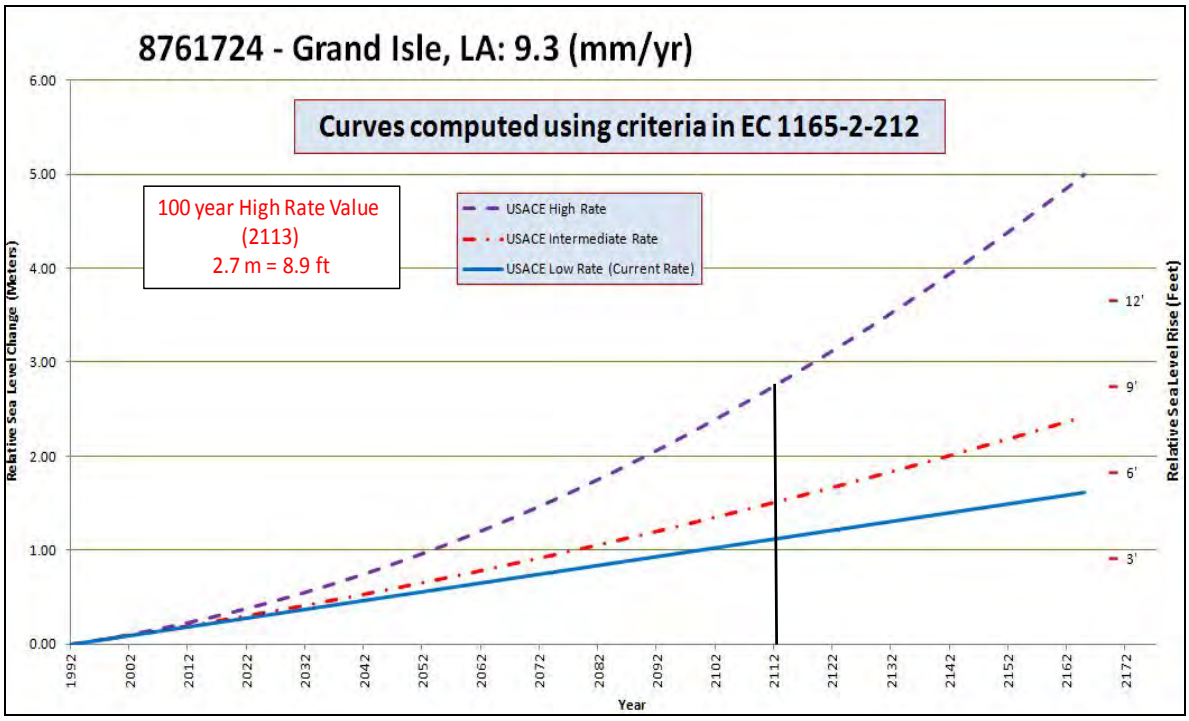

Figure B-10. Example USACE SLC curves for Grand Isle, Louisiana.

GLOSSARY

Terms and Abbreviations

Coastal
As used in this ER, locations with oceanic astronomical tidal influence, as well as connected waterways with base-level controlled by sea level. In the latter waterways, influence by wind-driven tides may exceed astronomical tidal influence. Coastal areas include marine, estuarine, and riverine waters and affected lands. (The Great Lakes are not considered "coastal" for the purposes of this ER.)

Datum
A horizontal or vertical reference system for making survey measurements and computations; a set of parameters and control points used to accurately define the three-dimensional shape of the Earth. The datum defines parts of a geographic coordinate system that is the basis for a planar coordinate system. Horizontal datums are typically referred to ellipsoids, the State Plane Coordinate System, or the Universal Transverse Mercator Grid System. Vertical datums are typically referred to the geoid, an Earth model ellipsoid, or a Local Mean Sea Level (LMSL). The current vertical datum used in the United States is the North American Vertical Datum of 1988 (NAVD 88), which replaced the National Geodetic Vertical Datum of 1929 (NGVD 29) (formerly referred to as the Sea Level Datum of 1929). For tidal datums, see below.

Eustatic sea level rise
A change in global average sea level brought about by an increase in the volume of the world ocean (IPCC 2007b).

Global mean sea level (GMSL)
The mean sea level for all the world's oceans. Sea level can change globally due to (1) changes in the shape of the ocean basins, (2) changes in the total mass of water, and (3) changes in water density. Sea level changes induced by changes in water density are called steric. Density changes induced by temperature changes only are called thermosteric, while density changes induced by salinity changes are called halosteric (IPCC 2007b).

Local (i.e., "relative") sea level
Sea level measured by a tide gauge with respect to the land on which it is situated. See mean sea level (MSL) and sea level change (SLC). Relative sea level change occurs where there is a local change in the level of the ocean relative to the land, which might be due to ocean rise and/or land level subsidence. In areas subject to rapid land-level uplift, relative sea level can fall (IPCC 2007b). Relative sea level change will also affect the impact of any regional SLC.

Mean sea level (MSL)
A tidal datum; the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch (approximately 19 years). Shorter series are specified in the name: e.g., monthly mean sea level and yearly mean sea level (NOAA 2000).

Post-glacial rebound
The vertical movement of the land and sea floor following the reduction of the load of an ice mass, for example, since the last glacial maximum (~21,000 years ago). The rebound is an isostatic land movement (IPCC 2007b).

Regional sea level change
An increase or decrease in the mean level of the ocean's surface over a specific region. Global sea level has regional variations, and regional sea level change may be equal to, greater than, or less than global sea level change due primarily to regional differences in ocean heating and cooling or to changes in bathymetry. Regional sea level change as used here does not include local geologic effects, such as subsidence or tectonic movement.

Risk
A measure of the probability and severity of undesirable consequences (including, but not limited to, loss of life, threat to public safety, environmental and economic damages).

Sea level change
A change in the mean level of the ocean.

Tide station
A device at a coastal location (and some deep-sea locations) that continuously measures the level of the sea with respect to the adjacent land. Time averaging of the sea level so recorded gives the observed secular changes of the relative sea level (IPCC 2007b).

Tidal datums
A standard elevation defined in terms of a certain phase of the tide. Tidal datums are local datums and should not be extended into areas which have differing hydrographic characteristics without substantiating measurements. In order that they may be recovered when needed, such datums are referenced to fixed points known as bench marks.

Uncertainty
The result of imperfect knowledge concerning the present or future state of a system, event, situation, or (sub) population under consideration. There are two types of uncertainty: aleatory and epistemic. Aleatory uncertainty is attributed to inherent variation that is understood as variability over time and/or space. Epistemic uncertainty is attributed to our lack of knowledge about the system (e.g., what value to use for an input to a model or what model to use). Uncertainty can lead to lack of confidence in predictions, inferences, or conclusions.

Outline of Unresolved Issues to Address

Navigation Issues

- If a navigable channel is anticipated, is the intent to allow commercial navigation to the full depths of the Wilmington Harbor Project (or deeper)? If so, what do you propose to be done with the current channel downstream of the inlet? If not, what efforts are anticipated to reduce project-induced shoaling?

- Is the State prepared to enter into a binding agreement with the Army to finance any additional costs (anticipated or unanticipated) associated with the project's effects on the navigation project?

- If a navigable channel is anticipated, what range of alternatives should be considered?
    - Channel depths, dimensions, or alternate locations?
    - Infrastructure changes necessary to accomplish the project?
    - What efforts are anticipated to achieve channel dimensions?
        - Maintenance dredging?
        - Hardened structures?
        - Sand bypassing efforts?
    - Is there an intent (now or in the future) to have the Federal Government assume maintenance responsibilities for this project? If so, please reference Engineer Regulation (ER) 1165-2-124 for processes implementing Section 204(f) of the Water Resources Development Act of 1986, attached.

- How does the State, as non-federal sponsor for the Wilmington Harbor Project, expect to take responsibility for the navigable capacity of the Project to the extent that this project might alter that? Please refer to our Section 408 Guidance at Appendix E for more discussion of this issue.

Environmental Issues

- We would need to know the anticipated effects of the project, including quantified predicted losses (and/or gains) of wetlands, coastal marsh, beach, dune, shallow-bottom habitat, etc. Losses would be from:
    - Construction (rock removal, dredging, shoreline stabilization, etc.)
    - Maintenance (dredging, beach placement, offshore disposal, etc.)
    - Necessary infrastructure changes (roads, ferries, utilities, etc.)
    - Reasonably forseeable secondary and cumulative impacts (inlet migration, increased wave action, change in tidal prism, change in salinity, change in marine traffic patterns, etc.)

  The effects outlined above would need to be then considered with respect to:
    - Endangered Species, both terrestrial and aquatic
    - Wetland quality and function

- Essential Fish Habitat
- Migratory Birds and other Fish and Wildlife Resources
- Water Quality
- Coastal and Fishery Resources

Coastal Engineering Issues

- What effects would the proposed project have on the existing sand-sharing system?
- What salinity effects might be anticipated?
- What shoaling effects are expected?
- What sediments would be excavated, and what would a disposal/placement plan need to entail?
- Are hardened structures necessary to keep an inlet in place?
- Would the inlet be allowed to migrate?

Cultural Resource Issues

- The Dam itself is a historic structure. What efforts would be taken to preserve its historic significance to the region?
- What known cultural resources are in the area of potential effect, and how would those be dealt with?
- What would be the plan for identifying other potentially affected cultural resources in the vicinity of the project?

Recreation and Coastal Resource Issues

- The project's compliance with existing DCM regulations should be detailed.
- The Project's effects on commercial fishing, recreational fishing, and shellfishing should be identified.
- The project's effects on recreation at the Coastal Reserve and in other affected areas should be identified.

Governmental Issues

- We understand that at this point, the NC Division of Coastal Management is following the direction of the NC General Assembly as described in the referenced State law. As

the State moves forward with this study, we would like to have a clear understanding of which entities are speaking for the State. We are particularly concerned that the State's Executive Branch will be participating in several capacities in this effort: 1) as the entity carrying out the General Assembly's mandate to study the NID/SDD removal and change Reserve boundaries; 2) as the Corps' cost-sharing partner in the Wilmington Harbor Project; 3) as the owner and operator of the State Port at Wilmington; 4) as the property owner of much of the land affected by the proposed action; and 5) as the regulatory agency assigned to protect the State's water, fisheries, wildlife, cultural, and coastal resources. As such, it will be very important for entities communicating on behalf of the State to clarify which roles they are filling, and which of these interests they represent (and which they do not).

- We trust that DCM understands that the State, even through legislative mandate, cannot constrict reasonable alternatives and approaches to meet the purpose and need under CWA and NEPA. A full range of reasonable alternatives and options will need to be studied, to include the "no action" alternative.

- Would this action potentially affect the boundary between New Hanover and Brunswick Counties, or any similar jurisdictional issues?

CECW-PA Regulation No. 1165-2-124	Department of the Army U.S. Army Corps of Engineers Washington, DC 20314-1000	ER 1165-2-124 1 Oct 90
	Water Resources Policies and Authorities CONSTRUCTION OF HARBOR AND INLAND HARBOR PROJECTS BY NON-FEDERAL INTERESTS	
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DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, DC 20314-1000

CECW-PA

Regulation
No. 1165-2-124

1 October 1990

Water Resource Policies and Authorities
CONSTRUCTION OF HARBOR AND INLAND HARBOR PROJECTS
BY NON-FEDERAL INTERESTS

1. Purpose. This regulation provides instructions on the use of Sections 204(a), 204(b), 204(c), 204(d), 204(e) (Operations and Maintenance), and 204(f) of the Water Resources Development Act (WRDA) of 1986.

2. Applicability. This regulation applies to HQUSACE/OCE elements, major subordinate commands, districts, laboratories, and field operating activities (FOA) having Civil Works responsibilities.

3. References.

a. Water Resources Development Act of 1986, Public Law (PL) 99-662.

b. ER 1105-2-100. (Draft)

c. ER 1140-1-211.

d. ER 1165-2-120.

4. Definitions.

a. Harbor and Inland Harbor - Section 204 applies to the places identified by the terms "harbor", "inland harbor", "deep-draft harbor", and "general cargo harbor" which are defined in Section 214 of PL 99-662. Harbors and Inland Harbors include any project of improvement for commercial navigation purposes in the navigable waters of the U.S. excluding

(1) inland waterways subject to waterway user fuel taxes under PL 95-502, as amended, or as otherwise defined,

(2) the Saint Lawrence Seaway,

(3) navigation improvements constructed or maintained by non-public interests,

(4) interior access channels, berthing and mooring areas, and other improvements that are not included in "general navigation features" as that term applies in Authorized Federal Projects;

(5) navigation improvements for the benefit of only one owner/user; and

(6) any portion of the Columbia River other than the channels on the downstream side of Bonneville lock and dam.

b. Authorized Federal Project - Any navigation improvement project specifically authorized by Federal statute.

c. Non-Federal Interest - is defined as a State, political subdivisions thereof, or other responsible agency described as a legally constituted and financially capable public body with full legal authority and financial capability to obligate itself to execute and perform fully all the requirements and terms of its local cooperation agreement. Included is a public agency or port authority established under State laws or a compact entered into between two or more States with the consent of Congress under Section 10 of Article I of the constitution.

d. Separable Element - Section 103(f) of PL 99-662 defines Separable Element as a portion of a project (1) which is physically separable from other portions of the project; and (2) which (A) achieves hydrologic effects, or (B) produces physical or economic benefits, which are separably identifiable from those produced from other portions of the project.

e. Eligible Operation and Maintenance - Section 214 of PL 99-662 defines eligible operation and maintenance to mean all operations, maintenance, repair, and rehabilitation, including maintenance dredging reasonably necessary to maintain the width and nominal depth of any harbor or inland harbor. It does not include providing any lands, easements, rights-of-way, or dredged material disposal areas including retaining dikes necessary for use of the area, or performing relocations required for project operation and maintenance.

5. Background.

a. Section 204(a) authorizes a non-Federal interest to undertake navigational improvements in harbors or inland harbors. Projects constructed under this subsection are not considered to be Federal projects unless the Federal Government later assumes responsibility for operation and maintenance after project construction is completed pursuant to Section 204(e) (Operation and Maintenance). For any project constructed in

accordance with Section 204(a), the non-Federal interest is fully responsible for all construction costs incurred and for obtaining all necessary permits. See paragraph 6 for further discussion of Section 204(a).

b. Section 204(b) allows the non-Federal interest to contract with the Corps of Engineers to have the Corps undertake studies and engineering for projects which the non-Federal interest will construct under 204(a). The studies, conducted at the expense of the non-Federal interest, can be used (under Section 204(d)) in addressing the requirements for obtaining the appropriate permits required under the Secretary's authority as well as support for a request for Federal operation and maintenance under Section 204(e) (Operation and Maintenance). See paragraph 7 for further discussion.

c. Section 204(c) permits the Corps to turn over to non-Federal interests Corps studies initiated before 17 November 1986 (either finished or unfinished), so that the study information may be used in the permitting process. If the transferred Corps study is complete, it can be used (under Section 204(d)) in addressing the requirements for obtaining the appropriate permits required under the Secretary's authority as well as support for a request for Federal operation and maintenance under Section 204(e) (Operation and Maintenance). See paragraph 7 for further discussion.

d. Section 204(d) states that if the Corps of Engineers has completed a study and engineering for an improvement to a harbor, including filing of a Final Environmental Impact Statement, and the non-Federal interest has requested and received such study and engineering from the secretary pursuant to subsection (b) or (c) of Section 204, the non-Federal interest is authorized to carry out the improvement. Any improvement implemented in accordance with subsection (d) of Section 204 shall be deemed to satisfy the requirements for obtaining the appropriate permits required under the Secretary's authority, subject to a finding that(1) the applicable regulatory criteria and procedures have been satisfied and that(2) regulatory requirements and environmental conditions have not changed since the studies were completed. Note this provision only applies to satisfying the permits required under the Secretary's authority.

e. Section 204(e). The 1986 Water Resources Development Act contains two sections labeled 204(e). Regulations implementing the first Section 204(e) (Reimbursement) are available in ER 1165-2-120. The second Section 204(e) (Operation and Maintenance) gives the Secretary of the Army responsibility for operation and maintenance of any project constructed by non-Federal interests under Section 204, provided

that before construction, the Secretary determines that the proposed work is economically justified and environmentally acceptable. The Secretary must also certify that the work has been completed in accordance with applicable permits and acceptable design standards. To avoid confusion, all references to the section authorizing Federal assumption of operation and maintenance will be referred to herein as Section 204(e') (Operation and Maintenance). Further guidance regarding Section 204(e') (Operation and Maintenance) is provided in paragraph 8.

f. Section 204f allows the Secretary to approve as many as two proposals whereby a non-Federal interest would undertake all or part of an authorized Federal project as the agent of the Secretary by utilizing its own personnel or by procuring outside services, so long as the cost of doing so will not exceed the cost of the Secretary undertaking the project. See paragraph 9.

6. Non-Federal Construction of a Project. Section 204(a) applies to construction of a navigation improvement by non-Federal interests without Federal participation in the initial costs of project construction. Although Section 204(a) authorized non-Federal interests to undertake navigational improvements in harbor or inland harbors, it does not change requirements to obtain regulatory permits for the proposed improvement. All permits required pursuant to Federal and State laws must be obtained in advance of the actual construction. Furthermore, in the event that fish and wildlife mitigation measures are determined appropriate, such mitigation shall be conducted before or concurrent with construction. See paragraph 8 regarding how a non-Federal project may qualify for Federal assumption of O&M.

7. Studies undertaken by the Corps of Engineers. Reference is made to three categories of Corps of Engineers studies in Subsections 204(b) and 204(c): new studies requested by the non-Federal interest; studies initiated prior to 17 November 1986; that are still unfinished; and completed studies initiated prior to 17 November 1986. All can be used to help expedite the Federal permitting process.

a. Subject to policies established in ER 1140-1-211, a district commander may provide study services to a non-Federal interest to meet the objectives of Section 204(b) with funds advanced by the non-Federal interest, if Corps personnel are available to do the work.

b. Whenever a non-Federal interest requests studies and engineering from the Corps, the District Commander should also be prepared to provide guidance to the requesting party concerning the need for any additional work that must be completed prior to obtaining any permits required pursuant to Federal and State laws.

8. When the conditions of Section 204(d) are met, the appropriate permits required under the Secretary's authority shall be granted subject to the non-Federal interest's acceptance of the terms and conditions of such permits. The Corps will monitor projects that have been constructed using Federal permits obtained through Section 204(d) in the same way that all other non-Federal projects are monitored to ensure that such projects have been constructed in accordance with the terms and conditions of such permits.

9. Operation and Maintenance (O&M). Subject to certain conditions, the Federal Government will become responsible for the future operation and maintenance of a harbor or inland harbor improvement constructed by a non-Federal interest under Section 204(a), Section 204(d), or Section 204(e) (Reimbursement). Federal O∧M responsibilities for authorized Federal projects subject to reimbursement, Section 204(e), are addressed in ER 1165-2-120. The procedures described herein apply only to improvements undertaken by the non-Federal interest under the authority of Section 204(a) or Section 204(d).

a. Secretary Approval. No construction shall commence for any project which proposes to have the Secretary maintain the general navigation features under the authority of Section 204(e') (Operation and Maintenance) until the Secretary of the Army determines that the proposed improvements are economically justified, environmentally acceptable and consistent with the purposes of Title II of P.L. 99-662. The Secretary must, before construction, review and approve the economic justification, details of the project plans and design, arrangements for the prosecution of the work, and the environmental aspects. All information necessary for this determination must be provided at non-Federal expense.

b. Environmental Acceptability. Since the non-Federal interest will be required to obtain all necessary Federal, State, and local permits, normally environmental concerns will be addressed adequately through the permitting process. However, consideration will be given to any need for further documentation to meet NEPA requirements.

c. Economic Justification. In order to find the proposed work economically justified, it must be demonstrated that:

(1) Project benefits as defined by the Water Resources Council's Principles and Guidelines exceed project costs, including construction and O&M costs.

(2) Project O&M costs are no greater than the O∧M costs of the project which maximizes net benefits (the so-called "NED plan"). Note that the proposed work does not have to be the NED plan, but only that project benefits exceed project costs.

d. Consistent with Federal Policy. Maintenance of the project must be consistent with other Federal policies, including the policy that the benefits from the project do not accrue to a single privately owned facility (benefit of only one owner/user).

e. Submittal of Data. The study which determines the relationship between project benefits and project costs will be the responsibility of the non-Federal interest. A report of study results will be provided to the District Commander for review and comment. Once the District Commander is satisfied that the study adequately addresses the economic issues and environmental concerns, the study will be forwarded to the Secretary of the Army along with details of proposed design, plans and specifications, and arrangements for prosecution of the work.

f. Construction and Certification. The project must be constructed in accordance with applicable permits, appropriate engineering and design standards, and plans approved by the Secretary of the Army. This means that:

(1) The Corps of Engineers will have the right to inspect the work and to enter, at reasonable times and in a reasonable manner, upon land which the non-Federal interest owns or controls for access to the project for purposes of inspection.

(2) The District Commander must certify that the project was completed in accordance with applicable permits and approved plans. The District Commander will then forward such certification through the Division Commander and Chief of Engineers to the Secretary of the Army.

g. Funding of Document Review and Construction Inspection. Funding for the Corps activities involved in document review as well as inspection and certification of construction should be requested through the normal budgetary process in response to the annual program and budget EC.

h. Cost Sharing for O&M.

(1) Commercial Navigation. Cost sharing will be in accordance with the terms of Section 101b of WRDA of 1986, PL 99-662:

(a) For projects whose depths do not exceed 45 feet, the Federal Government will assume 100 percent of eligible O&M costs (see paragraph 4f). All other costs including lands, easements, rights-of-way and dredged material disposal sites are the responsibility of the non-Federal interest.

(b) When the project depth exceeds 45 feet, the non-Federal interest will be responsible for 50 percent of the incremental eligible O&M costs beyond that necessary to maintain a 45 foot project.

(2) Recreation Navigation. O∧M costs for recreational features of a project shall be assigned 100 percent to non-Federal interests (Reference Section 103(c) (4) and Section 103(j) of WRDA of 1986, PL 99-662.)

i. Discontinuance of Maintenance. If, at any time subsequent to construction, the Secretary of the Army determines that the O&M of the project is no longer economically justified or environmentally acceptable, the Federal Government will no longer be responsible for O&M. The Federal Government may choose to maintain a lesser depth or completely discontinue maintenance activities.

j. Model Agreement. A sample model agreement is attached as Appendix A.

10. Section 204(f). A proposal by a non-Federal interest to act as an agent of the Secretary for a Corps project under the terms of Section 204(f) must be approved in advance by the Assistant Secretary of the Army (Civil Works). The proposal would be submitted to the district commander who would forward it, with recommendations to the division and subsequently to HQUSACE (ATTN: CECW-P). Implementation policy is as follows:

a. The proposal must show that the proposed plan can be undertaken at a cost which does not exceed that which could be expected to accrue under normal Corps of Engineers procedures, and offer convincing evidence that the final project will be completed at no additional cost to the Government and within a reasonable schedule.

b. The non-Federal interest must obtain all necessary permits including those Federal permits ordinarily not required when the Corps does the work.

c. Submission proposal by non-Federal interest shall describe procurement methods to be used for procuring outside services, work to be done by its own personnel, and the desired basis for computation of the requested reimbursement amount.

d. Non-Federal interest may start work under Section 204(f) at the Planning, Engineering and Design stage or construction stage as agreed upon with the Secretary.

e. Payment for the Federal share will be after completion of the work that would have been otherwise a Federal

responsibility. The District Commander shall certify accomplishment of such work and forward request for reimbursement.

FOR THE COMMANDER:

Albert J. Genetti, Jr.
Colonel, Corps of Engineers
Chief of Staff

APP A - Model Agreement

APPENDIX A

MODEL AGREEMENT
UNDER SECTION 204(e) (Operation and Maintenance)
OF PUBLIC LAW 99-662
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
[THE NON-FEDERAL INTEREST]
FOR FEDERAL ASSUMPTION OF THE
OPERATION AND MAINTENANCE OF
[NAME OF PROJECT]

THIS AGREEMENT entered into this _____ day of 19__, by and between the United States of America (hereinafter referred to as the "GOVERNMENT") represented by the Assistant Secretary of the Army (Civil Works), and name of non-Federal Interest (hereinafter referred to as the "[local sponsor]"); (Throughout this document the term "local sponsor" is included in square brackets. This is to indicate that this phrase can be replaced by either an abbreviated name for the non-Federal interest such as the "City" or the "Port" or by the term "local sponsor.")

WHEREAS, Section 204(e) of the Water Resources Development Act of 1986 (WRDA 1986) (33 U.S.C. Section 2232(e)) authorizes the Secretary of the Army, subject to certain limitations contained therein, to assume responsibility for the operation and maintenance of a navigation project that is constructed by non-Federal interests pursuant to Section 204 of WRDA 1986; and

WHEREAS, the [local sponsor] has proposed to construct [name and location of project]; and

WHEREAS, the Assistant Secretary of the Army (Civil Works) has determined that the improvements are economically justified, environmentally acceptable, and consistent with the purposes of Title II of WRDA 1986.

NOW THEREFORE, it is agreed between the Government and the [local sponsor] that:

Article 1 - Definitions.

For purposes of this Agreement:

[1]- Throughout this document the term “local sponsor” is included in square brackets. This is to indicate that this phrase can be replaced by either an abbreviated name for the non-Federal interest such as the “City” or the “Port” or by the term “local sponsor.”

The term "general navigation features of the project" shall mean the following project features assigned to commercial navigation: [here describe the work to be performed which will be subject to Operation and Maintenance by the government, e.g., "dredging to a depth of 40 feet below the mean low water a channel from x to x ..."]

Article 2 - Project--Construction.

(Describe the construction (all features) to be performed by the local sponsor).

Article 3 - Review of Designs, Detailed Plans and Specifications, and Arrangements for Prosecution of the Work.

No construction shall commence under this Agreement until the designs, detailed plans and specifications, and arrangements for the prosecution of the work have been approved by the Secretary of the Army. The Commander, U.S. Army District _____ shall ensure that all required Federal, State, regional, and local permits have been obtained. Proposed changes in approved designs, plans and specifications also must be reviewed and approved by the District Commander in advance of construction.

Article 4 - Inspection of Work.

The Government may inspect any work that is performed under this Agreement and the [local sponsor] hereby gives the Government a right to enter, at reasonable times and in a reasonable manner, upon land which the [local sponsor] owns or controls for access to the project for purposes of inspection.

Article 5 - Obligations of the [local sponsor].

The [local sponsor] agrees to:

a. Construct the Project, including the general navigation features of the Project, at no cost to the Federal government.

b. Provide and maintain at its own expense, all facilities other than the general navigation features of the project.

c. Ensure that the project and ancillary facilities shall be open to all on an equal basis.

d. [Add any additional language to describe fully portions of the project for which the local sponsor will be responsible including 100 percent of all costs associated with project purposes other than commercial navigation, responsibility for securing necessary aids to navigation, etc.]

e. [Add additional paragraphs as needed to reflect special requirements.]

Article 6 - Operation and Maintenance.

After completion of the project, the Government shall operate and maintain the general navigation features of the project. This responsibility shall not begin unless and until the Secretary of the Army has certified that the work described in Article 2 has been completed in accordance with applicable permits and approved plans. The [local sponsor] shall provide to the Government all lands, easements, rights-of-way, and dredged material disposal areas, and perform all relocations required for operation and maintenance of the general navigation features of the project. Operation and maintenance of such features will remain a Federal responsibility consistent with the availability of funds, unless the Secretary finds that the project is no longer economically justified or environmentally acceptable.

[In the case of a deep draft project exceeding 45 feet, add the following as paragraph b, Article 6 and label the above paragraph as paragraph a]: The [local sponsor] shall pay to the Government one half of the excess of the cost of operation and maintenance of the general navigation features of the project over the cost which the Secretary determines would be incurred for operation and maintenance of such features if the project had a depth of 45 feet. No Federal funds may be used to meet the local sponsor's share of operation and maintenance expenses of the general navigation features of the project unless the expenditure of such funds is expressly authorized by statute as verified in writing by the granting agency.

Article 7 - Disputes.

Before any party to this Agreement may bring suit in any court concerning an issue relating to this Agreement, such party must first seek in good faith to resolve the issue through negotiation or other forms of nonbinding alternative dispute resolution mutually acceptable to the parties.

Article 8 - Release of Claims.

The [local sponsor] shall hold and save the Government free from all damages arising from the construction, operation, and maintenance of the project, except for damages due to the fault or negligence of the Government or its contractors in connection with Federal responsibilities for operation and maintenance of the general navigation features of the project.

Article 9 - Officials Not to Benefit.

No member of or any delegate to the Congress, or Resident Commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom.

Article 10 - Covenant Against Contingent Fees.

The [local sponsor] warrants that no person or selling agent has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the [local sponsor] for the purpose of securing business. For breach or violation of this warranty, the Government shall have the right to annul this Agreement without liability, or in its discretion to add to the Agreement or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

Article 11 - Relationship of Parties.

The parties to this Agreement act in an independent capacity in the performance of their respective functions under this agreement, and neither party is to be considered the officer, agent, or employee of the other.

Article 12 - Notices.

a. All notices, requests, demands, and other communications required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing and delivered personally, given by prepaid telegram, or mailed by first-class (postage-prepaid), registered, or certified mail, as follows:

If to the [local sponsor]:

(ADDRESS)

If to the Government:

(ADDRESS) (Normally this will be the District Commander)

b. A party may change the address to which such communications are to be directed by giving written notice to the other in the manner provided in this section.

c. Any notice, request, demand, or other communication made pursuant to this article shall be deemed to have been received by the addressee at such time as it is personally delivered or on the third business day after it is mailed, as the case may be.

Article 13 - Expiration of Agreement.

This Agreement shall expire and become null and void if the project to be constructed by the [local sponsor] is not undertaken within _____ (years, months) of the effective date of this Agreement and completed within _____ (years, months) thereafter.

ARTICLE 14 - TERMINATION OR SUSPENSION

If the Government fails to receive annual appropriations in amounts sufficient to meet project operation and maintenance expenditures for the then-current or upcoming fiscal year, the Government shall so notify the Local Sponsor. After 60 calendar days either party may elect without penalty to terminate this Agreement pursuant to the Artical or to defer future perfermance hereunder; howerer, deferral of future performance under this Agreement shall not affect existing obligation previously incurred. In the event that either party elects to defer future performance under this Agreement pursuant to this Article, such deferral shall remain in effect until such time as the Government receives sufficient appropriations or until either party elects to terminate this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

THE DEPARTMENT OF THE ARMY	THE LOCAL SPONSOR
BY: _____ Assistant Secretary of the Army (Civil Works)	BY: _____
DATE: _____	DATE: _____

Attachments
Certification Regarding Lobbying
Certification of Authority

Certification Regarding Lobbying.

The undersigned certifies, to the best of its knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the entering into of this cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this cooperative agreement, the undersigned shall complete and submit Standard Form LLL "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all contracts and awards for work described in Article 2 and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance is placed when this transaction is made or entered into. This certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. The prohibition does not apply to the following activities:

(1) providing information specifically requested by the Secretary of the Army and U.S. Army Corps of Engineers or information not specifically requested but necessary for the Secretary to make an informed decision, or

(2) professional or technical services applying a professional or technical discipline rendered directly in the preparation and submission of the application, or

(3) technical discussion regarding the application features and adaption of the proposal to meet eligibility requirements.

_____
Sponsor

CERTIFICATE OF AUTHORITY

I, _____, do hereby certify that I am the principal legal officer of the [local sponsor], that the [local sponsor] is a legally constitued public body with full authority and legal capability to perform the terms of the Agreement between the Department of the Army and the [local sponsor] in connection with the Operation and Maintenance of the Project and that the persons who have executed this Agreement on behalf of the [local sponsor] have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this _____ day of _____ 19__.

_____
[Signed]
Title